

5.0 PARKING MANAGEMENT PLAN

In determining the best parking plan for JDS, our team analyzed a number of options to provide the greatest customer parking experience in the safest environment while targeting the requirements of the RFP. The conceptual design developed for parking included analyzing a variety of items from customer security to payment and queuing considerations. As we advance design of the parking structures with the City we would like to explore the items presented below in more detail.



CUSTOMER SECURITY

The parking structures throughout the plan are designed with safety as a primary goal – safety for the driver and for the customer before and after parking. Security features have been provided to enhance the safety of parking patrons, their vehicles, and for the overall parking structure. In addition to providing passive security features such as minimizing sight line obstructions, open floor plan, and glass backed elevators, we expect incorporating active security features, including CCTV cameras, emergency call stations and enhanced lighting.

CCTV Cameras

Closed circuit television (CCTV) cameras should be provided on each parking level at the following locations:

- Elevator lobbies
- Stair towers
- Parking areas
- Vehicular entrance/exits
- Pedestrian entrance/exits
- Common areas



Emergency Call Stations

In addition, Emergency Call Stations should be provided on each parking level at the following locations:

- Elevator lobbies
- Stair towers
- Common areas



The CCTV and Emergency Call Stations should be connected to a central monitoring and recording station.

Lighting

White light such as LED or fluorescent will be used for this parking garage. These light sources are energy efficient and provide a longer lamp/fixture lives. White light provides a higher color rendition which provides a higher perceived security for parking patrons and makes it easier for them to recognize color of their vehicles. Additionally, white light provides higher quality images for the CCTV cameras as compared to High Pressure Sodium (HPS) which provides yellow light.

Light fixtures will be mounted over the parking areas to minimize glare for the drivers as well as improved lighting for the pedestrians. Light levels will meet Illuminating Engineering Society of North America's (IESNA) recommendations for parking garages.

5.0 PARKING MANAGEMENT PLAN

Revenue System and Customer Queuing

The JDS garage will serve multiple types of users, and therefore needs to provide a variety of entry/exit considerations and payment options. The main users will be:

- Hourly and daily users
- Monthly and residents
- Hotel guests
- Hotel meeting room attendees
- Special event parkers

The appropriate revenue management system will provide the optimal parking experience to customers. Each of the items noted below could be incorporated to minimize waiting at the gates and increase payment options. A blend of the following revenue systems should be considered to meet the needs of all users:

- Mag striped ticket with pay-on-foot
- Park-by-phone
- AVI with pre-registration
- Park-by-phone

Each of these is described below. Their integration should be considered as part of the City's RFP for a city-wide revenue control system and the detailed design of the JDS parking facilities.

MAG STRIPED TICKET WITH MULTIPLE PAYMENT OPTIONS

This system is mainly used for hourly, daily guests. Upon entrance the customer pulls a magnetically striped parking ticket. Then, at exit, the following payment options may be provided:

- Pay to a cashier using cash or a credit card.
- Insert the ticket and a credit card in an in-lane machine.
- Pay at a Pay-on-Foot (POF) station before returning to vehicles.
- Insert the ticket and a prepaid (debit) card in an in-lane machine.

The following benefits are realized with a mag stripe system:

- Pulling a ticket at entrance is common and least confusing.
- Except for paying to the cashier, all other exiting options provide fast exiting.
- Minimal/low cash handling.
- Less revenue "slippage" due to human errors.
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Proximity Card

This system is mainly used for monthly parkers and residents. The customer registers his/her vehicle(s) and receives a proximity card. Then:

- At entrance, customer uses a proximity card. The card is attached to customer's parking account and payment is collected on a monthly basis.
- At exit, the parking gate is raised using valid credentials on the proximity card.

The following benefits are realized with a proximity card system include:

- No cash handling.
- Minimal revenue "slippage" due to human errors.
- Fast entry and exit.

5.0 PARKING MANAGEMENT PLAN

- The City collects payment in advance.
- A refundable fee may be collected to cover the cost of the proximity card.

AVI with Pre-Registration

Similar to the proximity card, this system is mainly used for monthly parkers and residents. The customer registers his/her vehicle(s) and receives an AVI (automatic vehicle identification) device. The device will be issued to customers who open a parking account at City's website.

Similar benefits are realized with the AVI and proximity card systems.

Park-by-Phone

This is a new evolving system that is mainly used for hourly, daily and visitors who return periodically to the Madison parking system. The customer registers his/her vehicle(s) using a smart phone with NFC (near field communications) capabilities. Then,

- At entrance, customer uses the same smart phone and with valid credentials, parking gate will be raised.
- At exit, customer again uses the same smart phone and parking gate is raised based on valid credentials.

The following benefits are realized with a pay-by-phone system:

- No cash handling.
- Minimal revenue "slippage" due to human errors.
- Fast entry and exit.

Customer Queuing Time

To provide high level of parking and traffic flow flexibility, entry and exit lanes are provided from Wilson Street and Doty Street. The details of entrance and exit lanes are shown in the following tables. In our preferred approach, Scheme 1, we are eliminating entry/exit onto Wilson from Block 88 due to there no longer being underground parking on this block.

Scheme 1			
Entrance/Exit	Block 88	Block 105	Total
In	1	2	3
Out	1	3	4
Total	2	5	7

Scheme 2			
Entrance/Exit	Block 88	Block 105	Total
In	2	2	4
Out	2	3	5
Total	4	5	9

5.0 PARKING MANAGEMENT PLAN

To further minimize customer queuing time for hourly and daily users, we propose to use Park-by-Phone (PBP), Pay-on-Foot (POF) stations and credit and/or debit cards at the exit lanes. By using PBP and POF stations, parking patrons would pay parking fees prior to returning to their vehicles and credit/debits cards would reduce the exit processing time as compared to paying to a cashier. For monthly and resident parkers, we propose an AVI system. AVI devices have a very short or no exit processing time. We intend to program the AVI system such that the parking gate arms would not come down when the system detects vehicles with AVI devices are lining up at the exit lanes.

For Special events, we propose to implement the following two procedures:

1. For small to mid-size events, customers would pay for parking at the POF stations or use the Pay-by-Phone. At exit, parking gates would be raised after customers insert the prepaid tickets or use their smart phones. This procedure would minimize cash handling and maintain garage vehicle counts that may be used for Parking Guidance System (PGS).
2. For larger events, use cashiers and collect parking fees at entry. At exit, provide free flow by raising the parking gate arms. This approach would minimize customer queuing at exit lanes as long as the streets can provided the needed traffic flow capacities. Additionally, it would provide flexibility to the parkers to choose the exit lanes to Wilson or Doty Streets. However, this approach may require that the PGS be calibrated after special event vehicles left the garage.

Factors Considered for Parking Demand Calculations

To calculate the optimal number of parking spaces for the JDS project we analyzed the following variables.

Shared Parking Demand - Shared parking is a commonly used practice in planning parking facilities. It is applied when land uses have different parking demand patterns throughout the day. Shared parking is effective when land uses have significantly different peak parking characteristics that vary by time of day, day of week, and/or season of the year. Shared parking strategies result in a lower parking demand as compared to the total parking demand for each land use separately.

Parking Ratios - Blended parking ratios are used to reflect local conditions and land uses. For example, one parking space per residential unit is applied based on the understanding that downtown residents will not own more than one car per unit.

Time-of-Day Factors - The shared parking demands were developed using time of day factors published in "Shared Parking" by Urban Land institute.

Existing Parking Supply (520 Spaces) - Parking demands for existing offices, visitors, guests, and contractors are met using existing parking supply of 520 spaces. We arrived at this number (520) based on maximum parking occupancy information provided by the City and applying an effective parking demand factor of 10 percent.

5.0 PARKING MANAGEMENT PLAN

Special Event Parking - Significant parking from existing parking supply of 520 spaces will be available for special events occurring on weekday evenings and weekends.

As a result of this analysis we are targeting over 902 parking spaces in Scheme 1 and over 859 in Scheme 2. Reasonable assumptions were applied to the mixed use building spaces in order to calculate parking demand. As these spaces are further defined, the parking calculation will be updated accordingly. In Scheme 2, the larger difference between demand and supply is a result of the parking garage layouts and the uncertainty about the final uses for Block 105.

The following tables present the assumptions used in estimating parking demand for both Schemes.

**Preliminary Shared Parking¹ Demands
for New Above Ground Development - SCHEME 1**

Block 88	Area / No. of Units	Parking Demand Ratios ²	Non Shared Parking Demands	Shared Parking Demand ³				Supply for Special Events Weekends ⁵
				Weekdays		Weekends		
				Daytime	Evening	Daytime	Evening	
Retail	7,480 SF	4.0/1,000 GLA	30	30	28	30	24	
Hotel	308 Rooms	0.9/Room	277	166	277	166	277	
Hotel - Meeting Rooms	11,250 SF	1/1,000 GLA	11	11	0	0	0	
Restaurant	19,800 SF	5.68/1,000 GLA	112	90	112	112	112	
Wellness/Fitness Center	11,000 SF	4.62/1,000 GFA	51	41	46	25	48	
Block 105								
Retail	7,000 SF	4.0/1,000 GLA	28	28	27	28	22	
Residential	80 Units	1.0/Unit	80	16	80	56	80	
City Offices ⁴	80,620 SF	N/A	0					
Subtotal of Above Demands			590	382	570	418	564	
Reserved parking spaces for current land uses ⁴			520	520	26	52	26	312
Total Parking Demands⁶			1,110	902	596	470	590	

1. Shared parking is a commonly used practice in the parking industry. It is applied when land uses have different parking demand patterns and the same parking spaces can be used by different patrons. Shared parking is effective when land uses have significantly different peak parking characteristics that vary by time of day, day of week, and/or season of the year. Shared parking strategies result in a lower parking demand as compared to the total parking demand for each land use separately.

2. Blended parking ratios are used to reflect local conditions and land uses. For example, one parking space per residential unit is applied based on the understanding that downtown residents will not own more than one car per unit.

3. The shared parking demands were developed using time of day factors published in "Shared Parking" by Urban Land Institute.

4. Parking demands for existing offices, visitors, guests, and contractors are met using existing parking supply of 520 spaces. We arrived at this number (520) based on maximum parking occupancy information provided by the City and applying an effective parking demand factor of 10%.

5. Significant parking from existing parking supply of 520 spaces will be available for special events occurring on weekday evenings and weekends.

6. It is a common practice in the parking industry to provide a "cushion" of parking spaces to accommodate for double parking, minor repairs, and to minimize the time to hunt for the last few parking spaces. This cushion is also referred to as "Effective Parking Demand (EPD)". Generally, the EPD is between 5% and 15%. Lower EPD is used for monthly/long-term parkers (5%) and higher for transient/short-term parkers (15%). We have not applied an EPD to our parking demand calculations as we want to discuss EPD with the City to come up with appropriate demand factors.

5.0 PARKING MANAGEMENT PLAN

Preliminary Shared Parking¹ Demands
for New Above Ground Development - SCHEME 2

Block 88	Area /No. of Units		Parking Demand Ratios ²	Estimated Parking Demands	Shared Parking Demand (based on time of day) ¹				Supply for Special Events Weekends ³
					Weekdays		Weekends		
					Daytime	Evening	Daytime	Evening	
Retail	11,850	SF	4.0/1,000 GLA	47	47	45	47	38	
Hotel	308	Rooms	0.9/Room	277	166	277	166	277	
Hotel - Meeting Rooms	6,800	SF	1/1,000 GLA	7	7	0	0	0	
Wellness/Fitness Center	10,000	SF	4.62/1,000 GFA	46	37	42	23	44	
Block 105									
Retail	5,180	SF	4.0/1,000 GLA	21	21	20	21	17	
Hotel	84	Rooms	0.9/Room	76	53	64	53	64	
Residential	40	Units	1.0/Unit	40	8	40	28	40	
City Offices ⁴	80,620	SF	N/A	0					
Subtotal of Above Demands				514	339	488	338	480	
Reserved parking spaces for current land uses ⁴				520	520	26	52	26	353
Total Parking Demands⁴				1,034	859	514	390	506	

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