



LAND USE, ZONING, AND FUTURE DEMAND TECHNICAL MEMORANDUM #2

Downtown Parking Management Strategy Saint Paul, MN

March 2015



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1 INTRODUCTION

A successful downtown parking system does not exist independently of the City it serves, but is intricately connected to the surrounding mix of land uses and activities. For Downtown Saint Paul this means the parking system should reflect the opportunities presented by the historic street grid, walkable environment, connections to transit, mix and proximity of land uses, evening and weekend activities, active small-scale retail, and growing residential presence. It also means that the parking system must be flexible and able to adapt as the City continues to evolve into a 24/7 mixed use community. On the ground, this means a better balance between hot spots of high parking demand and available parking supply. To achieve this and work towards a successful parking system, a critical ingredient is the right zoning and regulatory environment: one that fosters best practices and integrates parking solutions with the City's entire transportation system. This technical memorandum examines existing supply and demand in downtown Saint Paul and looks at how zoning can be strategically employed to shape a modern parking system that matches the City's increasingly dynamic downtown.

The City of Saint Paul's Zoning Code (as of October 2014) is designed to support City growth and change by regulating how property is used. It includes the transportation-specific goal "to lessen congestion in the public streets by providing for off-street parking of motor vehicles and for off-street loading and unloading of commercial vehicles". The City's Zoning Code is intended to foster the development and growth of compact, pedestrian-oriented urban villages and encourage a compatible mix of commercial and residential uses within buildings, sites and blocks; new development in proximity to major transit streets and corridors; and additional choices in housing.¹ Saint Paul has adopted a progressive approach to parking requirements in downtown that recognizes that many other transportation modes are available. The Code recognizes that setting parking minimums is not always necessary in a dense, urban environment that is well-served by transit.

The memorandum has two parts:

- The first documents the ratios between parking supply, demand, and the built environment today, and then estimates the impact of expected development on Downtown Saint Paul's parking system. This exercise documents the parking system from the user's perspective and identifies parking deficits or surpluses in particular areas. From the City's perspective, it quantifies the relationship between parking and the built environment and establishes a baseline for potential future adjustments to parking regulations.
- Based on the understanding of the existing parking system established in part one, the second part of the memorandum explores the parking and land use balance as determined by the City's zoning code. This section places the zoning provisions in context: What are the basic parking requirements? What is permitted or incentivized by the regulations? How does the code integrate parking as part of the larger transportation environment? How is parking managed in relation to new development and changes in land use? Are there further steps that the City can take to work with local partners to encourage greater Transportation Demand Management (TDM) and drive down parking demand? The existing zoning is evaluated and initial areas for improvement are identified.

¹ Saint Paul, MN Municipal Code. Ord. No. 11-27, § 1, 4-20-11.

ABOUT THIS DOCUMENT

This document is the second of three technical memoranda that detail the analysis supporting the Downtown Parking Management Strategy:

- Technical Memorandum #1: Existing Conditions
- Technical Memorandum #2: Land Use, Zoning, and Future Demand
- Technical Memorandum #3: Parking Management Strategies

This Technical Memorandum explores the relationship of land use and parking throughout downtown Saint Paul and then by downtown activity areas. The document includes a thorough review of the relationship between land use and parking demand by reviewing:

- Existing land use in Saint Paul activity areas
- Future, expected land use in Saint Paul activity areas
- Expected parking demand based on activity area land use relative to the Institute of Transportation Engineers (ITE)
- Expected parking demand based on activity area land use
- Observed parking demand relative to the parking supply, ITE demand estimates, and a land use analysis
- Expected future demand relative to the parking supply, ITE demand estimates, and a land use analysis

Second, the memorandum evaluates downtown's parking-related zoning code. The parking-related ordinance (Article II.200-214) provides requirements for the entire City, yet the downtown area is exempted from minimum parking requirements that apply elsewhere². Thus, this evaluation focuses both on parking provision and other supportive parking regulations in the Code that apply to downtown.

The Zoning Code analysis reviews several zoning code elements and compares the ordinance to best practices. The analysis includes:

- Parking Provision
 - Downtown's parking requirements
 - Parking minimums and maximums
 - Shared parking
- Parking Design
 - Driveway curb cuts
 - Parking facility design
 - Lighting
- Supporting Elements
 - Car sharing
 - Unbundling parking costs
 - Bicycle parking and facilities
 - Transportation demand management (TDM) measures

² A small portion of downtown is covered by State jurisdiction in the Capitol area. Similar to the rest of downtown, the State-governed area does not have minimum parking requirements. In general, this Zoning Code review focuses on policies in the portion of downtown that is within the City's jurisdiction.

2 LAND USE METHODOLOGY

The Institute of Transportation Engineers (ITE) produces a report titled *Parking Generation*, which is the prevailing national standard in determining parking demand for a development. ITE standards are based on parking demand studies submitted to ITE by a variety of parties, including public agencies, developers and consulting firms. ITE parking rates often do not reflect the actual demand profile of mixed use areas. Typically, in mixed use developments, customers and visitors can visit multiple destinations, though only park once. Moreover, throughout the day, different uses have different peak demands: for example, an office may have a high demand until 5pm, and a restaurant open for dinner may have a high demand only after 5pm.

Nelson\Nygaard's experience indicates that projections using standard ITE parking rates tend to overestimate demand for downtown areas like Saint Paul. Mixed-use areas offer the opportunity to share parking supply between various uses. This reduces the total number of spaces that would be required by the same land-uses in stand-alone developments. Downtown Saint Paul acts like other mixed-use environments, where each land use may not need its own dedicated supply of parking; however, traditional analysis and zoning are typically based on such assumptions.

To model this type of parking activity, Nelson\Nygaard used an adapted land use model from the Urban Land Institute's (ULI) Shared Parking Manual (2nd Edition, 2005). Besides capturing the "staggered peaks" of demand from various uses by time of day, the model is tailored to include a parking demand reduction for using the same parking spaces for different uses based on the expected land use demands, known as "internal capture." Such trips are made by patrons who, having already parked, travel between uses without accessing their vehicle. Restaurants and retail services are common generators of internal capture trips in mixed-use developments, as they serve both employees and residents within the same area. The land use model includes a conservative percent reduction to account for the mix of Saint Paul's development patterns.

The analysis calculates and compares how much parking is "needed" based on national ITE standards, and compares the modeled supply to the actual and existing parking supply. The land use analysis then models the demand based on a number of factors, such as time of day adjustments and land use mixes, creating the expected actual parking demand throughout the course of an average weekday. Parking utilization survey counts collected within the same activity area are then overlaid on top of the existing modeled shared curve and adjusted based on observed demand patterns.

ACTIVITY AREAS

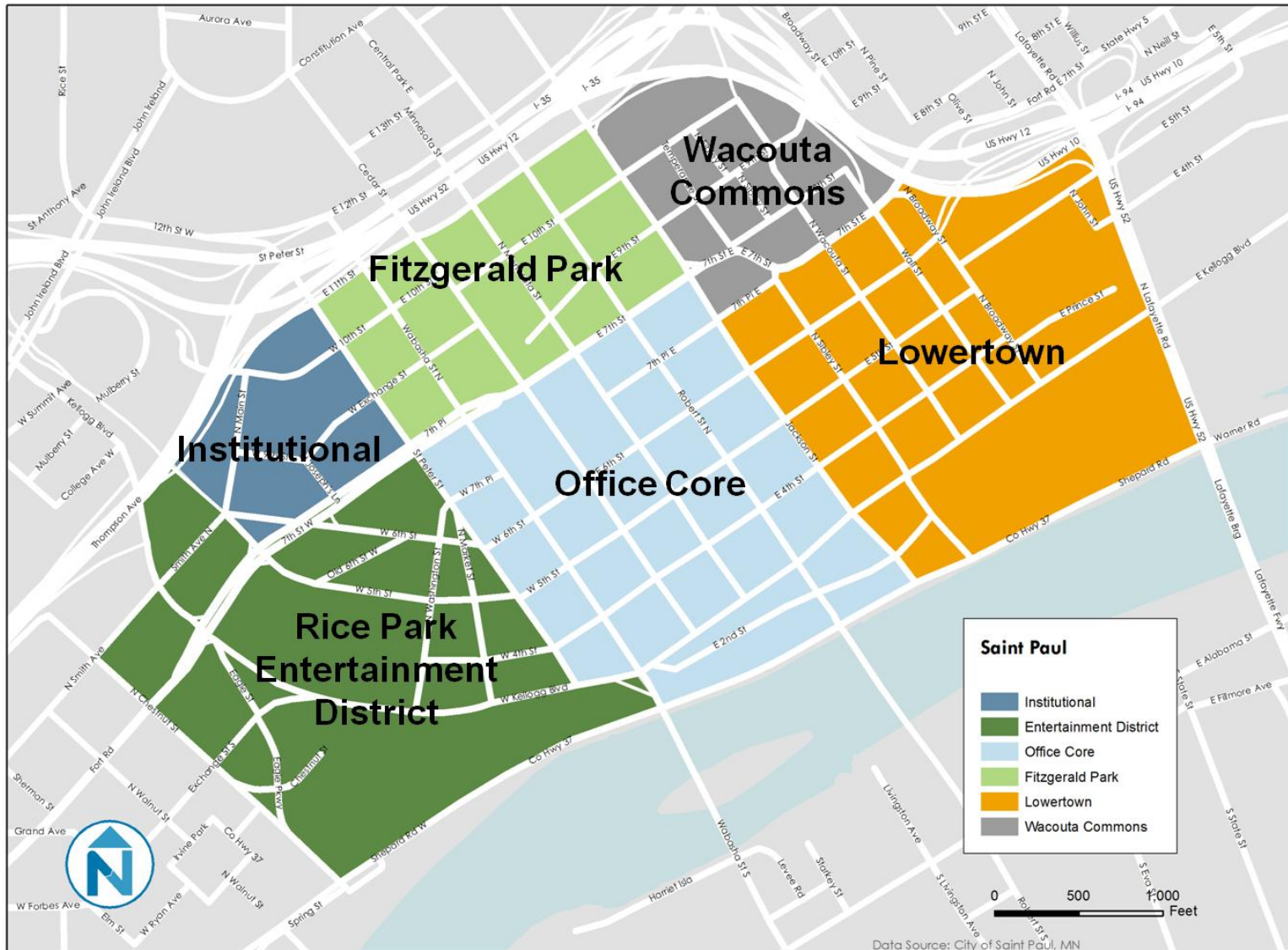
The land uses are analyzed using "activity areas" instead of the entire study area to more accurately model the parking and built environment relationship from the user's perspective.

The City and project team identified and established six primary activity areas in downtown. These areas were identified based on the predominant character of the areas as defined by existing land uses. Additional factors used to identify these areas include a reasonable walking distance if one were to park and walk to the opposite end of area, and other geographic boundaries, such as major arterials. Understanding that there are multiple options to create activity areas within the downtown environment, the study team determined that these six areas best represented the current activity patterns. However, a flaw in this analysis is that it does not account for cross-activity between areas, meaning that if a driver parks in one activity area and visits a land use in another, this type of activity is not reflected in the modeling.

The activity areas are shown in Figure 1.

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Figure 1 Saint Paul Activity Areas



EXISTING LAND USE

Ramsey County's 2014 Assessors database, which includes land use type and gross floor area by building, is the basis for the activity area existing land use analysis.

The team used existing land use data from the Ramsey County's Assessor's 2014 database. Land use and built environment measures were provided at a building-level in a GIS shapefile. The database included detailed information ranging from building square footage and units to use type and descriptions for all existing buildings in the study area. The team parsed and divided each building into one of the six activity areas. This included cleaning and analyzing more than 700 records.

FUTURE DEVELOPMENT

Each activity area incorporates expected development projects and quantifies their impact on the parking supply, in relation to existing land uses and parking demand.

Expected future development projects were added to the existing land use models to understand the impact of new development within each area. Although the details of most expected development projects are not finalized, the team used estimates from the City's Department of Planning and Economic Development (PED) as well as Finance and Commerce (www.finance-commerce.com) to estimate the expected building programs, including new parking supply.³ The future development estimates account for loss of existing parking and replacement of buildings where necessary, and then adds the new square footage and parking supply. Assumptions and sources for future development scenarios are documented in Figure 2.

Figure 2 Expected Future Development in Downtown Saint Paul

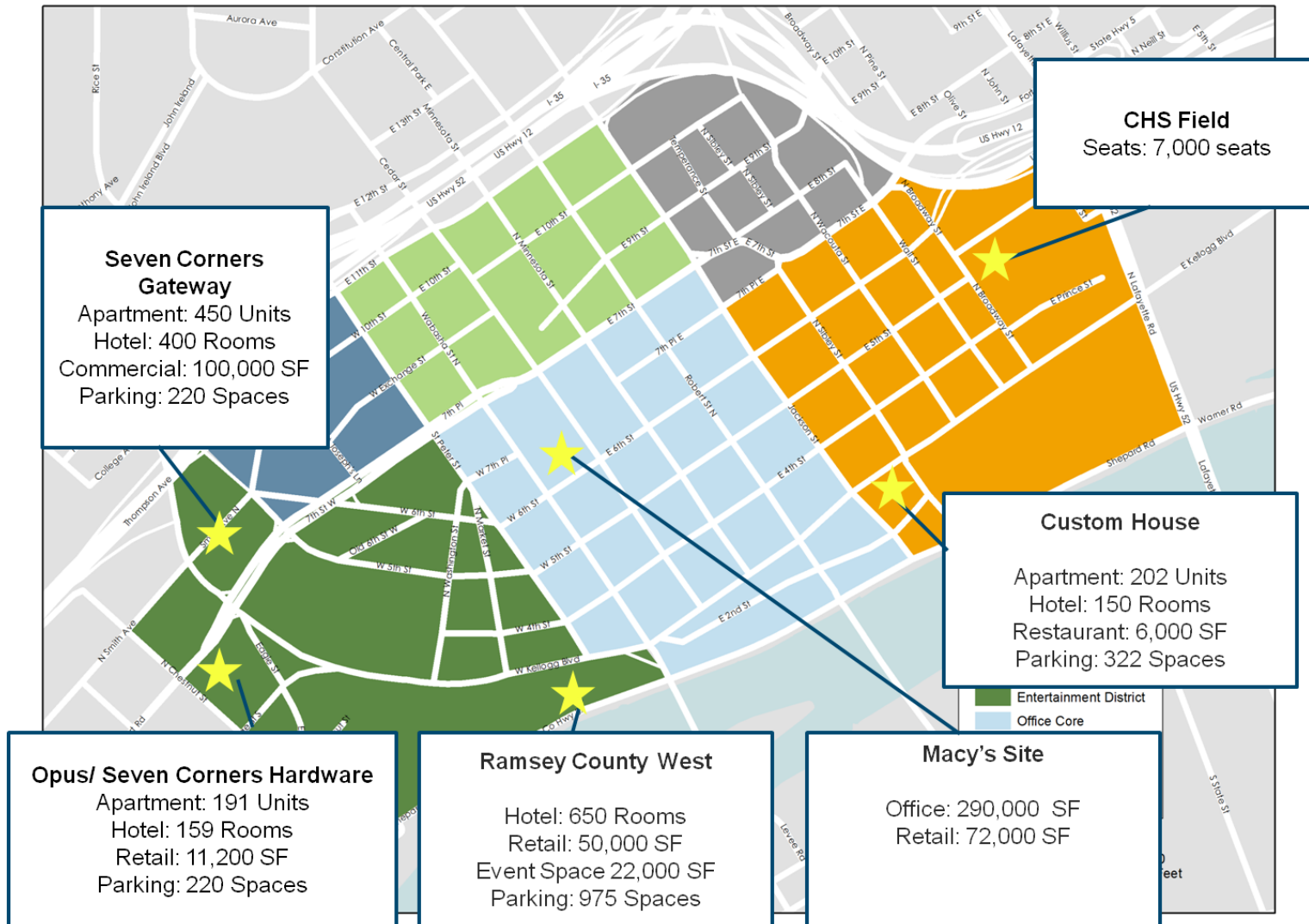
Development	Land Use and Building Program Source	Parking Source
Custom House	City of Saint Paul PED	City of Saint Paul PED
Gateway/7 Corners	Warden, James. "Saint Paul: Use your Imagination." <i>Finance and Commerce</i> . Mar 2014.	Nelson\Nygaard Assumptions 0.5 spaces per hotel room 1 spaces per residential unit 0 spaces per commercial SF
7 Corners Hardware	City of Saint Paul PED	City of Saint Paul PED
Ramsey County West	Warden, James. "Saint Paul: Use your Imagination." <i>Finance and Commerce</i> . Mar 2014.	Nelson\Nygaard Assumptions 0.5 space per hotel room 0 spaces per event SF 0 spaces per retail SF
Macy's Site	Saint Paul Port Authority. <i>Macy's Due Diligence</i> . Jan 2014. Web. http://sppa.com/wp-content/uploads/2014/02/Macys-Due-Diligence-DT-StPaul-012814.pdf . Nelson\Nygaard made assumptions using Scenario A.	Nelson\Nygaard assumptions in conjunction with Scenario A
CHS Field (Ballpark)	City of Saint Paul PED	N/A

The future development locations are shown in Figure 3.

³ Warden, James. "Saint Paul: Use your Imagination." *Finance and Commerce*. Mar 2014.

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Figure 3 Future Development Locations



SAINT PAUL MODEL ADJUSTMENTS

The land use models are adjusted to best reflect the unique environment in downtown Saint Paul.

Parking Demand

In Fall 2014, a parking utilization survey of all parking assets for the entire Downtown Saint Paul study area was conducted to accurately capture downtown's parking demand throughout the course of a weekday and weekend day. The team collected as thorough a data set as possible. However, given the large scale and scope of the parking survey, construction impacts and other factors, there were some barriers to collecting a 100% sample.

To accurately reflect the parking inventory, observed counts were adjusted to be reflective of the total supply of parking within each activity area. For this exercise, the team used the utilization percentage and the actual parking supply to adjust the counts to the actual parking supply. This approach provides a more comprehensive data set for each activity area.

These adjusted utilization percentages were used to compare the number of parked cars to the expected number of parked cars based on the land use data.

Reserve Parking Supply

The models in this analysis assume that no more than 90% of the parking supply should be full. This creates a "10% reserve," which can be used for overflow during events, overlap during peak times, and additional operational reserve. Thus, the charts in this memorandum include an "existing parking supply" but also include "parking reserve supply," which is 90% of the existing parking supply.

Vacancy

The existing analysis accounts for commercial retail, office, and residential vacancies adjustments derived from the Building Owners and Managers Association's (BOMA) *2013 Market Report* and the *Downtown Saint Paul 2013 Vacancy Market Report*. Although commercial office, retail, and residential vacancy rates vary by activity area, the BOMA analysis reports that there is a commercial and office vacancy rate of approximately 20% throughout the Central Business District.⁴ Both of these sources provide adjustment factors that help to modify and calibrate the existing land use model to observed demand patterns within each activity area.

Time of Day

Time of day adjustment factors provide a more accurate depiction of a particular land use's parking demand profile throughout the course of a day. For example, residential land uses generate greater demand during the early morning and evening peaks when residents are home, and general office buildings generate greater parking demand during the morning and into the late afternoon periods when people are at work. These adjustments were tailored for each type of land use based on ULI's Shared Parking time of day percentages. These factors help to produce staggered peaks for different land uses and create a more accurate depiction of how parking supply is actually used throughout the course of a day.

⁴ Greater Saint Paul Building Owners and Managers Association. *2013 BOMA Market Report*. Oct. 2013. Print.

Internal Capture

Unlike traditional stand-alone shopping centers, Downtown Saint Paul's existing mixed-use, compact and walkable environment encourages and provides opportunities for customer, visitors, and employees to visit multiple destinations on foot, rather than having to drive and park multiple times during a visit. For example, a downtown sandwich shop generally does not generate any additional car trips, or need many dedicated parking spaces; most customer trips are generated on foot by nearby employees. This type of behavior is classified as "internal capture."

Internal capture reductions were applied to activity areas based on results of the land use mix, as well as observations of the existing pedestrian, bicycle, and transit environment. The model includes a conservative percent reduction to account for the mix of development patterns for various activity areas throughout Downtown.

Transportation Demand Management

Another parking demand reduction factor included in the analysis is an adjustment for transportation demand management (TDM). TDM programs work collectively to change how, when, where, and why people travel, and provide people the option to reduce reliance on the single-occupant vehicle. TDM measures include bicycling, walking, transit, and carpooling incentives that can range from simple infrastructure improvements such as bicycle parking, transit shelters, and sidewalk improvements to comprehensive programs such as discounted/free transit passes for employees and even employee shuttle programs. Saint Paul Smart Trips is the City's advocate for many of the TDM programs in place today.

3 EXISTING AND FUTURE LAND USE ANALYSIS

This section quantifies existing and future land use for the entire downtown study area and by activity area, from east to west. Each analysis includes:

- Existing land use, which is the built environment data from the Ramsey County Assessor's database (2014). This detailed land use information models expected parking demand based on activity area land use relative to the Institute of Transportation Engineers (ITE).
- Existing parking supply and demand, which uses the parking supply and utilization information presented in Task 1. The information is shown by activity area and identifies the observed surplus or deficit of parking supply by time of day for a typical weekday.
- Existing shared use analysis, which analyzes the expected parking demand based on activity area land use relative. This analysis uses a "shared use" methodology that models demand based on time of day and Saint Paul context. The results of the shared use model are then compared to the observed parking counts by time of day as identified in Task 1.
- Expected future development, which takes the expected future development projects and adds them to the existing built environment. This exercise quantifies the expected future demand relative to the expected future parking supply, based on a land use analysis.

STUDY AREA

KEY FINDINGS: STUDY AREA

- Land use modeling estimates that about 3,400 parking spaces are unused at peak during a typical weekday.
- More 17,000 spaces are unused after 5pm on a typical weekday (both based off observed parking demand and by downtown land uses; some of these spaces may be "locked up" by monthly contract permit holders.)
- There are six major planned new developments. These estimated building programs are expected to increase the City's surplus parking supply by a net gain of 1,227 spaces.
- The new development projects are estimated to increase the parking surplus by about 300 parking spaces.
- The model overpredicts parking demand by about 2,500 spaces, which means that there may be more vacancies than expected, or more people are not driving alone as expected.
- If all vacancies in downtown were filled, there would still be nearly 4,000 unused spaces⁵.

Existing Land Use

The study area has a variety of land uses, with more than 20 million square feet of commercial, retail, and office space; plus multiple entertainment venues, thousands of residential units, and hotels.

⁵ An unknown portion of the unoccupied supply is set aside for monthly contract parkers. Further information and analysis to quantify this set aside is essential for future parking planning.

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Land uses are grouped as accurately as possible into categories created by the *Institute of Transportation Engineers Parking Generation 4th Edition (2010)*. Figure 4 shows the breakdown of land use by category in the study area; the square feet and units are adjusted for existing vacancies.

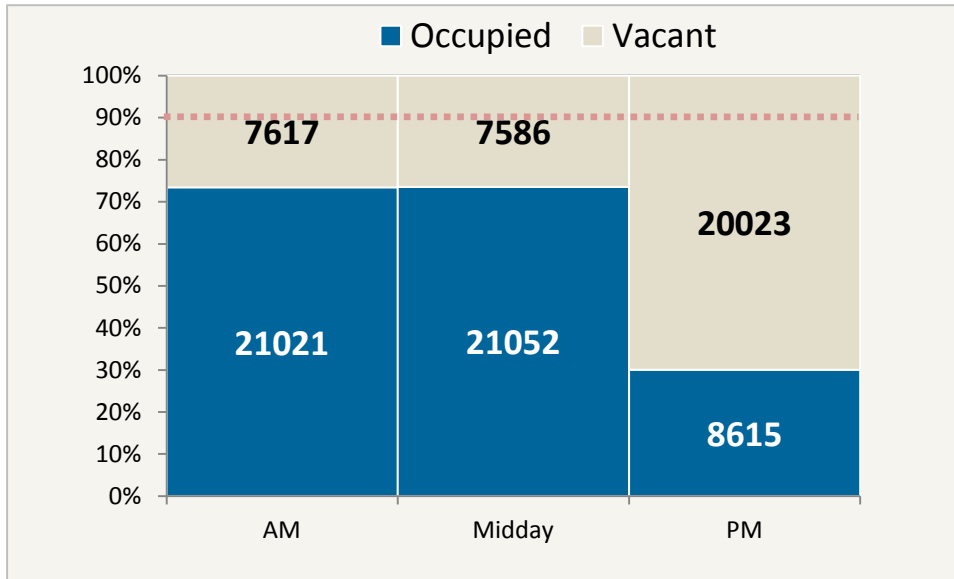
Figure 4 Existing Land Uses- Study Area

Use	SF/ Unit
Office	12,557,499 SF
Government Office	3,861,217 SF
Retail	1,519,567 SF
Museum/ Gallery	875,914 SF
Convention Center	388,929 SF
Church	321,247 SF
Medical Office	133,126 SF
Library	118,104 SF
Industrial	102,527 SF
Warehouse	95,806 SF
Community Center	93,336 SF
Restaurant	62,928 SF
Bank	18,053 SF
Vet Clinic	3,875 SF
Ball Park/ Arena	18,568 Seats
Performing Arts	8,264 Seats
Low Rise	3,510 Units
Condo	2,136 Units
High Rise	279 Units
Hotel	1,126 Rooms
College	548 Students
Hospital	232 Beds
Day Care Center	195 Students
Amtrak	107 Cars
TOTAL	20,152,128 SF 26,832 Seats 5,925 Units 1,126 Rooms 743 Students 232 Beds 107 Cars

Existing Parking Supply and Demand

In the study area, there are 28,638 total parking spaces. Based on the utilization counts in Task 1, when the observed parking demand is applied to the entire study area, there are estimated to be 21,052 parked cars, or 74% full at peak. This estimate assumes that there are no large events; this is a typical weekday.

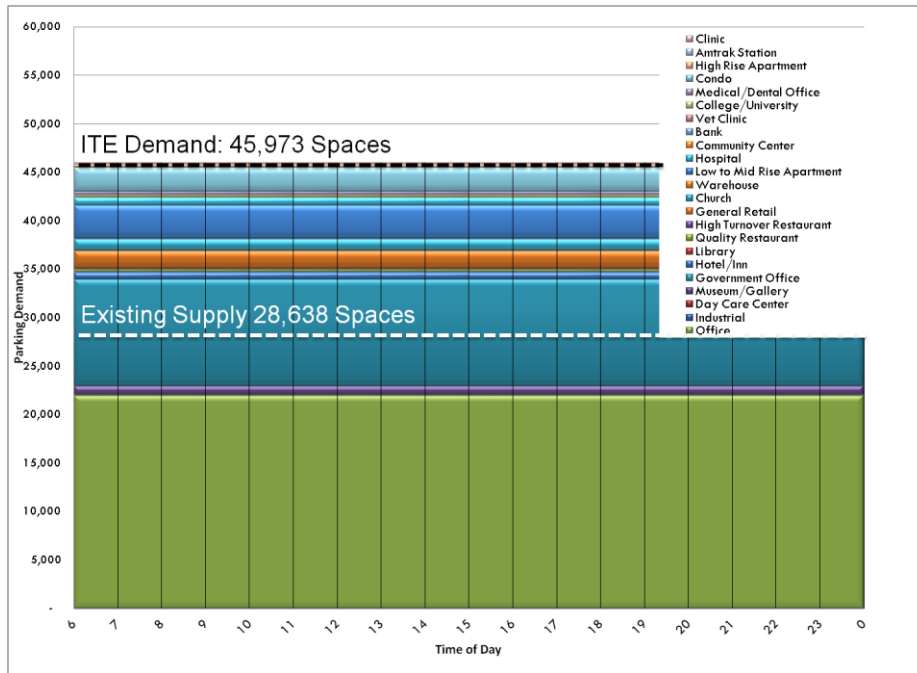
Figure 5 Study Area Estimated Utilization



Existing Shared Use Analysis

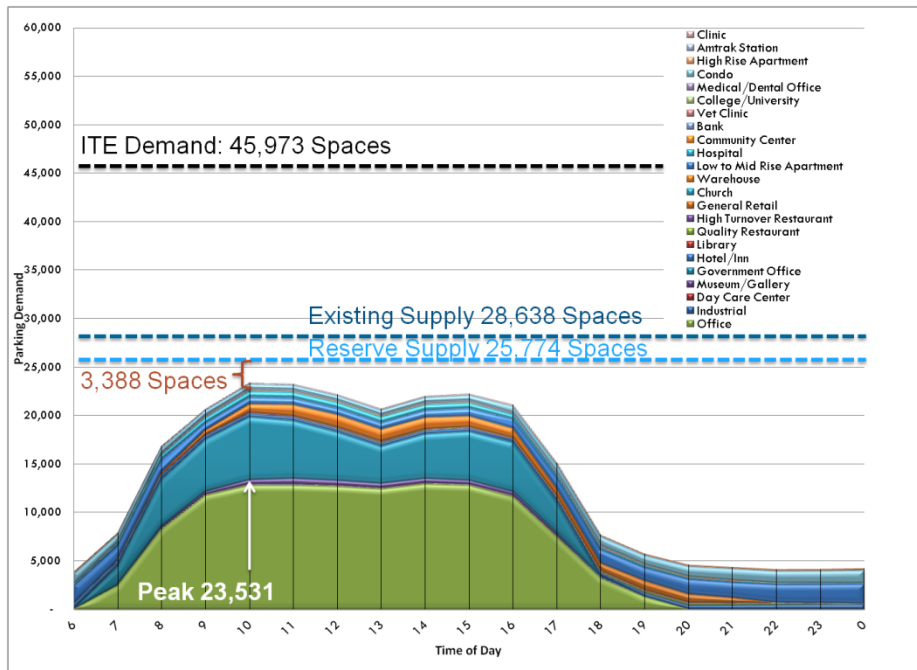
According to national parking generation rates from ITE, the needed number of parking spaces, *assuming that each land use has its own dedicated supply of parking*, is nearly 46,000 spaces. This assumes that no large special events are occurring. A majority of the parking need is for office uses, including municipal offices. The study area has about 28,600 spaces. Although the parking supply is much less than what national standards would suggest, downtown Saint Paul is much different than a single-use, typical suburban environment.

Figure 6 Existing Unshared Demand (no events)- Study Area



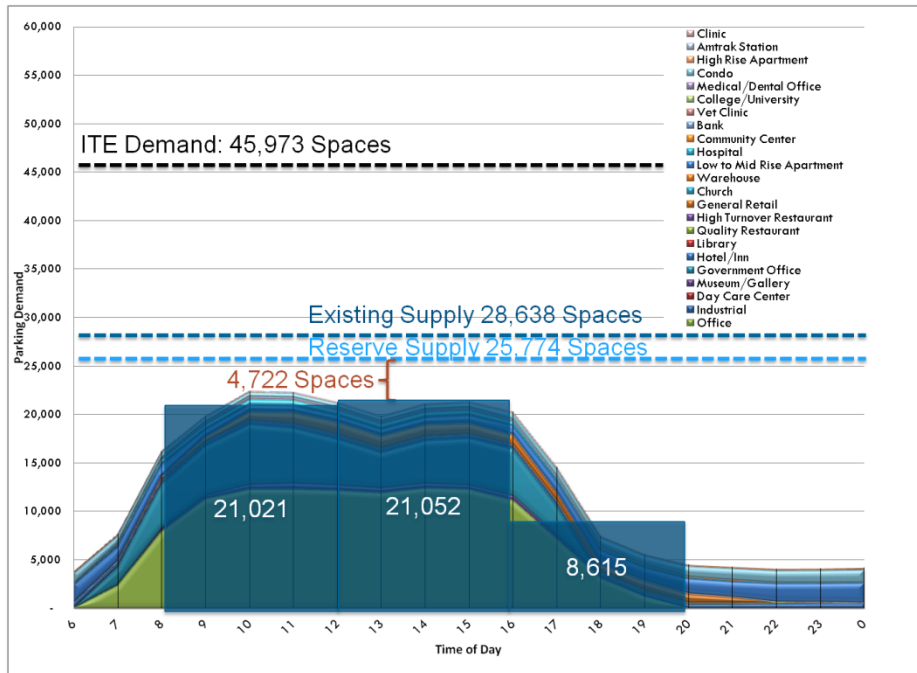
The land use model for downtown estimates a peak demand at 10am on a weekday, with approximately 23,500 needed spaces. This is about 3,400 spaces less than the available parking supply of about 25,800 spaces (90% of the total parking supply). During off-peak hours, which is generally after 5pm, there is plenty of capacity in the system, throughout the entire downtown. When comparing the model estimates to the observed number of parked cars, there are about 4,700 unused spaces.

Figure 7 Existing Shared Demand (no events)- Study Area



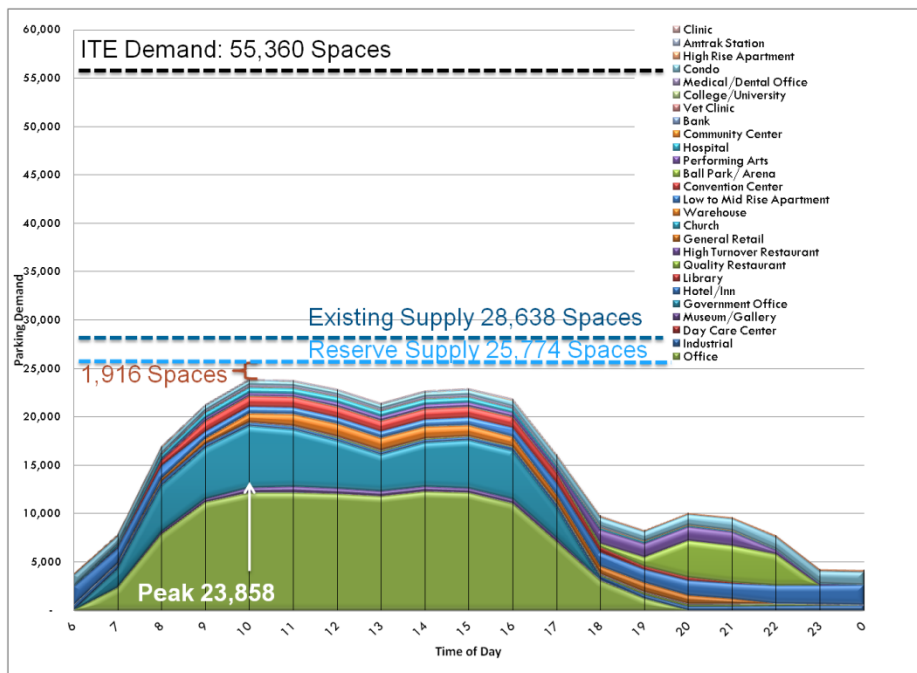
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Figure 8 Existing Shared Demand with Observed Demand- Study Area



When downtown hosts large events, such as a game at the Xcel Center, this typically adds demand in the evening hours. Figure 9 shows the model for downtown when events occur, which still estimates a peak demand at 10am. The difference here is that there is a substantial increase in the expected demand in the evening, although there are still expected to be more than 10,000 parking spaces unused.

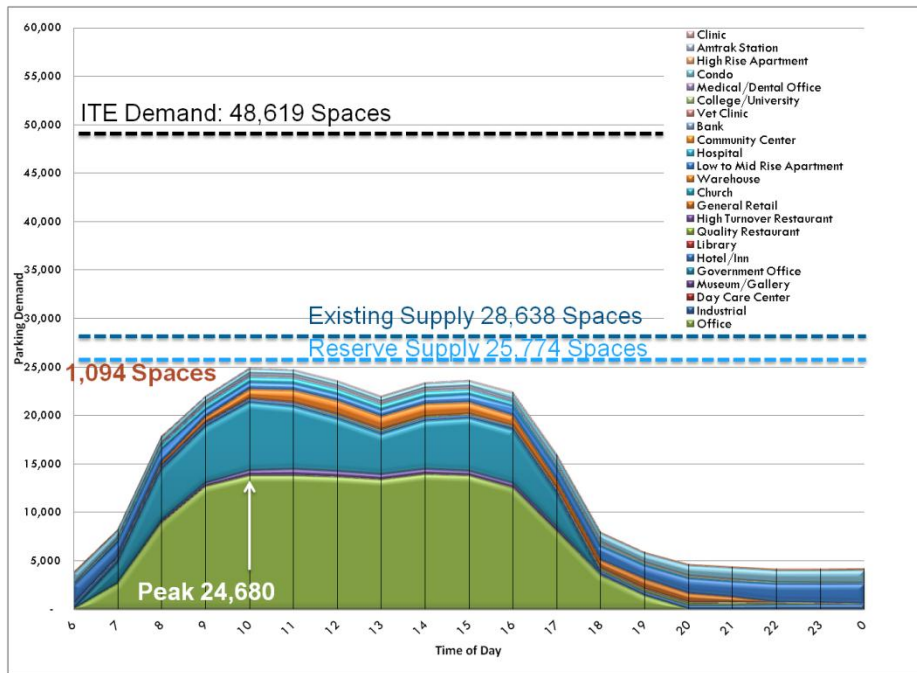
Figure 9 Existing Shared Demand (with Events)- Study Area



Existing Shared Use Analysis: No Vacancies

The existing shared use model for the study area includes vacancy estimates for various land uses. When all vacancies are removed, and if we assume that 100% of built square footage is occupied, the land use model for downtown estimates a peak demand at 10am, with approximately 24,680 spaces. This is 1,150 more spaces than the existing downtown model with today's vacancies. This means that at peak, there is expected to be about 1,000 unused spaces (plus a 10% reserve supply).

Figure 10 Existing Shared Demand (without Events)- Study Area - No Vacancies

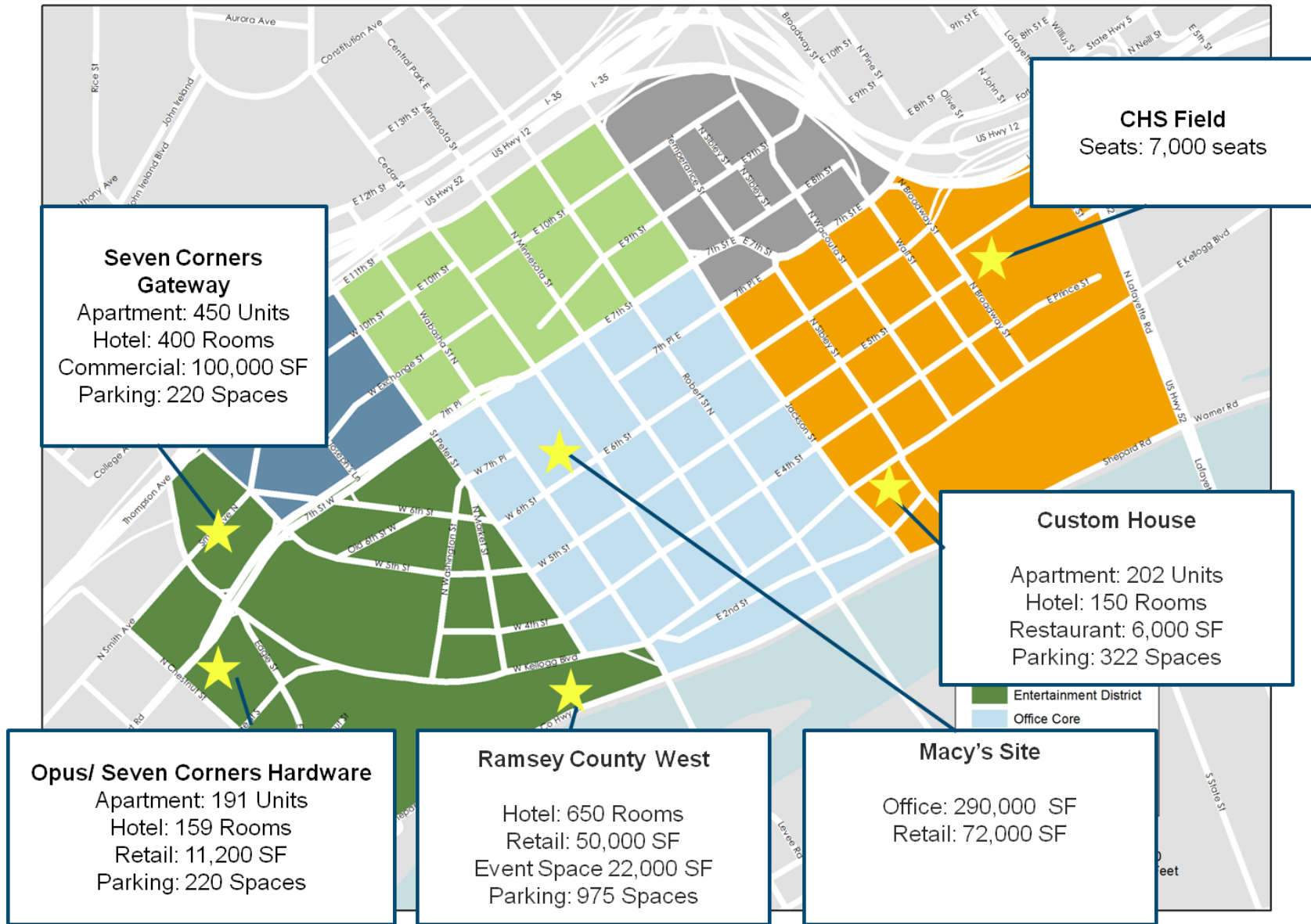


Expected Future Development

Downtown is expecting several substantial developments to be constructed in the coming years as shown in Figure 11. Although the development programs are not confirmed, the team used the estimated land use square footage and parking supplies shown below. The team worked with this expected future development program to determine the parking impact when these projects are built. The future estimates account for loss of existing parking and built square footage.

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Figure 11 Study Area Future Developments



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Figure 12 Future Land Uses- Study Area

Use	SF/ Unit	Future SF/ Unit
Office	12,557,499 SF	+ 340,000 SF
Government Office	3,861,217 SF	- 614,723 SF
Retail	1,519,567 SF	- 200,960 SF
Museum/ Gallery	875,914 SF	
Convention Center	388,929 SF	+ 22,000 SF
Church	321,247 SF	
Medical Office	133,126 SF	
Library	118,104 SF	
Industrial	102,527 SF	
Warehouse	95,806 SF	
Community Center	93,336 SF	
Restaurant	62,928 SF	+ 6,000 SF
Clinic	19,800 SF	
Bank	18,053 SF	
Vet Clinic	3,875 SF	
Ball Park/ Arena	18,568 Seats	+ 7,000 Seats
Performing Arts	8,264 Seats	
Low Rise	3,510 Units	+ 843 Units
Condo	2,136 units	
High Rise	279 Units	
Hotel	1,126 Rooms	+ 1,359 Rooms
College	548 Students	
Hospital	232 Beds	
Day Care Center	195 Students	
Amtrak	107 Cars	
TOTAL	20,171,928 SF 26,832 Seats 5,925 Units 1,126 Rooms 743 Students 232 Beds 107 Cars	19,724,245 SF 33,832 Seats 6,768 Units 2,485 Rooms 743 Students 232 Beds 107 Cars

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Regardless of whether events are occurring, the future development shows an increase of parking demand during the 10am peak hour compared to today's estimates of an additional 350 spaces. This still means that the proposed development can be accommodated within the existing and proposed parking supply, according to land use modeling projections.

Figure 13 Future Shared Demand (No Events)- Study Area

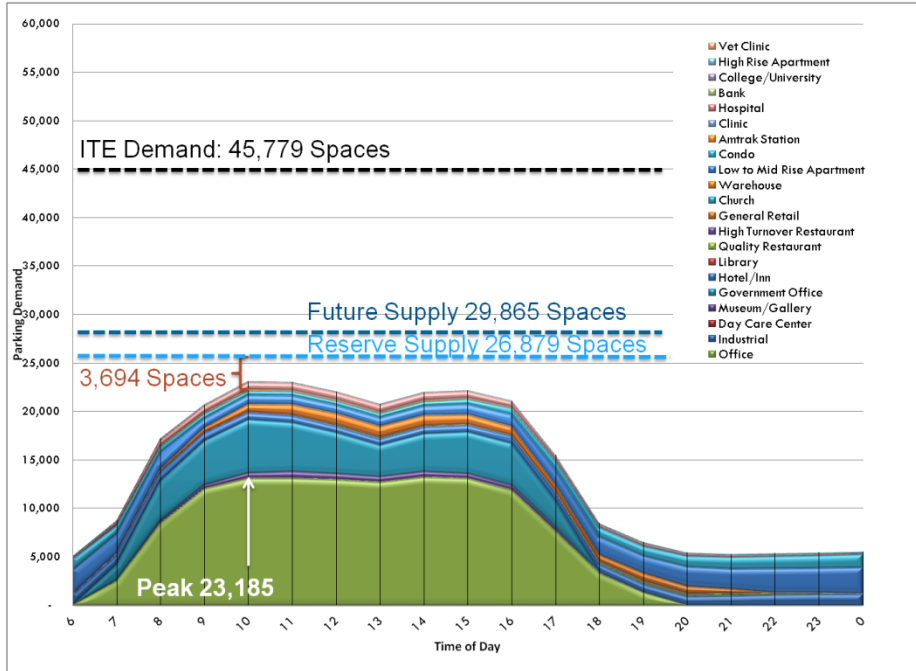
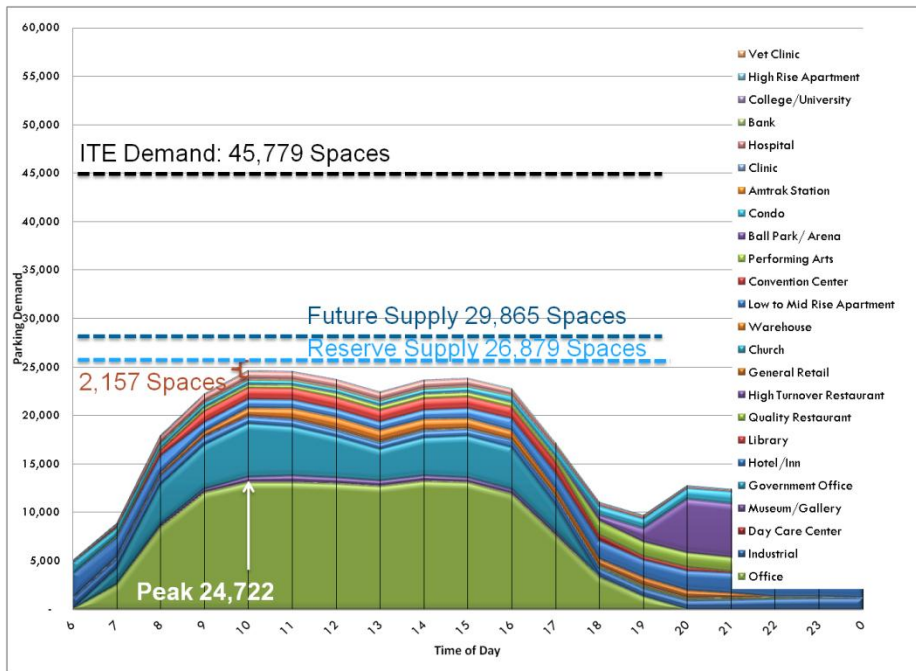


Figure 14 Future Shared Demand (with Events)- Study Area



LOWERTOWN

KEY FINDINGS: LOWERTOWN

- About 700 parking spaces are unused throughout a typical weekday.
- Expected heavier demand based on stakeholder feedback, but about 2,000 spaces are unused in the evening.
- Even with ballpark development, future demand estimates indicate that there is enough supply to satisfy demand.
- Further investigation into specific parking rules and regulations is warranted due to ballpark development and stakeholder concerns.

Existing Land Use

The Lowertown activity area has a variety of land uses, with approximately 2.3 million square feet of commercial retail and office space, approximately 1,700 residential units, and an Amtrak Station.

Land uses are grouped as accurately as possible into categories created by the *Institute of Transportation Engineers Parking Generation 4th Edition* (2010). Figure 15 shows the breakdown of land use by category in Lowertown; the square feet and units are adjusted for existing vacancies.

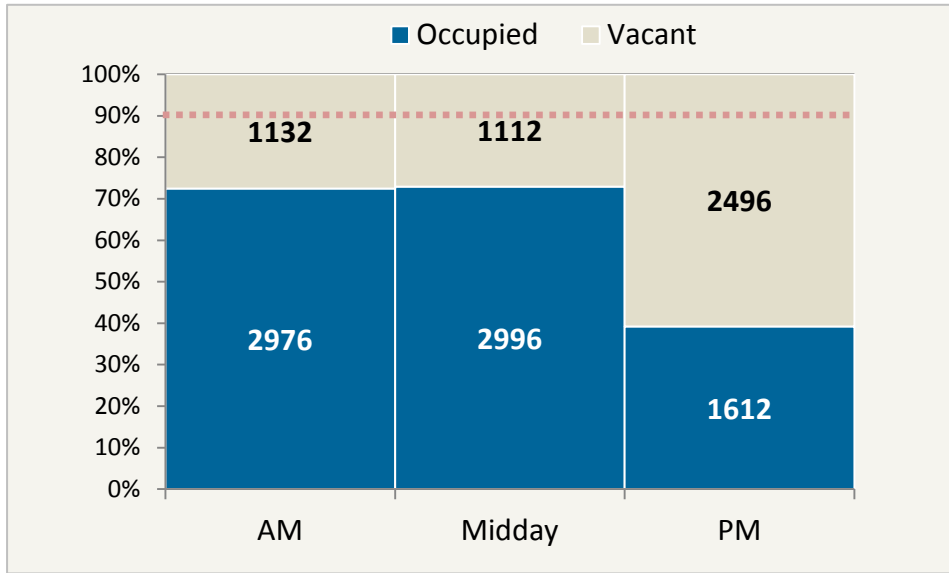
Figure 15 Existing Land Uses- Lowertown

Use	SF/ Unit
Office	1,922,129 SF
Government Office	291,725 SF
Retail	81,945 SF
Restaurant	18,662 SF
Low Rise Apartment	1,427 Units
Condo	341 Units
Amtrak Station	107 Cars
TOTAL	2,314,461 SF 1,768 Units 107 Cars

Existing Parking Supply and Demand

In the Lowertown activity area, there are 4,108 total parking spaces. At peak on a weekday, 73% of the parking supply is full with 2,996 parked cars. This count was taken on a typical weekday with no large events.

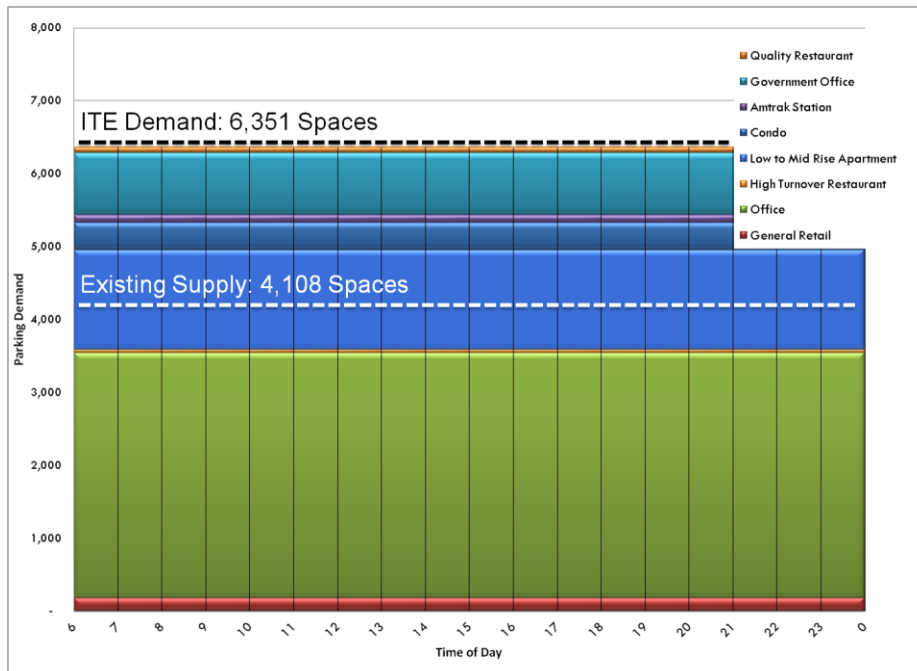
Figure 16 Lowertown Estimated Utilization



Existing Shared Use Analysis

According to national parking generation rates from ITE, the needed number of parking spaces, *assuming that each land use has its own dedicated supply of parking*, is 6,351 spaces. The Lowertown activity area has a total of 4,108 spaces. The parking supply is approximately 2,240 spaces below what national standards would suggest demand throughout this activity area *without significantly impacting parking supply*.

Figure 17 Existing Unshared Demand- Lowertown



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The land use model for the Lowertown activity area estimates a peak demand at 10am, with approximately 3,000 spaces. During this timeframe there is a surplus of approximately 670 spaces. When overlaying the observed demand, the peak demand period occurs during the afternoon during which there is a surplus of approximately 690 spaces. The observed and modeled demand show similar trends throughout the course of a week, which indicates that the parking demand estimated by land use is comparable to the area's observed parking demand. There is an opportunity to expand uses with evening demand throughout this activity area *without significantly impacting parking supply*.

Figure 18 Existing Shared Demand- Lowertown

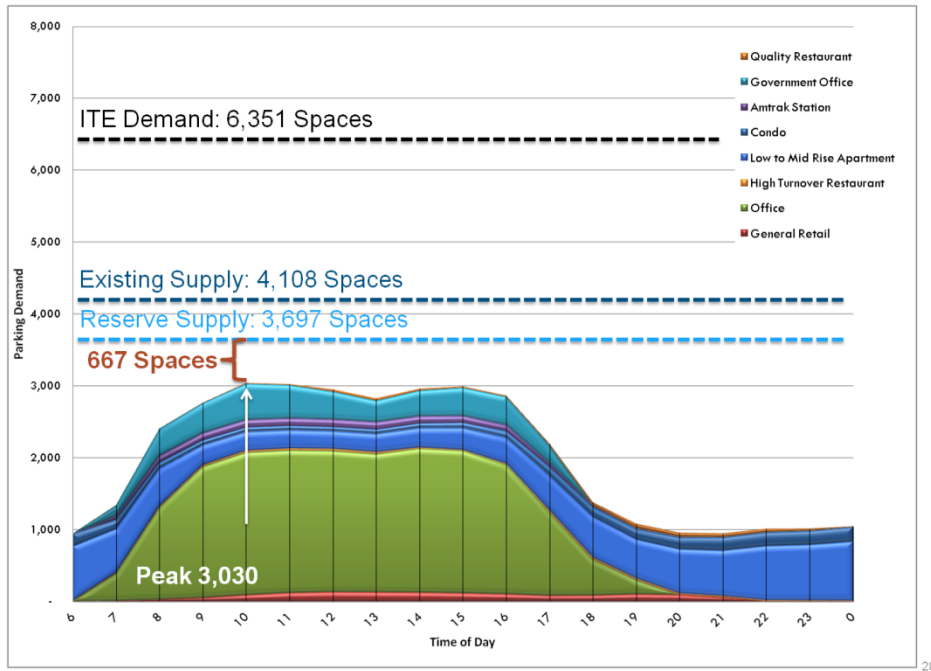
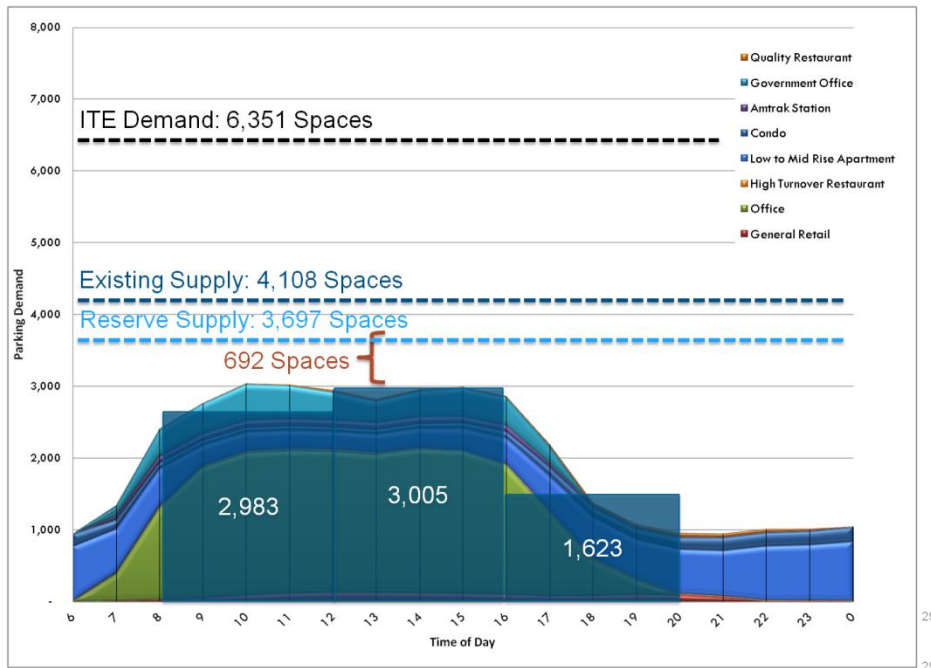


Figure 19 Existing Shared Demand with Observed Demand- Lowertown



Expected Future Development

The Lowertown activity area is expecting two substantial developments to be completed in the next two years: the Custom House development and the CHS Field. Although the Custom House program is not confirmed, the team used the estimated land use square footage and parking supplies shown below. The team worked with this future development program to determine the parking impact when these two projects are built. The future estimates account for loss of existing parking and built square footage.

In addition, the future supply for the Lowertown activity area has been expanded to include the parking lots to the east of Lafayette Road. These lots will be used by the CHS Field once the venue is opened in 2015, and has been added to the future supply for the activity area.

Figure 20 Lowertown Expected Development

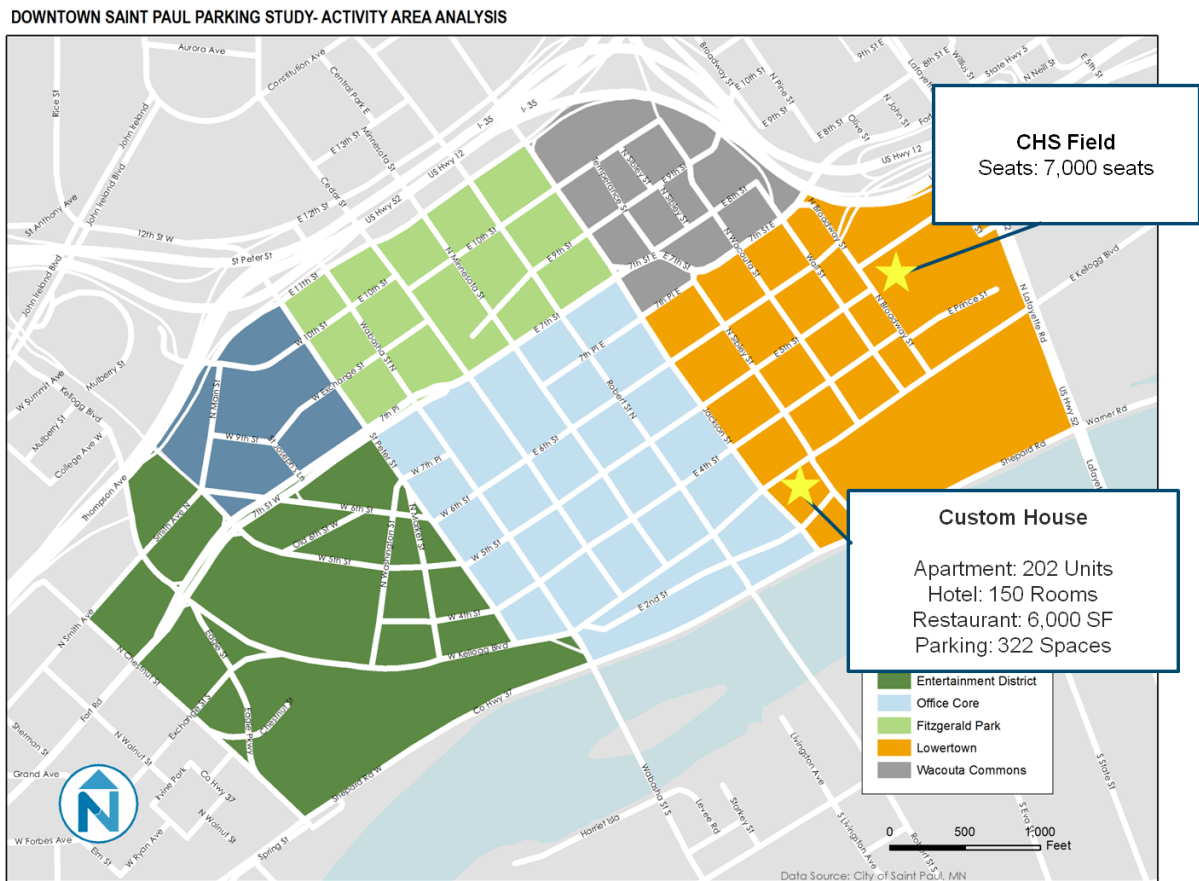


Figure 21 Existing and Future Development Land Uses

Use	SF/ Unit	Future SF/ Unit
Office	1,922,129 SF	
Government Office	291,725 SF	
Retail	81,945 SF	
Restaurant	18,662 SF	6,000 SF
Low Rise Apartment	1,427 Units	202 Units
Condo	341 Units	
Amtrak Station	107 Cars	
Ball Park		7,000 Seats
Hotel		150 Rooms
TOTAL	2,314,461 SF 1,768 Units 107 Cars	2,320,461 SF 1,970 Units 150 Rooms 7,000 seats

The future development was broken into two development scenarios, one that estimates demand on a weekday without an event at the Ballpark, and another that shows what may be expected when there is a game at the Ballpark. In the future "no-event" analysis, the development program shows that, even with added parking demand from future developments (less the Ballpark), the demand would be less than the future parking supply by approximately 1,500 spaces at 10am.

The future estimate that includes Ballpark demand shows similar trends to the future estimates less the Ballpark demand. With demand generated from the ballpark, the activity area's peak period remains during the 10am peak hour. This is primarily due to the area's majority of office square footage, which generates parking demand primarily during the early morning and afternoon periods. The demand generated by the ballpark is limited during the evening hours, when office demand is at its lowest. During this evening period, there is still approximately 2,600 spaces available for use. Even with the ballpark development, the future demand model shows there is enough capacity to satisfy demand.

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Figure 22 Future Shared Demand—Lowertown (No Ballpark Game Day)

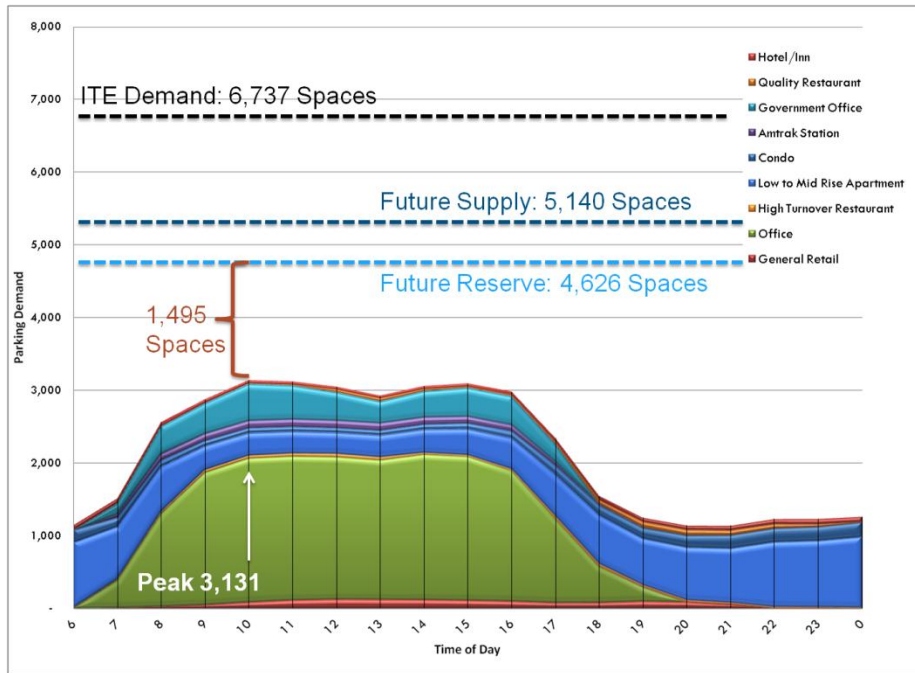
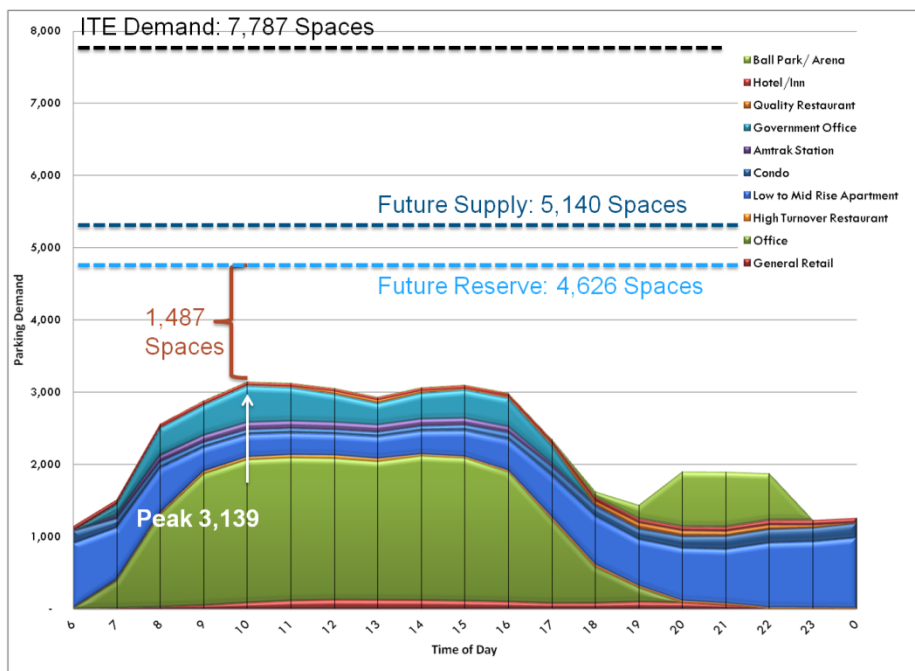


Figure 23 Future Shared Demand—Lowertown (With Ballpark Game Day)



WACOUTA COMMONS

KEY FINDINGS: WACOUTA COMMONS

- About 400 parking spaces unused throughout a typical weekday.
- The shared use model predicts higher parking demand in the evening than what was observed.
 - This is likely due to apartments, condos, and hotel uses.
 - This may mean that there are more vacancies than expected in the area, lower car ownership than expected, or spillover parking into other activity areas.
- There is an opportunity for some infill development, for both daytime and evening uses, that could potentially use the unused parking supply.

Existing Land Use

Commercial, retail, office, industrial/warehouse, and church land uses in Wacouta Commons compose approximately 200,000 square feet of the activity area. The remaining uses within the Wacouta Commons are dedicated to residential (apartment and condo), and hotel units.

Land uses are grouped as accurately as possible into categories created by the *Institute of Transportation Engineers Parking Generation 4th Edition* (2010). Figure 24 shows the breakdown of land use by category in Wacouta Commons; the square feet and units are adjusted for existing vacancies.

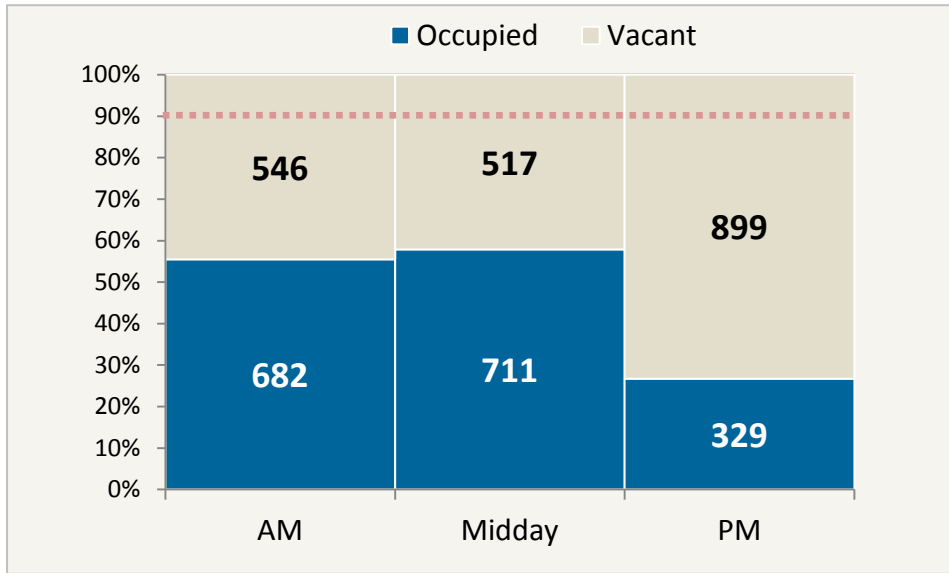
Figure 24 Existing Land Uses- Wacouta Commons

Use	SF/ Unit
Church	94,733 SF
Retail	41,400 SF
Office	37,417 SF
Warehouse	16,500 SF
Government Office	12,241 SF
Industrial	10,002 SF
Vet Clinic	3,875 SF
Low Rise Apartment	404 Units
Condo	322 Units
Hotel	208 Rooms
TOTAL	216,168 SF 726 Units 208 Rooms

Existing Parking Supply and Demand

In the Wacouta Commons activity area, there are 1,228 total parking spaces. At peak on a weekday, 58% of the parking supply is full with 711 parked cars. This count was taken on a typical week day with no large events.

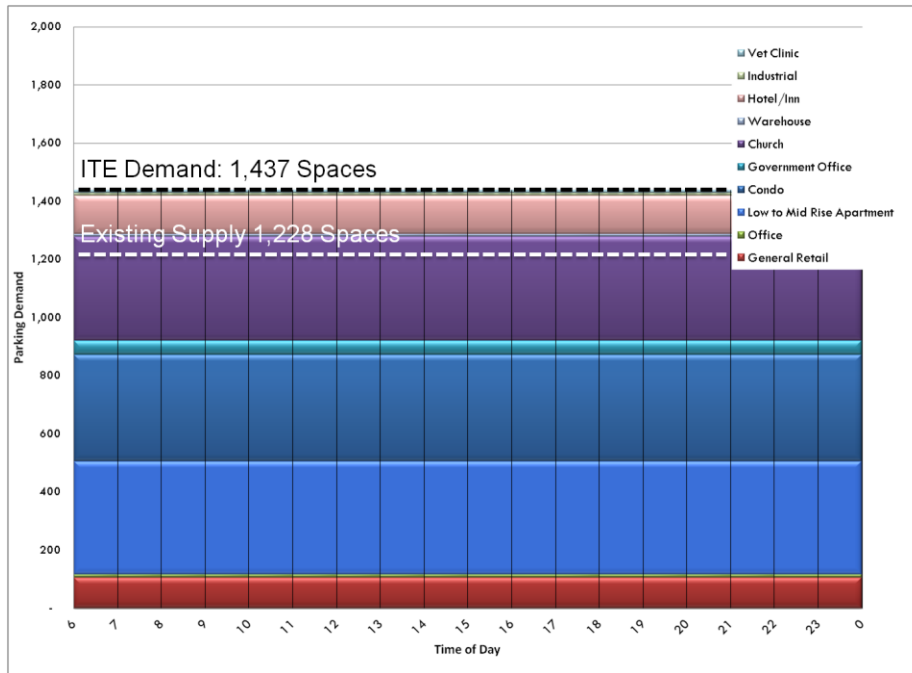
Figure 25 Wacouta Commons Estimated Utilization



Existing Shared Use Analysis

According to national parking generation rates from ITE, the needed number of parking spaces, *assuming that each land use has its own dedicated supply of parking*, is 1,437 spaces. The Wacouta Commons activity area has a total of 1,228 spaces. The parking supply is approximately 210 spaces below what national standards would suggest.

Figure 26 Existing Unshared Demand- Wacouta Commons



The land use model for the Wacouta Commons activity area estimates a peak demand at 12am, with approximately 700 spaces. During this timeframe there is a surplus of approximately 390 spaces. When overlaying the observed demand, the peak demand period occurs during the afternoon when there is a surplus of approximately 400 spaces.

Overall, the model shows higher demand during the evening and early morning hours compared to the observed demand, which occurs during the daytime. The higher observed midday demand, may be a result of spillover parking from nearby activity areas. The model may also be overestimating the evening and early morning demand. Nevertheless, both the modeled and observed demand show approximately 400 spaces available during the peak period. There is ample supply during the morning and evening periods, providing opportunities to create more infill development for both daytime and evening uses, or spillover from adjacent activity areas.

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Figure 27 Existing Shared Demand- Wacouta Commons

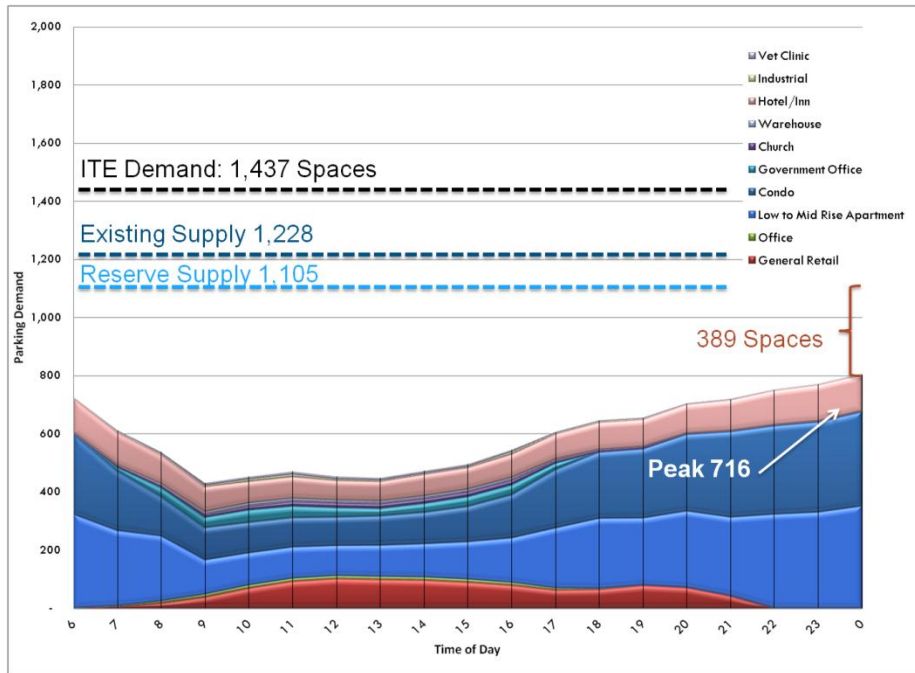
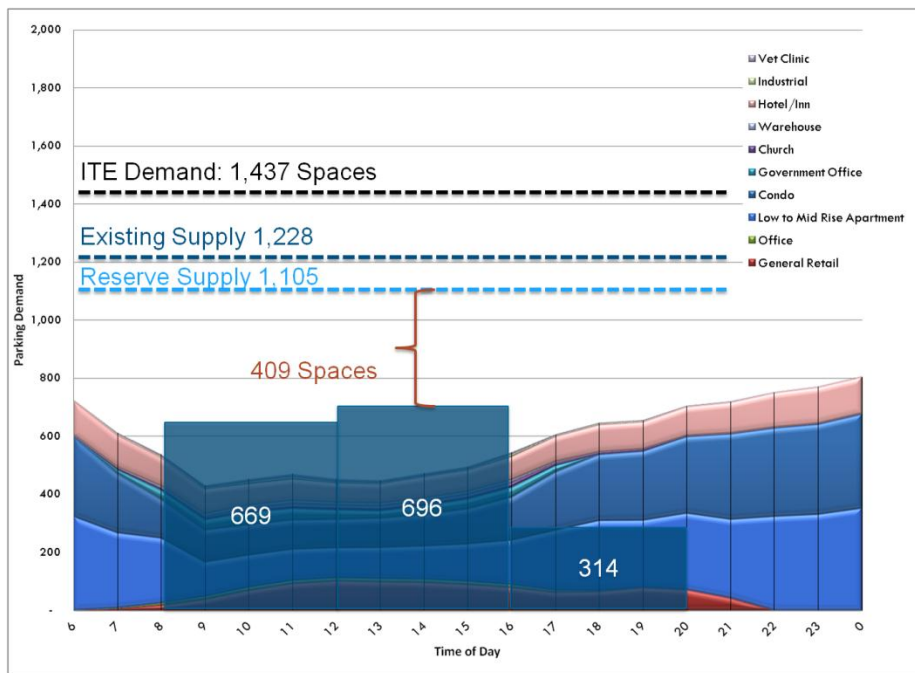


Figure 28 Existing Shared Demand with Observed Demand- Wacouta Commons



OFFICE CORE

KEY FINDINGS: OFFICE CORE

- About 900 parking spaces unused throughout a typical weekday, during traditional office hours.
- More than 6,000 parking spaces are unused in the evening.
- The shared use model predicts higher parking demand during the daytime than observed.
 - Land use estimates a deficit of about 2,250 parking spaces.
 - This may mean that there are more vacancies than expected in the area, single-occupancy vehicle mode share may be lower, “internal capture” rates may be higher, and/or TDM may have more of an impact than predicted.
- There is opportunity to add evening uses and accommodate evening overflow parking from surrounding areas (e.g. Rice Park Entertainment District and Lowertown.)

Existing Land Use

The Office Core is largely defined by commercial and government offices and well as retail spaces, which compose approximately 10 million square feet. The remaining uses within the Office Core are dedicated to residential (apartment and condo), as well as hotel and museum uses.

Land uses are grouped as accurately as possible into categories created by the *Institute of Transportation Engineers Parking Generation 4th Edition* (2010). Figure 29 shows the breakdown of land use by category in the Office Core; the square feet and units are adjusted for existing vacancies.

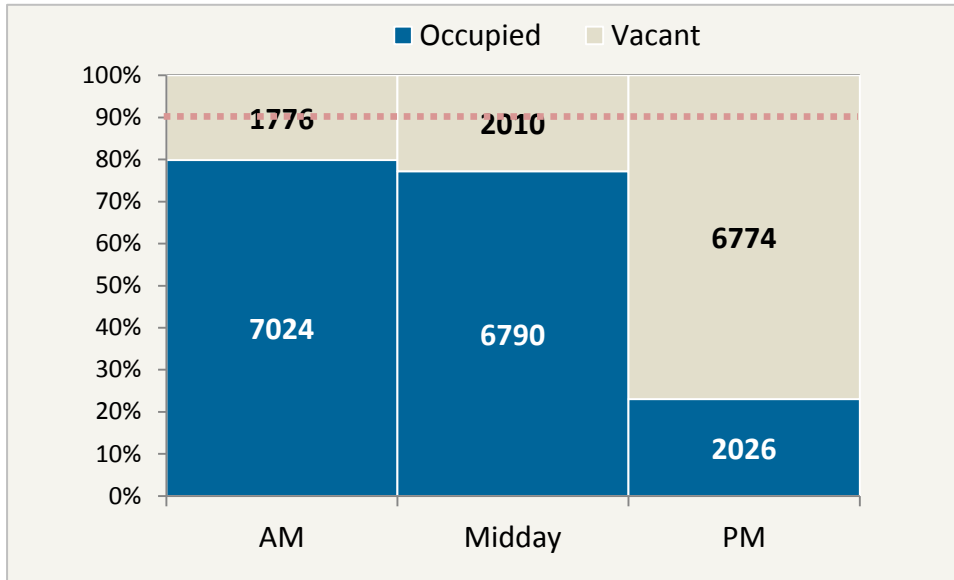
Figure 29 Existing Land Uses- Office Core

Use	SF/ Unit
Office	7,404,256 SF
Government Office	1,607,425 SF
Retail	1,289,082 SF
Museum/ Gallery	65,556 SF
Apartments	981 Units
Condos	135 Units
Hotel/Inn	470 Rooms
TOTAL	10,532,289 SF 893 Units 470 Rooms

Existing Parking Supply and Demand

In the Office Core activity area, there are 8,800 total parking spaces. At peak on a weekday, 80% of the parking supply is full with 7,024 parked cars. This count was taken on a typical weekday with no large events.

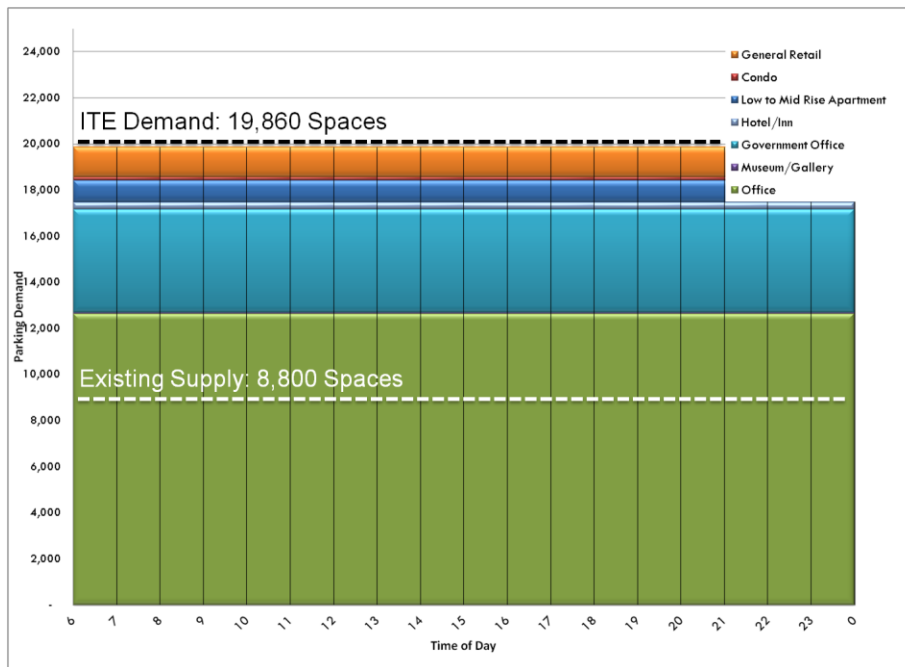
Figure 30 Office Core Estimated Utilization



Existing Shared Use Analysis

According to national parking generation rates from ITE, the needed number of parking spaces, *assuming that each land use has its own dedicated supply of parking*, is 19,860 spaces. The activity area has a total of 8,800 spaces. The parking supply is approximately 11,000 spaces below what national standards would suggest.

Figure 31 Existing Unshared Demand- Office Core



The land use model for the Office Core activity area estimates a peak demand at 10am, with approximately 9,600 spaces. The model indicates that there would be a deficit of approximately 1,680 spaces in the

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morning. However, the existing observed parking demand shows almost 900 spaces are unused in the morning peak and later into the afternoon and evening. However, due to monthly contracts they spaces are not considered available to daily parkers.

The differences between the modeled and observed demand can be due to a number of factors. Although land uses within the model are adjusted for vacancies, the amount of vacant square footage may be higher than what is modeled. Reductions for transportation demand management (TDM) and mode split, the percentage of people walking, biking, and taking transit, may also be much higher than anticipated within the model. These types of parking demand reductions indicate that the activity area's mixed use environment is helping to reduce parking demand. Within the Office Core, there is a huge opportunity to add evening uses and promote and accommodate overflow parking from other areas, such as the Rice Park Entertainment District, when parking is available.

Figure 32 Existing Shared Demand- Office Core

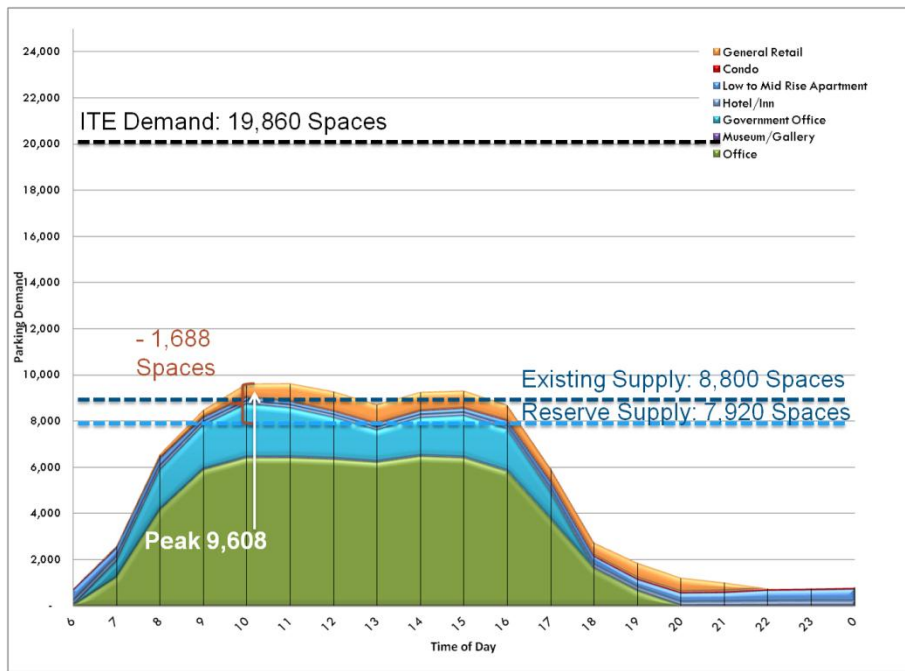
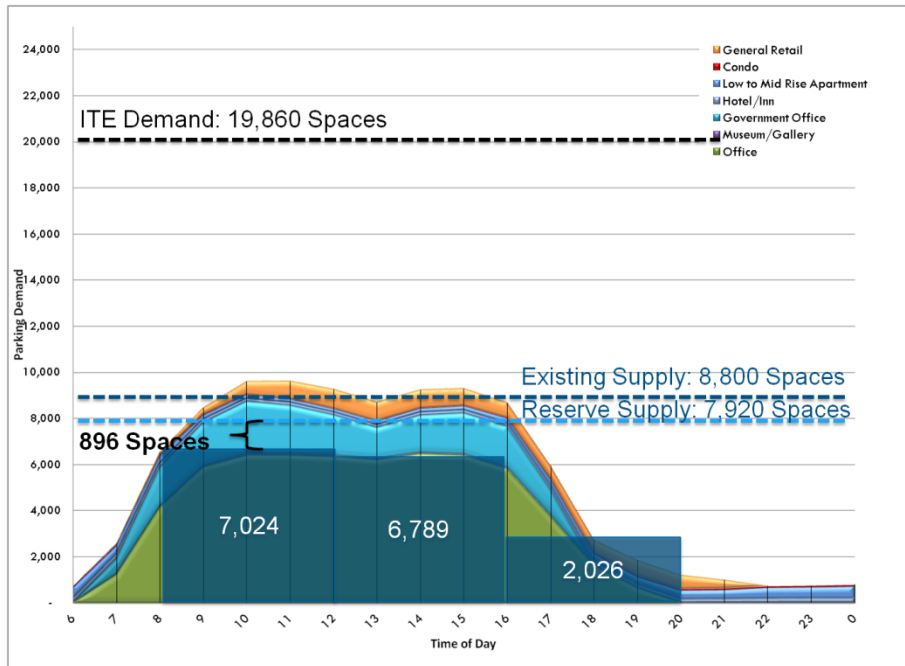


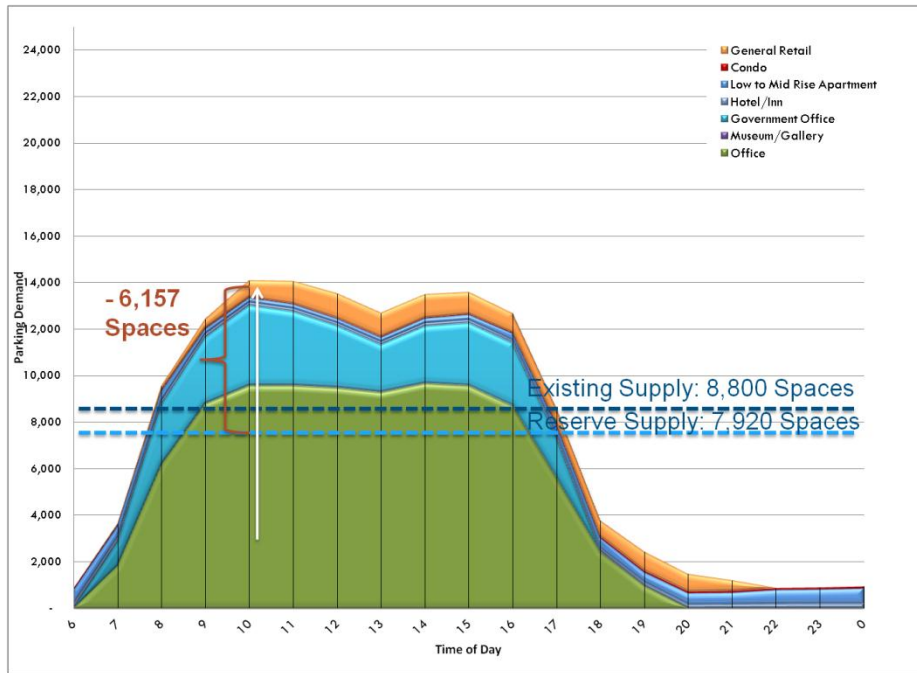
Figure 33 Existing Shared Demand with Observed Demand- Office Core



Existing Shared Use Analysis: No Vacancies

The existing shared use model for the office core includes vacancy estimates for various land uses. When all vacancies are removed, and if we assume that 100% of built square footage is occupied, the land use model for this area estimates a peak demand at 10am, with approximately 14,000 spaces. This means that the expected demand could be about 6,150 more spaces than exists in the office core. This means that if 100% of office, retail, and residential space in the downtown was occupied, the office core would need to use approximately 6,200 more parking spaces, assuming the current mode split.

Figure 34 Existing Shared Demand - Office Core - No Vacancies



Expected Future Development

The Office Core activity area is expecting one new, substantial development in the coming years: the redevelopment of the Macy’s site. Although the Macy’s site program is not confirmed, the team used the estimated land use square footage and parking supplies shown below. The team worked with this future development program to determine the parking impact when this project is built. The future estimate accounts for loss of existing parking and built square footage.

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Figure 35 Office Core Expected Development

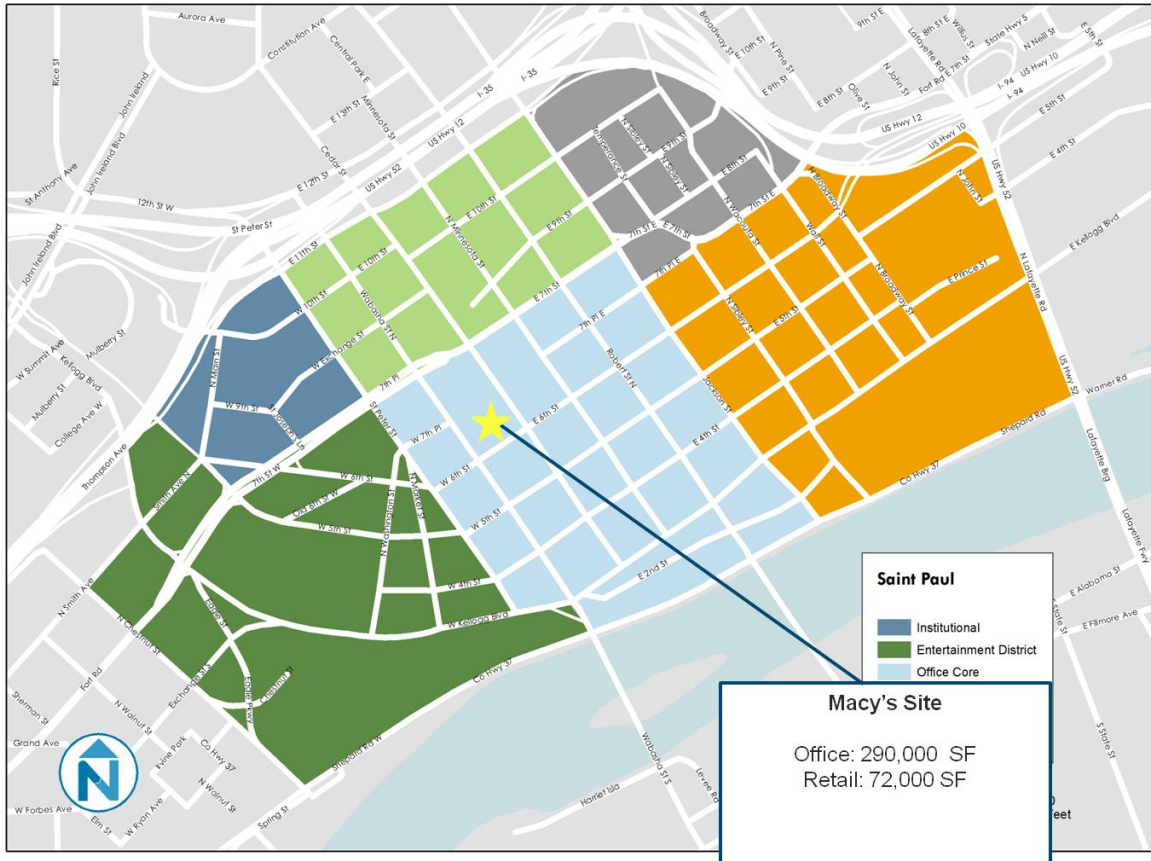


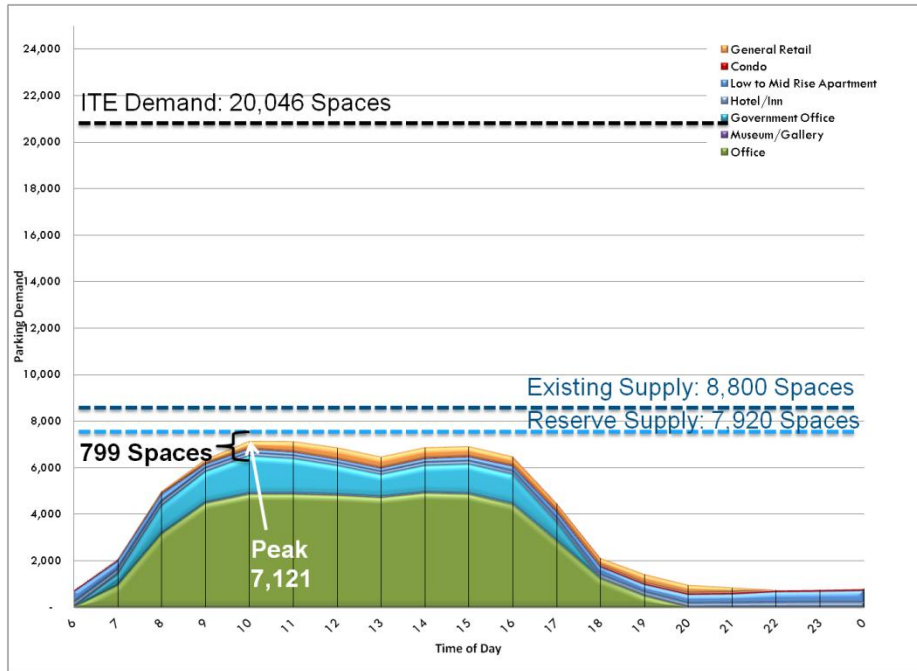
Figure 36 Existing and Future Development Land Uses

Use	SF/ Unit	Future SF/ Unit
Office	7,404,256 SF	+290,000 SF
Government Office	1,607,425 SF	
Retail	1,289,082 SF	-290,000 SF
Museum/ Gallery	65,556 SF	
Apartments	981 Units	
Condos	135 Units	
Hotel/Inn	470 Rooms	
TOTAL	10,532,289 SF 893 Units 470 Rooms	10,532,289 SF 893 Units 470 Rooms

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The future development will increase parking demand during the 10am peak hour, with an estimated demand of 7,121 spaces. This shows a surplus of nearly 800 spaces compared to the existing reserve supply during this peak period. Within the Office Core, there is a huge opportunity to add evening uses and promote and accommodate overflow parking from other areas, such as the Rice Park Entertainment District.

Figure 37 Future Shared Demand—Office Core



FITZGERALD PARK

KEY FINDINGS: FITZGERALD PARK

- About 900 parking spaces are unused at the peak in the neighborhood.
- The shared use model accurately predicts observed parking demand.
- Despite recent residential growth in the area, there are still ~3,500 unused parking spaces in the evening; there is opportunity to add evening uses.

Existing Land Use

Fitzgerald Park is composed of a variety of land uses with approximately 2.6 million square feet commercial, retail and office spaces as well as a theater, residential (condos and apartments), and educational uses. Land uses are grouped as accurately as possible into categories created by the *Institute of Transportation Engineers Parking Generation 4th Edition* (2010). Figure 38 shows the breakdown of land use by category in Fitzgerald Park; the square feet and units are adjusted for existing vacancies.

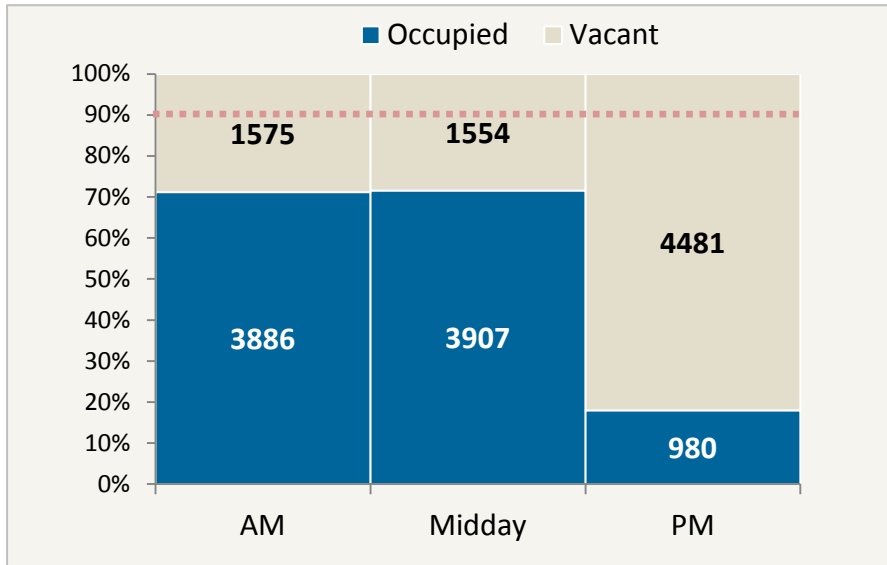
Figure 38 Existing Land Uses- Fitzgerald Park

Use	SF/ Unit
Government Office	1,265,413 SF
Office	985,255 SF
Church	144,446 SF
Medical Office	133,126 SF
Retail	37,036 SF
Bank	18,053 SF
Community Center	7,940 SF
Theater	1,058 Seats
Day Care Center	77 Students
College	548 Students
Condo	1,338 Units
Low Rise Apartment	650 Units
High Rise Apartment	279 Units
TOTAL	2,591,269 SF 2,267 Units 1,058 Seats 625 Students

Existing Parking Supply and Demand

In the Fitzgerald Park activity area, there are 5,460 total parking spaces. At peak on a weekday, 72% of the parking supply is full with 3,907 parked cars. This count was taken on atypical week day with no large events.

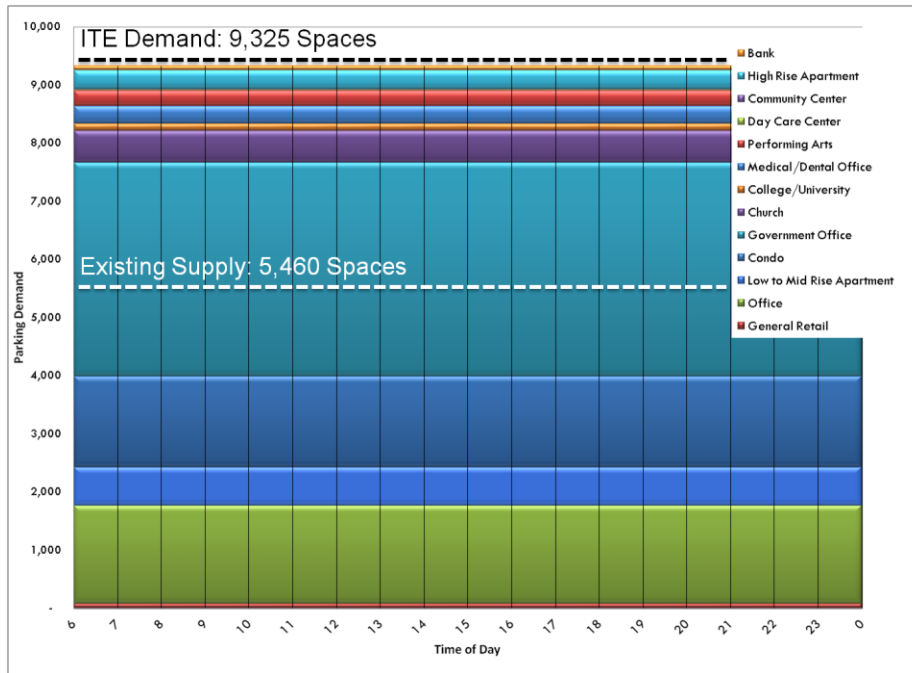
Figure 39 Fitzgerald Park Estimated Utilization



Existing Shared Use Analysis

According to national parking generation rates from ITE, the needed number of parking spaces, *assuming that each land use has its own dedicated supply of parking*, is 9,325 spaces. The Fitzgerald Park activity area has a total of 5,460 spaces. The parking supply is approximately 3,800 spaces below what national standards would suggest.

Figure 40 Existing Unshared Demand-Fitzgerald Park



The land use model for Fitzgerald Park estimates a peak demand at 10am, with approximately 4,200 spaces. This peak demand is approximately 670 below the existing reserve supply. When overlaying the existing observed parking demand, from Figure 39, the observed demand shows estimates around 1,000 spaces available in the mid-day peak and ample supply into the evening hours.

The observed and modeled demand show similar trends throughout the course of a week, which indicates that the model accurately predicts the area’s parking demand. Within the activity area, peak demand occurs during the mid-day period; however there is ample availability during the evening. Despite the high number of residential units in this neighborhood, there are still approximately 3,500 parking spaces available during the evening hours. This indicates that there is an opportunity to expand evening uses, without building more parking to accommodate new development.

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Figure 41 Existing Shared Demand - Fitzgerald Park

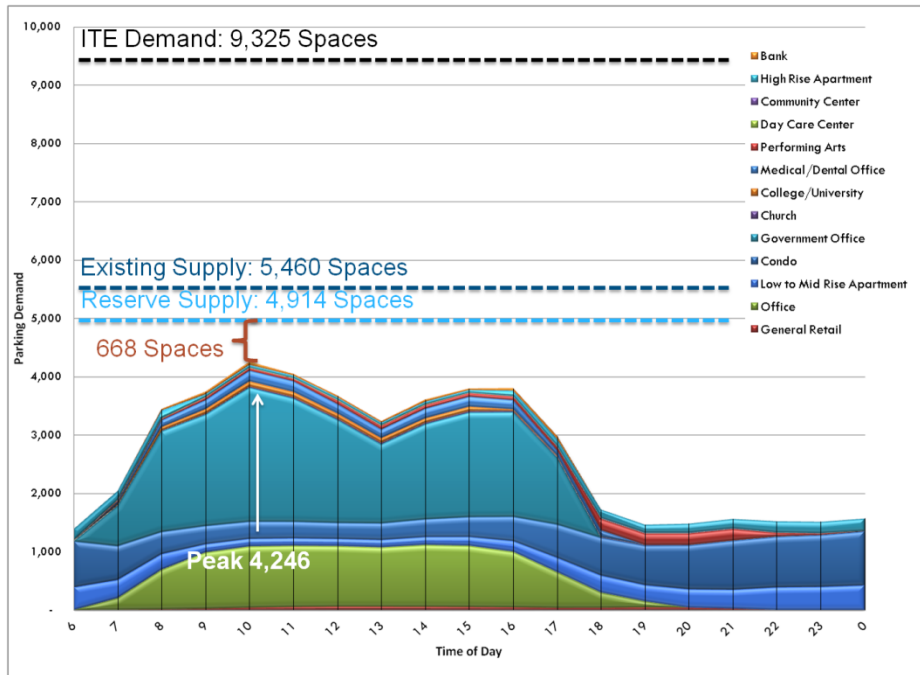
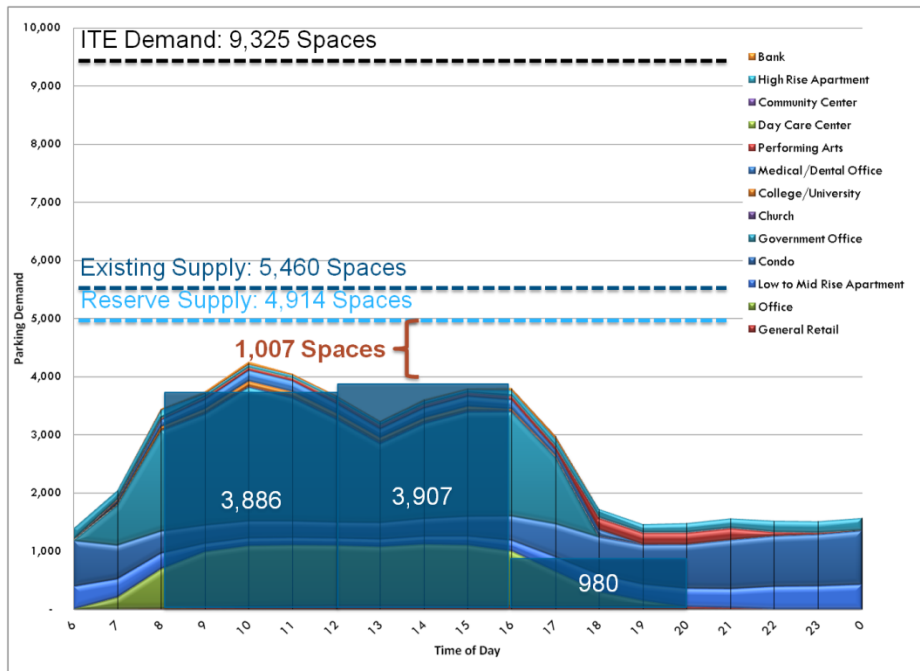


Figure 42 Existing Shared Demand with Observed Demand- Fitzgerald Park



RICE PARK ENTERTAINMENT DISTRICT

KEY FINDINGS: RICE PARK ENTERTAINMENT DISTRICT

- About 1,850 total parking spaces are unused at the peak during the day, when no events are occurring.
- Without events, the model estimates 950 spaces are unused during day.
- There is an expected deficit of 650 parking spaces in the evening if all entertainment venues are holding events.
- With events, although the model estimates insufficient parking to satisfy estimated demand, spillover into other zones is expected, particularly the Institutional and Office Core.
- Three major proposed developments are expected to add about 900 additional parking spaces into the area, after accounting for parking supply lost to development.
- The new parking supply is expected to accommodate demand during the day, but estimates of evening demand during fully-loaded event nights is expected to be 1,000 spaces over capacity.
 - With 6,000 or more available parking spaces nearby, this suggests management strategies are needed to incentivize parking in areas outside of the Rice Park Entertainment District, or taking other modes.

Existing Land Use

The Rice Park Entertainment District has a variety of land uses, with an emphasis on entertainment and event spaces. The District is home to the Xcel Energy Center (which houses the Roy Wilkins Auditorium, Xcel Center Arena), the Ordway Theater and RiverCentre Convention Center. In addition to these event venues, there are approximately 4 million square feet of office, museum, gallery, and other retail space, as well as a hotel.

Land uses are grouped as accurately as possible into categories created by the *Institute of Transportation Engineers Parking Generation 4th Edition* (2010). Figure 43 and Figure 44 show the breakdown of land use by category in the Rice Park Entertainment District; the square feet and units are adjusted for existing vacancies, as well as entertainment venues and associated square footage and seating.

Figure 43 Existing Land Use in the Rice Park Entertainment District

Use	SF/ Unit
Office	2,122,932 SF
Museum/ Gallery	810,358 SF
Government Office	684,413 SF
Library	118,104 SF
Industrial	87,770 SF
Warehouse	79,306 SF
General Retail	56,744 SF
Church	37,760 SF
Restaurant	44,266 SF
Hotel/ Inn	448 Rooms
Day Care Center	118 Students
Low Rise Apartment	48 Units
TOTAL	4,041,653 SF 448 Rooms 118 Students 48 Units

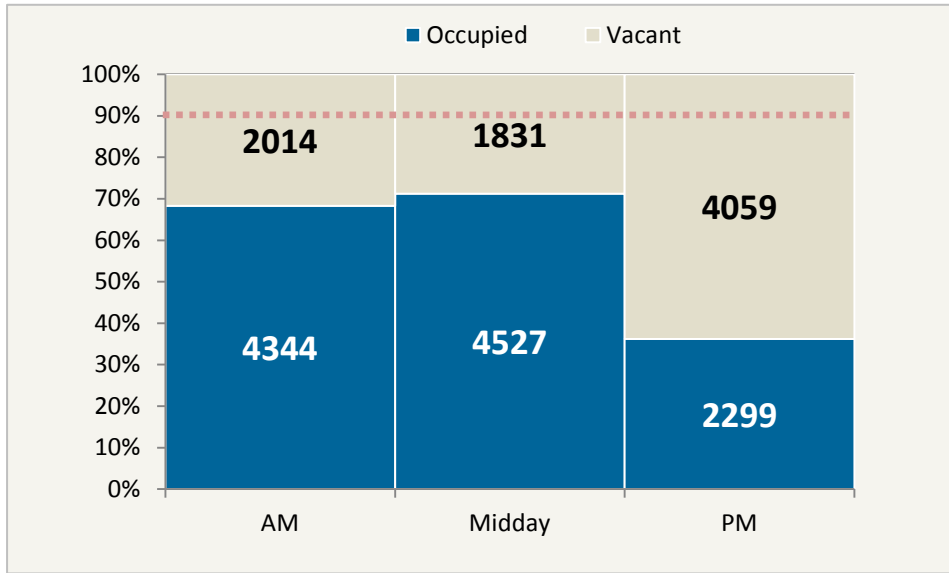
Figure 44 Existing Entertainment Venues within the Rice Park Entertainment District

Entertainment Venue	SF/ Seats
Xcel Center	18,568 seats
Roy Wilkins Auditorium	5,000 seats
Ordway Theater	2,206 seats
RiverCentre	260,739 SF
Convention Center	128,190 SF
TOTAL	388,929 SF 25,774 seats

Existing Parking Supply and Demand

There are 6,358 total parking spaces in the Rice Park Entertainment District. At peak on a weekday, 71% of the parking supply is full with approximately 4,500 parked cars. This count was taken on a typical weekday with no significant events.

Figure 45 Rice Park Entertainment District Estimated Utilization

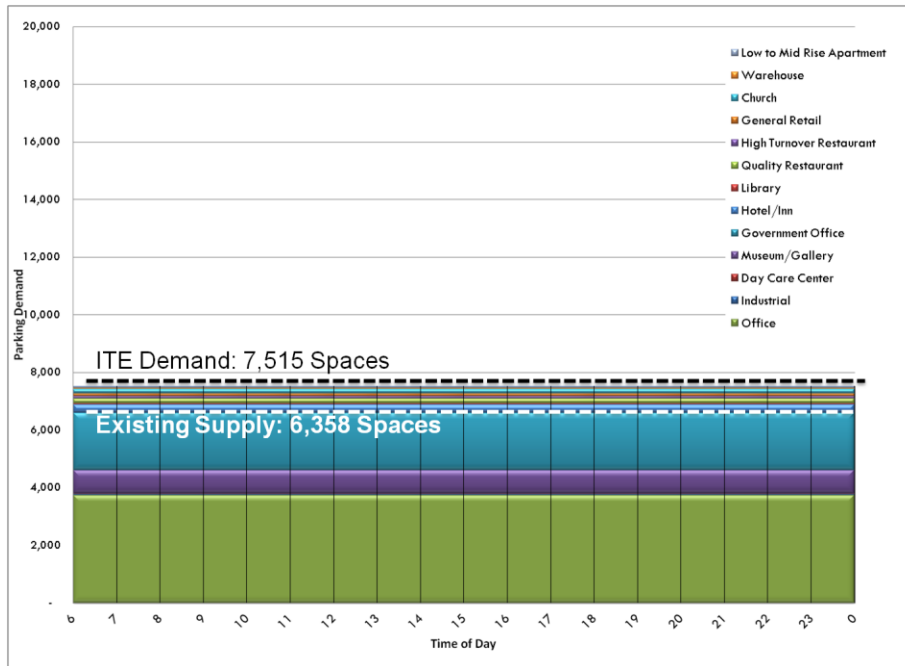


Existing Shared Use Analysis: No Events

According to national parking generation rates from ITE, the needed number of parking spaces, *assuming that each land use has its own dedicated supply of parking*, is 7,515 spaces. The Rice Park Entertainment District has a total of 6,358 spaces. This does not necessarily indicate that the area does not have enough parking supply; it does show that the Rice Park Entertainment District does not have as many spaces as may be found in a suburban, single-use environment. (This calculation does not include parking demand generated for any of the identified entertainment venues as identified in Figure 44. A separate analysis that includes these venues will be described in the subsequent section.)

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Figure 46 Existing Unshared Demand- Rice Park Entertainment District (No Events)



The land use model shows the number of parking spaces needed after factoring in time of day demands by land use and the Rice Park Entertainment District’s mixed-use environment; in other words, the expected actual parking demand throughout a weekday. The results estimate peak demand at 11am with 4,772 spaces, a surplus of 950 spaces when compared to the 10% reserve supply.

Using the same parking utilization counts in Figure 45, when overlaid on the modeled parking demand based on land use, the observed demand shows approximately 1,223 spaces available in the afternoon peak. The modeled and observed demand show similar trends, with surplus amounts during the afternoon peak, and ample supply into the evening hours.

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Figure 47 Existing Shared Demand - Rice Park Entertainment District (No Events)

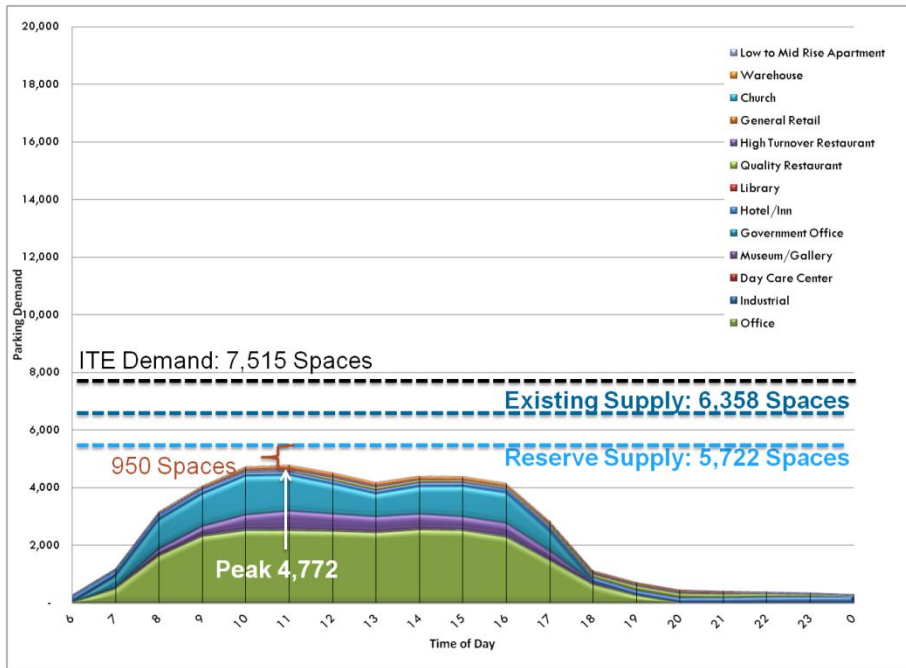
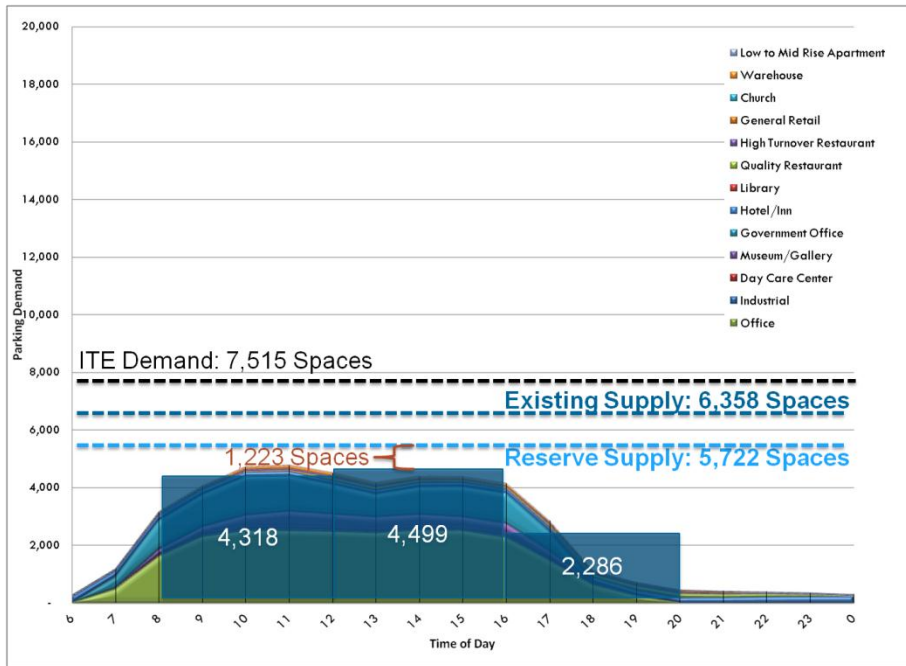


Figure 48 Existing Land Use with Observed Parking Demand - Rice Park Entertainment District (No Events)



Existing Shared Use Analysis: With Events

A land use scenario was also modeled for the Rice Park Entertainment District that assumes all event venues are hosting events at the same time. This is a "worst case" scenario to understand the parking demand impacts when the Rice Park Entertainment District is busiest. Figure 49 shows the estimates of parking generation from ITE. The estimated parking demand, during events, is 16,443 spaces.

However, as shown in Figure 50, the model estimates that the peak demand occurs around 8pm, with a demand of approximately 6,350 spaces. The model indicates that there would be a deficit of approximately 630 spaces in the evening. Cars were not counted during a weekday event night, so the model's estimates cannot be compared to observed data. Nevertheless, although there is an estimated deficit of approximately 630 spaces, other activity area analysis show that there are thousands of available spaces within a few blocks of the Rice Park Entertainment District in the evenings, that may be able to absorb this peak demand.

Figure 49 Existing Unshared Demand (With Events)

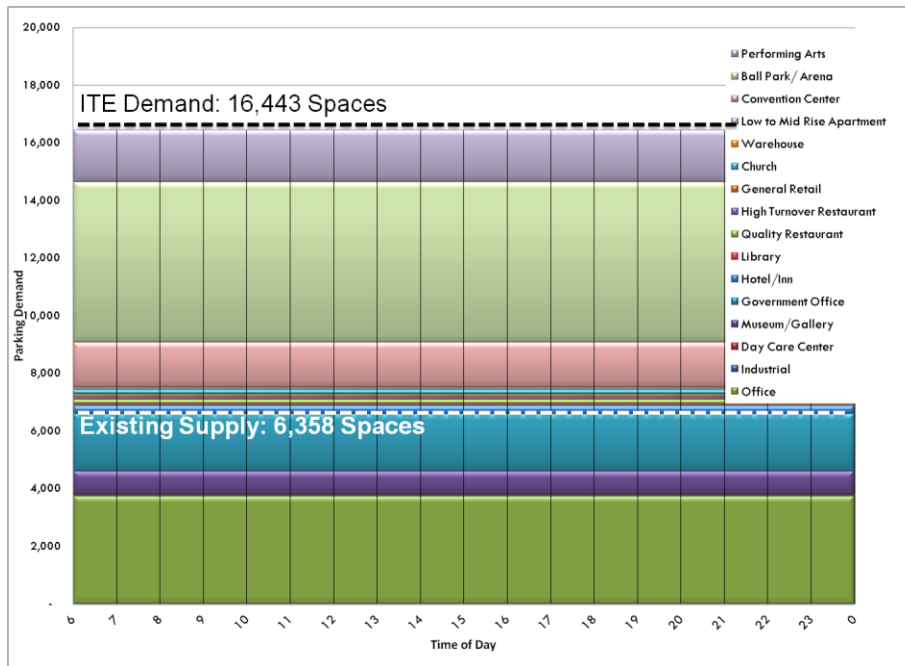
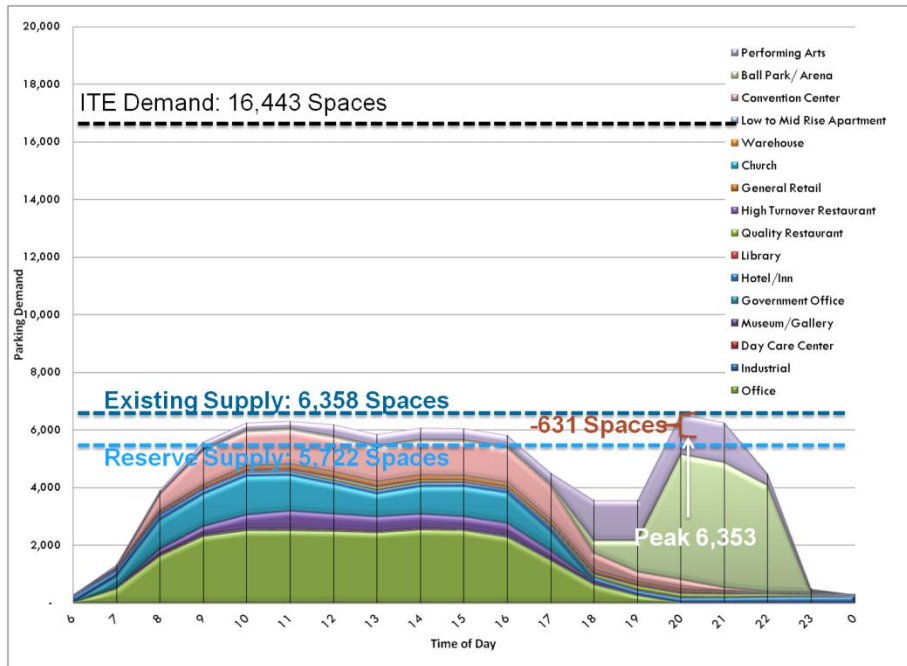


Figure 50 Existing Shared Demand (With Events)



Expected Future Development

The Rice Park Entertainment District is expecting three substantial developments in the coming years: Seven Corners/Gateway, Ramsey County West, and Opus/ Seven Corners Hardware. Although the development programs are not confirmed, the team used the estimated land use square footage and parking supplies shown below. The team worked with this future development program to determine the parking impact when these three projects are built. The future estimates account for loss of existing parking and built square footage.

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Figure 51 Rice Park Entertainment District Expected Developments

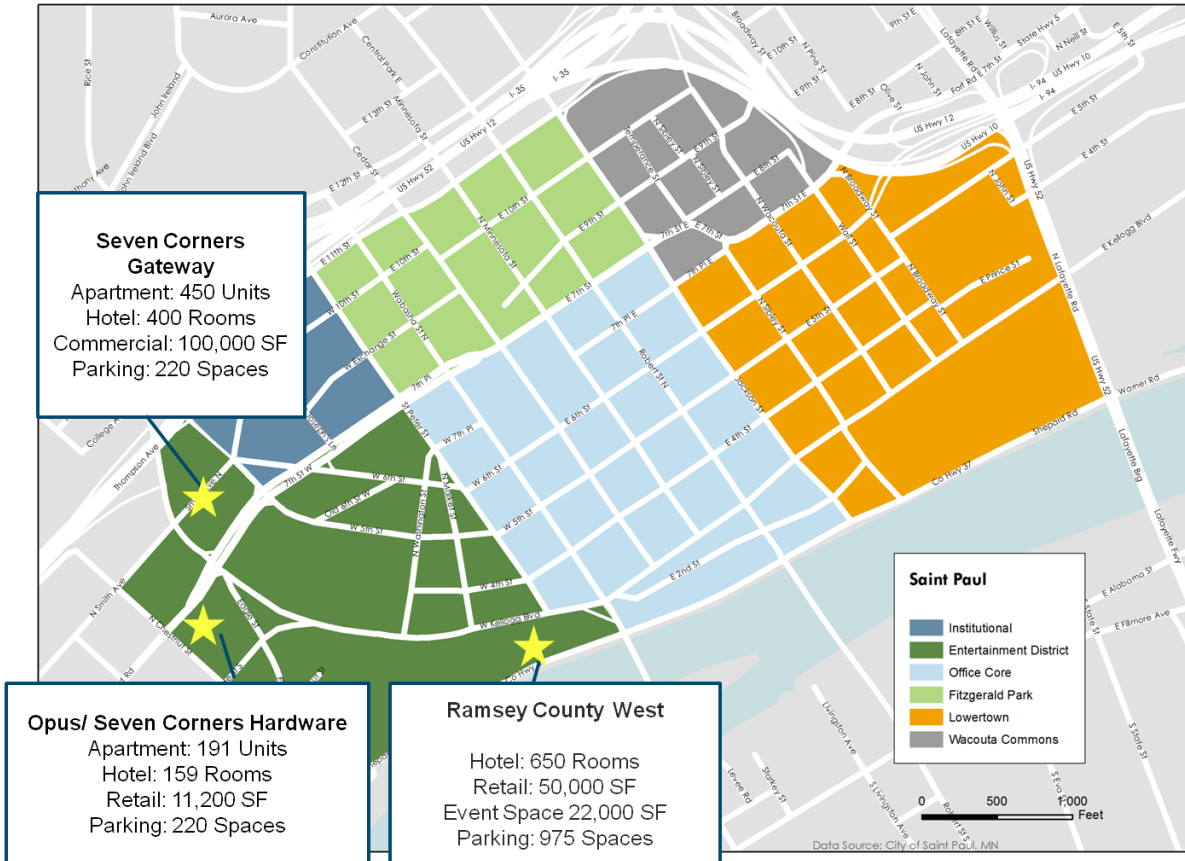


Figure 52 Existing and Future Development Land Uses

Use	SF/ Unit	Future SF/ Unit
Office	2,122,932 SF	+50,000 SF
Museum/ Gallery	810,358 SF	
Government Office	684,413 SF	-614,723 SF
Convention Center	388,929 SF	+22,000 SF
Library	118,104 SF	
Industrial	87,770 SF	
Warehouse	79,306 SF	
General Retail	56,744 SF	+89,040 SF
Church	37,760 SF	
Restaurant	44,266 SF	
Ball Park/ Arena	18,568 Seats	
Performing Arts	7,206 Seats	
Hotel/ Inn	448 Rooms	+1,209 Rooms
Day Care Center	118 Students	
Low Rise Apartment	48 Units	+641 Units
TOTAL	4,041,653 SF 25,774 Seats 448 Rooms 118 Students 48 Units	3,587,970 SF 25,774 Seats 1,657 Rooms 118 Students 689 Units

Similar to the existing land use analysis, the future development was broken into two development scenarios, one that excludes demand from events and one that includes demand generated from the event venues. In the future "no-events" analysis, the development scenario shows that, even with added parking from future developments, demand would be less than the future parking supply by 2,100 spaces during the morning peak, at 11am. The future scenario that includes event demand shows that there would be a deficit of approximately 1,000 spaces during the evening, 8pm peak. The surrounding activity area can easily absorb this excess demand into existing facilities.

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Figure 53 Future Shared Demand— Rice Park Entertainment District (No Events)

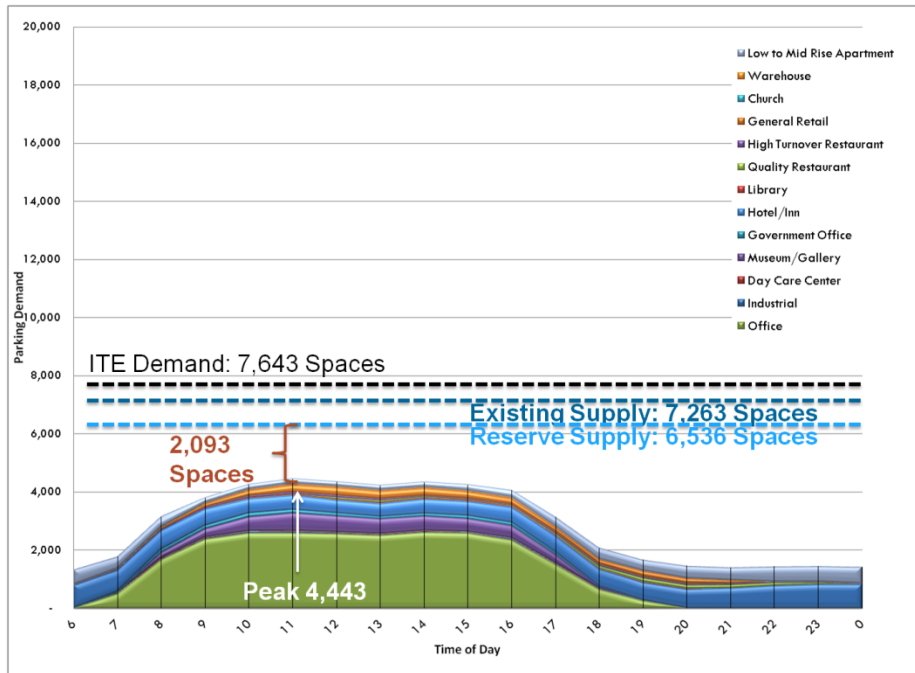
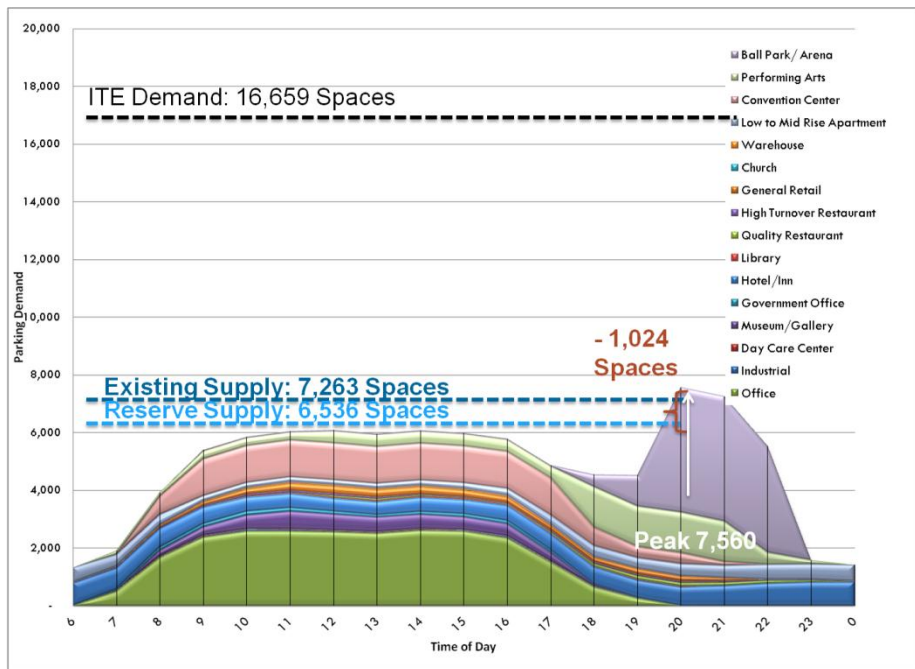


Figure 54 Future Shared Demand— Rice Park Entertainment District (With Events)



INSTITUTIONAL

KEY FINDINGS: INSTITUTIONAL

- About 500 parking spaces are unused at the peak.
- The shared use model accurately predicts observed parking demand; the observed demand is about 1,000 parked cars, where the model estimates about 900 parked cars at peak.

Existing Land Use

The Institutional activity area within downtown comprises medical, hospital and office uses. In addition to these uses, there are also approximately 150,000 square feet of community center, church, and other commercial retail spaces. Figure 55 shows the breakdown of land use by category; the square feet and units are adjusted for office, retail, and residential vacancies.

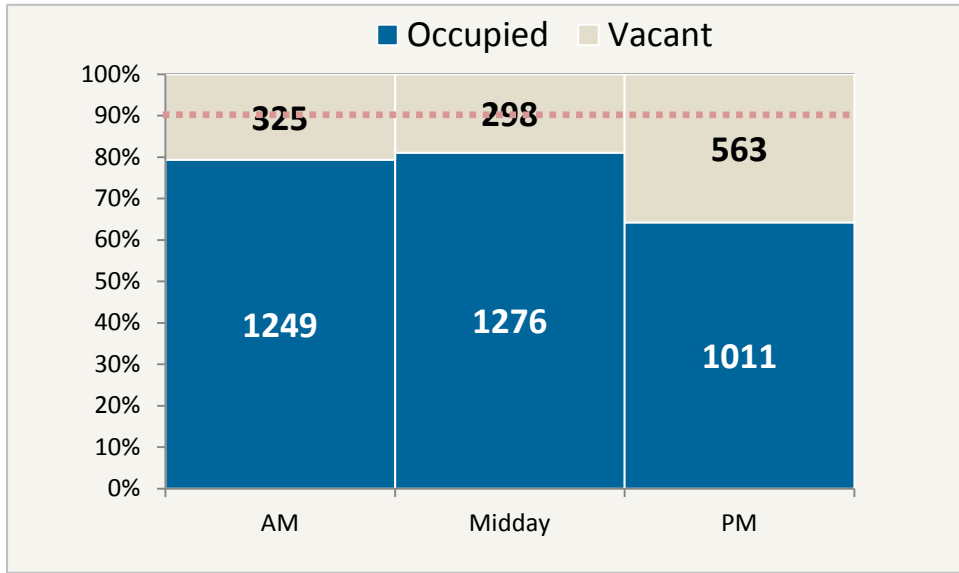
Figure 55 Existing Land Use- Institutional

Use	SF/ Unit
Office	85,510 SF
Community Center	85,396 SF
Church	44,308 SF
Retail	13,360 SF
Industrial	4,755 SF
Hospital	232 Beds
TOTAL	233,329 SF 232 Beds

Existing Parking Supply and Demand

In the Institutional activity area, there are 1,574 total parking spaces. At peak on a weekday, 81% of the parking supply is full with 1,276 parked cars.

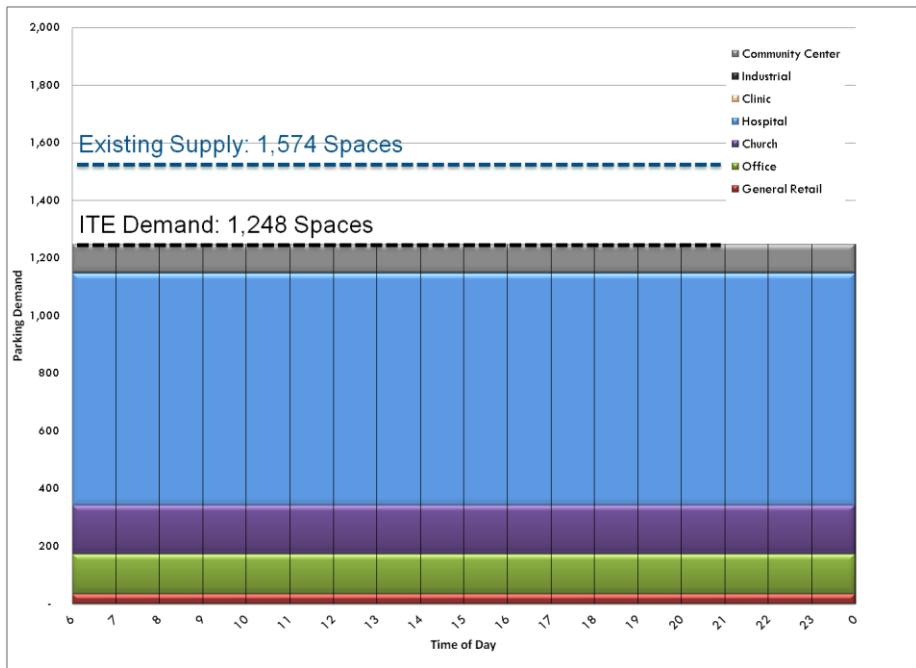
Figure 56 Institutional Estimated Utilization



Existing Shared Use Analysis

According to national parking generation rates from ITE, the needed number of parking spaces, *assuming that each land use has its own dedicated supply of parking*, is 1,248 spaces. The Institutional activity area has a total of 1,574 spaces. The existing supply is approximately 320 spaces above what national standards would suggest.

Figure 57 Existing Unshared Demand- Institutional



The land use model shows the number of parking spaces needed after factoring in time of day demands by land use and the activity area’s mixed-use environment. The results estimate peak demand at 12pm with 905 spaces, which is approximately 500 spaces lower than the existing reserve parking supply.

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Using the same parking utilization counts in Figure 56, when overlaid on the modeled parking demand based on land use, the observed demand shows a peak of 1,022 spaces during the mid-day, approximately 115 spaces more than the modeled demand. This occurrence may be attributed to overflow parking generated by nearby activity areas due to factors such as less expensive parking rates and parking availability. Although there is a greater intensity of parking demand than modeled, at peak there are still approximately 390 spaces available for use.

Figure 58 Existing Shared Demand- Institutional

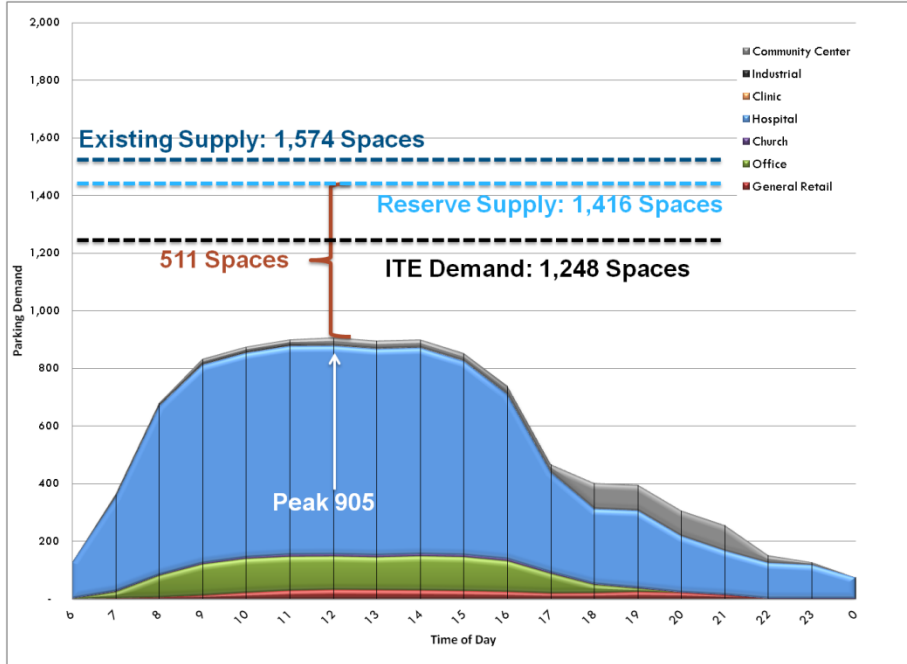
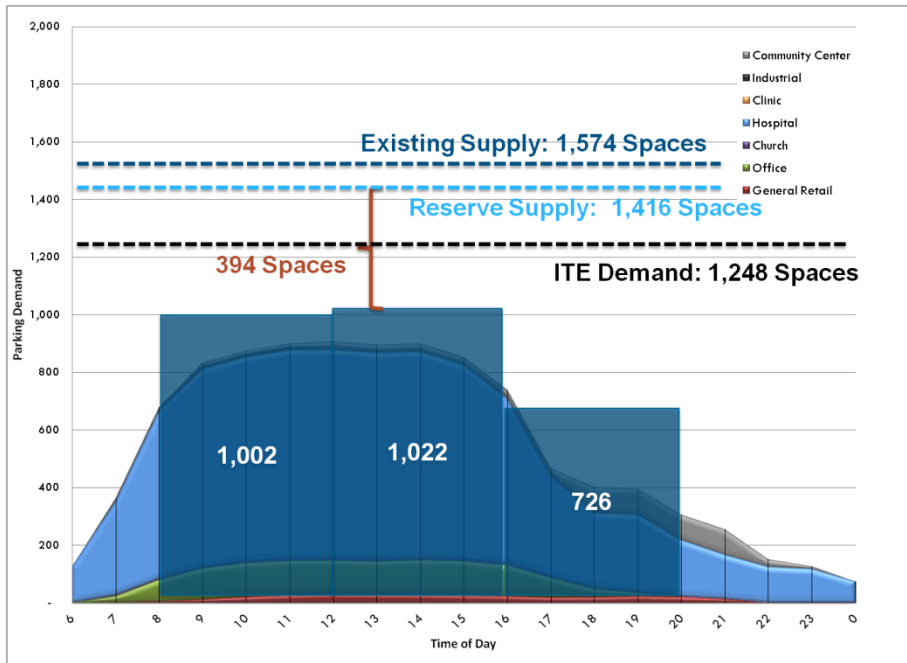


Figure 59 Existing Shared with Observed Demand - Institutional



4 ZONING CODE

KEY FINDINGS

- Saint Paul has already adopted a progressive approach to parking requirements in downtown, exempting all uses from minimum parking requirements.
- In downtown, there is still an opportunity to require shared parking when parking is provided.
- The Zoning Code includes TDM and bicycle parking requirements, but they could be stronger.
- There are no requirements for unbundling the cost of parking from residential development.
- There are no carshare or bikeshare requirements.
- There are no regulations in downtown that prevent single-use parking structures or surface lots.
- There is an opportunity to impose a parking maximum for development projects in downtown.
- There is an opportunity incorporate elements of the City's Traditional Neighborhood Districts zoning into the CBD (Article III. - 66.300).

PARKING PROVISION

General Parking Requirements

The Saint Paul Zoning Code does not require any new developments to provide parking downtown. This is appropriate in a downtown setting, where many other transportation options exist, and there are many opportunities to share parking among uses. Developers may still provide parking as they see fit, based on anticipated market demand.

A small portion of downtown is under the jurisdiction of the State, due to its proximity to the Capitol. Although most of the Capitol area has minimum parking requirements, the portion that is within this project's study area does not have minimum parking requirements, consistent with the rest of downtown.

Parking Minimums and Maximums

Figure 60 Parking Minimum and Maximum Requirements for the Downtown Area Under Saint Paul's Zoning Code

Existing Regulation	Best Practices
<p>No minimum parking requirements in downtown.</p> <p>Parking maximums are not defined for downtown (projects outside downtown must seek special approval if they exceed parking minimums by a set amount.)</p>	<p>Removed Parking Minimums:</p> <p>Many places have done away with minimum parking requirements for the entire municipality while others have targeted specific zoning districts, as Saint Paul has.</p> <p>Parking Maximums:</p> <p>In a growing number of municipalities, parking minimums have been replaced with parking maximums. In some cases, the amount required as a minimum is directly converted to a maximum. In others, the current standards are rejected altogether and a new analysis is carried out based on local auto ownership rates and commuting patterns.</p>

Opportunity: Consider introducing clearly defined parking maximums in areas.

Shared Parking

Mixed-use developments offer the opportunity to share parking spaces between various uses, thereby reducing the total number of spaces required. This is a primary benefit in mixed-use development contexts of moderate-to-high density. Shared parking operations offer many localized benefits to the surrounding community, including a more efficient use of land resources and reduced traffic congestion.

The Saint Paul Zoning Code acknowledges shared parking and its potential benefits. Outside downtown, shared parking may be used where appropriate to reduce the overall parking requirements for a new development or existing use. The Zoning Code does not discuss shared parking in downtown, because there are no minimum parking requirements. Even though parking is not required, it is appropriate to introduce regulations—and incentives—for shared parking when developers do provide parking voluntarily.

Figure 61 Shared Parking Requirements in Downtown Under Saint Paul's Zoning Code

Existing Regulation	Best Practices
No parking is required downtown, and shared parking is not discussed for downtown land uses. (Outside downtown, shared parking is allowed as a means to reduce parking demand in some cases.)	Encouraging shared parking wherever possible. Potential to include parking provided by new developments as part of the public parking supply.

Opportunity: Require future projects to provide either shared parking or parking open to the general public, when parking is provided, with a low parking maximum or as part of another zoning requirement. If more parking is built than maximums, then shared parking may be required. Could also require all stand alone or surface parking facilities to share or open a portion of parking spaces to the public.

PARKING DESIGN

Driveway Curb Cuts

Driveway curb cuts are a major source of vehicle-pedestrian-bicycle conflicts and induce congestion on busy thoroughfares due to left-turning vehicles. When alternatives are available and feasible, limiting or prohibiting driveway curb cuts along key vehicle, pedestrian, and bicycle routes reduces or eliminates these conflicts, providing safer, more efficient and less congested public rights-of-way. The Saint Paul Zoning Code states that parking structures should generally use the smallest curb cut and driveway possible to minimize the visual impact of structured parking. It also recommends minimizing the number of curb cuts, and sharing curb cuts between adjacent parking areas when possible.

Figure 62 Dimensional Requirements Under Saint Paul's Zoning Code

Existing Regulation	Best Practices
Comprehensive or neighborhood plans should discourage additional curb cuts or driveways across sidewalks.	In downtown districts, prohibit curb cuts and driveways along key transit, bicycle, and/or pedestrian routes whenever possible. Where curb cuts are present, standards expect a level crossing for pedestrians (raised driveway) and clear sightlines for exiting motorists to see pedestrians. Encourage joint access to multiple lots through shared driveway/curb-cut access.

Opportunity: Introduce more specific guidance for curb cuts specifically designed for downtown to minimize width and prioritize pedestrians. May prohibit curb cuts in certain locations or in relation to other curb cuts.

Parking Facility Design

Saint Paul’s Zoning Code sets standards for the appearance of parking structures to ensure they fit into their surroundings. The following guidelines are set forth:

- The ground floor facade abutting any public street or walkway must be consistent with nearby commercial or office buildings.
- The design of upper floors should avoid sloped floors that dominate the appearance of the facade.
- Windows or openings should be provided that echo those of surrounding buildings.
- Entrance drives to structured parking (including underground parking) must be located and designed to minimize interference with pedestrian movement. Sidewalks must continue across driveways.
- The appearance of structured parking entrances must be minimized so that they do not dominate the street frontage of a building. Possible techniques include recessing the entry; extending portions of the structure over the entry; using screening and landscaping to soften the appearance of the entry; using the smallest curb cut and driveway possible; and subordinating the parking entrance (compared to the pedestrian entrance) in terms of size, prominence, location and design emphasis.

In the portion of the downtown covered by the Greater Lowertown Master Plan, the Plan recommends that freestanding, single-use structures are prohibited, and surface parking lots are allowed only as a conditional use.

Figure 63 Design Requirements under Saint Paul’s Zoning Code

Existing Regulation	Best Practices
Parking may occupy a required front yard if it is set back at least 6' from the street.	No front yard parking or surface lots larger than a certain size. Reduced or eliminated minimum building setback requirements.
Wheel-stops or curbs must be provided to prevent encroachment onto public or other private property.	No stand-alone facilities.

Opportunity: Consider more broad elimination of any minimum setbacks and require parking to be behind a given building. Require that future parking structures have ground-floor level retail, have ground-floor pedestrian entries, or are wrapped with other active uses. Could require structures be built to a standard that can be converted to other uses in the future. Consider prohibiting additional surface parking lots over anywhere in downtown or approve as a conditional use.

Lighting

Proper lighting is an important component of parking lot and structure design, ensuring that people feel safe accessing their vehicle at all times of day. Saint Paul’s Zoning Code requires that all parking facilities (including bicycle parking) be illuminated to a level to allow safe, secure access to the parking facility and within it. In March of 2013, as part of the Federal Energy Management Program, the U.S. Department of Energy released a Parking Structure Lighting Guide, providing guidelines for energy efficient and cost effective lighting designs for parking structures.

Opportunity: Consider adopting detailed guidelines for parking structure lighting to ensure that parking structures feel safe and secure.

SUPPORTING ELEMENTS

Car Sharing

Car-sharing provides individuals with access to a fleet of shared vehicles, allowing them to avoid owning a car, or a second or third car. Car-sharing can also be a tool for businesses and government organizations, to decrease their fleet vehicles. At the same time, car-sharing at the workplace allows employees to take transit, walk or cycle to work, since a car will be available for business meetings or errands during the day.

The Zoning Code does not address car sharing in downtown. Outside of downtown Saint Paul, the Zoning Code allows developers to provide car share spaces to reduce parking requirements.

Figure 64 Car Sharing Regulations under Saint Paul's Zoning Code

Existing Regulation	Best Practices
None.	A minimum number of car share spaces are required to be provided free of charge to car share services (such as Zipcar or car2go), in relation to the amount of parking provided and proximity to transit.

Opportunity: Include car sharing as a requirement when parking is provided. Include car sharing spaces (including designated car2go spaces) near entries or before gated areas.

Unbundling Parking Costs

Unbundling parking costs changes parking from a required purchase to an optional amenity, so that households and employers can freely choose how many spaces they wish to lease. Especially among households with below average vehicle ownership rates (e.g., low income people, downtown residents who can walk to work with access to transit, singles and single parents, seniors on fixed incomes, and college students), allowing this choice can provide a substantial financial benefit. Unbundling parking costs means that these households no longer have to pay for parking spaces that they may not need or be able to afford.

Charging separately for parking is the single most effective strategy to encourage households to own fewer cars, and rely more on walking, cycling and transit. According to a 2006 study by Todd Litman⁶, unbundling residential parking can significantly reduce household vehicle ownership and parking demand.

The Zoning Code does not explicitly address the unbundling of parking cost.

Figure 65 Unbundling of Parking Cost Regulations Under Saint Paul's Zoning Code

Existing Regulation	Best Practices
None.	Any parking spaces offered to tenants of a new development must be offered as a fee-based option distinct from charges established for renting, leasing, or purchasing primary-use space within the development. These fees shall reflect market realities (i.e., the actual value of parking).

⁶ Todd Litman, *Parking Management Best Practices* (Planners Press, 2006)

	<p>The purpose of this code language is to make the cost of providing parking clear to residential and commercial tenants and buyers, and to help them make more informed decisions about their transportation needs. Unbundled parking also makes housing more affordable for tenants or buyers who do not have a vehicle, without affecting price for others. Typically, unbundled parking leads to reduced parking demand, which in turn lets developers build less parking and more of the functional building space (whether that is living units, commercial space or office space). Typically unbundled parking reduces parking demand by 10-30%⁷ depending on circumstances. A conservative approach may be to ease minimum requirements by 20%.</p>
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Opportunity: Specifically include unbundling in the Zoning Code; may want to consider proximity to transit or number of units in unbundling code.

Bicycle Parking and Facilities

Bicycle parking is an essential part of encouraging bicycling and typically serves two important markets. Long-term parking is needed for bicycle storage for residents and employees. This parking is located in secure, weather-protected, restricted access facilities. Short-term parking serves shoppers, recreational users and other. In addition to security, convenient locations are a priority – otherwise, bicyclists will tend to lock their bicycles to poles or fences close to their final destination. Bicycle improvements increase mobility; reduce auto dependency, congestion and air pollution; and can be a very important mode of transportation for lower-income families.

The Zoning Code requires bicycle parking to be provided based on the number of vehicular parking spaces provided (when parking is required.) The Code requires a minimum of one secure bicycle parking space for every 20 automobile parking spaces. All parking facilities with 12 or more spaces must provide at least one bike parking space. For residential developments, a minimum of one bike parking space must be provided for every 14 dwelling units. For non-residential units, there is no minimum bike parking requirement if automobile parking is not provided. The Zoning Code also requires that the bike parking be located in a place that is at least as convenient to the main entrance of the building as the most convenient third of the automobile parking.

Several cities have also taken steps to encourage developers to provide bike share stations⁸. These stations provide a centralized location for bike share members to rent and return bicycles, and other amenities such as bike share and transportation system maps. Austin Denver, and Portland have adopted legislation that allows developers to provide less than the required amount of automobile parking if bike share stations are provided. Washington, DC requires developers to provide bike share stations if they provide more than the required amount of automobile parking. The City of Boston requires at least one bike share station for any residential buildings with 100 or more units (this requirement *may* be waived if another station is within 200 yards). Even though there are no parking minimums downtown, the model of requiring bike share if excess automobile parking is provided would be more suitable. Alternatively, the City could require all new developments to provide a bike share station on-site, or contribute to an in-lieu fee to expand the bike share system elsewhere in downtown if a station is already available within about two blocks of the site.⁹

⁷ Todd Litman, Victoria Transport Policy Institute.

⁸ City of Boulder, "Developer TDM Requirements Best Practice Research." <https://www-static.bouldercolorado.gov/docs/developer-tdm-requirements-best-practices-research-1-201410151725.pdf>

⁹ Most bike share systems strive to provide station spacing roughly 900 feet, though stations may be placed more closely in areas with very high demand. This is discussed in page 3-8 of the City and County of Honolulu's "Bikeshare Organization Study", prepared by Nelson\Nygaard: <http://www.ochumpo.org/wp-content/uploads/2013/02/HonoluluBikeshareOrgStudyJune2014.pdf>

Figure 66 Bicycle Parking and Facilities Regulation Under Saint Paul’s Zoning Code

Existing Regulation	Best Practices
<p>One bike parking space is required per 20 automobile parking spaces or per 12 dwelling units. Parking facilities with at least 12 automobile parking spaces must provide a bike parking space.</p> <p>Bike parking must generally be as convenient as automobile parking, and should receive similar security and weather protection measures to any automobile parking that is provided.</p>	<p>Minimum bike parking facilities are provided in relation to the scale of development, and minimum design standards for such parking facilities are specified.</p> <p>Developers must provide an on-site, publicly accessible bike share station. If a station is already available within two blocks (about 700 feet), developers instead provide a contribution to expand bike share elsewhere in downtown.</p>

Opportunity: Include requirements for both on-street short-term bike parking and off-street long-term bike parking based on the number of dwelling units, total square footage of the building, and/or type of land use, regardless of whether automobile parking is provided. Require developers to provide a publicly-accessible bike share station on-site; if a station is already located within two blocks (about 700 feet) of the development, provide a contribution to fund the expansion of the bike share system with a new station elsewhere in downtown (off-site station placement to be determined at the discretion of the City).

Transportation Demand Management Measures

Transportation Demand Management (TDM) refers to a package of strategies to encourage residents and employees to drive less in favor of transit, carpooling, walking, bicycling, and teleworking. It encompasses financial incentives such as parking charges, parking cash-out, or subsidized transit passes; Guaranteed Ride Home programs to give employees the security to carpool or ride transit; compressed work schedules; and information and marketing efforts. TDM programs have been shown to reduce commuting by single-occupant vehicle by up to 40%, particularly when financial incentives are provided.

The Saint Paul Zoning Code requires a TDM plan to be implemented when a new development will include 100 or more off-street parking spaces. The TDM requirement also applies when an existing use undergoes a change that will result in providing 100 or more total spaces through an increase in the amount of parking by 25% or 50 spaces.

Figure 67 Transportation Demand Management Measures Under Saint Paul’s Zoning Code

Existing Regulation	Best Practices
<p>TDM plans must be prepared for new projects with at least 100 parking spaces. Existing uses may be required to prepare a plan when increasing the number of parking spaces by a certain amount.</p> <p>TDM plans must include a description of TDM strategies and implementation actions, such as employer subsidized transit passes; on-site transit facilities; preferential parking for ride sharing, car share spaces, alternative fuel vehicles; on-site bicycle and pedestrian facilities; and telecommuting and flex scheduling opportunities.</p>	<p>Apply TDM requirement based on the size of the development measured in square footage or number of employees.</p> <p>Use a standardized, simplified approach. With fewer options and a points system or pre-established criteria for performance standards based on proximity to transit. Requirement for transit-pass subsidy for properties in proximity to transit.</p> <p>Longer compliance period to ensure ongoing efficacy of ordinance and accomplishment of City trip reduction goals.</p>

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<p>TDM plan performance requirements include a description of TDM evaluation measurements, processes, and benchmarks that will be used to determine the effectiveness of the TDM strategies used and progress towards achieving the TDM plan's goals.</p>	
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Opportunity: Saint Paul should expand its TDM requirements, monitoring, and reporting and apply them to either the size of the development measured in square feet or by the number of employees. The City should work with Saint Paul Smart Trips to determine the best methods for assisting developers or employers in implementing TDM programs.