JUDGE DOYLE SQUARE
MASTER PLAN
CITY OF MADISON, WI

CHAPTER 3
UNDERGROUND PARKING

Kimley-Horn and Associates, Inc.

Potter Lawson
Success by Design

UrbanAssets

Acknowledgments

To best serve the City of Madison, Kimley-Horn assembled a master planning consulting team that is committed to delivering exceptional service and innovative solutions for the Judge Doyle Square project. Kimley-Horn greatly appreciates the collaborative effort of the entire team in the preparation of this document. Team partners and their areas of master planning responsibility are as follows:

- **Kimley-Horn and Associates, Inc.** – Lead master planning consultant, project management, public involvement, TIA, environmental scoping, parking consulting, structural engineering
- **Potter Lawson, Inc.** – Project architecture, land use master planning, City office space study, project management team
- **Urban Assets** – Lead public involvement, master planning, project management team
- **Mobis Transportation Alternatives / Bikestation** – Bicycle center consultant
- **Ken Saiki Design, Inc.** – Public improvements and streetscape, landscape architecture
- **KJWW Engineering Consultants** – Mechanical, electrical, HVAC engineering consultant
- **PSJ Engineering, Inc.** – Fire protection consultant
- **Mortenson Construction** – Construction cost estimating, construction feasibility consultant
- **Charles Quagliana, Architect** – Historic preservation consultant

Kimley-Horn also appreciates the contributions and partnership of the many City of Madison staff members who contributed to the content and quality of this document. The City of Madison established a Project Team that included key City staff, representing the following agencies and divisions:

- **Planning and Community and Economic Development**
- **Traffic Engineering**
- **Parking Utility**
- **Office of the Mayor**
- **City Engineering**
- **Facility Management (Division of City Engineering)**
- **Metro Transit**
- **City Attorney's Office**
- **Monona Terrace Community and Convention Center**

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Contents

This document—**Chapter 3: Underground Parking**—is a part of the final report summarizing the Judge Doyle Square Master Plan completed in April 2012. The structure and presentation of the final report has been developed to specifically address the many aspects of the master planning process in a manner that can be easily read as a whole or in parts based on the interest and needs of the reader. The final report is separated into an introduction and eight chapters:

Each chapter has been bound separately and includes applicable images, tables, and drawings to provide additional information and documentation. Each chapter can stand alone as a summary document for a particular aspect of the project. When combined, the document provides a comprehensive summary of the significant areas of information gathering, study, planning, and management for the Judge Doyle Square master planning effort.

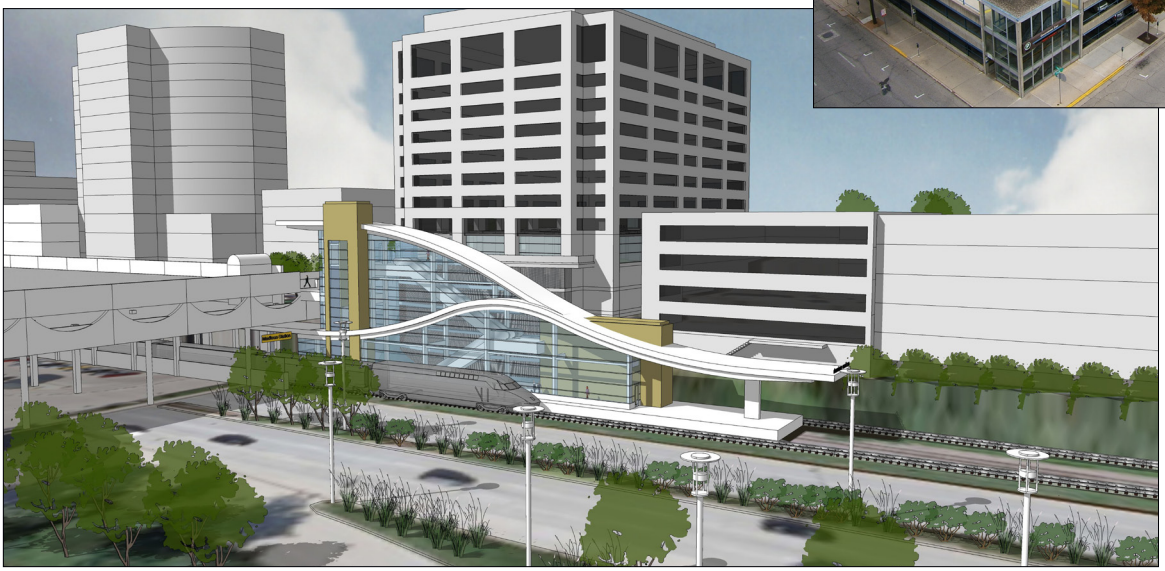
Chapter 3: Underground Parking

Introduction

An integral part of the Judge Doyle Square redevelopment is the proposed underground parking garage. Preliminary engineering studies commissioned by the City of Madison in 2010 established that four to five levels of subterranean parking, with approximately 300 parking stalls per level, can be constructed within the combined Block 88 and Block 105 project site. The City established an initial target capacity of 1,300 stalls that would support the existing parking demands currently met by the aging Government East Parking Garage and future parking demands of development on both blocks. The garage could also serve the needs of a future passenger rail station to be located at the State Department of Administration Building, adjacent to John Nolen Drive and the Monona Terrace Community and Convention Center.

Government East Parking Garage

The Kimley-Horn team developed and evaluated concepts for the underground parking garage that were tailored to meet the specific parking needs for the redevelopment. As the project team stepped through the conceptual design process and engaged the public and City staff, a ***Guiding Principle*** was adopted to "design the parking structure to create a customer friendly parking experience while optimizing first floor uses." While adhering to that established principle, the garage design must also support and



Conceptual rendering of proposed rail station at the DOA Building

affirm other adopted Guiding Principles for Judge Doyle Square, which establish the importance of pedestrian spaces (especially Pinckney Street), promote and enhance the use of bicycles as a downtown transportation mode, and ensure good intermodal connectivity. In addition, the Kimley-Horn team evaluated and incorporated many key aspects of the concept developed by the Marcus-ULI team for Block 88 for the development of a hotel on this portion of the redevelopment site. While not all aspects of their concept were included, vehicular and pedestrian points of access were matched so as to not require significant alterations to the at-grade and above-grade hotel concept.

The underground parking garage for the Judge Doyle Square redevelopment will have approximately 1,300 parking stalls with +/-300 stalls per level on 4 ½ levels. The 510,000-square-foot facility will be sufficient to serve the parking needs for the proposed hotel on Block 88 and proposed retail, office, hotel, and residential development on Block 105 as well as provide the City of Madison the flexibility to lease parking spaces to the state or support the future parking needs of a passenger rail station. Plans for the garage are included in Appendix 3-A.

Land Use/Parking Demand Requirements

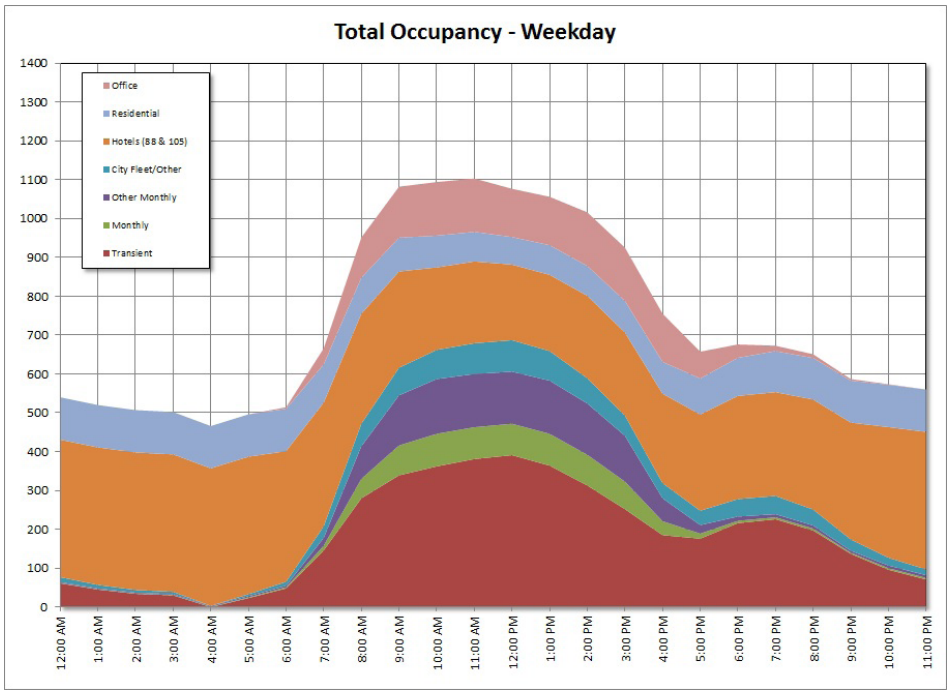
An Excel-based shared parking analysis model was developed as a component of the traffic impact analysis (TIA) completed to assess the traffic impacts of the proposed redevelopment. This model estimates the hours of peak occupancy, given the proposed on-site land uses, and anticipated entering and exiting volumes during the p.m. peak hour. The analysis, results, and conclusions are detailed in **Chapter 4 – Traffic Impact Analysis**. Some data from this analysis are referenced in the following sections. A combination of parking demand information provided by City staff, land use parking demand data from the Institute of Transportation Engineers' (ITE) Parking Generation, 4th Edition, and observed occupancy and entering and exiting volumes was used to calibrate the parking model. Included in the analysis was the potential need to provide up to 480 hourly/daily parking spaces, 320 monthly pass holder or other potential contract parking spaces, and 100 parking spaces for City of Madison fleet vehicles.

The total calculated parking demand for the site—assuming no shared spaces—is 1,501, broken down as follows:

- 480 hourly (short- and long-term) and daily spaces
- 120 monthly pass holder spaces
- 200 other potential contract spaces
- 100 City of Madison fleet vehicle spaces
- 259 hotel spaces (Block 88)
- 95 hotel spaces (Block 105)
- 109 residential spaces
- 138 office spaces

Taking into account fluctuations in demand over a 24-hour period, however, the maximum hourly parking occupancy is approximately 1,103, which occurs from 11 a.m. to noon on business days (Monday–Friday), as shown in Figure X-5 of Chapter 4. In accounting for the fluctuations in demand (over a 24-hour period) for each land use and parking user group component, this "shared parking" approach demonstrates that a parking facility can be developed for Judge Doyle Square to effectively meet the demand for all users while constructing less than the cumulative demand of 1,501 parking spaces identified above. This recommended shared parking approach assumes that none of the users or partners requires dedicated parking spaces and that the entire garage is operated by one entity with one parking revenue control system. The current concept includes 1,300 spaces, and therefore serves the peak condition demand with greater than a 15% buffer to accommodate parking patrons' need to circulate to find available parking or provide some flexibility for additional City parking demands. Generally, a facility should have a 5 to 10% buffer so that a user perceives that the facility has a space available for them.

Anticipated weekday hourly occupancy for JDS Underground Parking Garage



Hotel Parking

Hotel patrons will either self-park within the parking facility or will use valet parking services provided by the hotel. The concept includes a total of 354 parking spaces to serve the calculated parking demand for two separate hotels within the development on Block 88 (289 hotel rooms) and Block 105 (140 hotel rooms). Hotel patrons who choose to

self-park will access the parking facility in a manner similar to other users and at the same entrance locations. It is anticipated that patrons will be issued an access card (hotel room access card) that will enable them to enter and exit the facility during their stay. These patrons will park in typical marked parking stalls as self-park hotel parking areas will not be designated within the facility.

Hotel valet parking will be provided in a designated area on Parking Level U1. This will allow for quick turn-around times as valet runners retrieve cars. A single valet area could be designated for use by both hotels, or separate areas could be provided for each hotel. Parking stalls in the designated hotel valet parking areas would be striped using a non-typical paint color, and additional signage and graphics would be used to identify these areas as unavailable for public parking. Further measures can be taken to cordon off these areas to limit access and prevent non-valet use of these stalls, if necessary.

Short-Term Hourly Parking

Short-term (limited-use) hourly parking will be provided on Parking Level U1 of the facility. These parking spaces are a small component of the 480 hourly parking spaces accounted for in the shared parking demand calculations. These stalls are provided to offer convenient parking within the facility to support sidewalk retail businesses within the development and the surrounding area. Since these stalls will be located on the parking level immediately below the street level, patrons will have a short travel distance from their parking space to the street using public stairways or elevators. Parking stalls in the designated short-term hourly parking area would be striped using a non-typical paint color, and additional signage and graphics to identify these areas and stipulate the parking time limit (example: three-hour limit). Enforcement would be provided by on-site City Parking Utility staff.

Bicycle Parking

Section 28.11 of the City of Madison Zoning Code requires that designated bicycle parking be provided within off-street parking facilities according to the uses that the facility supports. Such parking will include provision for secure self-storage of bicycles. Based on the requirements of Section 28.11 and on the anticipated needs for the current concept land uses (retail, residential, and office), a minimum of 90 bicycle parking spaces are provided within the development on the ground floor and within the underground parking garage. Ground level, short-term

bicycle parking is provided on the surrounding sidewalks and in the southeast corner of the development, accessible from Wilson Street in one of two ground-level concepts developed for vehicular access to the underground garage. Long-term bicycle parking for the above-grade land uses (residential and office) is located on Parking Level U1 for convenience and safety. Bicycle parking areas within the garage will be designated with a non-typical paint color for floor striping and additional signage and graphics. Bicycle racks or corrals designed to accommodate U-shaped locking devices will be provided within these designated areas. Bicycle parkers can access the facility using the Block 105 vehicular garage entry point at Wilson Street as additional space is provided for riders to avoid auto gates at the access and revenue control point. Bicycle riders can also enter the facility from the street using the public stairways and elevators.

Site Criteria

Utilities

ALTA surveys of Block 88 and Block 105 as well as other surveys commissioned or completed by the City indicate the presence of many utility services within the public right-of-way of the streets surrounding the project site. Municipal water and sanitary sewer services are located under Pinckney Street, Doty Street, and Wilson Street. Electrical and telecommunication services are also located below ground within the surrounding public right-of-way. Based on the size and scope of the proposed Judge Doyle Square redevelopment, it is anticipated that municipal water and sanitary services will need to be enlarged to serve the needs of the area. The underground parking garage will be designed to maintain utility services currently located under Pinckney Street as well as other potential services as required by the development. Also, temporary excavation and shoring systems to be used during construction of the underground parking garage will be designed to avoid conflict with existing utilities. Some telecommunications utility relocation may be required for services within Wilson Street as surveys indicate their location to be in proximity to potential project excavation areas.

South Pinckney Street

Topography

One of the challenges to the redevelopment of this site and the construction of underground parking is the slope of the site. The high point of the parking garage site is at the northeast corner of the Madison Municipal Building on Block 88. The low point is at the southeast

corner of the existing Government East Garage at East Wilson Street. Significant elevation change occurs along Pinckney Street, as the grade slopes down toward Lake Monona and from Pinckney Street east along both Doty and Wilson Streets. From the intersection of Doty Street and Pinckney Street, the site slopes down approximately 5 feet along Doty Street toward King Street and approximately 7.5 feet along Pinckney Street toward Wilson Street. From the Pinckney/Wilson Street intersection, the site slopes an additional 6.5 feet along Wilson Street to the east. The slope of the site along each of the streets will require that the street level floors of the commercial spaces be stepped in elevation to accommodate pedestrian access. The parking floor elevations below grade are established to provide adequate depth for necessary structural systems, street level planting areas, and below grade utilities, and to provide for code-required vertical clearance for handicapped van accessible parking spaces.

Subsurface Conditions

Subterranean construction involves several potential challenges that can slow construction and increase costs, depending on the conditions encountered during excavation. Significant examples are the location of ground water, the potential of encountering contaminated soil and water, and the potential of significant mass rock formations. In 2010, the City retained CGC, Inc. to complete a subsurface geotechnical exploration program to evaluate the subsurface condition at the proposed parking garage site, provide recommendations for below-grade construction, and identify soil and groundwater information. CGC, Inc. issued reports on August 31, 2010 and September 27, 2010 to document findings and conclusions. These reports were reviewed for applicable information regarding ground water and potential for mass rock. In addition to these documents, the Wisconsin DNR (Department of Natural Resources) Remediation and Redevelopment (RR) Sites Map was reviewed for known contamination sites in the project area.

Ground Water

Lake Monona has a historic water level elevation of approximately 845 feet above mean sea level (U.S. Geological Survey Datum). Accordingly, Elevation 845.6 feet is established as the Madison City Datum (MCD). Based on the CGC, Inc. report, groundwater will rise in elevation (or mound) as the ground surface rises from the lake edge. Based on monitoring well readings taken in 2010 and again in December 2011, the groundwater elevation (water table) at the site is expected to be between Elevations 860 feet and 865 feet. The lowest floor elevation of the parking ramp is estimated to be at 852 feet. Therefore, the project likely will encounter ground water during and after construction.

Appropriate engineering practices will be evaluated during project design to address construction within the water table. Measures will also be taken to verify the ground water level at the site, and the potential ground water fluctuation. Construction

phase and permanent dewatering measures are included in conceptual design of the underground parking facility.

Contaminated Soil and Water

The Wisconsin DNR RR Sites Map was reviewed for known contamination sites within the project area. The RR Sites Map is a web-based mapping system that provides information about contaminated properties and other activities related to the

investigation and cleanup of contaminated soil or groundwater in Wisconsin. The RR Sites Map is part of the DNR's Contaminated Lands Environmental Action Network (CLEAN), an inter-linked network of DNR databases tracking information on different contaminated land activities.

The result of the RR Sites Map review included one closed soil contamination site (labeled incorrectly in the database as Block 89) within the site for which the file was closed in 1997. No further information was available via the Bureau for Remediation and Redevelopment Tracking System (BRRTS). A Leaking Underground Storage Tank (LUST) was identified adjacent to the site at the Diocese of Madison Chancery Building, for which the file was closed in 1999. Further investigation regarding soil contamination should be completed as part of future environmental review, and some soil or water remediation may be required on the site for construction of underground parking.

Mass Rock

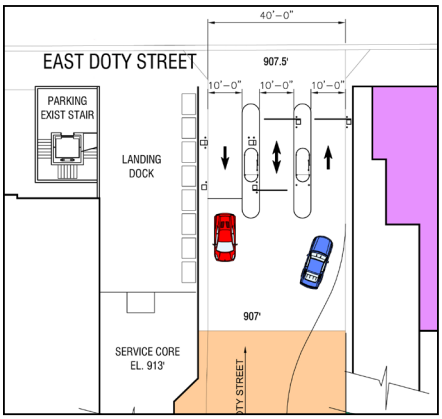
CGC, Inc. identified subsurface conditions across the site as fairly uniform and consisting of medium dense to very dense silty sand strata below about 3 to 12 feet of miscellaneous sand and clay fill with scattered brick and concrete debris. Otherwise, very dense sand strata were encountered to the extent of subsurface exploration. No mass rock was indicated in the exploration findings, but based on the seven boring locations, additional exploration should be completed to further investigate subsurface conditions prior to construction.

Vehicular Requirements

Points of Vehicular Access

The Judge Doyle Square underground parking garage will have four points of vehicle access. Two points of access are provided from Doty Street; one within Block 88 and one within Block 105. Similarly, two vehicle access points are provided from Wilson Street, one in each block. Two options for the Block 105 Wilson Street access point were developed. All concept access points are further described below.

Block 88 Doty Street vehicular access point



Block 88 Wilson Street vehicular access point

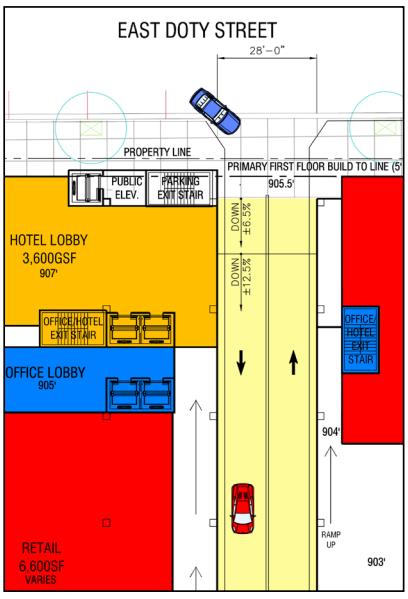
Block 88

Doty Street: This access point is located within the proposed Block 88 hotel development adjacent to the hotel loading dock. It is configured as modeled by the Marcus/ULI Team with one entrance lane, one exit lane, and one reversible lane for peak periods of loading and unloading. The parking access and revenue control (PARC) lanes are located at the street, minimizing available entrance queuing space but providing significant queuing space for exiting vehicles. This access point is located directly opposite of the Block 89 garage exit, which is configured with two exiting lanes during the afternoon peak period. If two exiting lanes are also open during this same period, the potential exists for conflicting exiting movements to the center travel lane of Doty Street.

Wilson Street: This access point is located within the proposed Block 88 hotel development at the hotel lobby entrance and check-in drive. It is configured with one entrance lane and one exit lane. The PARC lanes are set back approximately 50 feet from the street to allow vehicles to enter from the hotel check-in drive. This configuration also provides stacking space for entrance queuing from Wilson Street.

Block 105

Doty Street: This access point is located between the proposed Block 105 hotel lobby and retail space at the northeast corner of the redevelopment. This location provides over 75 feet of separation from the Pinckney Street intersection and the King Street intersection, minimizing potential queuing issues at these intersections. The access point is configured with one entrance lane and one exit lane at the street. Entering drivers travel down an express ramp (12.5% maximum slope) to Parking Level U1, where PARC gates and



Block 105 Doty Street vehicular access point

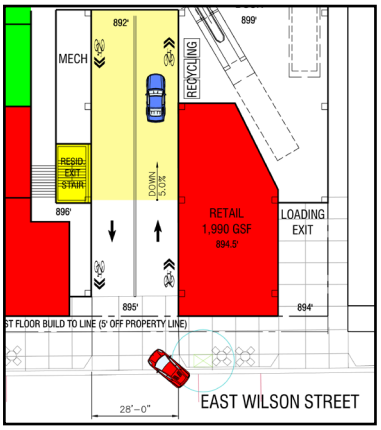
equipment are provided for this access point. The location of PARC gates and equipment on Level U1 provides significant queuing space for entering vehicles and exiting vehicles waiting to enter traffic on Doty Street where, during peak afternoon periods, gaps in the oncoming traffic are limited.

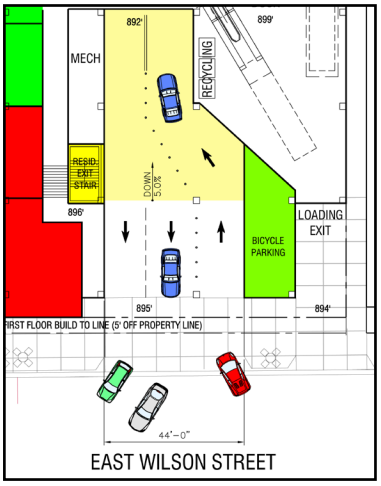
Wilson Street (Option A): This access point option is configured with one entrance lane and one exit lane at the street. This configuration minimizes the space shared by vehicles and pedestrians. In addition, this configuration allows for a small retail space to be provided between the vehicle access point and the loading dock exit, creating activated space at the southeast corner of Judge Doyle Square. Entering drivers travel down an express ramp (5% maximum slope) to Level U1, where PARC gates and equipment are provided for this access point. The PARC island is configured with one entrance lane and two exit lanes for peak period unloading of the garage. Once through the exit gates, drivers merge into one exiting lane traveling to Wilson Street.

Wilson Street (Option B): This access point option is configured with one entrance lane and two exit lanes at the street, allowing two exiting drivers to simultaneously turn onto Wilson Street. This configuration provides for an area of short-term bicycle parking between the vehicle access point and the loading dock exit at the southeast corner. Entering drivers travel down an express ramp (5% maximum slope) to Level U1, where—matching the configuration of Option A—PARC gates and equipment are provided for this access point.

Since both Doty and Wilson Streets are one-way streets, none of the access points rely on turning movements across oncoming traffic, which greatly minimizes the potential for traffic backups at these locations. In total, 10 entrance and exit lanes are provided, along with the ability to have five entrance lanes and six exit lanes to serve the peak direction. Based on the shared parking model, this number and configuration of entrance and exit lanes provides more capacity than the peak demands and maintains average queue lengths at or below one vehicle per lane. This is based on the design and use of a PARC system that has only one location within the facility where cashier transactions are made (Block 88 Doty Street access). All other on-site transactions are to be accomplished using pay stations located at the pedestrian access points such that a majority of transactions are accomplished prior to patrons returning to their vehicles. Pay-in-lane stations would also be used for transactions at the PARC gate locations. Monthly users, residents, and hotel patrons will use proximity card access, card swipe access, or automatic vehicle identification (AVI) technologies, which have very short service rates. This lane technology approach will result in short transaction times at the gates and thus minimize internal queues and potential congestion near the PARC system gates.

Option A: Block 105 Wilson Street vehicular access point





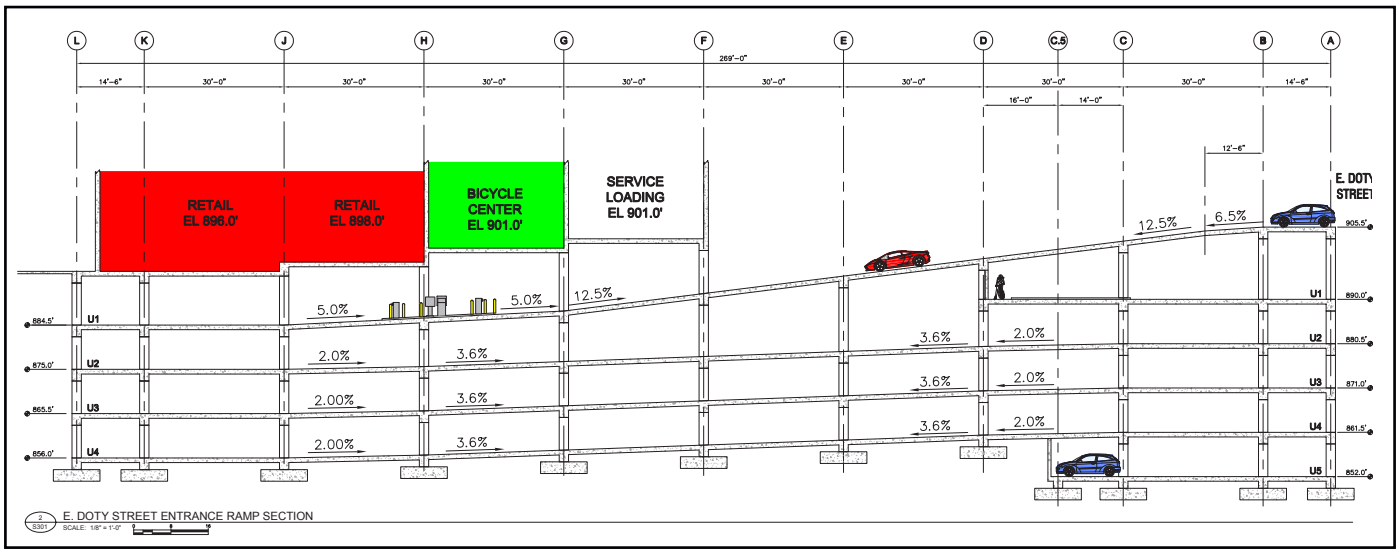
Option B: Block 105 Wilson Street vehicular access point

The Block 105 auto gates and PARC lanes are located below ground, on Parking Level U1, instead of at the street level. This configuration provides significant queuing space for entering vehicles during events and minimizes the disruption of traffic flow on both Wilson and Doty Streets. Another advantage of this configuration is that it allows exiting vehicles to clear the PARC lanes and then queue on each ramp waiting for openings in traffic during the peak afternoon unloading period. When openings do occur, many exiting vehicles will be able to flow out of the facility. If the PARC equipment were located at the street level, a backup would occur as vehicles could not pass through the auto gates until cars were able to enter street traffic. This condition is particularly an issue on Doty Street during the afternoon (p.m.) peak, when exiting demand is high. Because the PARC lanes are located on Parking Level U1, only two lanes are required for the access point Wilson Street, minimizing the impact to this pedestrian space and increasing the potential for street frontage retail. In addition, the southeast corner retail space is only viable with this two-lane vehicle access point configuration at Wilson Street.

Entrance Ramps

The Judge Doyle Square parking facility will have the feel of an "urban" parking garage as three of the four vehicle access points will use express ramps to provide quick access to underground parking floors below the street. Using express ramps is an effective functional element that minimizes the width of the entrance at the street level and thereby maximizes the available street level space for commercial development or other uses.

When using express ramps at access points for a garage located in a cold weather climate, important design criteria should be incorporated. The Judge Doyle Square express ramps will be covered by structure associated with the above-ground



Conceptual garage cross-section at Block 105 Wilson Street access point ramp

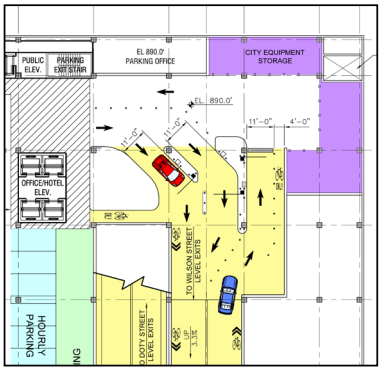
development on each block. The driving surface of all access point express ramps will be scored (or grooved) to provide traction during winter (icing) conditions. Heaters or other temperature control / snow melting devices are also to be provided at the vehicle entry points. These devices will necessitate additional operating and maintenance costs in future years.

The maximum slope on access point express ramps will be 12.5% as steep grades greater than 12.5% can be psychological barriers to drivers. This grade exists only on the Block 105 Doty Street access point express ramp. Other express ramps at the Block 88 Doty Street access point and the Block 105 Wilson Street will have slopes of 10% and 5% respectively. For ramps which require slopes above 9.5% , transition slopes will be designed for the top and bottom of the ramp at approximately ½ the slope of the primary ramp sections. These transitions will be 15 feet minimum in length.

Parking Access and Revenue Control (PARC)

As outlined above, the Judge Doyle Square underground parking garage will serve multiple land uses and users. Consequently, the parking access and revenue controls (PARC) systems must be designed to accommodate a wide variety of users and provide flexibility for the City to address changes over time. The system must quickly provide access to monthly parkers or residents who will contract with the City for parking privileges within the garage or will be provided those privileges as part of leasing/purchase. This will be accomplished with proximity cards, card swipes, or automatic vehicle identification (AVI) technologies. The system must also provide tickets for hourly or daily parkers who then pay for parking upon departure. The majority of these transactions will be addressed through the use of pay stations. One vehicular exit at the Block 88 Doty Street access point will be equipped with a cashier booth as it is envisioned that Block 88 hotel quests will predominantly use this location. To minimize exiting vehicle queues, pay station technologies should be located at the public pedestrian access points to the garage so that a majority of transactions are completed prior to patrons returning to their vehicles. Pay-in-lane pay stations will also be provided at exit lanes. The PARC system must also address the needs of hotel patrons and be capable of communication and card issuance at check-in locations. The potential for a passenger rail station at the State of Wisconsin DOA Building adds further complexity as PARC equipment likely would need to provide for multiple parking rate structures.

As noted, the PARC system will employ pay station technologies. It is not recommended, however, that this be an unstaffed facility—the City of Madison Parking Utility should maintain on-site staffing. The proposed underground garage will be operated using a "mixed" system similar to the existing Government East garage, with multiple options for parking fee transactions provided to customers. The garage concept accounts for potential cashier booths at the Block 88 Doty Street access point to serve the needs of hotel patrons and guests, and there is space provided for a cashier booth at one of the Block 105 Wilson Street gated exit lanes. These access point locations are configured with adequate width for drive lanes (10-foot lane width preferred at PARC locations) and approximately 6 feet of width for raised concrete curbs supporting proposed cashier booths. This garage concept provides for a total of three cashier booth locations. In addition, the garage concept also establishes a Parking Office, located on Block 105 at the northeast corner of Parking Level U1 near the PARC gates for the Block 105 Wilson Street access point. From this location, City Parking Utility staff can monitor all access points, using closed-circuit television (CCTV) camera technologies, and quickly respond to customer needs. This concept maintains staff on both the Block 88 and Block 105 sides of the facility for quick response and to provide a higher level of security.



Conceptual layout of PARC system equipment for Block 105 Wilson Street access point

In addition to the aforementioned pay stations (pay-on-foot and pay-in-lane), the PARC system will include auto gates with dual detectors to control access at each entering and exiting location. Gate arms will be designed to control vehicle access but allow for limited vertical clearances and, at the Block 105 Wilson Street access point, allow for bicycle riders to enter beyond the reach of the gate arms. The PARC system will include entry stations, and potentially AVI equipment, providing for monthly card holder entrance and issuance of tickets to hourly or daily customers. Separate entrance equipment and specialized hotel management systems can be provided for the Block 88 hotel to allow for hotel room card swipes and direct communication to the front desk and yet still link to the overall City Parking Utility PARC system. Cashier booths will be equipped with a fee computer and validation equipment, and all access point areas will have digital signage for communication of fees or parking availability.

Although little to no queuing is anticipated at the four garage access points based on projected traffic volumes during the p.m. peak hour, internal parking garage queuing at the PARC system was analyzed to ensure effective operation of the proposed geometry and systems. The shared parking model previously discussed includes queuing calculations based on demand flow rate and service rates of the PARC system

at each of the four access points. Parking Structures, Third Edition (A.P. Chrest, et al.) provides the following estimates for revenue control service rates:

- Proximity Card: 6.0 seconds
- Credit Card Online Check: 32.7 seconds
- Insertion Ticket for POF Validation: 10.0 seconds
- Cashier – Credit Card Online Check and Sign: 38.0 seconds

The shared parking model calibrates the queue length estimates assuming the use of proximity cards for monthly pass holders, City fleet, residents, and office employees, and a combination of credit card payments and insertion tickets for hotel guests and hourly users. For the purposes of this analysis, two exiting lanes were assumed at the western Doty Street access and the eastern Wilson Street access, and one exiting lane was assumed at the eastern Doty Street access and western Wilson Street access. Additionally, one of the two lanes at the western Doty Street access was assumed to be cashier-controlled. Based on a weighted average by user type, 14.5 seconds of delay was assumed per exiting lane. This value increased to 26.3 for the western Doty Street exit due to the influence of a cashier-controlled lane. During the p.m. peak hour using the aforementioned service rates and number of lanes, no significant internal queues are expected to develop. In fact, all revenue control lanes are expected to operate at no more than 55% of capacity.

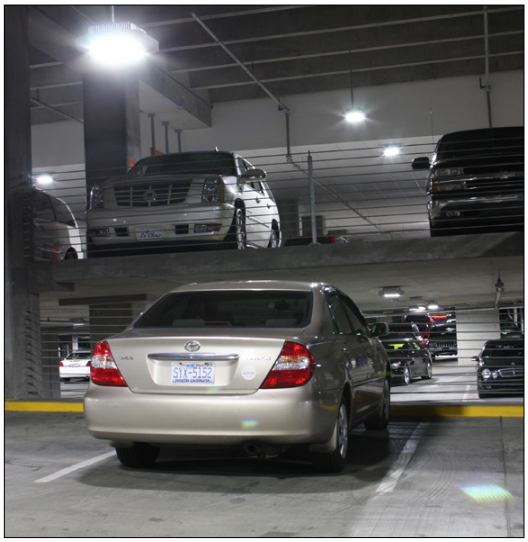
Vertical Headroom Clearance

Headroom clearances at points of access, drive aisles, and parking stalls will comply with applicable International Code Council (ICC) Codes and with the Wisconsin Commercial Building Code and local amendments. On Parking Level U1, where ADA-defined handicapped accessible van access is located, a minimum headroom clearance of 98 inches will be provided. On all other parking levels, 84 inches of minimum headroom clearance—or more, where possible—will be provided. All fire protection and lighting systems will be designed within these requirements. Headroom restrictors (head knockers) with graphics will be provided at access points to communicate restrictions and alert drivers to potential violations.

Circulation and Ramping

The Judge Doyle Square underground garage will be constructed with parking floors that generally slope with the grade of Pinckney Street above. This approach allows for the maximum effective

use of below-grade excavated construction volume and minimizes construction at or below the water table, thus minimizing costly elements associated with such construction. The north-south oriented parking bays will have an average slope of 3%, or a change of 5 feet. Two sloped parking ramps at each floor will connect the parking levels, allowing for vertical circulation to all levels. All parking floors and ramping will have a maximum slope of 6.25% . Drive aisle widths and configuration will comply with the requirements of the City of Madison Zoning Code. North-south oriented two-way traffic parking bays will have a minimum aisle width of 24 feet. East-west oriented two-way traffic (end) bays, which must allow for turning movements, will have drive aisle widths of 26 feet. Considering that vehicular traffic will be predominantly one-way during periods of peak loading and unloading, the 26-foot-wide end bays will provide a sufficient level of service.



Parking Stalls

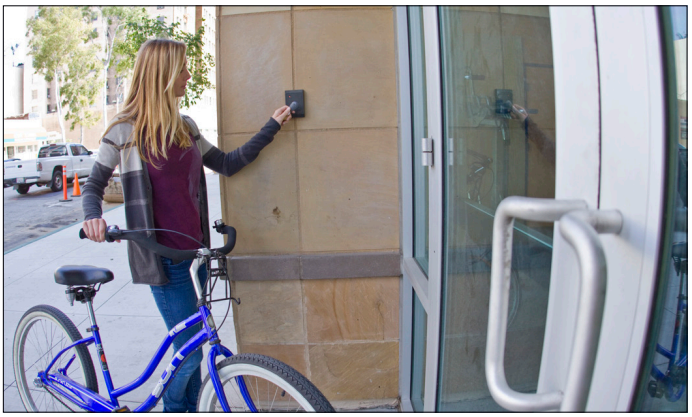
The parking stalls provided for patrons within the Judge Doyle Square underground parking garage will comply with requirements of the City of Madison Zoning Code. Parking stalls will have an average width of 9 feet. The use of "compact" parking stalls will be minimized (<2% of parking spaces), and these spaces will be marked as restricted. Parking stalls for ADA-defined handicapped parking will be provided throughout the facility and convenient to pedestrian elevators. These stalls will have a minimum width of 8 feet and will have 5-foot minimum striped walking aisles designated on the pavement surfaces. Floor slopes in areas of designated handicapped parking and walking paths will be 2% maximum.

Pedestrian Requirements

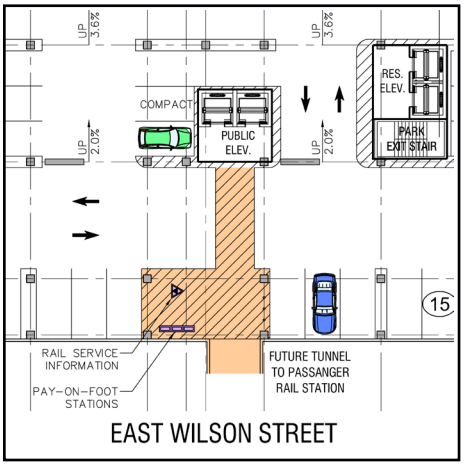
Points of Pedestrian Access

The Judge Doyle Square underground parking garage will have four locations for pedestrians to access the facility from the surrounding streets and a future option for an underground access from the future rail station. These locations are established to provide convenient travel routes from the parking floors to prominent at-grade destinations. These access points offer stairways and elevators for pedestrian travel between the parking floors and street level.

A public stairway and elevator are provided at the northwest corner adjacent to the proposed Block 88 hotel loading dock and the Doty Street vehicular entrance. At the southwest corner, another public stairway is provided. Public elevators are located within 100 feet of this stairway, which brings pedestrians directly into the proposed Block 88 hotel lobby. From this interior lobby, patrons can exit to Wilson Street.



On Block 105, a public elevator and stairway are provided on Doty Street adjacent to the vehicular entrance, providing patrons direct access to the street. Finally, two public elevators and an exit stair are provided near the southwest corner of Block 105. Pedestrians will have convenient access to both Pinckney Street and Wilson Street from these elements.



Conceptual underground tunnel connection to proposed rail station

In addition, stairways and elevators will be provided within the underground parking garage to serve the above-grade commercial and residential developments. Parking patrons who are quests in either of the hotels or who work/live in Judge Doyle Square will have secure, direct access to lobbies and the floors above through stairs and elevators exclusively for their use. These elements will be installed as part of the construction of development above the underground garage, and structural shafts will be constructed within the garage to accommodate these elements. An underground tunnel connecting the future passenger rail station and the Judge Doyle Square parking garage at Level U2 is also included in the development concept.

Elevators

Elevators will be designed with safety as a high priority. Visibility of elevator lobbies and cabs will be considered as key elements of design. Open lobby enclosures will be provided where possible, and glass back elevators should also be considered during the schematic design of this facility. Other security measures, such as CCTV security cameras, should also be considered within the elevator cabs, depending on location and visibility. Public elevators within the parking facility will make stops at all parking floors and at the ground level. Elevators serving the above-grade developments are currently envisioned to stop at all parking floors as well.

Stairways

Stairways are not only provided for convenient pedestrian connections to the surrounding streets and points of destination. Parking garage exit stairs must meet the emergency exit requirements of applicable codes. As such, their location is important to provide minimal travel distances to areas of refuge and enclosed fire-rated stairway towers. An initial evaluation of travel distance code requirements was conducted during this phase of conceptual design. Further study will be required as schematic design refinements are made to the underground parking garage and all above-grade elements and uses. All stairways are currently envisioned to be enclosed, fire-rated stairs.

Accessibility

The Judge Doyle Square underground parking garage will be designed to accommodate the needs of persons with disabilities in accordance with the City of Madison Zoning Code, applicable International Code Council (ICC) Codes, the Wisconsin Commercial Building Code with local amendments, and the Americans with Disabilities Act (ADA). These requirements cover a wide range of design elements including, but not limited to, provisions for accessible parking stalls (including van-accessible parking spaces), accessible routes to exits, accessible entrance and exits, and communication through signage, graphics, and signs with Braille copy. The current concept provides accessible parking (28 stalls total) in excess of code requirements for a parking facility of approximately 1,300 parking stalls total. These parking spaces are sized to meet or exceed accessibility standards, and these spaces are located to provide short travel distances to elevators serving the general public and the developments above. ADA symbols, signage, and pavement markings will be used to clearly communicate these travel routes. Lighting in these areas will be designed to meet or exceed standards and requirements for pedestrian entrance/exit locations.

Parking Office/Booth Requirements

Parking access and revenue control (PARC) systems for the Judge Doyle Square underground parking garage will include a combination of on-site staffing and automated pay stations. The concept allows for this combination as it provides for the greatest flexibility for the City to manage this garage. Use of automated pay stations (pay-in-lane and pay-on-foot stations) facilitates quicker in-lane transactions,

thus reducing queues for patrons. Maintaining a staffed presence within the parking garage enhances customers' experiences when issues arise and provides a greater sense of safety and security.

City parking booths and offices should be designed and equipped to support the needs of staff and enhance their ability to serve patrons from a primary location. Visual and audio surveillance and communication equipment will enable City staff to observe all access points and other areas of the parking floors. Issues and customer service needs can be identified quickly and response can be swift while not requiring the City to staff each access point location. This will maintain a feeling of security for patrons and maintain a high level of customer service that City of Madison parking patrons expect.

Graphics and Signage Requirements

Underground parking garages can be difficult to navigate as a driver and as a pedestrian. Once underground, patrons are easily disoriented and may find it challenging to locate stairways and elevators. Large structural columns supporting above-grade development limit sight distances and make wayfinding more difficult. Consequently, the use of graphics and signage is essential to enhance and maximize parking patrons' experience.

Structural Design

The Judge Doyle Square underground parking garage will require a complex structural system to support a wide variety of uses and loading. First, the parking structure must support the typical dead and live loads associated with a parking garage, including the additional lateral earth loads associated with a subterranean structure. In addition, below Block 88, the garage structure will be designed to support the dead loads, live loads, and lateral loads of a multi-storied hotel structure. Below Block 105, the garage will support the loading associated with two multi-storied towers with office, hotel, and/or residential uses. Finally, below Pinckney Street, the structure must support the reconstructed street and public improvements, including landscaping, with pedestrian and vehicular traffic live loads.

Completion of this project will also include the structural engineering design of earth retention excavation and shoring systems. The approach to this phase of construction will require an engineering study to evaluate alternative systems and the potential interaction of these systems with the permanent structural system for the garage. These

retention systems will be a critical design element as these systems must provide for the safe deep excavation of the construction site while protecting adjacent properties and supporting East Doty and East Wilson Streets with typical traffic loads.

Design Parameters

All structural systems for the development will comply with applicable International Code Council (ICC) Codes and with the Wisconsin Commercial Building Code and local amendments. In addition, design and durability guidelines established by the American Society of Civil Engineers (ASCE), American Concrete Institute (ACI), American Institute of Steel Construction (AISC), and Post-Tensioning Institute (PTI) will be used.

Structural Framing

The structural system for the Judge Doyle Square underground parking garage and above-grade redevelopment will be supported on a grid of cast-in-place concrete columns spaced on approximately 30-foot centers. This grid spacing will allow for the functional layout of parking spaces and drive aisles that will meet or exceed the requirements of the City of Madison Zoning Code and industry standards of practice for underground parking. The 30-foot column grid will also allow for cost-efficient structural support of above-grade development loading while allowing for flexible layout of office, hotel, and/or residential space. The minimum size of typical columns will be 24 inches (square or diameter). To support the anticipated above-ground uses

and other anticipated live loads, a majority of structural columns will likely be larger (approximately 30 inches square or diameter).

Structural Framing Supporting Typical Parking Floors

For the typical parking level, it is anticipated that the structural framing system will comprise two-way post-tensioned slab systems spanning 30 feet between columns. The two-way system will likely require drop-panels at all the column locations. Use of this system will allow for floor-to-floor heights to be established as low as 108 inches (9'-0")–114 inches (9'-6") to minimize the depth of excavation and the costs associated with shoring and dewatering (construction phase and permanent), while providing adequate space for fire sprinkler systems, plumbing, lighting, signage, and code-required head clearances.

Structural Framing Supporting Pinckney Street

As noted, the structural system between Block 88 and Block 105 must support pedestrian and vehicular live loads from Pinckney Street that will be reconstructed over the underground parking garage. The governing live load requirements for the street level framing will be either an AASHTO (highway rated) tractor trailer truck, City of Madison Fire Department vehicles, City of Madison buses, or a distributed uniform loading assuming the street is full of pedestrians—whichever creates the greatest structural response. Further study will be required to identify all potential vehicular and pedestrian live loading and the placement of those loads, which create the governing design cases. The dead load design requirement of the top level frame will consist of the structural self-weight and roadway/streetscape structure self-weight, including utilities and soil in planter areas. The anticipated structural system will include conventionally reinforced concrete slabs spanning between intermediate post-tensioned or conventionally reinforced support beams and post-tensioned or conventionally reinforced transfer girders. It is anticipated that the structural depth of this system could be 36–48 inches. To account for the additional thickness of roadway/streetscape materials and allowances for utilities and fire protection within the garage, a total section depth of 60–72 inches was used for master planning design and establishment of parking floor elevations below Pinckney Street. Further structural evaluation as part of the schematic design phase will allow for refinement of this design element.

Structural Framing Supporting Ground Floor Development

The ground floor areas of Block 88 and Block 105 within Judge Doyle Square will support a wide variety of uses and functions. As such, the structural design of these floors will also vary with the potential for a wide range of live loads and variances in systems and structural depths. The uses will include hotel restaurant and public assembly areas, general retail areas, and lobbies, as well as loading dock and service areas. Consequently, these floors will support a range of uniformly distributed live

loads as well as vehicular wheel loads and other point loads. The anticipated structural system will include conventionally reinforced concrete slabs spanning between intermediate post-tensioned or conventionally reinforced support beams and post-tensioned or conventionally reinforced transfer girders. It is anticipated that the structural depth of this system will vary between 30 and 48 inches. To account for supporting utilities (within a heated plenum space) and lighting and fire protection within the garage, a total section depth of 42–60 inches was used for master planning design and establishment of parking floor elevations below the street level structure.

Foundations

In 2010, the City retained CGC, Inc. to complete a subsurface geotechnical exploration program to evaluate the subsurface condition at the proposed parking garage site to provide recommendations for below-grade construction and to identify soil and groundwater information. Based on the findings of this evaluation, it is anticipated that the Judge Doyle Square underground parking garage will be "supported on reinforced concrete spread footing foundations bearing on native granular soils." CGC, Inc. assumed that foundations would be located near Elevation 860 feet USGS datum (Elevation 15 feet Madison City Datum (MCD)) and that a maximum allowable bearing pressure of 30,000 psf would be recommended for design.

The data indicate competent foundation materials for this proposed site. The current concept for the garage would establish the lowest parking floor between Elevation 850–855 feet USGS. Consequently, additional in-depth geotechnical evaluation will be required to confirm foundation design parameters for footings near Elevation 850 feet (Elevation 5 feet MCD).

Fire Protection

The Wisconsin Commercial Building Code (WCBC), City of Madison Fire Department, and other applicable codes require that a multi-use development—as proposed for Judge Doyle Square—be protected by a fire protection and suppression system consisting of several components. The unheated underground parking garage will be protected by an automatic dry fire suppression (sprinkler) system, and it will be equipped with a dry fire standpipe system. In addition, an addressable fire alarm system will be provided for the facility.

Design Parameters

All fire protection for the development will comply with applicable International Code Council (ICC) Codes and with the Wisconsin Commercial Building Code and local amendments, along with applicable National Fire Protection Association standards NFPA 13, 14, 20, and 24. The systems will be subject to review and approval by the City of Madison Fire Department.

The underground parking garage, in combination with Block 105 redevelopment, will be provided with a new 8-inch combination fire and domestic water service. The water service will split inside the building into a 6-inch domestic water service and an 8-inch fire protection service. A double-check backflow preventer will be installed on the fire protection service pipe inside the building. The fire protection system will be split into a sprinkler system and standpipe system inside the building.

Sprinkler System

The entire underground parking garage will be protected by a dry-pipe automatic sprinkler system. The garage will be classified Ordinary Hazard, Group 1. A fire department connection will be provided near the fire access to the building. Quick response-style sprinklers will be used throughout the garage.

Standpipe System

Fire department standpipes with fire department valves will be installed in each required exit stairway within the underground parking garage and at each horizontal building exit. The garage system will be a Class I dry-pipe system with 2 ½" fire department valves.

Fire Alarm System

An addressable fire alarm system will be provided for the underground parking garage meeting the requirements of NFPA and the City of Madison Fire Department. The main panel/annunciator will be located in the fire/command center on the first floor. The parking garage system will be a multi-channel voice evacuation system zoned separately from all other above-grade development. Speakers will be installed as a voice evacuation system to meet high-rise code requirements. The system will have heat/smoke detection devices per code. Each electrical and telecommunications room will have smoke detection. All mechanical rooms will be provided with heat detection. Smoke detectors will be provided in the elevator lobbies for elevator recall. Sprinkler flow and tamper switches will be wired to the system.

Plumbing Systems

The underground parking garage for Judge Doyle Square will have a plumbing system consisting of domestic water service, primary storm drainage and sewer service, and sanitary sewer service. Also included in the garage plumbing systems will be temporary (construction phase) and permanent dewatering systems required to lower the water table and minimize impacts to construction and long-term water infiltration at the lowest parking level.

Design Parameters

All plumbing systems for the development will comply with applicable International Code Council (ICC) Codes and with the Wisconsin State Plumbing Code. The systems will be subject to City of Madison review and approval. Underground parking garage fixtures will comply with the Energy Policy Act (EPAct) of 1992 and ASME/ANSI standards. Fixtures will also comply with ADA Accessibility guidelines where applicable.

Water Service

It is anticipated that the existing water service, located underground within the Pinckney Street right-of-way, will be maintained (or reconstructed) within the parking garage structure. A new 8-inch combination fire and domestic water service will be extended to the building. The water service will split inside the building into a 6-inch

domestic water service and an 8-inch fire protection service. The existing 6-inch City water main, located in Wilson Street, will need to be increased to an 8-inch main.

Storm and Sanitary Sewer Services

It is anticipated that the existing storm sewer, located underground within the Pinckney Street right-of-way, will be maintained (or reconstructed) within the parking garage structure. A new storm water drainage service is anticipated for the development from the municipal storm sewer system located on the east side of the property. The parking garage entrance ramps and parking floors will be constructed with a combination of trench drains and 4-inch floor drains to collect storm water that is brought in by entering vehicles or blows in at the vehicular entry/exit locations. Parking garage wastewater will drain through a garage catch basin. Parking garage floors will be constructed with a minimum orthogonal slope of 1.5% and a minimum diagonal slope of 1.25% to facilitate proper drainage. Exposed storm sewer leaders within the parking garage will be protected against vehicular impact.

It is anticipated that the existing sanitary sewer, located underground within the Pinckney Street right-of-way, will be maintained (or reconstructed) within the parking garage structure. A new sanitary drainage service is anticipated for the development from the municipal storm sewer system located on the east side of the property. Additional future review of the required sanitary sewer service is recommended, but the existing City municipal sewer will likely need to be increased in size to serve this development.

Dewatering Systems

A dewatering system is anticipated to serve the lower level of the parking garage due to existing water table levels. This system will consist of submersible pumps and well points at the lower level. The capacity of this system will be further evaluated based on the geotechnical report for the development.

Ventilation, Heating, and Cooling Systems

The underground parking garage for Judge Doyle Square will be mechanically ventilated to maintain healthy breathing conditions within the enclosed parking facility. The garage will be largely unheated with isolated exceptions in office spaces or in plenum space below street level retail development.

Design Parameters

All ventilation and heating systems for the development will comply with applicable International Code Council (ICC) Codes and with the Wisconsin Commercial Building Code and local amendments.

Mechanical Ventilation

The underground parking garage will be ventilated to provide outside air to the parking areas and exhaust air to control the concentration levels of carbon monoxide (CO) and nitrogen dioxide (NO2). Ventilation will be provided from multiple mechanical exhaust fans with speeds controlled via CO and NO2 sensors located throughout the parking garage. The first stage will provide 0.5 CFM/square foot ventilation rate and the second stage will provide 1.0 CFM/square foot ventilation rate. Exhaust will be ducted low to the floor at each parking level to provide adequate distribution of exhaust air. Exhaust and intakes for the garage ventilation system will be located at all four corners of the building for proper separation and air flow within the garage.

Heating and Cooling Systems

The underground garage parking floors will be unheated with the exception of the plenum area below the occupied commercial/retail areas and at vehicular entry/exit points to control ice build-up on the sloped ramps. Occupied offices and control centers will also be provided with supplementary heating from convectors, unit heaters, or cabinet heaters along with conditioned ventilation air. Elevator equipment rooms within the parking garage will be conditioned with a dedicated cooling only fan coil unit.

Electrical Systems

Electrical systems are critically important to the proper function and security aspects of parking facilities. For underground parking facilities, these systems' importance is even greater as they power lighting, ventilation, and security systems within an enclosed subterranean environment. The underground parking garage for Judge Doyle Square will be designed with electrical and lighting systems to promote personal and vehicular safety and provide economical operations during hours when garage is not fully occupied. Emergency power systems will be provided for the development that will support critical operational and security systems within the underground parking garage.

Design Parameters

All electrical systems for the Judge Doyle Square redevelopment will comply with applicable International Code Council (ICC) Codes and with the Wisconsin Commercial Building Code and local amendments.

Power Distribution

Two 15KV circuits will serve the underground parking garage and the Block 105 development from Madison Gas and Electric's (MGE) electrical distribution system. Each circuit will be capable of handling the electrical load for the entire development. The main building switchgear will be fusible air-break switches feeding four unit substations and a 480 Volt step-down transformer to serve the normal source of the fire pump and jockey pump controller. Each unit substation will consist of a high voltage termination section, dry-type transformer, and group mounted circuit breaker low-voltage sections. Each unit substation will contain electronic demand and usage metering. The underground parking garage and other common City areas (e.g., the bicycle center) will be served by the 1500KVA substation metered separately from all above-grade development.

Emergency Power Distribution

Two separate emergency generators will serve the development. A single 150 KW diesel generator will serve the above-grade development, including the elevators. A single 75 KW diesel generator will be provided to serve the underground parking garage. Emergency (Life Safety) and Equipment transfer switches will be provided for each unit substation. A monitoring and control system will be provided to monitor the generators and each transfer switch. The system will be capable of starting-stopping the generators and controlling the position of the each transfer switches. The system will monitor all alarms, voltage, and current at each device. Typical emergency and equipment loads connected are as follows:

Emergency Loads

1. Exit and egress lighting
2. Fire alarm system
3. Stairwell lighting
4. Fire command center
5. Security and CCTV systems
6. PARC systems
7. Elevator cab lights
8. Lighting in mechanical rooms
9. Lighting in generator and electrical rooms
10. Emergency generator and transfer switch monitoring and control
11. Parking security lighting

Equipment Loads

1. Fire pump
2. One elevator at a time in each bank of elevators per tower
3. Stairwell pressurization fans
4. Boiler and dedicated pump
5. Heating water circulating pump
6. Sewage ejectors
7. Sump pumps
8. HVAC control panels
9. Elevator machine room ventilation
10. Parking area ventilation fans
11. Telecom node room and backup air conditioning

Lighting

The general parking garage area lighting will consist of energy-efficient LED or fluorescent lighting technologies to provide the best color rendition and long-term energy savings. Current lighting technologies should be further investigated during future design phases. Parking areas will be illuminated to an average of 5 foot-candles. Perceived lighting levels within the parking areas can be increased with painted ceilings. Points of vehicular access, pedestrian stairways, and lobbies will be illuminated to 50 foot-candles. Light fixtures will be located over car parking and not over drive aisles for better visibility where pedestrians are more vulnerable.

Security Systems

The safety of parking garage patrons should the foremost concern as the facility is designed. Security related systems will be included in the design of the Judge Doyle Square underground parking garage to provide higher levels of perceived security and to speed emergency responses to locations of needed assistance. Emergency call stations (Code Blue) will be located on each level of parking at areas of egress. CCTV cameras will be located on each parking level, in each elevator, in common areas, and at vehicular and pedestrian entrance/exit locations. These cameras will be connected to a central recording or monitoring location. DVR recording equipment will be used to record camera images for future review. Audio communications equipment, in addition to emergency call stations, should also be included to aid in providing customer service within the facility.

Underground Parking Garage – Cost Model

The construction of underground structured parking facilities is inherently more expensive compared to the construction of typical above-grade structures. The additional costs of excavation and shoring combined with the potential for dewatering, contaminated soil or mass rock removal, and additional required mechanical systems make underground parking a significant investment. As construction extends level by level below grade, costs per square foot for each level increase significantly. In general, costs for below-grade construction can be estimated using the following method: The first below-grade level can be constructed for approximately the same costs of above-grade construction. The second below-grade level can generally be constructed for approximately 1.5 times that of above-grade construction. The costs for the next level generally increase to 2.0 times above-grade costs. Costs continue to increase significantly with additional levels below grade.

The Kimley-Horn team developed a conceptual level cost model based on the underground parking garage concept for Judge Doyle Square. This model provides a detailed breakdown of estimated construction costs for each of the primary structural, architectural, and mechanical systems. The detailed Phase I conceptual cost model is provided in Appendix 3-B.

UNDERGROUND PARKING
APPENDIX 3-A

JUDGE DOYLE SQUARE
MASTER PLAN
CITY OF MADISON, WI

PARKING SUMMARY			
LEVEL	PARKING SPACES		
	Typical	ADA	TOTAL
Ground	30	-	30
U1	262	6	268
U2	308	6	314
U3	311	6	317
U4	311	6	317
U5	51	3	54
TOTAL	1273	27	1300

1 S100 GROUND FLOOR PLAN - THREE LANE CONFIGURATION AT BLOCK 105 WILSON STREET ACCESS

SCALE: NTS

CITY OF MADISON, WI
PUBLIC MARKET SQUARE
MASTER PLANNING
CONSULTING SERVICES

Kimley-Horn and Associates, Inc.

April 2012

PARKING SUMMARY			
LEVEL	PARKING SPACES		
	Typical	ADA	TOTAL
Ground	30	-	30
U1	26	6	268
U2	307	6	313
U3	310	6	316
U4	310	6	316
U5	52	3	55
TOTAL	1271	27	1298

1 S100 GROUND FLOOR PLAN - TWO LANE CONFIGURATION AT BLOCK 105 WILSON STREET ACCESS

SCALE: NTS

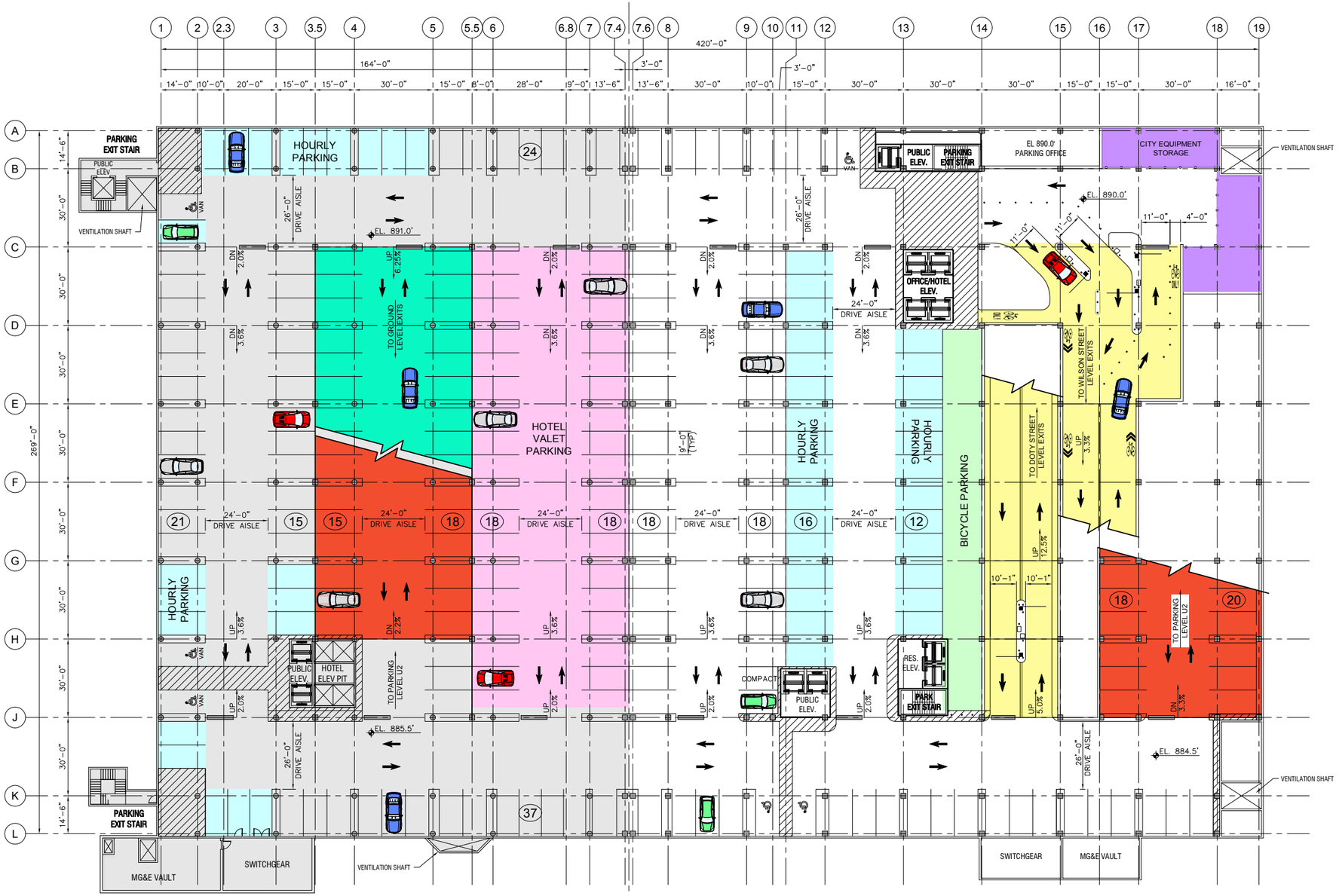
CITY OF MADISON, WI
PUBLIC MARKET SQUARE
MASTER PLANNING
CONSULTING SERVICES

Kimley-Horn and Associates, Inc.

April 2012

PHASE ONE | PHASE TWO

EAST DOTY STREET



EAST WILSON STREET

1 S101 STRIPING PLAN - LEVEL U1
SCALE: NTS

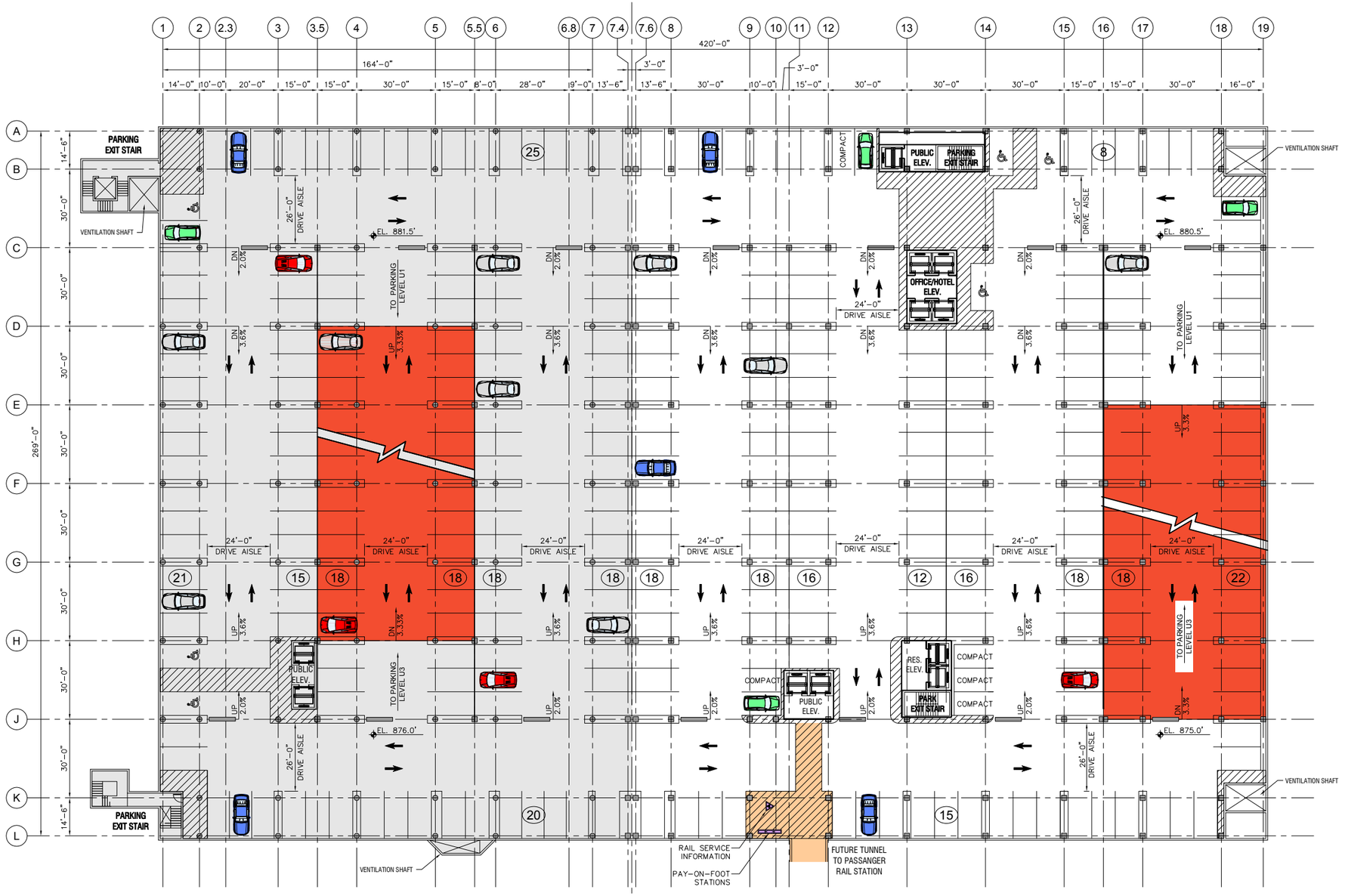
CITY OF MADISON, WI
PUBLIC MARKET SQUARE
MASTER PLANNING
CONSULTING SERVICES

Kimley-Horn and Associates, Inc.

April 2012

PHASE ONE | PHASE TWO

EAST DOTY STREET



EAST WILSON STREET

1 S102 STRIPING PLAN - LEVEL U2
SCALE: NTS

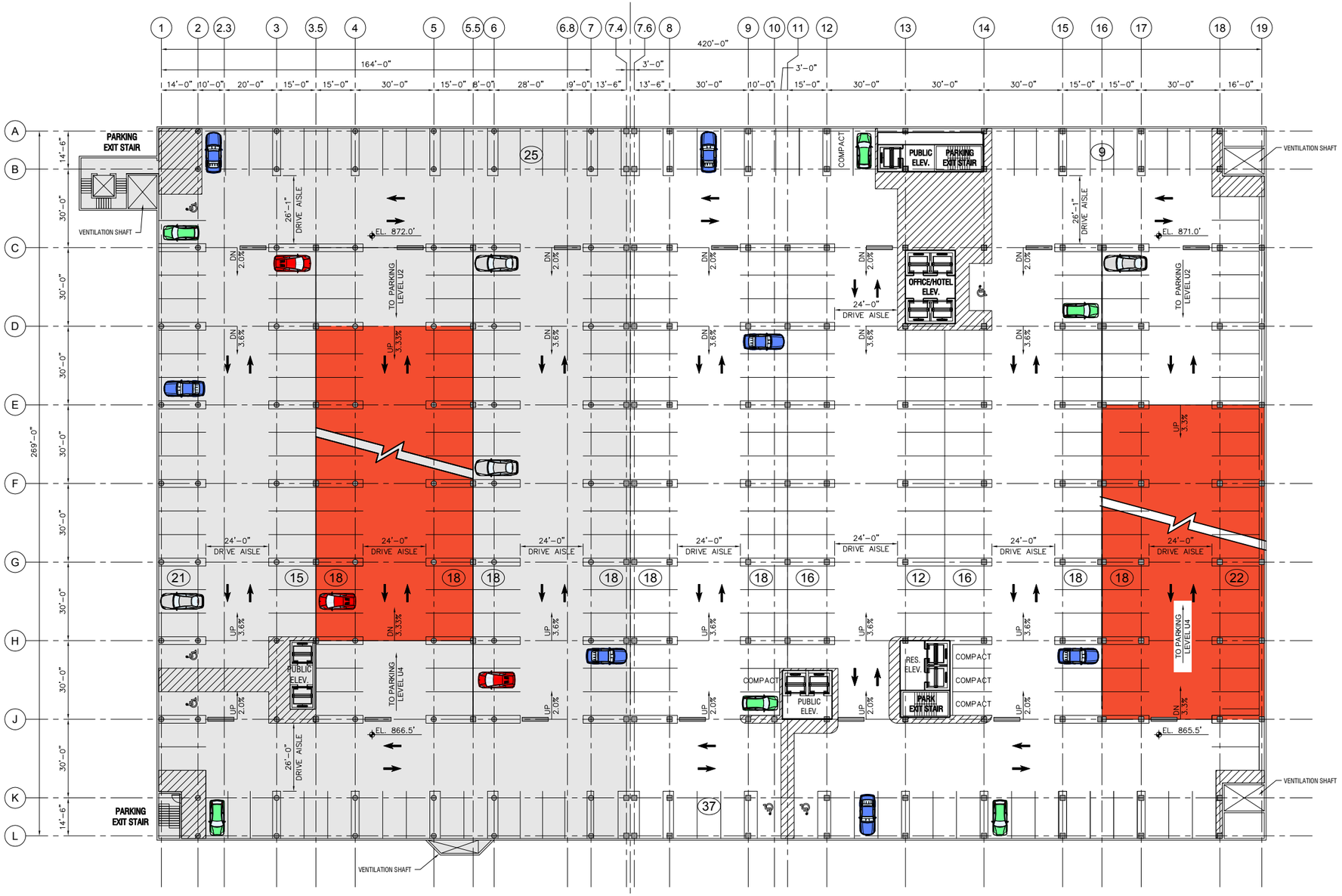
CITY OF MADISON, WI
PUBLIC MARKET SQUARE
MASTER PLANNING
CONSULTING SERVICES

Kimley-Horn and Associates, Inc.

April 2012

PHASE ONE | PHASE TWO

EAST DOTY STREET



EAST WILSON STREET

1 S103 STRIPING PLAN - LEVEL U3
SCALE: NTS

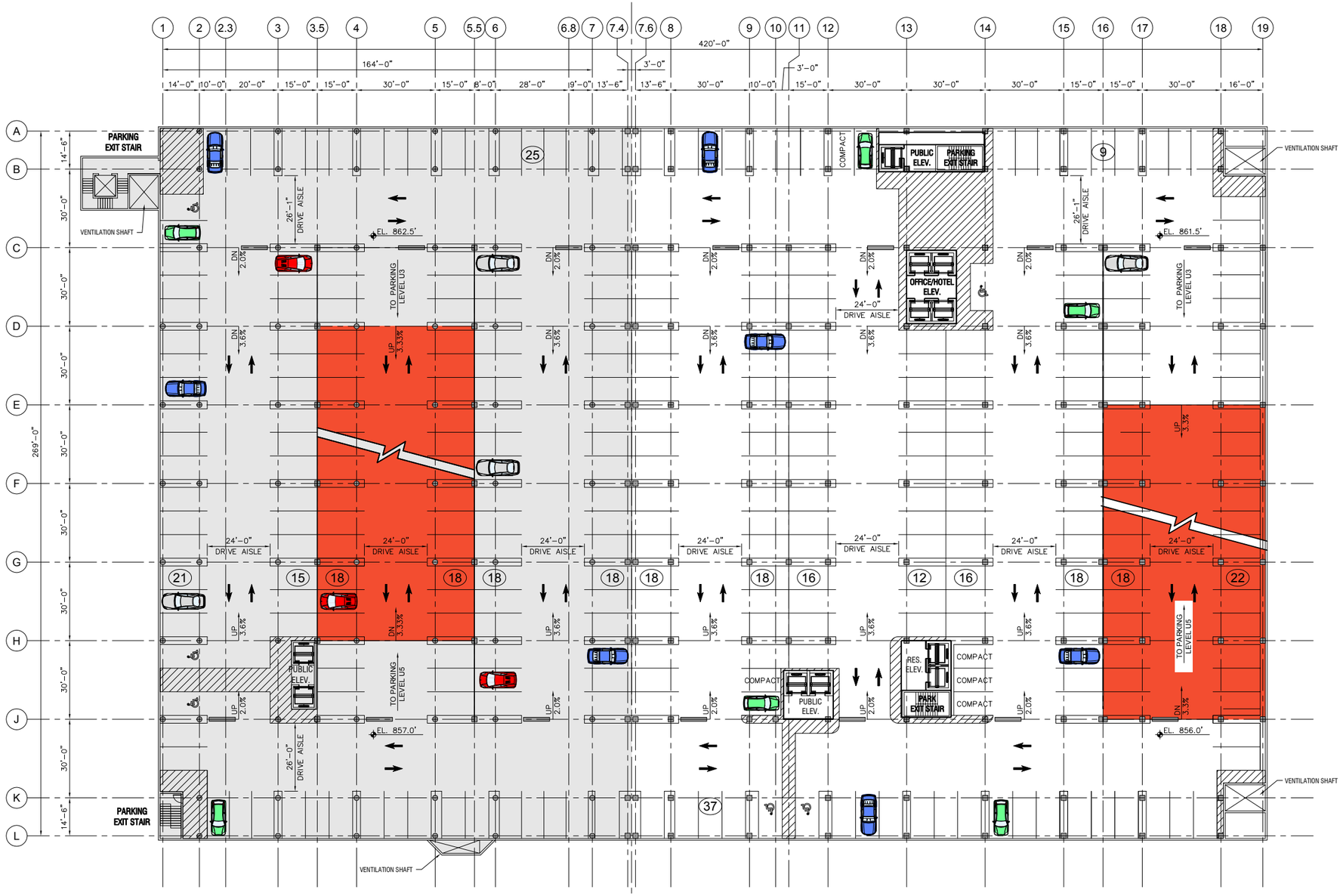
CITY OF MADISON, WI
PUBLIC MARKET SQUARE
MASTER PLANNING
CONSULTING SERVICES

Kimley-Horn and Associates, Inc.

April 2012

PHASE ONE | PHASE TWO

EAST DOTY STREET



EAST WILSON STREET

1 S104 STRIPING PLAN - LEVEL U4
SCALE: NTS

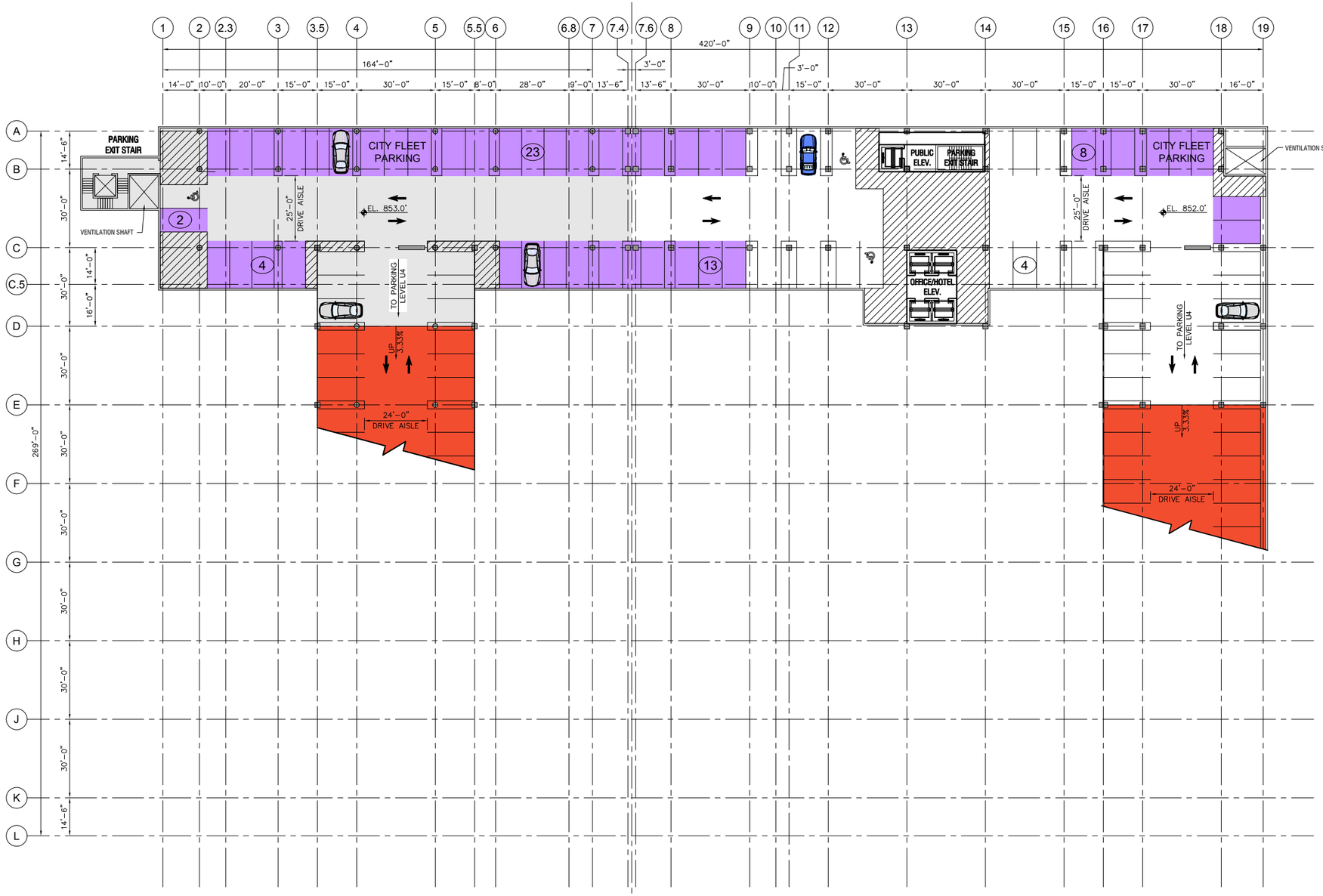
CITY OF MADISON, WI
PUBLIC MARKET SQUARE
MASTER PLANNING
CONSULTING SERVICES

Kimley-Horn and Associates, Inc.

April 2012

PHASE ONE | PHASE TWO

EAST DOTY STREET

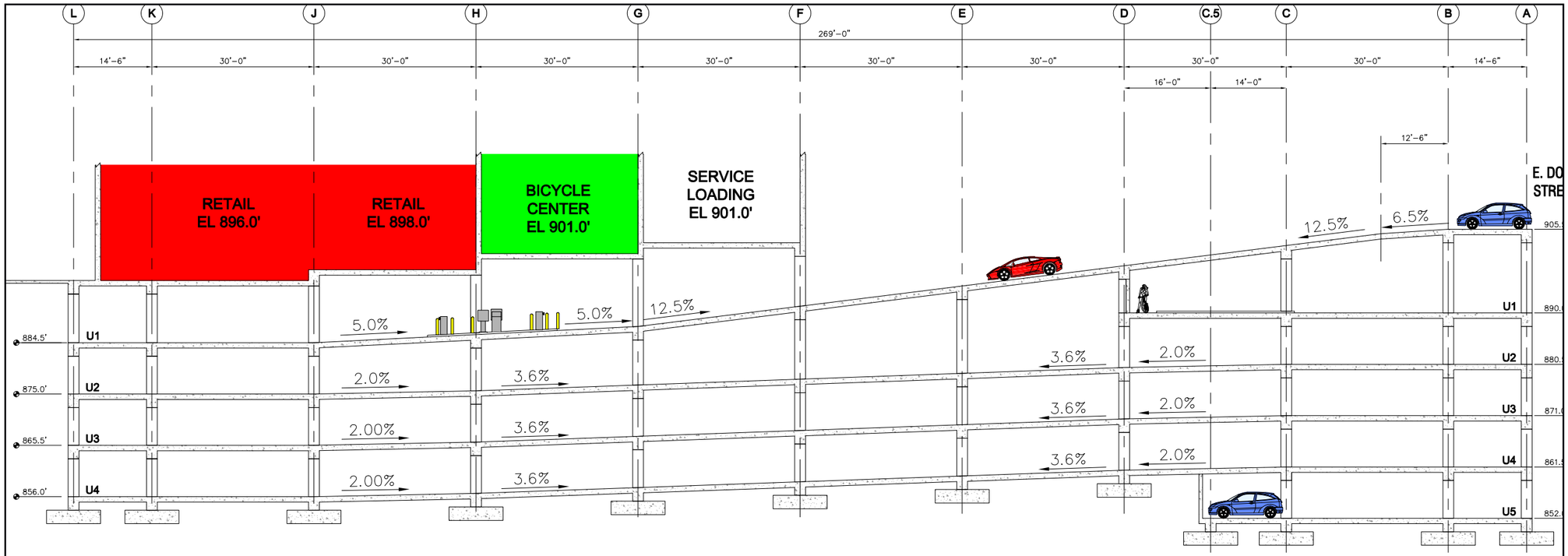


EAST WILSON STREET

1 S105 STRIPING PLAN - LEVEL U5
SCALE: NTS

CITY OF MADISON, WI
PUBLIC MARKET SQUARE
MASTER PLANNING
CONSULTING SERVICES

Kimley-Horn and Associates, Inc.



2 S301 E. DOTY STREET ENTRANCE RAMP SECTION

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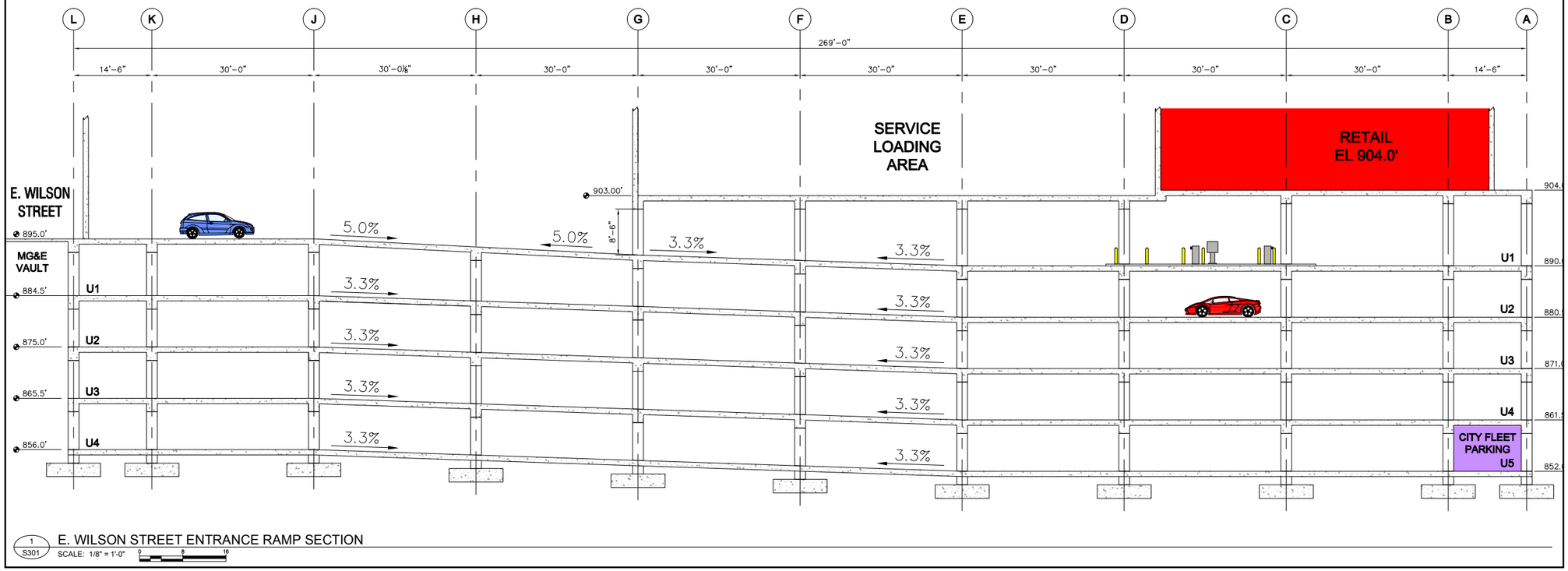
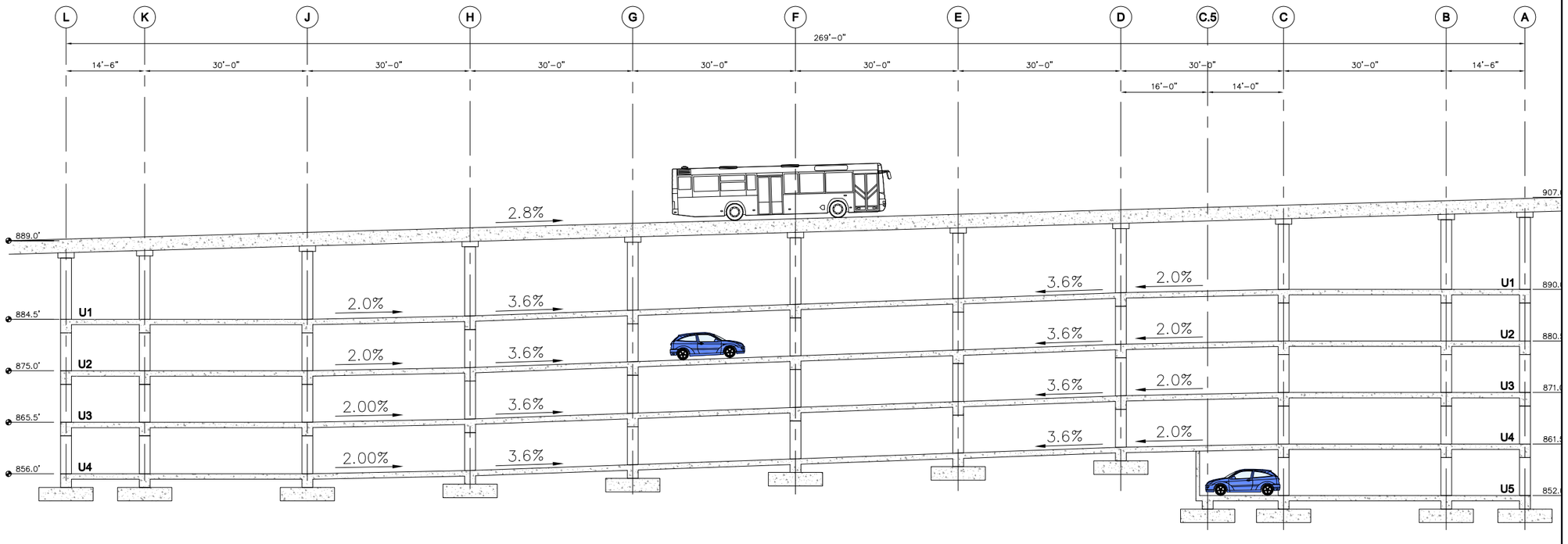


1 S301 E. WILSON STREET ENTRANCE RAMP SECTION

SCALE: 1/8" = 1'-0" 0 8 16

CITY OF MADISON, WI
PUBLIC MARKET SQUARE
MASTER PLANNING
CONSULTING SERVICES

Kimley-Horn and Associates, Inc.



1 S302 E. WILSON STREET ENTRANCE RAMP SECTION

SCALE: 1/8" = 1'-0" 0 8 16

CITY OF MADISON, WI
PUBLIC MARKET SQUARE
MASTER PLANNING
CONSULTING SERVICES

Kimley-Horn and Associates, Inc.

UNDERGROUND PARKING

APPENDIX 3-B

JUDGE DOYLE SQUARE
MASTER PLAN
CITY OF MADISON, WI

CITY OF MADISON
JUDGE DOYLE SQUARE UNDERGROUND PARKING
MADISON, WISCONSIN

TOTAL PROJECT BUDGET SUMMARY

March 28, 2012

Item		Description	GSF	Budget	Cost per GSF	Responsibility	Notes
1.0	**Construction Costs**						
	1.10	Phase 1 Parking Structure	234,136	$20,647,094	$88.18	General Contractor	
	1.11	Phase 2 Parking Structure	283,799	$25,174,593	$88.71	General Contractor	
	1.12	Owner Contingency	517,935	$3,665,735	$7.08	City of Madison	Required by City at 8% of construction costs
		Subtotal		**$49,487,422**	$95.55		
2.0	**Professional Services**						
	2.10	Architecture & Engineering Fees		$2,749,301	$5.31	Architect TBD	Budgeted at 6% of Construction Costs (w/o Owner Contingency)
	2.11	Reimbursables		In 2.10	N/A	Architect TBD	
	2.12	Owner's Representative		$687,325	$1.33	TBD	Budgeted at 1.5% of Construction Costs
	2.13	Other Consultants		$458,217	$0.88	City of Madison	Budgeted at 1% of Construction Costs
	2.14	Civil Design & Engineering Coordination		In 2.10	N/A	Civil TBD	
	2.15	Waste Management Services (i.e. WasteCap)		$75,000	$0.14	City of Madison	Budgeted at $75,000
	2.16	Printing Costs - State Plan Review & Bid Sets		$1,500	$0.00	City of Madison	Budgeted at $1,500
		Subtotal		**$3,971,343**	$7.67		
3.0	**Development and Soft Costs**						
	3.10	Legal and Documentation		N/A	N/A	City of Madison	
	3.11	Land Acquisition		$0	$0.00	N/A	No Cost - site is already owned by City
	3.12	Relocation Expenses		N/A	N/A	City of Madison	
	3.13	Builder's Risk Insurance		N/A	N/A	City of Madison	
	3.14	Building Permits - State Plan Review		$5,000	$0.01	City of Madison	Allowance Added at $5,000
	3.15	Geotechnical Report		NIC	N/A	City of Madison	
	3.16	Independent Construction Materials Testing		$75,000	$0.14	City of Madison	Budgeted at $75,000
	3.17	Site Survey		N/A	N/A	City of Madison	Complete already
	3.18	Air Quality Monitoring		TBD	N/A	City of Madison	
	3.19	Asbestos & Lead Inspections		$15,000	$0.03	City of Madison	Budgeted at $15,000
	3.20	Hazardous Abatement		$50,000	$0.10	City of Madison	Budgeted at $50,000
	3.21	Miscellaneous Indirect Costs		$100,000	$0.19	City of Madison	Budgeted at $100,000
		Subtotal		**$245,000**	$0.47		
4.0	**Furnishings, Fixtures, and Equipment**						
	4.10	Furnishings		Included in 1.0	N/A	City of Madison	
	4.11	Interior Signage		$250,000	$0.48	City of Madison	Budgeted at $250,000
	4.12	Exterior Signage		$150,000	$0.29	City of Madison	Budgeted at $150,000
	4.13	Security Systems		TBD	N/A	City of Madison	
	4.14	Other Specialty Systems		TBD	N/A	City of Madison	
	4.15	Computer, Phones & Networking Equipment		NIC	N/A	City of Madison	
		Subtotal		**$400,000**	$0.77		
		TOTAL ESTIMATED COST		**$54,103,765**	**$104.46**	**/GSF**	
		ESTIMATED BUDGET		**$54,103,765**			
		VARIANCE		**$0**			
		TOTAL GSF		**517,935**			
		NUMBER OF STALLS		**1,300**	**$41,618**	**/STALL**	

CITY OF MADISON
JUDGE DOYLE SQUARE UNDERGROUND PARKING
MADISON, WISCONSIN

EXECUTIVE SUMMARY

TARGET VALUE BUDGET
March 28, 2012

CONSTRUCTION BUDGET INFORMATION

PHASE 1 CONSTRUCTION	234,136 GSF	619 STALLS	$20,647,094
PHASE 2 CONSTRUCTION	283,799 GSF	681 STALLS	$25,174,593
TOTAL CONSTRUCTION	**517,935 GSF**	**1,300 STALLS**	**$45,821,687**
		GSF PER STALL	**398**
		COST PER STALL	**$35,247**
		COST PER GSF	**$88.47**

PREMIUMS INCLUDED ABOVE

Phasing Requirements **$1,220,000**
- Earth Retention at the Phase Line for Phase 1 Construction.
- CMU Partition at the Phase Line for Phase 1 Construction.
- Expansion Joint at the Phase Line.
- Removal of Earth Retention and CMU at the Phase Line for Phase 2.
- Multiple utility moves.

Premiums Required for Future Vertical Development **$260,000**
- Shear Walls @ 20% of internal partitions

Horizontal Waterproofing System over Parking Structure **$590,000**
- All slab sf outside of the footprints of the towers above.

Foundation Waterproofing & Permanent Dewatering System **$1,200,000**
- Underfloor drain tile grid to sumps.
- Waterproofing System at all Vertical Surfaces below grade.
- Temporary perimeter dewatering wells during construction.
- Sump Pumps.

Premium Finishes & Lighting **$1,650,000**
- Painted ceilings and perimeter walls in parking structure
- Upgraded elevator lobby finishes
- LED lighting fixtures within parking structure

Full Parking Revenue Control Equipment Package **$840,000**

CITY OF MADISON
JUDGE DOYLE SQUARE UNDERGROUND PARKING
MADISON, WISCONSIN

ALTERNATES & OPTIONS

TARGET VALUE BUDGET
March 28, 2012

POTENTIAL ALTERNATES TO THE BASE PROJECT

Provide temp roofing in the footprint of the Block 105 Development.	$450,000
Allowance for service utilities at future Block 105 development.	$150,000
Provide final streetscaping and landscaping @ Block 105	$400,000
Provide space detection system @ 600 stalls	$250,000

DEVELOPMENT CONSTRUCTION COST RANGES

Office Building	$150 to $200 / SF
Hotel	$200 to $250 / SF
Retail	$100 to $150 / SF
Residential Units	$175 to $225 / SF

CITY OF MADISON
JUDGE DOYLE SQUARE UNDERGROUND PARKING
MADISON, WISCONSIN

TOTAL CONSTRUCTION

UNIFORMAT SYSTEM SUMMARY
TARGET VALUE BUDGET
March 28, 2012

UniFormat System Breakdown	System Area SF	UM	per Sys. SF	per GSF	Total
FOUNDATIONS	115,600	sf	$115.56	$25.79	$13,358,758
BASEMENT CONSTRUCTION	0	cf	$0.00	$0.00	$0
SUPERSTRUCTURE	485,600	sf	$31.27	$29.32	$15,185,799
EXTERIOR ENCLOSURE	0	sf	$0.00	$0.00	$0
ROOFING	38,950	sf	$15.00	$1.13	$584,250
INTERIOR CONSTRUCTION	517,935	sf	$2.77	$2.77	$1,436,213
STAIRS	340	rise	$672.00	$0.44	$228,249
INTERIOR FINISHES	517,935	sf	$2.44	$2.44	$1,261,378
CONVEYING	30	stop	$22,000.00	$1.27	$660,000
PLUMBING	517,935	sf	$1.50	$1.50	$776,903
HVAC	517,935	sf	$3.00	$3.00	$1,553,805
FIRE PROTECTION	517,935	sf	$2.00	$2.00	$1,035,870
ELECTRICAL	517,935	sf	$4.50	$4.50	$2,330,707
EQUIPMENT	517,935	sf	$1.62	$1.62	$840,000
FURNISHINGS	0	sf	$0.00	$0.00	$0
SPECIAL CONSTRUCTION	0	sf	$0.00	$0.00	$0
SELECTIVE BUILDING DEMOLITION	224,600	sf	$4.80	$2.08	$1,078,450
SITE PREPARATION	142,000	sf	$1.73	$0.47	$245,880
SITE IMPROVEMENTS	54,500	sf	$3.04	$0.32	$165,442
SITE CIVIL / MECHANICAL UTILITIES	54,500	sf	$3.49	$0.37	$190,000
SITE ELECTRICAL UTILITIES	0	sf	$0.00	$0.00	$0
GENERAL REQUIREMENTS	517,935	sf	$4.35	$4.35	$2,251,245
UNIFORMAT SYSTEM - SUBTOTAL				$83.38	$43,182,949
CONTINGENCY, INSURANCE, FEE				$5.09	$2,638,738
				TOTAL CONSTRUCTION	$45,821,687

PER GROSS SQUARE FOOT			$88.47	$/GSF
GROSS SQUARE FEET			517,935	GSF
PER STALL			$35,247	$/STALL
NUMBER OF STALLS	398	SF / STALL	1,300	STALLS

CITY OF MADISON
JUDGE DOYLE SQUARE UNDERGROUND PARKING
MADISON, WISCONSIN

TOTAL CONSTRUCTION - BUILDING / AREA BREAKDOWN

UNIFORMAT SYSTEM SUMMARY
TARGET VALUE BUDGET
March 28, 2012

UniFormat System Breakdown	PHASE 1 PARKING STRUCTURE $/GSF	PHASE 1 PARKING STRUCTURE Total	PHASE 2 PARKING STRUCTURE $/GSF	PHASE 2 PARKING STRUCTURE Total	TOTAL $/GSF	TOTAL Total
FOUNDATIONS	$28.48	$6,669,020	$23.57	$6,689,738	$25.79	$13,358,758
BASEMENT CONSTRUCTION	$0.00	$0	$0.00	$0	$0.00	$0
SUPERSTRUCTURE	$27.96	$6,545,634	$30.44	$8,640,165	$29.32	$15,185,799
EXTERIOR ENCLOSURE	$0.00	$0	$0.00	$0	$0.00	$0
ROOFING	$0.98	$228,750	$1.25	$355,500	$1.13	$584,250
INTERIOR CONSTRUCTION	$2.87	$673,063	$2.69	$763,150	$2.77	$1,436,213
STAIRS	$0.49	$115,283	$0.40	$112,966	$0.44	$228,249
INTERIOR FINISHES	$2.21	$517,369	$2.62	$744,009	$2.44	$1,261,378
CONVEYING	$1.41	$330,000	$1.16	$330,000	$1.27	$660,000
PLUMBING	$1.50	$351,204	$1.50	$425,699	$1.50	$776,903
HVAC	$3.00	$702,408	$3.00	$851,397	$3.00	$1,553,805
FIRE PROTECTION	$2.00	$468,272	$2.00	$567,598	$2.00	$1,035,870
ELECTRICAL	$4.50	$1,053,611	$4.50	$1,277,096	$4.50	$2,330,707
EQUIPMENT	$1.79	$420,000	$1.48	$420,000	$1.62	$840,000
FURNISHINGS	$0.00	$0	$0.00	$0	$0.00	$0
SPECIAL CONSTRUCTION	$0.00	$0	$0.00	$0	$0.00	$0
SELECTIVE BUILDING DEMOLITION	$0.62	$146,000	$3.29	$932,450	$2.08	$1,078,450
SITE PREPARATION	$0.49	$115,505	$0.46	$130,375	$0.47	$245,880
SITE IMPROVEMENTS	$0.23	$54,441	$0.39	$111,001	$0.32	$165,442
SITE CIVIL / MECHANICAL UTILITIES	$0.23	$53,125	$0.48	$136,875	$0.37	$190,000
SITE ELECTRICAL UTILITIES	$0.00	$0	$0.00	$0	$0.00	$0
GENERAL REQUIREMENTS	$4.33	$1,014,403	$4.36	$1,236,842	$4.35	$2,251,245
SUBTOTAL	$83.11	$19,458,088	$83.60	$23,724,861	$83.38	$43,182,949
CONTINGENCY, INSURANCE, FEE		$1,189,006		$1,449,732		$2,638,738
TOTAL CONSTRUCTION		$20,647,094		$25,174,593		$45,821,687
PER GROSS SQUARE FOOT	$88.18 $/GSF		$88.71 $/GSF		$88.47 $/GSF	
GROSS SQUARE FEET	234,136 GSF		283,799 GSF		517,935 GSF	

CITY OF MADISON
JUDGE DOYLE SQUARE UNDERGROUND PARKING
MADISON, WISCONSIN

GROSS SQUARE FOOTAGE AND ENCLOSURE AREA SUMMARY
TARGET VALUE BUDGET
March 28, 2012

		NEW BUILDING GSF	STALL COUNT EA	RENOVATION GSF	TOTAL GSF	PERIMETER DISTANCE FT	FLR. TO FLR. HEIGHT	ENCLOSURE
					0			0
	LEVEL U5				0			0
10	Phase 1 - Elevation (853'-0")	21,400	26	823	22,223		9.50	0
20	Phase 2 - Elevation (852'-0")	25,600	24	1,067	26,667		9.50	0
					0			0
	LEVEL U4				0			0
10	Phase 1 - Elevation (862'-6")	48,900	140	349	49,249		9.50	0
20	Phase 2 - Elevation (861'-6")	64,600	171	378	64,978		9.50	0
					0			0
	LEVEL U3				0			0
10	Phase 1 - Elevation (872'-0")	48,900	140	349	49,249		9.50	0
20	Phase 2 - Elevation (871'-0")	64,600	171	378	64,978		9.50	0
					0			0
	LEVEL U2				0			0
10	Phase 1 - Elevation (881'-6")	49,200	140	351	49,551		9.50	0
20	Phase 2 - Elevation (880'-6")	64,600	169	382	64,982		9.50	0
					0			0
	LEVEL U1				0			0
10	Phase 1 - Elevation (891'-0")	50,900	143	356	51,256		16.50	0
20	Phase 2 - Elevation (890'-0")	57,600	146	395	57,995		15.50	0
					0			0
	GROUND LEVEL				0			0
10	Phase 1 - Elevation (907'-6")	12,200	30	407	12,607			0
20	Phase 2 - Elevation (905'-6")	4,200	0		4,200			0
					0			0
					0			0
					0			0
	ADDITIONAL ITEMS				0			0
	Miscellaneous Additional Items				0			0
					0			0
	TOTALS	**512,700**	**1,300**	**5,235**	**517,935**	**0.00 :encl/GSF**		**0**

CITY OF MADISON
JUDGE DOYLE SQUARE UNDERGROUND PARKING
MADISON, WISCONSIN

TOTAL CONSTRUCTION - PHASE 1 PARKING STRUCTURE

UNIFORMAT SYSTEM SUMMARY
TARGET VALUE BUDGET
March 28, 2012

UniFormat System Breakdown	System Area SF	UM	per Sys. SF	per GSF	Total
FOUNDATIONS	51,000	sf	$130.77	$28.48	$6,669,020
BASEMENT CONSTRUCTION	0	cf	$0.00	$0.00	$0
SUPERSTRUCTURE	212,100	sf	$30.86	$27.96	$6,545,634
EXTERIOR ENCLOSURE	0	sf	$0.00	$0.00	$0
ROOFING	15,250	sf	$15.00	$0.98	$228,750
INTERIOR CONSTRUCTION	234,136	sf	$2.87	$2.87	$673,063
STAIRS	172	rise	$672.00	$0.49	$115,283
INTERIOR FINISHES	234,136	sf	$2.21	$2.21	$517,369
CONVEYING	15	stop	$22,000.00	$1.41	$330,000
PLUMBING	234,136	sf	$1.50	$1.50	$351,204
HVAC	234,136	sf	$3.00	$3.00	$702,408
FIRE PROTECTION	234,136	sf	$2.00	$2.00	$468,272
ELECTRICAL	234,136	sf	$4.50	$4.50	$1,053,611
EQUIPMENT	234,136	sf	$1.79	$1.79	$420,000
FURNISHINGS	0	sf	$0.00	$0.00	$0
SPECIAL CONSTRUCTION	0	sf	$0.00	$0.00	$0
SELECTIVE BUILDING DEMOLITION	14,600	sf	$10.00	$0.62	$146,000
SITE PREPARATION	64,000	sf	$1.80	$0.49	$115,505
SITE IMPROVEMENTS	23,500	sf	$2.32	$0.23	$54,441
SITE CIVIL / MECHANICAL UTILITIES	23,500	sf	$2.26	$0.23	$53,125
SITE ELECTRICAL UTILITIES	0	sf	$0.00	$0.00	$0
GENERAL REQUIREMENTS	234,136	sf	$4.33	$4.33	$1,014,403
UNIFORMAT SYSTEM - SUBTOTAL				$83.11	$19,458,088
CONTINGENCY, INSURANCE, FEE				$5.08	$1,189,006
				TOTAL CONSTRUCTION	$20,647,094

PER GROSS SQUARE FOOT			$88.18	$/GSF
GROSS SQUARE FEET			234,136	GSF
PER STALL			$33,356	$/STALL
NUMBER OF STALLS	378	SF / STALL	619	STALLS

DESCRIPTION	QUANTITY		UNIT COST	TOTAL COST
FOUNDATIONS				$0
				$0
REMOVE UNDERGROUND STRUCTURES / OBSTRUCTIONS		NOT INCLUDED		$0
HAZARDOUS MATERIAL ABATEMENT		NOT INCLUDED		$0
ROCK EXCAVATION		NOT INCLUDED		$0
DEWATERING SYSTEM	704	LF	$300.00	$211,200
DEWATERING SYSTEM - PHASE LINE	263	LF	$300.00	$78,900
EARTH RETENTION	35,200	SF	$35.00	$1,232,000
EARTH RETENTION - PHASE LINE	13,150	SF	$35.00	$460,250
UNDERPIN PREMIUM - EXISTING FOUNDATIOI	13,700	SF	$25.00	$342,500
MASS BUILDING EXCAVATION & HAUL OFF	103,889	CY	$12.00	$1,246,667
MASS BUILDING BACKFILL	12,278	CY	$12.00	$147,333
FOOTING EXCAVATION	3,967	CY	$15.00	$59,500
FOOTING BACKFILL	3,499	CY	$18.00	$62,985
GRANULAR FILL UNDER RAMP	2,600	CY	$24.00	$62,400
GRANULAR FILL UNDER SLAB	2,456	CY	$24.00	$58,933
PERIMETER DRAIN TILE	704	LF	$8.00	$5,632
UNDERFLOOR DRAIN TILE GRID	10,200	LF	$8.00	$81,600
REINFORCING STEEL	237	TN	$1,800.00	$427,170
WWF 6x6-W1.4xW1.4	56,100	SF	$0.45	$25,245
TOTAL FOOTING & FOUNDATION CONCRETE	4,746	CY		$0
PAD FOOTINGS	1,275	CY	$175.00	$223,125
STRIP FOOTINGS	308	CY	$375.00	$115,417
FOUNDATION WALLS - PERIMETER	35,200	SF	$24.00	$844,800
FOUNDATION WALLS - RAMPS	2,520	SF	$28.00	$70,560
FOUNDATION WALLS - PITS	576	SF	$30.00	$17,280
FOUNDATION WALLS - MISC	2,760	SF	$30.00	$82,800
SLAB ON GRADE	48,468	SF	$4.00	$193,872
SLAB ON GRADE - PITS	432	SF	$5.00	$2,160
SLAB ON GRADE - MISC	2,100	SF	$5.00	$10,500
CONCRETE PUMPING	4,746	CY	$16.00	$75,941
CONCRETE HOISTING & MISC. EQUIP.	51,000	SF	$6.14	$313,331
VAPOR BARRIER	56,100	SF	$0.75	$42,075
MISC. FABRICATIONS - FOUNDATIONS	51,000	SF	$0.10	$5,100
MEMBRANE WATERPROOFING	41,056	SF	$4.00	$164,224
2" RIGID FOUNDATION INSULATION	2,760	SF	$2.00	$5,520
				$0
TOTAL FOUNDATIONS				**$6,669,020**
SUPERSTRUCTURE				$0
				$0
DECK FORM	168,300	SF	$7.00	$1,178,100
DECK FORM - TOP LEVEL	43,800	SF	$14.00	$613,200
EPOXY REINFORCING STEEL	265	TN	$2,100.00	$556,763
EPOXY REINFORCING STEEL - PT BACK-UP BA	53	TN	$2,300.00	$121,958
SHEAR STUD RAILS	324	CLMN	$600.00	$194,400
POST TENSION TENDONS	222,705	LB	$2.00	$445,410
TOTAL STRUCTURE CONCRETE	7,416	CY		$0
COLUMNS	2,916	LF	$50.00	$145,800
SHEAR WALLS	8,456	SF	$25.00	$211,400
POST TENSION SLAB	168,300	SF	$6.50	$1,093,950
POST TENSION SLAB - TOP LEVEL	43,800	SF	$8.00	$350,400
MISC PADS & CURBS	212,100	SF	$0.25	$53,025
DCI ADMIXTURE	6,703	CY	$40.00	$268,111
WINTER HEAT & PROTECTION	212,100	SF	$0.50	$106,050
CONCRETE PUMPING	7,416	CY	$15.00	$111,241
MISC EQUIPMENT	212,100	SF	$3.63	$770,221

TOWER CRANE	7	MO	$45,000.00	$315,000
MISC. FABRICATIONS - STRUCTURE	212,100	SF	$0.05	$10,605
				$0
TOTAL SUPERSTRUCTURE				**$6,545,633**
EXTERIOR ENCLOSURE				$0
				$0
NOT REQUIRED				$0
				$0
TOTAL EXTERIOR ENCLOSURE				**$0**
ROOFING				$0
				$0
SAKI SARNAFIL WATERPROOFING ROOF SYS	15,250	SF	$15.00	$228,750
- DRAINAGE PANEL GEONET B				$0
- SARNAFILL G476 SA WATERPROOFING MEMBRANE				$0
- SARNAFELT NWP SEPARATION LAYER				$0
- GROUNDING SCREEN				$0
- 1/4" DENS-DECK SHEET				$0
- FORMULA 600 HIGH COMPRESSION, RIGID INSULATION				$0
- SARNAFELT NWP SEPARATION LAYER				$0
- SARNAFILL G476 WATER PROOFING MEMBRANE				$0
				$0
TOTAL ROOFING				**$228,750**
INTERIOR CONSTRUCTION				$0
				$0
CMU INTERIOR PARTITIONS	7,610	SF	$15.00	$114,156
CMU INTERIOR PARTITIONS - PHASING LINE	13,150	SF	$12.00	$157,800
MISC. FABRICATIONS - INTERIOR CONSTRUC	234,136	SF	$0.05	$11,707
ELEVATOR PIT LADDERS	3	EA	$500.00	$1,500
ELEVATOR SILL ANGLES	600	LBS	$3.00	$1,800
ELEVATOR DIVIDER BEAMS	0	LBS	$3.00	$0
ELEVATOR HOIST BEAMS	1,800	LBS	$3.00	$5,400
MASONRY RETAINING ANGLES	3,382	LBS	$3.00	$10,147
6" PIPE BOLLARDS	40	EA	$750.00	$30,000
CABLE RAIL BARRIERS w/ BUMPERS	3,240	LF	$75.00	$243,000
EXPANSION JOINTS	0	LF	$150.00	$0
ROUGH CARPENTRY & BLOCKING	234,136	SF	$0.02	$4,683
FIRESTOPPING	846	LF	$15.00	$12,684
SEALANTS & CAULKING - INTERIORS	234,136	SF	$0.01	$2,341
H.M. DOORS, FRAMES, HARDWARE	13	EA	$2,000.00	$26,000
INTERIOR SIGNAGE	234,136	SF	$0.15	$35,120
FIRE EXTINGUISHERS	67	EA	$250.00	$16,724
				$0
TOTAL INTERIOR CONSTRUCTION				**$673,062**
STAIRS				$0
				$0
CONCRETE TREAD & LANDING PAN FILL	1,544	SF	$8.00	$12,352
PAN STAIRS WITH LANDINGS & RAILINGS	172	RISE	$600.00	$102,931
				$0
TOTAL STAIRS				**$115,283**
INTERIOR FINISHES				$0
				$0
UPGRADED ELEV LOBBY FINISHES PREM	576	SF	$60.00	$34,560

ACT	576	SF	$2.50	$1,440
VCT FLOORING	576	SF	$2.50	$1,440
VINYL BASE	192	LF	$2.00	$384
FLOOR SEALER	233,560	SF	$0.50	$116,780
TRAFFIC COATINGS		NOT INCLUDED		$0
PAINT INTERIOR WALLS	15,221	SF	$0.70	$10,655
PAINT INTERIOR WALLS - PHASING LINE	13,150	SF	$0.70	$9,205
PAINT EXTERIOR WALLS	35,200	SF	$1.25	$44,000
PAINT COLUMNS	324	EA	$75.00	$24,300
PAINT OVERHEAD STRUCTURE	212,100	SF	$1.25	$265,125
PAINT STAIRS	172	RISE	$25.00	$4,289
PAINT PARKING STRIPING	619	EA	$3.50	$2,167
PAINT DOORS & FRAMES	13	EA	$125.00	$1,625
PAINT BOLLARDS	40	EA	$35.00	$1,400
				$0
TOTAL INTERIOR FINISHES				**$517,369**

CONVEYING SYSTEMS				$0
				$0
TRACTION ELEVATOR - PARKING	15	STOP	$22,000.00	$330,000
TRACTION ELEVATOR - OFFICE		NOT INCLUDED		$0
TRACTION ELEVATOR - HOTEL		NOT INCLUDED		$0
TRACTION ELEVATOR - RESIDENTIAL		NOT INCLUDED		$0
				$0
TOTAL CONVEYING SYSTEMS				**$330,000**

PLUMBING SYSTEMS				$0
				$0
PLUMBING SYSTEMS	234,136	SF	$1.50	$351,204
				$0
TOTAL PLUMBING SYSTEMS				**$351,204**

HVAC SYSTEMS				$0
				$0
HVAC SYSTEMS	234,136	SF	$3.00	$702,407
				$0
TOTAL HVAC SYSTEMS				**$702,407**

FIRE PROTECTION SYSTEMS				$0
				$0
FIRE PROTECTION SYSTEMS	234,136	SF	$2.00	$468,271
				$0
TOTAL FIRE PROTECTION SYSTEMS				**$468,271**

ELECTRICAL SYSTEMS				$0
				$0
ELECTRICAL SYSTEMS	234,136	SF	$4.50	$1,053,611
				$0
TOTAL ELECTRICAL SYSTEMS				**$1,053,611**

EQUIPMENT				$0
				$0
PARKING CONTROL EQUIPMENT	1	LS	$420,000.00	$420,000
				$0
TOTAL EQUIPMENT				**$420,000**

FURNISHINGS				$0
				$0
NOT REQUIRED				$0
				$0
TOTAL FURNISHINGS				**$0**
SPECIAL CONSTRUCTION				$0
				$0
NOT REQUIRED				$0
				$0
TOTAL SPECIAL CONSTRUCTION				**$0**
DEMOLITION				$0
				$0
HAZARDOUS MATERIAL ABATEMENT	NOT INCLUDED			$0
BUILDING DEMO - POST OFFICE	14,600	SF	$10.00	$146,000
				$0
TOTAL DEMOLITION				**$146,000**
SITE PREPARATION				$0
				$0
SITE DEMO & CLEARING	64,000	SF	$1.00	$64,000
DUST CONTROL	12	MO	$500.00	$6,000
SNOW REMOVAL	4	MO	$1,000.00	$4,000
STREET CLEANING	12	MO	$500.00	$6,000
EROSION CONTROL MEASURES	12	MO	$750.00	$9,000
TEMPORARY SITE FENCE w/ BARRICADES	967	LF	$15.00	$14,505
TEMPORARY SITE GATES	4	EA	$1,500.00	$6,000
STREET PERMITS	12	MO	$500.00	$6,000
				$0
TOTAL SITE PREPARATION				**$115,505**
SITE IMPROVEMENTS				$0
				$0
GRAVEL BASE - 8" - CONCRETE APPROACH	39	CY	$24.00	$929
GRAVEL BASE - 8" - CURB & GUTTER	45	CY	$24.00	$1,075
GRAVEL BASE - 12" - ASPHALT PAVING	200	CY	$24.00	$4,812
ASPHALT PAVING	0	SY	$30.00	$0
ASPHALT PATCH	463	SY	$50.00	$23,133
CURB AND GUTTER	694	LF	$18.00	$12,492
CONCRETE DRIVE APPROACH	1,200	SF	$10.00	$12,000
				$0
TOTAL SITE IMPROVEMENTS				**$54,441**
SITE CIVIL / MECHANICAL UTILITIES				$0
				$0
RELOCATE WATER SUPPLY	0	LF	$125.00	$0
RELOCATE SANITARY SEWER	0	LF	$125.00	$0
RELOCATE STORM SEWER	425	LF	$125.00	$53,125
				$0
TOTAL SITE CIVIL / MECHANICAL UTILITIES				**$53,125**
SITE ELECTRICAL UTILITIES				$0
				$0
CABLE SERVICE & RELOCATIONS	NOT INCLUDED			$0

PHONE SERVICE DISCONNECTION & RELOCATIONS	NOT INCLUDED	$0
TRAFFIC LIGHTS - REMOVAL/TEMPORARY LIGHTING/REINSTALL	NOT INCLUDED	$0
STREET LIGHTS - REMOVAL/TEMPORARY LIGHTING/REINSTALL	NOT INCLUDED	$0
EXISTING BUILDING ELECTRICAL SERVICE DISCONNECTION	NOT INCLUDED	$0
PRIMARY PERMANENT BUILDING SERVICE	NOT INCLUDED	$0
		$0
TOTAL SITE ELECTRICAL UTILITIES		**$0**

CITY OF MADISON
JUDGE DOYLE SQUARE UNDERGROUND PARKING
MADISON, WISCONSIN

TOTAL CONSTRUCTION - PHASE 2 PARKING STRUCTURE

UNIFORMAT SYSTEM SUMMARY
TARGET VALUE BUDGET
March 28, 2012

UniFormat System Breakdown	System Area SF	UM	per Sys. SF	per GSF	Total
FOUNDATIONS	64,600	sf	$103.56	$23.57	$6,689,738
BASEMENT CONSTRUCTION	0	cf	$0.00	$0.00	$0
SUPERSTRUCTURE	273,500	sf	$31.59	$30.44	$8,640,165
EXTERIOR ENCLOSURE	0	sf	$0.00	$0.00	$0
ROOFING	23,700	sf	$15.00	$1.25	$355,500
INTERIOR CONSTRUCTION	283,799	sf	$2.69	$2.69	$763,150
STAIRS	168	rise	$672.00	$0.40	$112,966
INTERIOR FINISHES	283,799	sf	$2.62	$2.62	$744,009
CONVEYING	15	stop	$22,000.00	$1.16	$330,000
PLUMBING	283,799	sf	$1.50	$1.50	$425,699
HVAC	283,799	sf	$3.00	$3.00	$851,397
FIRE PROTECTION	283,799	sf	$2.00	$2.00	$567,598
ELECTRICAL	283,799	sf	$4.50	$4.50	$1,277,096
EQUIPMENT	283,799	sf	$1.48	$1.48	$420,000
FURNISHINGS	0	sf	$0.00	$0.00	$0
SPECIAL CONSTRUCTION	0	sf	$0.00	$0.00	$0
SELECTIVE BUILDING DEMOLITION	210,000	sf	$4.44	$3.29	$932,450
SITE PREPARATION	78,000	sf	$1.67	$0.46	$130,375
SITE IMPROVEMENTS	31,000	sf	$3.58	$0.39	$111,001
SITE CIVIL / MECHANICAL UTILITIES	31,000	sf	$4.42	$0.48	$136,875
SITE ELECTRICAL UTILITIES	0	sf	$0.00	$0.00	$0
GENERAL REQUIREMENTS	283,799	sf	$4.36	$4.36	$1,236,842
UNIFORMAT SYSTEM - SUBTOTAL				$83.60	$23,724,861
CONTINGENCY, INSURANCE, FEE				$5.11	$1,449,732
				TOTAL CONSTRUCTION	$25,174,593

PER GROSS SQUARE FOOT			$88.71	$/GSF
GROSS SQUARE FEET			283,799	GSF
PER STALL			$36,967	$/STALL
NUMBER OF STALLS	417	SF / STALL	681	STALLS

DESCRIPTION	QUANTITY		UNIT COST	TOTAL COST
FOUNDATIONS				$0
				$0
REMOVE UNDERGROUND STRUCTURES / OBSTRUCTIONS		NOT INCLUDED		$0
HAZARDOUS MATERIAL ABATEMENT		NOT INCLUDED		$0
ROCK EXCAVATION		NOT INCLUDED		$0
DEWATERING SYSTEM	762	LF	$300.00	$228,600
EARTH RETENTION	38,100	SF	$35.00	$1,333,500
UNDERPIN PREMIUM - EXISTING FOUNDATION	8,100	SF	$25.00	$202,500
MASS BUILDING EXCAVATION & HAUL OFF	131,593	CY	$12.00	$1,579,111
MASS BUILDING BACKFILL	15,552	CY	$12.00	$186,622
FOOTING EXCAVATION	5,024	CY	$15.00	$75,367
FOOTING BACKFILL	4,432	CY	$18.00	$79,781
GRANULAR FILL UNDER RAMP	2,600	CY	$24.00	$62,400
GRANULAR FILL UNDER SLAB	3,110	CY	$24.00	$74,649
PERIMETER DRAIN TILE	762	LF	$8.00	$6,096
UNDERFLOOR DRAIN TILE GRID	12,920	LF	$8.00	$103,360
REINFORCING STEEL	265	TN	$1,800.00	$476,217
WWF 6x6-W1.4xW1.4	71,060	SF	$0.45	$31,977
TOTAL FOOTING & FOUNDATION CONCRETE	5,291	CY		$0
PAD FOOTINGS	1,615	CY	$175.00	$282,625
STRIP FOOTINGS	265	CY	$375.00	$99,333
FOUNDATION WALLS - PERIMETER	38,100	SF	$24.00	$914,400
FOUNDATION WALLS - RAMPS	1,260	SF	$28.00	$35,280
FOUNDATION WALLS - PITS	768	SF	$30.00	$23,040
FOUNDATION WALLS - MISC	0	SF	$30.00	$0
SLAB ON GRADE	64,024	SF	$4.00	$256,096
SLAB ON GRADE - PITS	576	SF	$5.00	$2,880
SLAB ON GRADE - MISC	0	SF	$5.00	$0
CONCRETE PUMPING	5,291	CY	$16.00	$84,661
CONCRETE HOISTING & MISC. EQUIP.	64,600	SF	$5.12	$330,976
VAPOR BARRIER	71,060	SF	$0.75	$53,295
MISC. FABRICATIONS - FOUNDATIONS	64,600	SF	$0.10	$6,460
MEMBRANE WATERPROOFING	40,128	SF	$4.00	$160,512
2" RIGID FOUNDATION INSULATION	0	SF	$2.00	$0
				$0
TOTAL FOUNDATIONS				**$6,689,738**
SUPERSTRUCTURE				$0
				$0
DECK FORM	212,400	SF	$7.00	$1,486,800
DECK FORM - TOP LEVEL	61,100	SF	$14.00	$855,400
EPOXY REINFORCING STEEL	342	TN	$2,100.00	$717,938
EPOXY REINFORCING STEEL - PT BACK-UP BA	68	TN	$2,300.00	$157,263
SHEAR STUD RAILS	418	CLMN	$600.00	$250,800
POST TENSION TENDONS	287,175	LB	$2.00	$574,350
TOTAL STRUCTURE CONCRETE	9,886	CY		$0
COLUMNS	3,762	LF	$50.00	$188,100
SHEAR WALLS	17,304	SF	$25.00	$432,600
POST TENSION SLAB	212,400	SF	$6.50	$1,380,600
POST TENSION SLAB - TOP LEVEL	61,100	SF	$8.00	$488,800
MISC PADS & CURBS	273,500	SF	$0.25	$68,375
DCI ADMIXTURE	8,729	CY	$40.00	$349,148
WINTER HEAT & PROTECTION	273,500	SF	$0.50	$136,750
CONCRETE PUMPING	9,886	CY	$15.00	$148,285
MISC EQUIPMENT	273,500	SF	$3.77	$1,031,281
TOWER CRANE	8	MO	$45,000.00	$360,000
MISC. FABRICATIONS - STRUCTURE	273,500	SF	$0.05	$13,675

				$0
TOTAL SUPERSTRUCTURE				**$8,640,165**
EXTERIOR ENCLOSURE				$0
				$0
NOT REQUIRED				$0
				$0
TOTAL EXTERIOR ENCLOSURE				**$0**
ROOFING				$0
				$0
SAKI SARNAFIL WATERPROOFING ROOF SYS	23,700	SF	$15.00	$355,500
- DRAINAGE PANEL GEONET B				$0
- SARNAFILL G476 SA WATERPROOFING MEMBRANE				$0
- SARNAFELT NWP SEPARATION LAYER				$0
- GROUNDING SCREEN				$0
- 1/4" DENS-DECK SHEET				$0
- FORMULA 600 HIGH COMPRESSION, RIGID INSULATION				$0
- SARNAFELT NWP SEPARATION LAYER				$0
- SARNAFILL G476 WATER PROOFING MEMBRANE				$0
				$0
TOTAL ROOFING				**$355,500**
INTERIOR CONSTRUCTION				$0
				$0
CMU INTERIOR PARTITIONS	15,574	SF	$15.00	$233,604
MISC. FABRICATIONS - INTERIOR CONSTRUC	283,799	SF	$0.05	$14,190
ELEVATOR PIT LADDERS	3	EA	$500.00	$1,500
ELEVATOR SILL ANGLES	600	LBS	$3.00	$1,800
ELEVATOR DIVIDER BEAMS	2,160	LBS	$3.00	$6,480
ELEVATOR HOIST BEAMS	2,400	LBS	$3.00	$7,200
MASONRY RETAINING ANGLES	6,922	LBS	$3.00	$20,765
6" PIPE BOLLARDS	60	EA	$750.00	$45,000
CABLE RAIL BARRIERS w/ BUMPERS	1,620	LF	$75.00	$121,500
EXPANSION JOINTS	1,052	LF	$150.00	$157,800
ROUGH CARPENTRY & BLOCKING	283,799	SF	$0.02	$5,676
FIRESTOPPING	1,730	LF	$15.00	$25,956
SEALANTS & CAULKING - INTERIORS	283,799	SF	$0.01	$2,838
H.M. DOORS, FRAMES, HARDWARE	28	EA	$2,000.00	$56,000
INTERIOR SIGNAGE	283,799	SF	$0.15	$42,570
FIRE EXTINGUISHERS	81	EA	$250.00	$20,271
				$0
TOTAL INTERIOR CONSTRUCTION				**$763,150**
STAIRS				$0
				$0
CONCRETE TREAD & LANDING PAN FILL	1,513	SF	$8.00	$12,103
PAN STAIRS WITH LANDINGS & RAILINGS	168	RISE	$600.00	$100,862
				$0
TOTAL STAIRS				**$112,966**
INTERIOR FINISHES				$0
				$0
UPGRADED ELEV LOBBY FINISHES (PREM)	2,260	SF	$60.00	$135,600
ACT	2,260	SF	$2.50	$5,650
VCT FLOORING	2,260	SF	$2.50	$5,650
VINYL BASE	750	LF	$2.00	$1,500

FLOOR SEALER	281,539	SF	$0.50	$140,769
TRAFFIC COATINGS		NOT INCLUDED		$0
PAINT INTERIOR WALLS	31,147	SF	$0.70	$21,803
PAINT EXTERIOR WALLS	38,100	SF	$1.25	$47,625
PAINT COLUMNS	418	EA	$75.00	$31,350
PAINT OVERHEAD STRUCTURE	273,500	SF	$1.25	$341,875
PAINT STAIRS	168	RISE	$25.00	$4,203
PAINT PARKING STRIPING	681	EA	$3.50	$2,384
PAINT DOORS & FRAMES	28	EA	$125.00	$3,500
PAINT BOLLARDS	60	EA	$35.00	$2,100
				$0
TOTAL INTERIOR FINISHES				**$744,009**

CONVEYING SYSTEMS				$0
				$0
TRACTION ELEVATOR - PARKING	15	STOP	$22,000.00	$330,000
TRACTION ELEVATOR - OFFICE		NOT INCLUDED		$0
TRACTION ELEVATOR - HOTEL		NOT INCLUDED		$0
TRACTION ELEVATOR - RESIDENTIAL		NOT INCLUDED		$0
				$0
TOTAL CONVEYING SYSTEMS				**$330,000**

PLUMBING SYSTEMS				$0
				$0
PLUMBING SYSTEMS	283,799	SF	$1.50	$425,698
				$0
TOTAL PLUMBING SYSTEMS				**$425,698**

HVAC SYSTEMS				$0
				$0
HVAC SYSTEMS	283,799	SF	$3.00	$851,397
				$0
TOTAL HVAC SYSTEMS				**$851,397**

FIRE PROTECTION SYSTEMS				$0
				$0
FIRE PROTECTION SYSTEMS	283,799	SF	$2.00	$567,598
				$0
TOTAL FIRE PROTECTION SYSTEMS				**$567,598**

ELECTRICAL SYSTEMS				$0
				$0
ELECTRICAL SYSTEMS	283,799	SF	$4.50	$1,277,095
				$0
TOTAL ELECTRICAL SYSTEMS				**$1,277,095**

EQUIPMENT				$0
				$0
PARKING CONTROL EQUIPMENT	1	LS	$420,000.00	$420,000
				$0
TOTAL EQUIPMENT				**$420,000**

FURNISHINGS	$0
	$0
NOT REQUIRED	$0

				$0
TOTAL FURNISHINGS				**$0**
SPECIAL CONSTRUCTION				$0
				$0
NOT REQUIRED				$0
				$0
TOTAL SPECIAL CONSTRUCTION				**$0**
DEMOLITION				$0
				$0
HAZARDOUS MATERIAL ABATEMENT	NOT INCLUDED			$0
BUILDING DEMO - GOV. EAST GARAGE	210,000	SF	$3.00	$630,000
DEMO EARTH RETENTION - PHASING LINE	13,150	SF	$20.00	$263,000
DEMO CMU PARTITION - PHASING LINE	13,150	SF	$3.00	$39,450
				$0
TOTAL DEMOLITION				**$932,450**
SITE PREPARATION				$0
				$0
SITE DEMO & CLEARING	78,000	SF	$1.00	$78,000
DUST CONTROL	12	MO	$500.00	$6,000
SNOW REMOVAL	4	MO	$1,000.00	$4,000
STREET CLEANING	12	MO	$500.00	$6,000
EROSION CONTROL MEASURES	12	MO	$750.00	$9,000
TEMPORARY SITE FENCE w/ BARRICADES	1,025	LF	$15.00	$15,375
TEMPORARY SITE GATES	4	EA	$1,500.00	$6,000
STREET PERMITS	12	MO	$500.00	$6,000
				$0
TOTAL SITE PREPARATION				**$130,375**
SITE IMPROVEMENTS				$0
				$0
GRAVEL BASE - 8" - CONCRETE APPROACH	39	CY	$24.00	$929
GRAVEL BASE - 8" - CURB & GUTTER	45	CY	$24.00	$1,075
GRAVEL BASE - 12" - ASPHALT PAVING	807	CY	$24.00	$19,372
ASPHALT PAVING	1,400	SY	$30.00	$42,000
ASPHALT PATCH	463	SY	$50.00	$23,133
CURB AND GUTTER	694	LF	$18.00	$12,492
CONCRETE DRIVE APPROACH	1,200	SF	$10.00	$12,000
				$0
TOTAL SITE IMPROVEMENTS				**$111,001**
SITE CIVIL / MECHANICAL UTILITIES				$0
				$0
RELOCATE WATER SUPPLY	320	LF	$125.00	$40,000
RELOCATE SANITARY SEWER	350	LF	$125.00	$43,750
RELOCATE STORM SEWER	425	LF	$125.00	$53,125
				$0
TOTAL SITE CIVIL / MECHANICAL UTILITIES				**$136,875**
SITE ELECTRICAL UTILITIES				$0
				$0
CABLE SERVICE & RELOCATIONS	NOT INCLUDED			$0
PHONE SERVICE DISCONNECTION & RELOCATIONS	NOT INCLUDED			$0
TRAFFIC LIGHTS - REMOVAL/TEMPORARY LIGHTING/REINSTALL	NOT INCLUDED			$0

STREET LIGHTS - REMOVAL/TEMPORARY LIGHTING/REINSTALL	NOT INCLUDED	$0
EXISTING BUILDING ELECTRICAL SERVICE DISCONNECTION	NOT INCLUDED	$0
PRIMARY PERMANENT BUILDING SERVICE	NOT INCLUDED	$0
		$0
TOTAL SITE ELECTRICAL UTILITIES		**$0**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