University of Maryland at College Park

PARKING AND MOBILITY STUDY

Final Report

August 30, 2019

UNIVERSITY OF MARYLAND

Contents

Figures

Tables

Study Overview

This Parking and Mobility Study was developed to assist the University of Maryland, College Park (UMD or the University) in preparing for a changing environment in the greater College Park area. Of particular interest is the impact that the future Purple Line and associated Metro Stations will have on parking and shuttle services needs on the UMD campus and surrounding environment. This study will inform the planned Campus Facility Master Plan by identifying parking/mobility needs and recommending ways to mitigate unfavorable conditions while supporting and enhancing favorable ones. The study was guided by five principles and a core purpose, which are described below.

5 Guiding Principles:

1. **The study will act in support of a future facilities Master Plan, with a focus on examining the University of Maryland College Park campus in a broader context.**
2. **Integrate administration and policy with facilities for a more comprehensive and integrated approach to planning.**
3. **Define how the campus may continue to develop new buildings while reducing travel time and provide efficient access; integrate land uses, parking, and transportation to achieve a well-connected campus.**
4. **Take a multi-modal perspective on campus transportation to achieve the University's sustainability goals.**
5. **Determine the current and future parking demand and supply, especially in relationship to impending transportation improvements such as the Purple Line light rail.**

Study Core Purpose:

The core purpose of this study is to assess how the University population (students, faculty, staff, researchers, visitors, and all other University-affiliated personnel) moves to and about the greater College Park area through all transportation modes, as well as how to meet the changing and growing needs of the population in the future.

Project Timeline:

- **August/September 2018**
  DOTS Fall Parking Survey
- **September 2018**
  Kickoff Meeting
- **October 2018**
  DOTS Staff Interviews
- **November 2018**
  Peer Institution Interviews
- **January 2019**
  Project Update
- **February 2019**
  Focus Groups
- **Mid February/Early March**
  DOTS Fall Parking Survey
- **March 2019**
  Parking Data Collection
- **Late March/Early April 2019**
  Project Update
- **June 2019**
  Preliminary Recommendations
- **July 2019**
  Final Recommendations
- **August 2019**
  Final Report

Community Engagement Summary

From December 2018 through March 2019, the University of Maryland Parking and Mobility Study Project Team led an outreach campaign to engage the community and University stakeholders to help understand, frame, and prioritize the key challenges and potential improvements for the parking and transportation system on and around campus. This page summarizes the priorities identified throughout all aspects of the community engagement process, in the order of frequency and importance in which they were communicated.

TIER 1 PRIORITIES

(Tier 1 priorities were expressed consistently through the Focus Groups and within the online survey).

Explore Options to Expand Transit Service and Frequency

Expand Number of Parking Options

Address On-Campus Pedestrian and Bicycling Safety

TIER 2 PRIORITIES

(Tier 2 priorities were expressed in some form during nearly all outreach activities. While Tier 2 priorities were voiced nearly as often as tier 1 priorities, there was less consensus among user groups on the relative importance of these priorities).

Pursue Partnership to Improve Bicycle Access to Campus

Improve Communication of Shuttle-UM and Nite Ride Service

Improve On-Campus Transportation and Prioritization

Improve Communication of Transportation Programs and Long-Term Planning

TIER 3 PRIORITIES

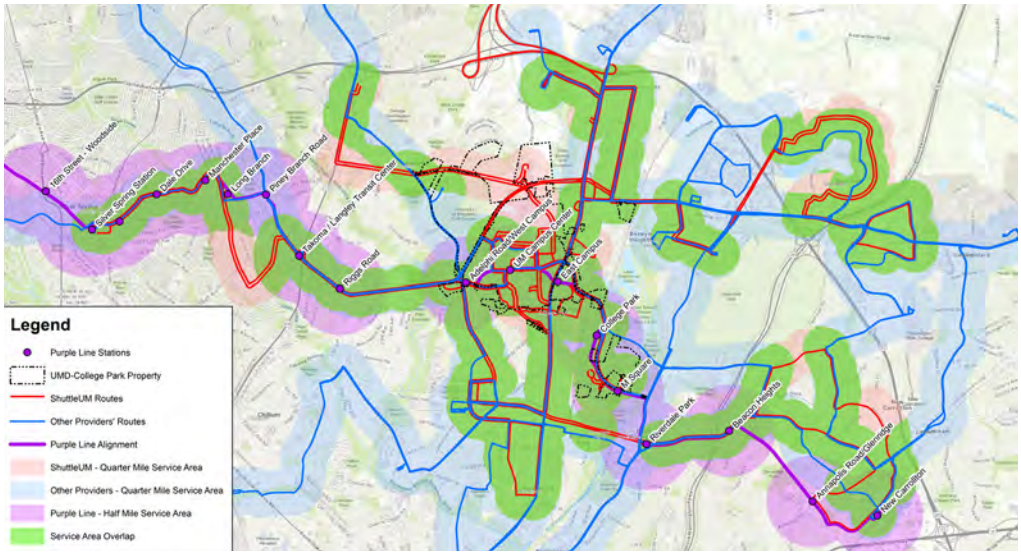
(Tier 3 priorities were expressed multiple times through the various outreach activities and should serve as a reference as recommendations are developed. Not all tier 3 priorities are important to all user groups).

- Partnerships
- Funding
- Visitor Parking Supply
- Department Coordination
- Real-Time Parking Availability
- Location of Future Parking Supply
- Parking Restrictions for Sporting Events
- Pick-up/Drop-off Zones

Data Analysis

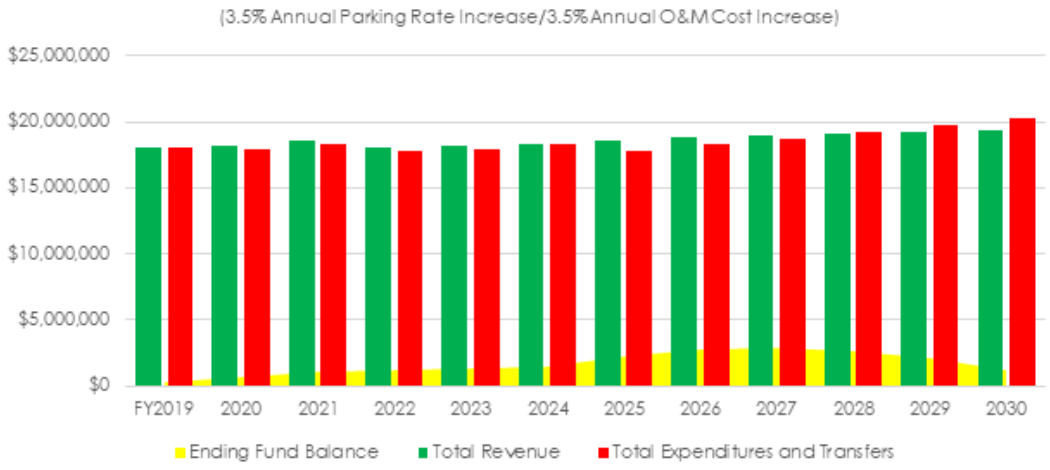
DOTS maintains over 17,000 parking spaces in five garages and more than 120 surface lots. Thirteen Shuttle UM routes also serve the campus, as do the Nite Ride, Paratransit, and other bus charter services. All services provided by DOTS must operate in a self-sustaining auxiliary fund, supported by user fees, tuition fees, and fund transfers from other University departments.

Campus Transit Coverage



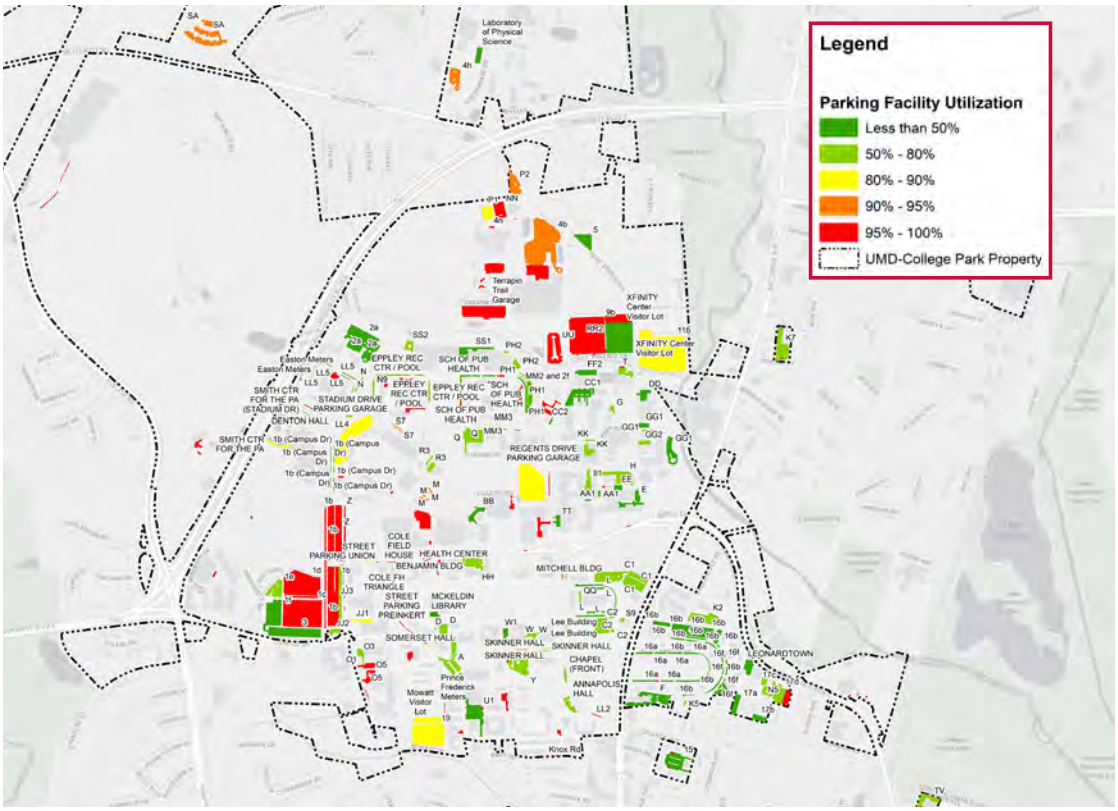
Much of Shuttle UM's service area is covered by other providers today, or will be serviced by the Purple Line in the coming years. **(PAGE 54 , FIGURE 9)**

DOTS Financial



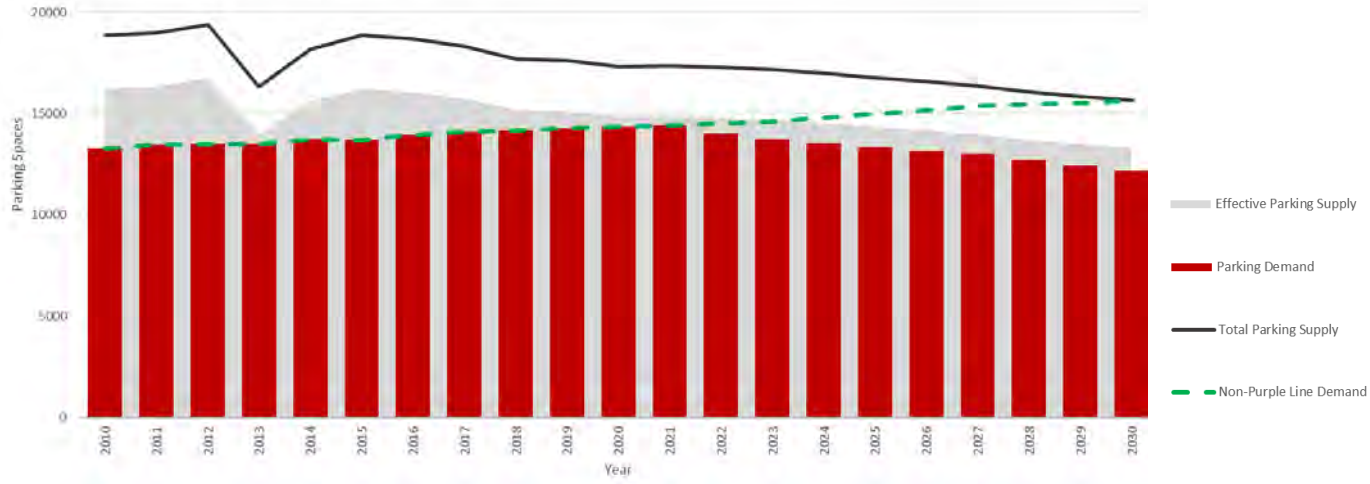
With nominal parking rate cost increases and modest Operations and Maintenance cost increases, the DOTS auxiliary fund will begin to operate at a deficit in the coming years. **(PAGE 69, FIGURE 12)**

Parking Heatmap



While larger campus parking facilities are well-utilized, smaller lots and fringe lots are under-utilized.
(PAGE 67, FIGURE 10)

Parking Demand versus Capacity



With the forecasted changes to campus parking demand, transit services, and construction activities, parking supply will accommodate demand for the next 10 years. **(PAGE 65, FIGURE 11)**

Key Conclusions

The College Park campus is currently served by a large number of multimodal transportation options, which will only grow in the future. However, the internal campus network is strongly auto-focused which is inconsistent with University priorities.

The financial model in which DOTS operates is unsustainable, based on the fact that parking revenue funds transit services. In the future as the area develops and densifies, transit services will need to accommodate a growing share of the market, while parking will reduce in share.

The DOTS organizational structure in Student Services limited planning functions and restricted availability of funding. As of the publication of this report, DOTS has been moved to the Department of Administration and Finance to better react to these needs.

Transportation planning has not been a focus for University staff, primarily as a result of detached facilities and transportation functions. This has led to an absence of campus strategic transportation planning and has often put facilities and transportation priorities at odds with one another.

During periods of typical need, the current parking capacity at the campus is sufficient and appropriate for the parking demand at the University. However, permit structure and occupancy distribution are not leveraging facilities to their maximum capacity. Furthermore, with the completion of the Purple Line, the transportation network will support anticipated University growth for the next 10 years.

Complete and consistent parking and transportation data is not being regularly collected, resulting a lack of information in which to base planning or operational decisions.

Key Recommendations

Based on this study's findings from interviews, engagement, peer comparison, historical review, data assessment, and forecasted conditions, the project team has formed recommendations around the areas of Parking Policy and Management, Transportation Demand Management, and Strategic Communications. In general, these recommendations surround the mentality of aligning transportation-related actions with future, data-based visioning. This will help DOTS and facilities staff work towards strategic goals to support the University's overall goals and objectives. The three recommendation areas are shown below with some of the key recommendations as presented by this report.

CENTRAL THEMES

Promote a change in the community mode share away from personal and single-occupancy vehicles
(Master Plan Goal)

Carbon Neutrality
(Office of Sustainability Goal)

Smart Growth
(Office of Sustainability Goal)

Promote the use of active transportation modes
(Master Plan Goal)

Plan for and mitigate loss of parking revenue and capacity
(Master Plan Goal)

STRATEGIC COMMUNICATIONS

- Engage College Park community to discuss transportation options and changes
- Invest in creating an annual communication strategy
- Develop a video (or video series) to "Tell the Story" of policy or transportation changes
- Build strategic partnerships between DOTS and other University departments
- Integrate parking permit and alternative transportation options websites

PARKING POLICY AND MANAGEMENT

- Demand-based parking rate structure
- Eliminate financial dependence of transportation services on parking revenue
- Enhance transportation planning function of DOTS
- Establish a parking replacement budget
- Collect parking data and transit usage regularly and completely
- Update the parking supply/ demand model at least every 5 years
- Establish goals as metrics to measure customer service and operational efficiency
- Use collected data and technology to inform end users of transportation options

TRANSPORTATION DEMAND MANAGEMENT

- Assess the impact of the Purple Line on transportation demand before and after construction
- Prioritize transit on campus
- Focus UM Shuttle service to the immediate campus area
- Establish campus mode split goals
- Establish performance metrics for all transportation services
- Plan and implement a scooter pilot program
- Evaluate campus streets for accommodation of multimodal facilities

Introduction

This Parking and Mobility Study was developed to assist the University of Maryland, College Park (UMD or the University) in preparing for a changing environment in the greater College Park area. This study will inform the planned Campus Facility Master Plan, by identifying parking/mobility needs and recommending ways to mitigate unfavorable conditions while supporting and enhancing favorable ones.

Project Overview

The Parking and Mobility Study focuses primarily on the transportation network and the surrounding contributing elements (such as land use and development). With this context in mind, the purpose of study follows five guiding principles:

1. The study will act in support of a future facilities Master Plan, with a focus on examining the University of Maryland College Park campus in a broader context.
2. Integrate administration and policy with facilities for a more comprehensive and integrated approach to planning.
3. Define how the campus may continue to develop new buildings while reducing travel time and provide efficient access; integrate land uses, parking, and transportation to achieve a well-connected campus (e.g. "park at my desk").
4. Take a multi-modal perspective on campus transportation to achieve the University's sustainability goals.
5. Determine the current and future parking demand and supply especially in relationship to impending transportation improvements such as the Purple Line light rail.

The core purpose of this study is to assess how the University population (students, faculty, staff, researchers, visitors, and all other University-affiliated personnel) moves to and about the greater College Park area through all transportation modes, as well as how to meet the changing and growing needs of the population in the future. This study serves to fulfil the "Connectivity" and "Sustainability" components of the strategic priorities of the most recent University Facilities Master Plan and is consistent with the University's 2016 update for the University's commitment to the greater College Park area. This study focuses on the offerings of the University's Department of Transportation Services (DOTS), but also includes other components of the transportation network including future facilities, land development services, and local partners such as the City of College Park (City), Prince George's County (County), and the Washington Metropolitan Area Transit Authority (WMATA).

Background and Context

As the focus of the University's planning moves from the core campus to a much broader area, the boundaries and sphere of influence surrounding the University and its transportation system also grow. This region includes the area from Hyattsville and Prince George's Plaza to the south to I-495 in the north, and from Adelphi and Langley Park in the west to Greenbelt Park in the east. The general study area is shown in **Figure 1**.

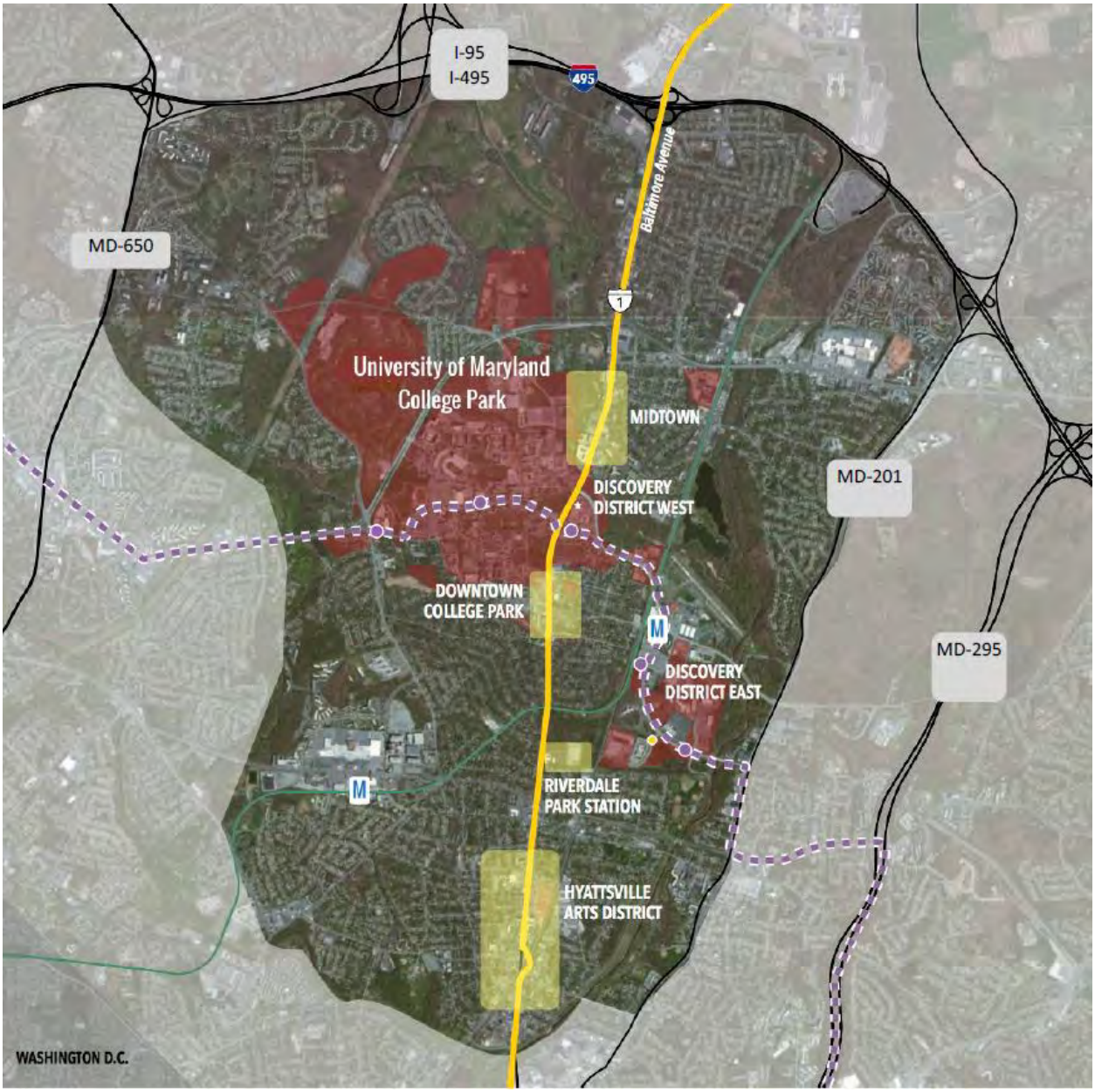


Figure 1: Parking and Mobility Study Area of Context

The influence of the University extends to local development and the layout of the City, which requires a strong relationship between the University and the City of College Park. The University is a strong economic driver for City growth and, in turn, the City is evolving a rich, urban community and downtown environment in response.

Furthermore, the City of College Park provides a community in which the University population may reside. The nearby area is increasingly populated by Faculty, Students, and Staff as the University grows and changes and the City responds in turn. Projects in and around the City

include residential mixed-use buildings and transit-oriented development. Development of vital, attractive mixed-use neighborhoods around the university benefits all stakeholders.

Lastly, the newest place of University growth is the Discovery District, a key location within the College Park campus to promote innovation and research. Rather than stand apart, the Discovery District functions as an extension of the core campus- serving all faculty, students, and staff.

This Parking and Mobility Study aims to serve the needs of the University as well as the greater College Park area. This includes the need to connect students to classes, staff with their homes, researchers to their laboratories, faculty to students, and provide the means to continue the excellence and growth of the flagship campus of the University System of Maryland.

Land Use Review

Current Land Use

Land uses on campus consist primarily of administrative and academic buildings, with higher density in the center of the campus, and more open space recreational and parking uses occupying the outlying areas, particularly to the north. Land use in the Discovery District differs from that of the core campus, with academic/office space and surface parking being evenly distributed.

In the surrounding area of the City of College Park, land uses are primarily low to mid-rise residential and mixed-use development, with a fair amount of low-density residential and commercial uses. The land which divides the main campus from the Discovery District is primarily single family residential.

Future Land Use and Development

Land use at the University and in the surrounding area of College Park will continue to develop as a mix of uses, including academic (laboratory/classroom/office), residential (both on and off campus), commercial (retail as well as other uses), and commercial office. The Terrapin Development Company (jointly formed by The University and the University of Maryland College Park Foundation) plays a key role in local development, and partners with its partners to identify strategic and opportunistic developments.

Local Development

Figure 2 shows a map of surrounding existing, planned, and pending property developments in the greater College Park area, as well as highlights the University of Maryland property. A table of the approximate size and known parking capacity of these developments is included in **Appendix A**.

Area Developments

1. The Hotel at UMD
2. Terrapin Row
3. Cambria Hotel
4. Landmark
5. Alloy by Alta
6. Greenbelt Station
7. Hillel Center
8. UMCPF Properties
9. Southern Gateway
10. The Mosaic at Turtle Creek
11. College Park Metro Station
12. Riverdale Park Station
13. St. John Properties
14. Greenbelt Town Center at Beltway Plaza
15. Corporate Office Properties Trust (COPT)
16. College Park City Hall
17. Greenbelt Metro Station - Potential FBI Location
18. Berwyn House Road
19. College Park Academy
20. Old Leonardtown
21. UMD Pieline Development(s)

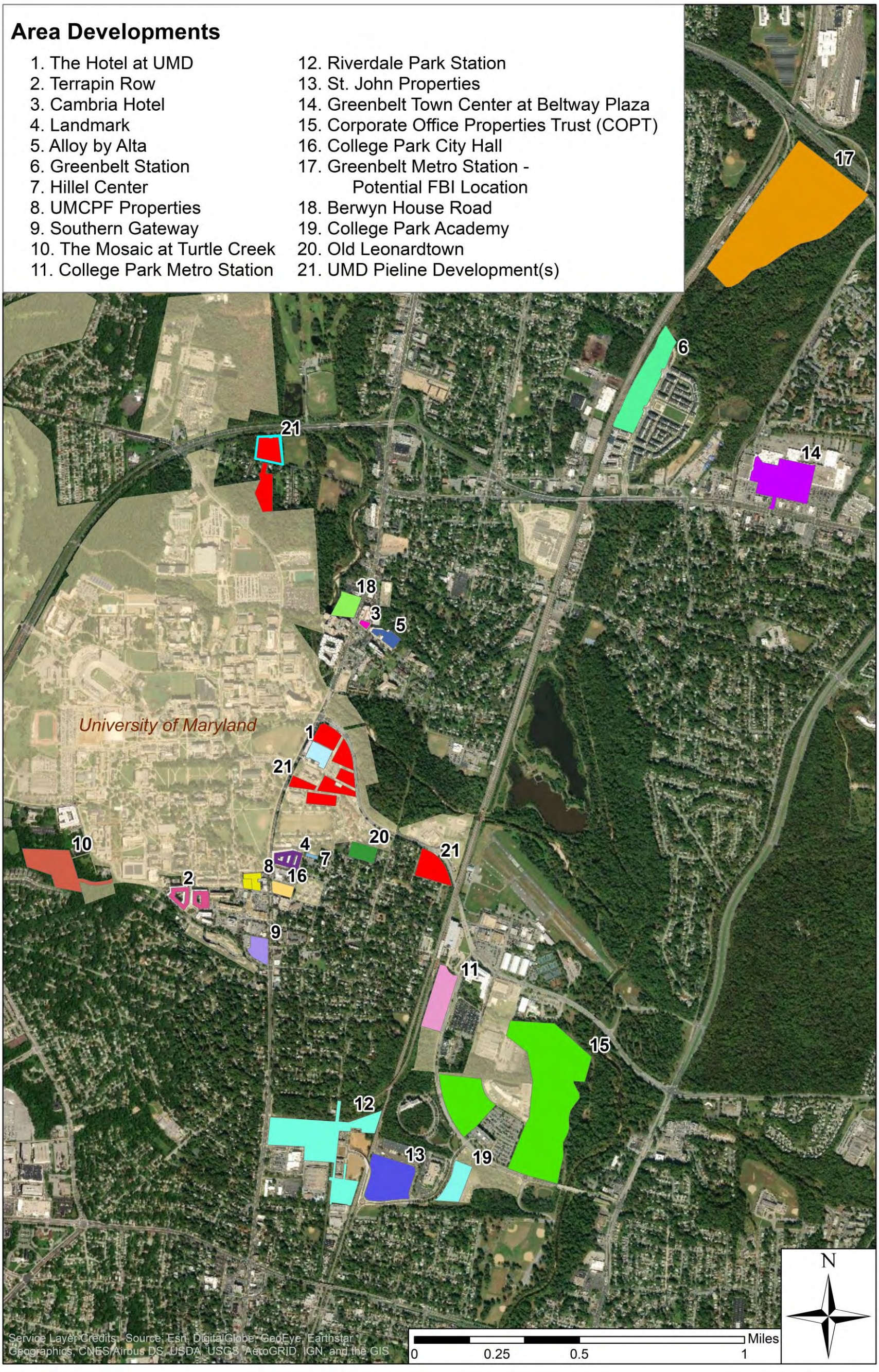


Figure 2: College Park Developments

Throughout this study, concerns were raised with the operation of off-campus parking facilities undercutting the cost of University-provided parking facilities and options. Most, if not all, of these supplemental parking facilities are temporary in nature due to the fact they are located on parking lots marked for future development. This information was confirmed by Kimley-Horn during coordination with the Terrapin Development Corp. Furthermore, Kimley-Horn communicated with Off-Campus Parking (OCP) to confirm the temporary nature of the facilities. Note that OCP is the organization responsible for establishing parking facilities on unused university-owned (but not DOTS-maintained) surface lots. The strategy of leveraging temporary parking facilities as described above for off-campus parking availability reduction aligns well with an anticipated reduction in mode split to favor fewer single occupancy vehicles.

Based on these facts, and the conclusion that additional parking is currently not needed on campus (discussed later in this report), it was determined that for the purposes of this study and the analysis presented herein:

- Off-campus development and parking facility supply exist separately from the University parking supply
- Off-campus development unrelated to the University/Terrapin Development Corp and their related parking facilities neither contribute to or detract from University parking demand
- University-related demand that chooses to be satisfied by non-university provided facilities (supply), is a result of user choice as opposed to lack of availability and/or level of University services

University Development

University facilities management maintains a list of potential construction and parking facility changes to plan for impacts to DOTS management and land use. The current list, as of May 6, 2019, is shown in **Table 1**. This list was used to inform future parking supply as discussed in later sections.

In addition to parking impacts not shown on this table, University staff informed Kimley-Horn that there is potential impact to parking for a new access point to the campus at Berwyn House Road, located adjacent to (and through) parking lot 11b. Kimley-Horn estimates this construction will remove approximately 118 spaces.

Lastly, University staff requested that Kimley-Horn consider the construction of an approximately 800,000 square foot of research buildings to be included in the future demand analysis. Kimley-Horn used ITE 2010 Trip Generation formulas to estimate the approximate vehicular demand beginning in 2024 and increasing to full occupancy by 2027. By 2030, it is estimated that these new buildings will generate approximately 409 parked vehicles considering the land use and projected changes in future mode split.

Table 1: Parking/Construction Impact Forecast

Update as of 5/6/2019
Changed events are highlighted in yellow

	May 2019 Forecast				January 2019 Forecast				
Event	Date	Parking Change	"Available" Parking Balance	"Buffer" Parking Balance	Parking Change	Parking Change Variance (January minus May)		Notes	Detailed Notes
Fall Semester "Start"	**20-Aug-2015**	**0**	**18,874**	**1,650**	**0**	**0**			
A. James Clark	1-Sep-2015	(192)	18,682	1,458	(192)	**0**			
Fall Semester "End"	**20-Dec-2015**	**0**	**18,682**	**1,458**	**0**	**0**			
Spring Semester "End"	**20-May-2016**	**0**	**18,682**	**1,458**	**0**	**0**			
Iribe Center	1-Aug-2016	(352)	18,330	1,106	(352)	**0**			
Fall Semester "Start"	**20-Aug-2016**	**0**	**18,330**	**1,106**	**0**	**0**			
Fall Semester "End"	**20-Dec-2016**	**0**	**18,330**	**1,106**	**0**	**0**			
Spring Semester "End"	**20-May-2017**	**0**	**18,330**	**1,106**	**0**	**0**			
Tennis Courts	1-Aug-2017	(360)	17,970	746	(360)	**0**			
Freshman Resident Reduction	1-Aug-2017	300	18,270	1,046	300	**0**			
Cole Expansion	1-Aug-2017	(85)	18,185	961	(85)	**0**			
Discovery District	1-Aug-2017	(386)	17,799	575	(386)	**0**			
Fall Semester "Start"	**20-Aug-2017**	**0**	**17,799**	**575**	**0**	**0**			
Fall Semester "End"	**20-Dec-2017**	**0**	**17,799**	**575**	**0**	**0**			
Cole Expansion	1-Jan-2018	(87)	17,712	488	(87)	**0**			
Spring Semester "End"	**20-May-2018**	**0**	**17,712**	**488**	**0**	**0**			
Cole Expansion	1-Jun-2018	(271)	17,441	217	(271)	**0**			
Hotel Construction Site Lot	1-Jun-2018	0	17,441	217	0	**0**			
DIT move to the Discovery District	1-Aug-2018	180	17,621	**397**	180	**0**			
Fall Semester "Start"	**20-Aug-2018**	**0**	**17,621**	**397**	**0**	**0**	**Past**		
Fall Semester "End"	**20-Dec-2018**	**0**	**17,621**	**397**	**0**	**0**			
Spring Semester "End"	**20-May-2019**	**0**	**17,621**	**397**	**0**	**0**			
Housing Project (50% of Lot Q)	1-Jul-2019	(39)	**17,582**	358	(39)	**0**		Schedule adjustment	
Fall Semester "Start"	**20-Aug-2019**	**0**	**17,582**	**358**	**0**	**0**			
Fall Semester "End"	**20-Dec-2019**	**0**	**17,582**	**358**	**0**	**0**	**Future**		
Purple Line (Lots 7, K1, 16b, J2)	21-Dec-2019	(154)	**17,428**	204	(144)	**(10)**		Schedule adjustment; increase in number of spaces lost	This includes 65 spaces in Lot 7, 55 spaces in Lot K1, 24 spaces in J2, and 10 spaces in Lot 16b (all of these lots are adjacent); number of spaces increased due to design changes.
School of Public Policy (Lot C2)	21-Dec-2019	(104)	**17,324**	100	(104)	**0**		Schedule adjustment	
Spring Semester "End"	**20-May-2020**	**0**	**17,324**	100	**0**	**0**			
Cole Remaining site work (Lot Z)	21-May-2020	(173)	**17,151**	(73)	(153)	(20)		Schedule adjustment: Increase in number of spaces	Increase in number of spaces due to updated design assumptions and change in boundary of lot Z/1b.
Purple Line (Lot 1)	21-May-2020	(215)	**16,936**	(288)	(217)	**2**		Schedule adjustment; decrease in number of spaces lost	Includes 54 spaces in Lot 1f, 79 spaces in Lot 1e, and a net of 82 spaces in Lot 1d (117 removed and 35 added); decrease in number of spaces due to design changes.
Purple Line (Lot C1)	21-May-2020	(133)	**16,803**	(421)	(130)	**(3)**		Schedule adjustment; increase in number of spaces lost	Includes 123 spaces in lot C1, 7 spaces in the Visitor Center Lot; 3 spaces in Lot L; Lot L was previously not included in the count.
Purple Line (Lot K2)	21-May-2020	(12)	**16,791**	(433)	0	**(12)**		New parking impact due to Purple Line design changes	Design change resulting from UMD request to align the entrance of Lot K2 to the entrance of Lot 7/16b.
Golf Course New Parking	1-Aug-2020	0	**16,791**	(433)	600	**(600)**		Project continues to be evaluated	
Purple Line (Lots 1, JJ)	19-Aug-2020	(31)	**16,760**	(464)	(55)	**24**		Schedule adjustment; decrease in number of spaces lost	Loss of 21 spaces in 1b and 10 spaces in JJ3. The number of spaces changed because boundary for Lot 1b/Z has changed (14 of the spaces lost were previously shown in 1b, but are really in Lot Z).
Fall Semester "Start"	**20-Aug-2020**	**0**	**16,760**	**(464)**	**0**	**0**			
Fall Semester "End"	**20-Dec-2020**	**0**	**16,760**	**(464)**	**0**	**0**			
Chemistry (Lot II1)	21-Dec-2020	(21)	**16,739**	(485)	(21)	**0**		Schedule adjustment	
Spring Semester "End"	**20-May-2021**	**0**	**16,739**	**(485)**	**0**	**0**			
South Campus Rec Building (Lot MV)	1-Jul-2021	(68)	**16,671**	(553)	(68)	**0**			
Fall Semester "Start"	**20-Aug-2021**	**0**	**16,671**	**(553)**	**0**	**0**			
Fall Semester "End"	**20-Dec-2021**	**0**	**16,671**	**(553)**	**0**	**0**			
Purple Line (Lots 1, Z)	1-Jan-2022	(26)	16,645	(579)	**0**	**(26)**		New parking impact due to Purple Line design changes	Includes 5 spaces in Lot Z and 21 spaces in Lot 1b. New impact due to design changes at the signalized intersection in Lot 1/Z to remove parking in the drive aisle close to the signal.
Spring Semester "End"	**20-May-2022**	**0**	**16,645**	**(579)**	**0**	**0**			
Fall Semester "Start"	**20-Aug-2022**	**0**	**16,645**	**(579)**	**0**	**0**			
Fall Semester "End"	**20-Dec-2022**	**0**	**16,645**	**(579)**	**0**	**0**			
Engineering Building (Lots H and EE)	1-Jan-2023	(109)	16,536	(688)	(109)	**0**		Schedule adjustment	
Spring Semester "End"	**20-May-2023**	**0**	**16,536**	**(688)**	**0**	**0**			
					Total	**(645)**			

Source: UMD Facilities Management

University Community

The University of Maryland community is made up of many different and unique populations including students, faculty, staff, alumni, visitors, potential students, family, professionals, and residents of neighboring communities. Each population requires access to the University, but methods and levels of service vary by group.

Place of Residence

For discussion purposes of this study, the University community is defined in the following four categories: student residents, student commuters, faculty/staff commuters, and visitors. These categories are based on the individuals' place of residence and commuting patterns.

Student residents are defined as individuals who either live on campus or very near to campus. This group is less likely to need parking on campus than other population groups, and their transportation needs in relationship to the university can generally be fulfilled by pedestrian infrastructure or transit services. Note that this population may need parking in order to accommodate an off-campus job or other need.

The following are approximate quantities of University residents as reported by the University:

- 5,800 students live on north campus
- 3,200 students live on south campus
- 630 students live in the Leonard community
- 480 graduate students live in the Graduate Gardens and Graduate Hills communities
- 1,270 students live in Greek housing
- 2,910 students live in Private-Public Partnership Housing (either South Campus Commons, or The Courtyards)

Both student and faculty/staff commuters are community members who travel to the University of Maryland for class or employment on a regular basis, then return home at the end of the day. The transportation needs of this group are most likely fulfilled by driving and parking but may also be served by transit options (such as local or commuter buses). These individuals may also take long-range transit such as commuter trains or light rail. Note that the travel patterns of students and faculty/staff vary based on time of day and day of the week given class schedules. While this is a consideration, the demand analysis in this study assumes peak demand (approximately midday), when most of the University population is active on campus.

Visitors accounts for the portion of the population who travels to campus infrequently, or outside of typical operating times. This group also includes visitors for special occasions such as athletic events or open houses. Visitors most frequently drive to and park on campus. For particularly large events, such as gameday, visitors will take public transportation or opt for park-and-ride options for convenience.

Peer Institutions

A benchmark analysis was conducted to understand how the University of Maryland compares to other peer institutions regarding the following parking management issues:

- Permit parking rates,
- Visitor parking rates,
- Parking enforcement coverage,
- Parking citations issued,
- Parking citation appeals and forgiveness, and
- Personnel costs.

Selection

In terms of parking, not all academic peers are appropriate given differences in campus size, adjacent land uses and density, topography and climate. It is important to note that while the selection of peer institutions provides useful comparative analysis, no two campuses are perfectly paired. The comparisons that are part of this study are one way of viewing the University operation and are intended to determine if a practice, program, or policy at the University is vastly different from institutions of similar makeup. Political decisions, institutional values, market forces and other factors that can differ greatly from one institution to the next also matter and ultimately may be what determines why an institution has a unique policy implemented.

Parking peers are institutions with comparable parking transportation systems. Factors taken into account when determining appropriate parking peers include: 1) size of campus, 2) enrollment, 3) adjacent land uses, 4) regional transportation system, 5) internal transit/shuttle system, 6) development form (urban, suburban, small town), 7) topography, and 8) climate. Based on conversations with the project team, the following eleven Universities were identified as suitable parking peers:

- Purdue University
- Indiana University
- Michigan State University
- Ohio State University
- Penn State University
- University of Illinois
- University of Iowa
- University of Michigan
- University of Minnesota
- University of Nebraska
- University of Wisconsin

An environmental comparison of the University to parking peer institutions is shown in **Table 2**.

Table 2: Parking Peer Institution Environment Comparison

Institution	Size (acres)	Environment	Location	Municipal Population
University of Maryland	1,340	Suburban	College Park, MD	32,303
Purdue University	2,602	Suburban	West Lafayette, IN	45,872
Indiana University	1,937	Suburban	Bloomington, IN	84,465
Michigan State University	5,200	Suburban	East Lansing, MI	48,870
Ohio State University	1,765	Urban	Columbus, OH	860,090
Penn State University	7,958	Suburban	University Park, PA	42,034
University of Illinois	1,783	Urban	Urbana-Champaign, IL	42,014
University of Iowa	1,880	Urban	Iowa City, IA	74,398
University of Michigan	3,177	Urban	Ann Arbor, MI	120,782
University of Minnesota	1,204	Urban	Minneapolis, MN	413,651
University of Nebraska	613	Urban	Lincoln, NE	280,364
University of Wisconsin	936	Urban	Madison, WI	252,551

Size and Programs

A population comparison of the University to the parking peer institutions is shown in **Table 3**.

Table 3: Parking Peer Institution Population Comparison

Institution	Undergraduate	Graduate	Faculty & Staff	Total Population
University of Maryland	30,762	10,438	10,091	51,291
Purdue University	31,006	9,626	10,180	50,812
Indiana University	38,364	10,150	19,130	67,644
Michigan State University	38,996	11,023	12,100	62,119
Ohio State University	45,946	13,891	28,241	88,078
Penn State University	53,690	15,135	9,297	78,122
University of Illinois	33,467	11,413	10,845	55,725
University of Iowa	23,357	9,977	17,282	50,616
University of Michigan	29,821	16,181	25,757	71,759
University of Minnesota	31,535	16,033	17,897	65,465
University of Nebraska	20,833	5,064	8,665	34,562
University of Wisconsin	31,710	11,626	16,000	59,336

Note that as a result of data limitations, not every institution listed in **Table 2** and **Table 3** are used in the comparison for this study.

Permit Pricing and Distribution

The University currently utilizes a permit-based parking system with park-down capabilities whereby each student permit holder can park in their assigned parking location as well as one overflow lot on a first come basis. Faculty/staff permit holders are generally assigned a parking location according to their office location and as space is available in proximate lots. Faculty/staff have a greater degree of flexibility and can park in either their assigned parking location or in numerous overflow parking facilities. Faculty and staff overflow lots include K, P, U, V, X, XX1, Z, Stadium Drive Garage or any lot on campus that begins with a number except for Lot 2.

The University currently uses a mixed flat rate approach to permit rates whereby pricing is set based on the type of user for students (e.g. resident, commuter) and based on salary for employees. Student parking permits fall into one of three categories, as follows:

- Commuter permit: Provides parking for students who need to park on campus during the day but does not allow for overnight parking in commuter lots.
- Resident permit: Allows resident students to keep their cars on campus 24/7.
- Overnight storage permit: Provides parking for any non-resident student needing to store their vehicle overnight on campus.

Pricing for student parking permits varies dependent on the permit category as well as the timeframe for the permit as shown in **Table 4**.

Table 4: Student Permit Parking Rates

STUDENT PERMIT RATES			
Academic Term	**Resident Student**	**Overnight Storage Parking**	**Commuter Student**
Annual	$607	$807	$314
Fall Only	$365	$485	$189
Spring Only	$304	$404	$157
Summer Only	$304	$404	$157

Faculty and staff parking permit rates are negotiated and based on salary level as follows:

- Tier 1 - $461 Employees who earn $30,000 or less
- Tier 2 - $522 Employees who earn $30,001 - $45,000
- Tier 3 - $586 Employees who earn $45,001 - $60,000
- Tier 4 - $870 Employees who earn $60,001 - $80,000
- Tier 5 - $921 Employees who earn $80,001 or above

Changes to permit pricing must first be proposed to the Campus Transportation Advisory Committee (CTAC) which includes representation from faculty, staff, and students, and then goes to campus Fee Review Committee (similar makeup as CTAC but with administrators as

well) for ultimate approval. Currently, there is a stipulation that the student permit fee cannot increase more than faculty and staff fee.

The current parking model at the University does not discourage students, faculty, or staff from driving to campus and does not make the most effective use of parking assets available, offer stakeholders a high degree of choice, or provide a solution that is financially sustainable. The current financial path requires that services and costs be reduced, or revenues be increased to meet expenditures if the established standard of services are to remain. Also, with the scheduled displacement of parking on campus in coming years it is going to be challenging to support demand and be financially sustainable.

Existing on-campus parking facilities continue to be displaced while enrollment continues to grow. Parkers circle lots looking for available spaces in core areas while spaces in other areas are underutilized. Parking structures require significant investment to maintain functionality and maximize lifespan. While structured parking maximizes land use and can keep parking proximate to new facilities that are anticipated in the future, they are extremely expensive to construct and maintain/operate.

The recommended model allows parkers to choose a specific facility or zone at price points both lower and higher than those currently offered, it maximizes utilization of parking assets, and can enable the University to generate additional revenues.

Table 5 provides the annual permit pricing at peer institutions.

Table 5: Peer Permit Parking Rate Benchmark Analysis

Institution	Student (Low)	Student (High)	Faculty and Staff (Low)	Faculty and Staff (High)
University of Maryland	**$314.00**	**$807.00**	**$461.00**	**$921.00**
Purdue University	$100.00	$250.00	$100.00	$250.00
Indiana University	$74.00	$350.00	$24.00	$568.68
Michigan State University	$104.00	$306.00	$104.00	$573.72
Ohio State University	$121.56	$905.76	$127.80	$987.96
Penn State University	$90.00	$640.00	$120.00	$1,056.00
University of Illinois	$127.00	$660.00	$93.00	$660.00
University of Iowa	$204.00	$324.00	$324.00	$1,320.00
University of Michigan	$80.88	$228.00	$80.00	$1,809.00
University of Minnesota	$813.00	$1,581.00	$813.00	$1,581.00
University of Nebraska	$276.00	$972.00	$276.00	$1,056.00
University of Wisconsin	N/A	N/A	$950.00	$1,350.00
Median	**$121.56**	**$640.00**	**$123.90**	**$1,021.98**
Average	**$209.49**	**$638.52**	**$289.40**	**$1,011.11**

Note: Each column is color-coded as a heat map from lowest (red) to highest (green)

Based on the benchmark analysis of permit rates, the University's student and lowest priced faculty/staff permit rates are high, but the highest priced permit rate is less than average of other peer institutions. In order for the price of parking to have a material effect on decreasing parking demand, permit prices must be sufficiently high at the upper end and there must be

substantial differences between any tiers of parking permit rates. It is recommended that permit pricing for the University be established above existing peer median and average rates for the highest demand locations, stepping down in price with each subsequent decrease in demand.

It is recommended that the University convert to a demand-based approach to permit pricing, which is grounded in supply/demand economics and allows users to make decisions based on convenience/cost tradeoffs. The permit rate generally corresponds with proximity to the campus core. This provides a mechanism to push parking demand away from the campus core and to more evenly distribute parking utilization. Demand-Based Pricing treats each parking lot and garage as a distinct facility and assigns a demand rating based on utilization (typically high, medium, and low though additional tiers may be implemented).

There are several options to accomplish financial equitability with this approach in that the "low" demand lots can be at a meaningfully lower cost. While comprehensive application of salary-based pricing is not recommended, some spaces can be set aside within "Medium", "High" and/or "Premium" lots at a reduced rate for lower income employees, but care must be taken to not jeopardize the entire system by overly applying this incentive. The tiers shown in **Table 6** are recommended as a starting point for discussion at the University given existing occupancy levels and desired accommodation.

Table 6: Recommended Occupancy-Based Pricing

Utilization	Price
90% - 100%	Premium
80% - 89%	High
70% - 79%	Medium
60% - 69%	Low

On an annual basis peak occupancy data should be updated and lots moved from one demand group to another if necessary. Research from the Transportation Research Board, identifies that nationally, for every 1% increase in permit price, demand should reduce by between 0.1 - 0.3%.[1] This establishes a dynamic and responsive way to allocate parking permits based on the changing nature of the campus.

To maximize facility utilization and offer additional convenience, parkers should be allowed to "park down", meaning that higher priced permits can be used in lower demand parking zones as well as the higher-demand facilities, which is the current policy. A portion of the permits for a particular high-demand location can be sold to lower salaried faculty and staff and graduate students.

Visitor Parking Rates

Visitors to the University have several parking options on campus. Parking is available on-street, in surface lots, and in four campus garages. The cost for visitors to park is $3.00 per hour and there is not a daily maximum. These spaces can be paid for at nearby pay stations, credit card

[1] Vaca, E. and Kuzmyak, J.R. Chapter 13—Parking Pricing and Fees. In, *TCRP Report 95 Traveler Response to Transportation System Changes*. Washington, D.C.: Transit Cooperative Research Program, Transportation Research Board. Retrieved May 1, 2013: http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_95c13.pdf.

meters, or through the Parkmobile app (smartphone payment option). Visitor parking is enforced seven days a week from 7:00 AM to midnight, unless otherwise noted.

In addition to on-campus visitor parking, there are numerous off-campus options that compete directly and indirectly with the University for both hourly visitor parking and monthly permit parkers. Hourly rates observed in the immediate vicinity of campus range from $1.00 to $7.00 per hour and monthly rates range from $74.00 to $125 per month. Several currently competing parking facilities were formerly owned by the University and operated by Transportation Services, being gifted to developers under the premise that the properties would be developed with denser uses. While this development may occur in the future, in the near term, the University has not only gifted away portions of their limited parking supply and removed needed revenue generators, but also created competition for their own system.

As shown in **Table 7**, the visitor parking rates at the University are equal to or greater than most peer institutions. However, as with permit parking, it is recommended that visitor parking rates are adjusted based on the desirability of each parking location on a demand-based model.

Table 7: Visitor Parking Rate Benchmark Analysis

Institution	Hourly Rate (Low)	Hourly Rate (High)	Daily Max
University of Maryland	**$3.00**	**$3.00**	**$72.00**
Purdue University	$1.00	$3.00	$10.00
Indiana University	$2.00	$3.00	$24.00
Michigan State University	$1.50	$1.60	$36.00
Ohio State University	$2.00	$4.00	$13.00
Penn State University	$1.00	$1.00	$12.00
University of Illinois	$1.00	$1.00	$10.00
University of Iowa	$1.20	$1.20	$20.00
University of Minnesota	$3.00	$3.00	$12.00
University of Nebraska	$1.25	$1.25	$7.00
University of Wisconsin	$2.00	$2.00	$15.00
Median	**$1.50**	**$2.00**	**$13.00**
Average	**$1.72**	**$2.19**	**$21.00**

Note: Each column is color-coded as a heat map from lowest (red) to highest (green)

Parking Enforcement

Staffing

Transportation Services employs 12 Parking Enforcement Associates (PEAs). License Plate Recognition (LPR) cameras are used to enforce parking facilities on campus via four Genetec LPR-equipped vehicles. The ratio of parking spaces covered per PEA provides a means of comparison against other institutions and industry standards. On the aggregate, each PEA at the University covers approximately 1,424 parking spaces (17,095 spaces/12 PEAs). As shown in **Table 8**, the University has more full-time enforcement staff and the lowest number of spaces covered per PEA compared to peer institutions. This shows that the University may have more

PEAs than necessary, or that University PEAs are participating in other duties beyond enforcement.

Table 8: Parking Enforcement Coverage Benchmark Analysis

Institution	Enforcement Staff (FTE)	Spaces per FTE	People on Campus per FTE
University of Maryland	**12**	**1425**	**4274**
Purdue University	3	6527	16937
Indiana University	11	1682	6149
Penn State University	5	3877	15624
University of Iowa	9	1907	5955
University of Wisconsin	8	1625	7417
Median	**8**	**1794**	**6783**
Average	**8**	**2840**	**9393**

Note: Each column is color-coded as a heat map from lowest (red) to highest (green)

Parking Citations and Fines

Parking citation amounts range from $15.00 for parking outside control lines to $500.00 for ADA related infractions. Vehicles are subject to towing for numerous violations including 5 or more outstanding violations that are more than 15 days old, newly cited vehicles with 12 or more citations in a 12-month period, vehicles not moved for 90 days or more, vehicles displaying fraudulent permits, etc. A summary of the University's parking violation fine amounts is shown in **Table 9**.

The University's citation amounts generally follow industry best practices in that the highest fine is for ADA, theft of service and safety violations. No adjustment in base fine amounts is recommended.

To address habitual parking offenders, the University should consider instituting a progressive fine structure. This type of program offers generous leniency to those who receive their first citation and focuses on parkers who earn excessive numbers of citations. The basic parameters of a progressive fine program are:

1. First citation is a warning unless it is a fire, ADA or safety citation.
2. All citations can be appealed. The first appeal may be excused or modified unless it is a fire, ADA or safety citation.
3. Initiate an incentive program for paying a citation within 10 days. For example, if the citation is $35 and paid within 10 days, the citation will be lowered to $30.
4. Following the third citation in one year, each citation thereafter would double, i.e. $35, $70, $140…

The number of citations written is only one way of viewing parking enforcement. There are several other metrics to measure a university parking enforcement program, all of which have merits as well as provide unique information and perspective. The first two relate to enforcement production, or the number of parking citations written compared to a given variable. This produces a ratio that can then be used to evaluate one program against another.

Table 9: Parking Violation Fine Summary

Parking Violations	Fee
Public Safety	$100
Illegal display and/or receipt of permit or campus registered license plate	$300
Illegally parked in disabled space/transfer area	$300
Illegally parked in a Courier permit parking space	$75
Parked in other than assigned area	$75
Parked outside of control lines	$15
Illegally parked in violation of posted DOTS signage	$75
Expired parking meter/pay station	$35
Illegally parked in fire lane	$150
Illegally parked in a Service permit-only space	$75
Illegally parked in a restricted lot	$75
More than one vehicle per registrant on campus at the same time (per vehicle)	$150
Permit or campus registered license plate improperly displayed	$75
Illegally entering a controlled lot	$300
Illegal use of State-issued disabled permit	$500
Fraudulent use of documents/registration/validation or pin codes	$300
Athletic Terrapin Club Violation	$75

Citations per person on campus and citations per parking space give a sense of the enforcement production on a campus. As shown in **Table 10**, compared to responding peers, the University is higher than the median and average in terms of citations per person on campus and citations per space. This analysis shows that the University provides good enforcement coverage.

Table 10: Parking Citation Benchmark Analysis

Institution	Citations Written	Citations per Space	Citations per Person On Campus
University of Maryland	**52,318**	**3.060**	**1.020**
Purdue University	19,414	0.991	0.382
Indiana University	33,255	1.798	0.492
Penn State University	32,941	1.699	0.422
University of Iowa	66,111	4.079	1.306
University of Wisconsin	25,000	1.923	0.421
Median	**33,098**	**1.86**	**0.46**
Average	**38,173**	**2.26**	**0.67**

Each column is color-coded as a heat map from lowest (red) to highest (green)

Appeals

Citation recipients must either pay the fine or request a review within fifteen calendar days of the violation date. Citation recipients may request a review either through the University of Maryland DOTS or through the Prince George's County District Court.

Second appeals are conducted by the University Appellate Board, a branch of the Office of Student Conduct. The Appellate Board considers appeals that include new and relevant information not provided with the original review request, such as supporting documents, receipts, letters of support and so on. The burden of proof is on the appellant to demonstrate that the original review decision should be overturned.

How a parking program deals with appeals can be an indication of their philosophical underpinnings. A high appeal rate can indicate an overly regulatory environment whereas a low to moderate appeal rate can suggest a more customer-centered approach where customers feel like they have a reasonable chance of having their citation reduced, waived or dismissed. An appeal rate is calculated by dividing the total number of citation appeals by the total number of citations written, excluding warnings.

Another key enforcement measure is forgiveness rate. This is the percent of citations appealed that are waived, reduced or voided. A very high percentage likely indicates that the parking program is willing to use the process of the appeal rather than a fine alone to encourage a change in behavior. In this way a parking program uses an educational process rather than a punitive one to gain compliance with parking regulations. A low forgiveness rate may suggest the opposite. Forgiveness rate is calculated by dividing the total number of appealed citations that are waived, dismissed or reduced by the total number of appealed citations.

As shown in **Table 11**, DOTS cites more vehicles than peers, likely due to the effective use of LPR for enforcement. However, ratios for appeals per citation and citations forgiven and reduced are near the median and proportional to peers. As with the quantity of citations issued, it is assumed that the effective use of LPR minimizes the forgiveness per appeal ratio which translates to proper citations being issued. In summary, DOTS issues more citations and has less forgiveness

per appeal compared to peers, which is likely related to the high number of PEAs and use of LPR enforcement equipment.

Table 11: Parking Appeals and Forgiveness Benchmark Analysis

Institution	Total Appeals	Appeals per Citation	Citations Forgiven & Reduced	Forgiveness per Appeal
University of Maryland	**11,261**	**0.215**	**1,330**	**0.118**
Purdue University	2,209	0.114	1,145	0.518
Indiana University	11,061	0.333	8,704	0.787
Penn State University	604	0.018	170	0.281
University of Iowa	3,978	0.159	2,006	0.504
University of Wisconsin	5,000	0.200	3,500	0.700
Median	**4,489**	**0.179**	**1,668**	**0.511**
Average	**5,686**	**0.173**	**2,809**	**0.485**

Note: Each column is color-coded as a heat map from lowest (red) to highest (green)

Organizational Structure and Personnel Costs

This section discusses DOTS as an organization in brief. For a full review of the organization and structure, refer to the March, 2019 *Task Report: Organizational Structure Review*, included as **Appendix B**.

Organizational Structure

DOTS was previously located, organizationally, in the Division of Student Affairs for approximately 25 years, but was recently moved under the Department of Administration and Finance. DOTS is led by Mr. David Allen, Executive Director of Transportation Services. The department organizational structure would be classified as a "functional model". The functional structure is based on an organization being divided up into smaller groups with specific tasks or roles. The DOTS organization is currently broken down into the following functional areas:

- Administration
- Charter
- Safety and Training
- Transit Operations
- Enforcement
- Special Events
- Facilities Maintenance
- Vehicle Maintenance
- Human Resources and Training
- Information Technology (IT)
- Data Management
- Marketing
- External Communications
- Parking Administration
- Special Projects
- Budget/Finance

DOTS is centrally located on campus within the Regents Drive Garage at 8056 Regents Drive which provides easy access for customers. The office is open from 8:15am - 4:00pm, Monday to Friday and staffed with customer service personnel in addition to operational and administrative staff.

When Transportation Services was under Student Affairs it was firmly aligned with the Division of Student Affairs goals and values with regard to outstanding customer service, individual development, community life, student health and well-being, and diversity. However, there was found to be a disconnect between Facilities Management and DOTS. It is important that DOTS is working with Facilities Management especially regarding parking and transportation planning.

Based on a comparison of over a dozen university parking/transportation programs around the United States, it is unique to locate the Parking and Transportation Department under Student Affairs. However, it was determined that there is no clear pattern or preference where the Parking and Transportation department resides organizationally within other U.S. universities. Organizational options from this sampling indicate that many parking and transportation programs report to either facilities management, operations/campus services, or administration/finance. By locating DOTS under the Finance Department, it aligns more with other universities. However, while under the Student Affairs Department, it was clear that DOTS made significant efforts to create a customer-focused experience for parking and transportation customers. With regard to customer orientation, our recommendation is to continue on DOTS' current path of customer outreach, education, and engagement.

Personnel and Costs

Transportation Services is comprised of 467 employees including 159 student employees. With regard to personnel and staffing, based on an evaluation against peers (**Table 12**), the organization appears to have a disproportionately high cost of wages, salaries, and benefits. Further research is recommended to identify line-item contributing factors for both the University as well as potential exclusions of peers. This analysis shows that there may be opportunities to reduce expenses by reducing staff or wages/salaries/benefits and finding opportunities for efficiencies regarding staff reassignment. Creation of specific program operational benchmarks and key performance indicators are recommended to help track and assess operational costs going forward.

Table 12: Transportation Services Personnel Costs Benchmark Analysis

Institution	Wages, Salaries & Benefits	Wages, Salaries & Benefits as % of Revenue	Wages, Salaries & Benefits per Space
University of Maryland	**15,359,307**	**55.4%**	**898.47**
Purdue University	572,477	10.8%	29.23
Indiana University	1,597,793	22.2%	86.37
Penn State University	2,265,045	23.1%	116.86
University of Iowa	5,913,868	26.5%	364.90
University of Wisconsin	4,365,172	11.3%	266.17
Median	**3,315,109**	**22.6%**	**191.51**
Average	**5,012,277**	**24.9%**	**293.67**

Note: Each column is color-coded as a heat map from lowest (red) to highest (green)

Relationship to Sustainability

The University of Maryland established the Office for Sustainability in 2007, but efforts to achieve greater sustainability reach back to 2002 during a Facilities Master Plan update. Currently, the Office of Sustainability has identified six goals for the campus:

1. Carbon Neutrality
2. Education for Sustainability
3. Local and Global Impact
4. Smart Growth
5. Sustainable Water Use
6. Waste Minimization

This plan relates closely to goals 1 and 4 through the reduction in transportation-related emissions and expansion of transportation options other than the use of personal vehicles.

Previous Planning Efforts

To date, transportation planning for the University of Maryland has been incorporated into the University's Facilities Master Plan or the Department of Transportation Services Annual Report. While this study stands apart from previous efforts, a few goals and objectives are consistent across multiple strategic efforts. These are described in brief, below.

- Promote a change in the community mode share away from personal and single-occupancy vehicles
  - The DOTS Annual Report identifies increased smart commute use by employees.
  - The 2017 Update to the Facilities Master Plan, as well as previous versions of the Master Plan, have identified alternative transportation modes as a key principal.
  - The University's Office of Sustainability has identified alternative transportation options as key to reducing the University's carbon footprint and impact on surrounding areas.
- Promote the use of active transportation modes
  - The DOTS Annual Reports over the previous few years increasingly encourage the use of bicycles, including the recently-started mBike bikeshare program.
  - The 2017 Master Plan Update identifies support for bicycle culture as well as a more pedestrian-friendly campus.
- Plan for and mitigate loss of parking revenue and capacity

- DOTS Annual Reports from 2014 through 2018 all identify decreasing parking revenue as a challenge facing the department, and as obstacles to overcome to continue to provide other transportation services besides parking.
- The 2017 Master Plan Update recognizes that financial challenges of building structured parking and the continuing reduction in available parking spaces has required the application of transportation demand management strategies. It cites future projects (such as the Purple Line) as the solution for future parking demand.

In addition to planning efforts, a 5 Year Campus-Wide Transportation Impact Study was performed in 2018 by the University Facilities Management Department. This study focused on the operation of campus crosswalks and intersections, specifically with respect to the Purple Line buildout. Key takeaways from the study are outlined below:

- 7% reduction in peak hour traffic volumes
- Increase in pedestrian demand as a result of more housing, both on- and off-campus
- Reconstruction of Baltimore Avenue will encourage pedestrian-friendly modes of transportation to, from, and on campus.
- Parking facilities should be relocated or constructed on outlying areas of campus to avoid vehicular gridlock and conflicts with pedestrians.
- Most traffic enters campus from the North (via, Route 1, Adelphi Road, or Route 193).
- The Purple Line will introduce signalized intersections on campus which may result in pedestrian crossing compliance issues.
- Provide an additional access point to commuter lots from the North.
- Evaluate parking demand after build-out of the Purple Line to understand the impact of an added transit service on parking demand.

Campus Transportation Network

The University of Maryland's current transportation network involves a variety of travel modes and connecting trip options including walking, biking, bikesharing, local and regional buses (Shuttle-UM, Ride-On, Metrobus, and MARC Commuter Bus), Metrorail, private vehicle, and transportation network companies (TNC).

These different systems overlap and integrate with one another to provide a number of options to students and employees of the University, with accommodations for visitors during regular and special events.

Review of Current Program and Existing Conditions

Of the variety of services that operate at and near the College Park campus, the University provides the Shuttle-UM bus service, bicycle (BikeUMD) and carpool incentives, as well as the option to purchase a parking permit.

Source: UMD DOTS

Shuttle-UM is a fleet of over 75 vehicles that provide transit service on and around the University's campus and provide over 2.6 million rides a year. Shuttle-UM currently has 21 routes that it provides in which 5 of them run during the evenings. Twelve of the routes require that riders provide University identification. WMATA operates both Metrorail and Metrobus services. Currently, students at the University may take Shuttle-UM (Route 104) to access Metrorail. Metrorail provides routes to Washington D.C. and surrounding areas beyond bus transit services. Metrobus operates 5 routes on and near campus, with several other connections providing 1-transfer connections at nearby transit hubs.

UMD SMART COMMUTE
Rethink your ride.

BikeUMD's main function is to encourage students to use bikes to get around campus whether that is through the MBike Bikeshare, or through the use of their own bikes. BikeUMD provides the campus with free bike repair resources, bike parking, discounted equipment, and classes on bike safety and group rides. People without their own bikes can enjoy the benefits through the mBike Bikeshare program where they can rent bikes by the hour and park them at docking stations.

Incentives are available for people who carpool including discounted parking permits as well as preferred parking spots. While the incentives program is relatively small, it is growing in popularity. Note that the incentives program also includes a newer option (piloted during the 2019 Spring semester) for faculty and staff to request a DOTS cash 'buy-out' of their parking permit.

Transit Use

Several transit providers serve the University of Maryland and the greater College Park area which are described in detail in the existing transportation network section. **Table 13** describes the approximate percentages of people for which transit is their primary mode of transportation (includes Shuttle-UM and other public transportation options).

Table 13: Transit Use by Population

Population	% of Population Commuting by transit
Undergraduate Students	24%
Graduate Students	34%
Faculty	20%
Staff	11%
Visitors	13%
Average	20.6%

Source: University Campus Parking Survey

Parking Ratio

The 2017-2018 DOTS annual report cites the number of parking registrations sold in the previous academic year. This is compared to University population in **Table 14**.

Table 14: Parking Permits Sold and Campus Population

	Registrations (2017-2018)	Population (2017-2018)	Percent of Population
Students	14,188	40,521	35.0%
Faculty and Staff	6,688	14,341	46.6%

Mode Split

Mode split is the numerical breakdown of the University population by primary mode of transportation. The percentages in **Table 15** are derived from the campus survey conducted in February 2019 as part of this study and are indicative of the number of single occupancy vehicles (SOV) on campus.

Table 15: University Mode Split by Population

Population	Undergraduate Students	Graduate Students	Faculty	Staff	Visitor
Mode Split for SOV	26.52%	40.19%	63.78%	79.60%	74.29%

Detailed Assessment

Biking

The area surrounding the College Park campus is connected with shared-use paths that provide access to the University and surrounding areas. Currently, there is a planned project for the modification of US Route 1 to include bicycle lanes extending from College Avenue in the south to 193 in the north (with eventual continuation to I-495 in the north).

To provide bicyclists access to shower facilities on the University campus, shower facilities are open to all members of the community; however, messaging and availability may not be clear. Most showers are within the gym/recreational facilities which may or may not require a gym membership if not included in student tuition.

Generally, bike infrastructure at the University is far less than that of both the surrounding area and other comparable (peer) universities. Bicycle facilities on-campus are currently limited to shared roadways or wide sidewalks. This places bikes in an either-or situation to decide between sharing travel paths with either pedestrians or vehicles- both of which behave very differently from bicyclists as observed around campus. This deficiency was described several times during the project focus groups, and is apparent based on navigating the campus.

Transit

Several transit services provide options for both resident and commuter populations for the University. DOTS offers three University-related transit services: Shuttle-UM, UMD Paratransit, and NITE Ride.

Shuttle-UM provides service for all University ID holders covering the core campus and Discovery District, but also provides commuter-style service to Silver Spring, Hyattsville, New Carrolton, and Greenbelt. Free bus passes are available for local non-university affiliated residents in Hyattsville, Greenbelt, and College Park. Additional commuter service is provided by Shuttle-UM to Gaithersburg Park & Ride and Columbia Park & Ride. Special services are provided on weekends to Prince George's Plaza (Grocery Shopping) and Baltimore (UMBC), and for Holidays to New York, New Jersey, and BWI Airport.

The Shuttle-UM service coverage is shown in **Figure 3**.

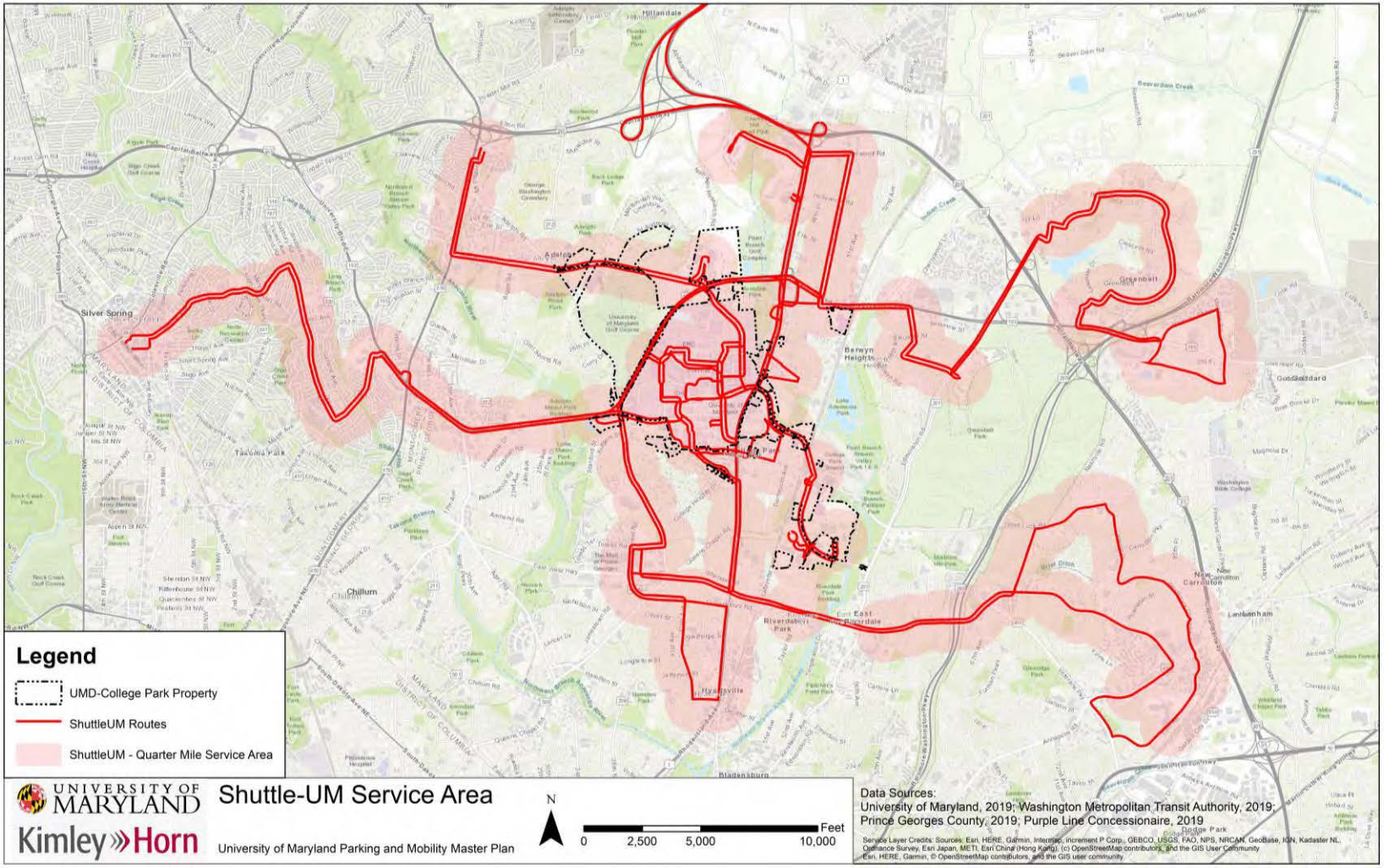


Figure 3: Shuttle-UM Service Area

The Shuttle-UM Paratransit service is provided to University affiliates by application and is based on a first-come, first-served reservation system. NITE Ride is a dial-a-ride service provided for the areas of campus that are not served by Shuttle-UM routes in the evening.

The University of Maryland is also served by the Washington Metropolitan Area Transit Authority (WMATA), including Metrobus (lines 82, 83, 83X, 86, C2, C8, F6, and J4) and Metrorail (Green line). Both Metrobus and Shuttle-UM provide routes to and from the College Park Metro Station to the core of campus. In the past, Prince George's County theBus (line 17) also served the University, from Mt. Rainier Terminal to IKEA (just north of the Route 1/I-495 interchange).

Local non-University bus transit service coverage is shown in **Figure 4**. Note that only Metrobus routes that either intersect with campus or are within one transfer of high-capacity transit service to the campus are shown.

The Maryland Transit Authority (MTA) also provides several connections to the University. The MARC regional rail service stops at the College Park Metro station on weekdays (Camden line), connecting the University to Washington, D.C. and Baltimore. The MTA Commuter Bus provides express commuter service to Frederick, MD (line 204). Lastly, the planned MTA Purple Line will service 5 stations within the University campus and the City of College Park. This service is covered in more detail in the Purple Line section of this report.

Note that Shuttle-UM service has difficulty navigating campus during class changes. Delays are extreme and impact the ability for buses to serve intra-campus destinations in a timely manner.

Safety

Based on staff experience, interviews, and observations, the most significant transportation safety concern at the College Park campus is pedestrian-vehicle conflicts. The number of potential conflict points is also described in detail by the previous 5-year transportation study performed in November 2018.

Source: UMD

The second biggest concern is for bicycle-pedestrian and bicycle-vehicle conflict on shared facilities. This includes sidewalks throughout campus, but also the limited width or appropriate shared bicycle-vehicle lane pavement markings throughout the local campus roads. Note that US Route 1 is currently under modification to include bike lanes, better supporting the network connections.

Lastly, the construction of the Purple Line on campus will fundamentally change how the campus community interacts with the multi-modal transportation network. With the addition of another mode of travel, there will be increased points of conflict and a greater reliance on non-vehicular modes in the coming years.

Note that Maryland State Highway Administration (SHA) District 3 was unable to provide crash data for areas on and immediately surrounding campus after repeated requests for information. See chapter 3.2 and chapter 6 of the 5-year transportation study highlights specific safety items and locations which are of concern.

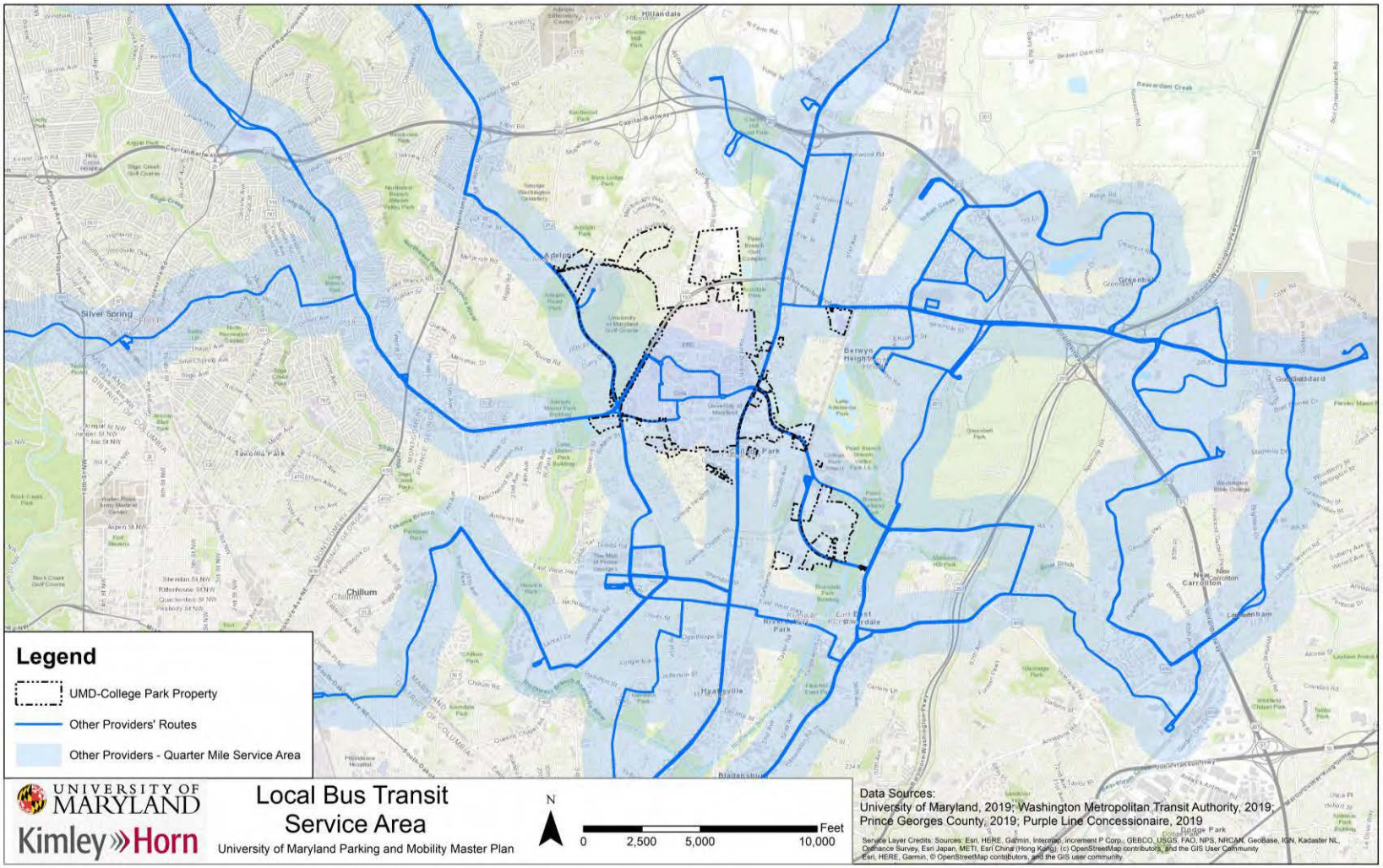


Figure 4: Shuttle-UM and Metrobus Coverage

Community Engagement, Outreach, and Strategic Communications

Review of Current Program Communications

Overview

The following section includes a brief overview of the DOTS' existing program communications. Note that the content presented in this section is reflective of conditions as of the Spring 2019 semester. The purpose of this summary is to document existing branding, marketing, and/or communication tools that are currently being used by the University to communicate and engage campus stakeholders.

Guiding Statements

Vision Statement: ***There is currently no vision statement.***

Mission Statement: The Department of Transportation Services will honor the mission and values of the University of Maryland by providing safe, cost-effective, and innovative services that anticipate the needs of our campus community and constituents as they relate to accessing institutionally supported facilities and destinations.

Functions and Responsibility Statement: The University of Maryland Department of Transportation Services is a self-support agency under the staff supervision of the Vice President for Student Affairs. DOTS is dedicated to providing service to the campus community through planning, education, and enforcement. DOTS is the primary agency responsible for administering parking and transit management programs on the College Park campus.

Annual Goals and Objectives

Each DOTS Annual Report provides an overview of the program, shares transportation statistics from the previous year, and outlines key program accomplishments. Every year, the Annual Report also establishes a new set of Goals and Objectives to prioritize over the upcoming year.

During the 2017-18 year, the Goals and Objectives focused on the following key themes: *Sustainability*, *Work-Life*, *Assessments/Learning Outcomes*, *Workplace Initiatives*, *Departmental Diversity*, *Technology Enhancements*, *Pay Station Expansion*, and *Talent Management*. For the 2018-19 year, DOTS has established the following Goals & Objectives:

Smart Commute Expansion: Increase the number of employees using Smart Commute.

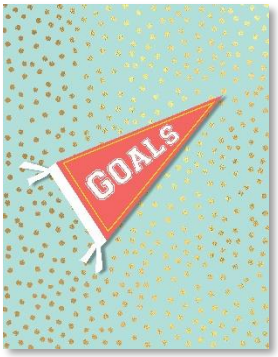
System Inventory: Create GIS inventory of campus parking and transportation infrastructure.

Website: Launch new website in the Fall of 2018.

E-Newsletter: Introduce new e-newsletter, DOTS Digest, the fall of 2018.

Data Security: Achieve full Payment Card Industry (PCI) compliance.

Leadership Transition: Develop Success Plan.



Brand

A brand can be broadly defined as the relationship established with customers or service users. It is typically the foundation of all marketing activities and provides the structure to align promotional and marketing efforts. A brand is not a logo and logos are not brands, but a logo provides a visual and quick representation of the brand.

DOTS maintains a branding style in line with the overall University of Maryland brand that includes logos, fonts, colors, and themes used throughout the materials. The Transportation Services Logo is consistently included on most Reports and Communication Tools.

UNIVERSITY OF MARYLAND TRANSPORTATION SERVICES

The three primary programs contained within DOTS do not maintain a consistent theme across logos and promotional materials and in some cases use independent logos.

Shuttle-UM

Shuttle-UM uses consistent "Shuttle-UM" branding on the exterior of large and small transit vehicles. The Shuttle-UM branding is less apparent on the charter fleet, which includes SUVs, motor coaches, and the TERPRIDE mobile "event space."

The real-time tracker provider (NextBus) and the Nite Ride supplemental service (through TransLoc) do not use Shuttle-UM branding.

nextbus

TransLoc

Parking Services

Parking services does not maintain separate branding from DOTS and typically uses the DOTS logo on most maps and promotional materials. Parking signage is not specifically branded and consistently uses a black and red text convention.

The payment application used for parking is vendor-branded and not branded to match the University's branding (ParkMobile).

Smart Commute

The University's sustainable transportation program, Smart Commute, maintains branding independent from DOTS, and variations of this branding are applied in maps and applications. However, the primary trip-planning tool, hosted by RideAmigos, displays the DOTS logo.

UMD SMART COMMUTE
Rethink your ride.

Smart Commute relies on partnerships with many organizations, service providers, and vendors, including Benefit Resource, Inc. (BRI), ZipCar, ChargePoint, BikeUMD, mBIKE (through Zagster), Bike Index, Enterprise Rideshare, WMATA, MTA, MARC, and Commuter Connections.

Communication Tools

Website

DOTS released a redesigned website in December 2018 that provides access to a wide variety of information related to transit, parking, and sustainable transportation. A news sections provides recent updates, and content is generally organized such that all user types (visitors, students, faculty & staff) can easily locate relevant information. A footer on all pages provides links to the various social media platforms, contact information, and hours of operation. The official website is the first result when searching for UMD DOTS on Google, and the search result includes multiple useful access points to programs and contacts. Link: www.transportation.umd.edu

Social Media

DOTS maintains an active social media presence, particularly via Twitter and Facebook, and links to the following social media platforms are located on the website homepage:

Twitter:[2] Active since 2009 with 6,700+ tweets and 3,600+ followers
Facebook:[3] Active since 2010 with 1,400+ likes
Instagram:[4] Active since 2014 with 250+ posts and 500+ followers
Snapchat[5] (www.snapchat.com/add/dots_umd)

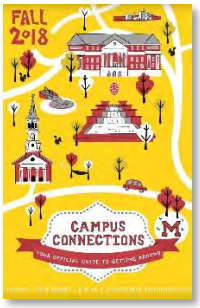
[2] www.twitter.com/dots_um
[3] www.facebook.com/dotsumd
[4] www.instagram.com/dots_umd
[5] www.snapchat.com/add/dots_umd

DOTS also maintains a **YouTube Channel** (www.youtube.com/user/DOTSUMD) which is not linked from the website.

Annual Reports

DOTS releases an Annual Report each year to document key accomplishments from the previous year, establish goals for the upcoming year, and share the annual operating budget. An up-to-date organization chart, mission statement, and functions and responsibility summary is also included. Reports dating back for FY 2012-13 are available for download from the website.

Campus Connections Guide



Campus Connections serves as a comprehensive guide to getting around campus. The guide provides a variety of information related the Smart Commute program, BikeUMD, mBike, parking information, as well as a comprehensive listing of all transit routes. Although linked from the website, it is not available for download (hosted by issuu.com). All information contained within the guide is also available on the website, but in a convenient, printed format.

Open Forums

DOTS hosts a series of open forums called DOTS Dialogues with the goal of building trust through candid conversations about DOTS policies and providing advance notice about transportation changes, such as parking adjustments. At the recommendation of the Resident Housing Association Transportation Advisory Committee, future DOTS Dialogues will seek out smaller, informal settings for upcoming meetings.

Promotions

In August of 2017, DOTS mailed a "DOTS socks box" to 4,895 incoming freshmen. The welcome gift was designed to introduce students to Smart Commute and included a pair of custom UMD socks for walks on campus and a pamphlet that calls for students to "rethink their ride" by choosing one of the many transit, ridesharing, and biking options available at the University and in Washington, D.C. Students were invited to take a "socks selfie" and tag one of DOTS' social media platforms. The DOTS marketing team won an International Parking Institute marketing award for their creative campaign.

Campus Newspaper

The University's independent student newspaper, the Diamondback, regularly reports on transportation issues on campus. Proposed changes to parking or transit service are typically profiled, and recent articles include details of changes to parking fees, modifications to transit service, a discussion of dockless scooters, and campus goals to achieve carbon neutrality by 2050.

Key Themes

Through its website, social media platforms, and promotional materials, DOTS typically tailors information based on specific type of user (visitor, students, faculty and staff) or program type (Shuttle-UM, Parking, or Sustainable Transportation). The following key themes come across in the various communication channels.

Visitors

- There are many convenient parking options available for campus guests, as well as guests with disabilities.
- Rates, hours, and payment options are available within the ParkMobile App; additional information is available on the Visitor Parking Map, the ParkMobile Zone Map, and typically posted on parking meters.
- Parking for 15 minutes or less at a pay station is always free for guests.
- While pay stations accept cash, credit/debit cards, and validation/pin codes, some credit card meters only accept cards.

Students

- Registering for parking can be easily accomplished through the online Parking Management System.
- Commuter students, on-campus residents, and residents of campus-adjacent housing have different parking options available, and parking assignments are based on space availability.
- Waitlists are available when permits for high-demand lots sell out; students may also cancel their parking registration at any time with refunds available based on the time within the semester.
- Some freshmen may qualify for a parking fee exception.

Faculty and Staff

- Parking assignments for faculty and staff are handled through each department's transportation coordinator.
- Specific primary and overflow lots are assigned as part of the parking permitting process, but license plate updates can be handled through the online Parking Management System.
- Bundles of daily parking permits are available for faculty and staff who only need to park on campus occasionally.

Special Services

- Accessible parking is available in most lots.
- Individuals displaying both a disability placard and a campus permit may park in ungated lots as well as metered spaces without paying for parking.

- Visitors displaying a disability placard are required to pay at pay station spaces but may park for free (with restrictions) at individual metered spaces.

Shuttle UM

- Shuttle-UM is one of the nation's largest University transit services and includes a fleet of over 75 vehicles consisting of hybrids and clean diesel models serving more than 2.6 million riders per year.
- Online route maps provide detailed scheduling and routing information, and real-time arrival information is available through NextBus.
- Between the hours of 5:30PM and 7:30 AM, Nite Ride (accessed through the TransLoc Rider app) covers areas of campus not serviced by Shuttle-UM evening routes.
- There are a variety of advertising opportunities to reach the approximately 85,000 riders per week.
- Shuttle-UM's fleet, which ranges in size from SUVs to motor coaches, may be chartered for any University-related purpose by a University department, organization, or event organizer.
- Paratransit is a curb to curb on demand and subscription service available to all students, faculty, staff, and visitors with disabilities.
- Shuttle-UM offers tickets home over Winter Break to specific destinations, such as New York and New Jersey, for a fee (both one-way and round-trip options available).

Parking

- By employing the latest technology in parking management (LPR cameras), DOTS provides permit holders with a seamless parking registration process and personalized customer service.
- The enforcement team monitors campus parking 24/7 for three reasons: 1) to help ensure that parking is available for permit holders and visitors, 2) to ensure that emergency vehicles have access to campus facilities, and 3) to prevent hazards that improperly parked vehicles may cause.
- All parking signage conveys two key items: 1) signs with black text are unrestricted after 4:00 PM while signs with red text have unique restrictions, and 2) student lots begin with a number while faculty/staff lots begin with a letter.
- The Motorist Assistance Vehicle (MAV) is a free service offered to any individual parking on campus experiencing automobile difficulties.
- Motorcycles and scooters/mopeds must be registered with DOTS to be parked on campus.

Sustainable Transportation

- The primary goal of UMD Smart Commute is to provide the University community with options and incentives that encourage the use of sustainable transportation to reduce the number of single occupancy vehicles coming to and parking on campus in support of the University's Climate Action Plan.
- Biking, transit, walking, and ridesharing are all healthy transportation options that take the stress out of commuting.
- Investing in sustainable transportation is far less expensive than building more parking.
- There are a variety of discounts and programs that make sustainable commutes feasible for different lifestyles and budgets.
- **Electric Vehicles:** Charging spaces are conveniently located throughout campus, and qualified vehicles are eligible for a 20% parking permit discount.

- **Carpool/Vanpool**: The Smart Commute platform can connect individuals interested in ridesharing opportunities, and registered carpoolers are eligible for a 50% parking permit discount.
- **Biking**: With a focus on safety and physical wellness, BikeUMD provides campus with free bike repair resources, covered bike parking, discounted equipment, classes on bike safety and group rides. Bike commuters are eligible to sign up through Smart Commute for access to secure bike parking and shower facilities.
- **Carshare**: Zipcar is a convenient option for those who primarily bike, walk, carpool, or take public transportation to campus but sometimes need access to a car. Discounted student rates are available.
- **Transit:** Pre-tax transit deductions are available for employees, including graduate assistants and teaching assistants, who use transit for commuting purposes.
- **Telework:** Although teleworking is not possible for everyone, telework days logged in the Smart Commute platform count for points that may be redeemed for prizes in the Smart Commute store.

Campus Outreach

Overview

From December 2018 through March 2019, the University of Maryland Parking and Mobility Study Project Team led an outreach campaign to engage the community and University stakeholders to help understand, frame, and prioritize the key challenges and potential improvements for the parking and transportation system on and around campus.

This section provides an overview of the variety of opportunities for stakeholder engagement and education that were offered throughout the project, highlights consistent themes – observed by the consultant team and self-reported by the University community – and concludes with strategies for incorporating identified stakeholder priorities into the Parking and Mobility Plan.

Focus Groups

Ten (10) in-person focus groups were held over two days in February 2019, hosted by the consultant team at the Main Administration building on campus. Campus leaders assisted with identifying participants willing to share their personal perspective as well as the perspective of their peers from six different campus community groups. Key themes from the focus groups are included with the Campus Community Priorities section. Complete focus group session results may be found in **Appendix C**.

Campus Survey

A 50-question online survey was available during February and March 2019 to gather feedback and understand the transportation and parking priorities from the campus community. A total of 5,809 individuals completed the survey. A complete survey results summary and breakdown of question responses may be found in **Appendix D**. High level demographics are presented below.

Demographics

Gender Identity

FEMALE (57%) | MALE (40%) | NON-BINARY (1%) | NO ANSWER (2%)

Age

<25 (37%) | 25-30 (16%) | 31-39 (15%) | 40-49 (10%) | 50-59 (11%) | 60+ (9%) | NO ANSWER (1%)

Affiliation[6]

UNDERGRADS (34%) | GRAD STUDENTS (18%) | STAFF (32%) | FACULTY (15%) | VISITOR (2%)

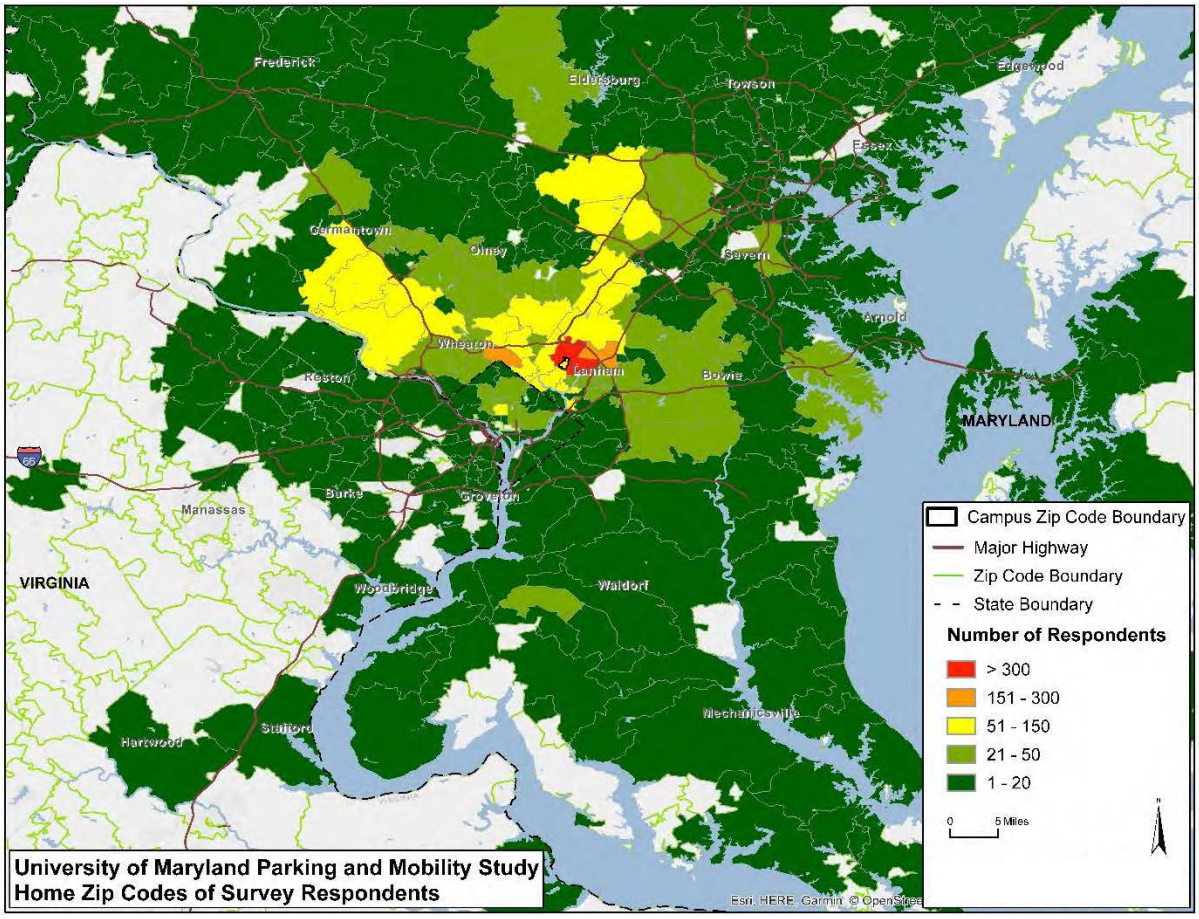


Figure 5: Survey Respondents by Zip Code

[6] 46 "other" responses were put into one of the 5 categories shown; postdocs, SIE, and Golden ID students classified as "Graduate Students;" Retired faculty/staff and Alumni added to the "Visitor" category.

Campus Community Priorities

Based on the outreach and engagement efforts, the project team found that campus community members expressed a wide variety of concerns, priority issues and recommendations related to campus parking and transportation during the three-month campaign to collect feedback and input. The following section summarizes the First, Second, and third tier priorities as a tool to help organize the information gathered. However, all feedback received was used to help craft recommendations.

Tier 1 Priorities

Tier 1 Priorities were expressed consistently through the Focus Groups and within the online survey. Addressing these issues should serve a key priority of the Parking and Mobility Study.

Expand Number of Parking Options

Very few community members expressed concerns that they are unable to find parking in their assigned lot; however, across all user groups there is interest in additional parking permit options as well as more flexibility with how existing parking permits can be used (for example, additional flexibility in using largely empty lots when parking on campus during off-peak hours). There is generally a perception that for those who need to, even occasionally, drive and park on campus, their only option is to simply obtain a parking permit and accept their assigned lot. This is also the perception that there is very little flexibility regarding lot usage during off-peak times, lower priced options for more remote lots, or incentives to use other modes after paying for an unlimited parking pass. This in turn contributes to a perception that not all user groups are treated fairly (assigned lots are not always close to each person's typical destination) and, particularly among undergraduate students, that DOTS is funded largely through parking tickets (more than 1 in 5 survey respondents reported having received a parking ticket in the last year). Parking permit affordability was cited as the top parking priority among undergraduate students, graduate students, and staff (faculty ranked convenience as most important), and more than 50% of faculty/staff and more than 2/3 of students are open to incentive programs that would require parking farther from the center of campus.

Explore Options to Expand Transit Service and Frequency

More than 20% of the campus community relies primarily on Shuttle-UM or public transit to access campus, ranging from a high of approximately 34% of graduate students to a low of approximately 11% of staff using transit. There is a perception among faculty and staff that Shuttle-UM service is focused around student schedules, but with service cuts and limited evening service, there is growing concern, particularly among students) that one can rely on the service as their only transportation option. There is significant interest across all user groups in exploring a transit pass option that would work with WMATA and other transit service providers. While cost is the top reason Shuttle-UM commuters use the service, without a subsidy, public transit can easily cost more than a parking permit when used daily. Seamless connectivity between transit service providers that allows for reduced costs for public transit along with increased span and frequency of service would increase the feasibility of relying exclusively on transit to access campus.

Address On-Campus Pedestrian and Bicycling Safety

There is broad consensus across all user groups that the campus feels somewhat auto-oriented, which leads to a significant number of pedestrian-bicycle-vehicle conflicts, particularly during peak travel times. Student and non-auto commuters are very interested in improving the pedestrian and bicycling experience on campus, and many expressed a strong desire to move private vehicles (not transit vehicles) either off campus entirely or to the edges. Auto commuters are also concerned with safety and feel that conflicts also lead to traffic congestion that should be addressed by minimizing the number of conflicts. Regardless of the solution, addressing both safety and traffic/transit delays due to pedestrian/vehicle conflicts is a top tier priority.

Tier 2 Priorities

Tier 2 priorities were expressed in some form during nearly all outreach activities. While tier 2 priorities were voiced nearly as often as tier 1 priorities, there was less consensus among user groups on the relative importance of these priorities.

Improve On-Campus Transportation

There is a need for more options to get around campus easily and reliably. Shuttle service is not viewed as a reliable option due to infrequent service, slow travel times, and occasionally full vehicles with no warning (particularly when the weather is poor). As a large campus, walking from one end to the other is not always feasible (in poor weather, when carrying materials, for those with limited mobility, etc.). Members of the campus community who might consider alternative transportation options (transit, biking, parking in remote lots) would be more open to changing behavior with a reliable option to move around campus easily. High frequency, reliable transit service with dedicated lanes or other shared mobility solutions were the most commonly cited options for improving on-campus mobility.

Pursue Partnership to Improve Bicycle Access to Campus

There are several barriers to improving bicycling to/from and on campus, including both on-campus safety as well as key network gaps in the areas surrounding campus. Crossing the major roadways around campus is a key deterrent for those who would otherwise consider biking to campus, and there is interest in pursuing partnerships to improve bicycling facilities and infrastructure in the areas around campus.

Improve Communication of Transportation Programs and Long-Term Planning

All user groups expressed some degree of concern that parking stalls are being removed and Shuttle-UM service is being cut, all while costs are increasing. There is a general feeling that there is not a long-term plan for campus transportation that would allow students, staff, and faculty to plan for their own transportation needs. Instead, recent service reductions have contributed to a general sense that one or more routes from their home could be cut or eliminated entirely. Students in particular are not as familiar with the various TDM programs and incentives that are offered to reduce transportation costs and incentivize the use of alternative modes, and while faculty and staff are more familiar with the programs, utilization is limited. While not offered as a base option within the survey, many respondents expressed interest in additional TDM programs that would incentivize reduced vehicle trips to campus. Parking pass rebates for driving fewer

times to campus or additional subsidies could serve as additional programs to encourage those who may be willing to try alternative transportation options.

Improve Communication of Shuttle-UM and Nite Ride Service

Unlike WMATA service, many students do not feel they have a reliable option to assist with transit trip planning (particularly for evening service). Separate tools and maps for Shuttle-UM, Nite Ride, and public transit options around campus make it difficult for some users to flexibly use all these services together. Improved real-time trip planning tools (that include all services) and real-time notifications if buses are running full could provide valuable information to users and potentially increase utilization of transit on and around campus.

Tier 3 Priorities

Tier 3 priorities were expressed multiple times through the various outreach activities and should serve as a reference as recommendations are developed. Not all tier 3 priorities are important to all user groups.

- **Partnerships**: DOTS should focus on developing relationships and partnerships and breaking down barriers; particularly with growth in the Discovery District and the Purple Line, there is a need to focus on serving all user groups and the broader College Park community; cost-sharing agreements and other programs that allow the University to work with College Park stakeholders are currently difficult to structure.
- **Funding:** DOTS should seek additional funding sources to allow for a broader mission to focus on serving the entire community; with diminishing parking supplies and few options for increases in revenue, other options are needed.
- **Visitor Parking Supply**: It is becoming more difficult for visitors to access campus and find parking quickly and easily; the Visitor Center parking lot is far too small to meet the needs of visitors, and the time required to find parking and walk long distances to the Visitor Center leads to a very poor first impression; unlike other user groups, visitors can not be expected to rely on transit and a central, reliable parking facility is needed to serve visitors.
- **Department Coordination**: DOTS should provide a single point of contact to assist with coordination of special events/visitor needs; Visitor services currently must reach out to a variety of contacts to attempt to coordinate events, and often simply resort to putting up additional signage on their own; when and how to pay for events/visitor parking can be very confusing, cumbersome, and inconsistent.
- **Real-Time Parking Availability**: It can be difficult to find parking in garages; implement a system to direct parkers to available spaces.
- **Location of Future Parking Supply**: Consider transitioning parking to the edges of campus or to satellite lots connected with high frequency shuttle service.
- **Parking Restrictions for Sporting Events**: Requiring permit holders to move their vehicles to accommodate sporting events contributes to a perception that the University values revenue over student needs, particularly when alternative parking permit options are not available.
- **Pick-Up/Drop-Off Zones**: There should be designated zones for rideshare pickup; drivers currently circulate very slowly looking for passengers.

Strategic Communications

DOTS maintains a robust communication programs and makes use of a variety of tools to share information including the website, social media, Campus Connections, open forums, and the campus newspaper. Each year, the DOTS Annual Report also shares key performance measures and establishes a set of goals that DOTS will strive to achieve in the coming year. Further, occasional promotions, such as the DOTS Socks Box, are used to spread awareness about DOTS many programs and services.

Building on DOTS extensive communication program, the following recommendations were developed based on the findings from the Community Outreach process and are intended to further strengthen DOTS approach to strategic communications. The goals of this Strategic Communications program include:

- Continually increase the effectiveness of the communication, marketing, and outreach efforts related to promotion of campus transportation offerings;
- Increase awareness of and engagement with the DOTS many TDM programs and services;
- Increase engagement with all user groups, including visitors, faculty, staff, College Park residents and workers, and the business and development community.
- Build partnerships to promote DOTS transportation offerings and TDM programs.

Messaging

Messaging provides the foundation for creating content and tone for marketing and customer education efforts. The three key elements to effective messaging include:

- ***Consistency***: Keeping similar tone/feeling when communicating to your audience.
- ***Frequency***: The driving force – keeping the message in front of the audience as often as possible – and not just focusing on providing "must have" details about a proposed change, but also providing information that reinforce the goals of the organization and reminds users of the "bigger picture".
- ***Anchoring***: Messaging that provides a compelling call to action. Memorable, high impact language, and visual presentation that talks **to** the patron, not **at** the patron.

When crafting key messaging for public education and communication about operational, programmatic, and/or other customer-facing changes to the DOTS system, it is vitally important to carefully consider how communication will be perceived by all campus user groups and stakeholders. In a discipline as complex as transportation and parking management, it is often easy to get caught up in creating messages that try to convey too much information, often in a way that is full of jargon or technical instructions.

The following section identifies "Key Messages & Topline Talking Points" and additional talking points that help support the key messages by providing more detail for longer conversations with or presentations to stakeholders. While all of the messages included below are appropriate for most stakeholder groups, the audience segments that each message is most effective for is listed below the talking point.

Key Messages & Topline Talking Points

DOTS will:

- Strive to exceed the evolving transportation needs of the College Park community through a period of unprecedented transformation.
    - Most effective for the following audiences:
        - Students
        - Faculty and staff
        - Business owners and merchants
        - Development community
        - Key community and public sector partners
        - Media
- Expand and enhance sustainable and eco-friendly transportation options in addition to maintaining a variety of parking choices.
    - Most effective for the following audiences:
        - Students
        - Faculty and staff
        - Development community
        - Key community and public sector partners
        - Media
- Make strategic investments in safety, technology and programming that improve the experience for all customers regardless of travel mode.
    - Most effective for the following audiences:
        - Students
        - Faculty and staff
        - Business owners and merchants
        - Property owners
        - College Park residents
        - Key community and public sector partners
        - Media
- Continue to be an active partner that supports other College Park and community-focused development and transportation projects.
    - Most effective for the following audiences:
        - Development community
        - Property owners
        - College Park residents
        - Key community and public sector partners

Additional Talking Points

- **Shuttle-UM is always free for the Campus Community and College Park Residents.** With a valid campus ID (or a complimentary pass obtained through the City of College Park), Shuttle-UM provides a free, frequent, and convenient option to access campus.
- **Earn Rewards for using sustainable transportation options.** Customers can sign up for the Smart Commute digital platform to discover sustainable transportation options and earn rewards for commuting using alternative modes.

- **Investing in sustainable transportation is a cost-effective way to improve access and mobility.** Incentives to increase ridesharing, biking, walking, and transit usage allows users to select the mode that works best for them while helping to minimize the need to constructing additional costly parking.
- **Parking permit fees are unbundled so users can select the option that best fits their needs.** Students have access to several permit options, and all user groups always have the option to "cash-out" their permit and make use of other transportation options. Recognizing that not all faculty and staff have the option to travel by alternative modes, permit prices are tiered based on salary.

Community Perceptions to Address

Throughout the community outreach process, several perceptions of DOTS were voiced by various stakeholder groups that are worth considering and addressing as DOTS refines a strategic approach to communications. These include:

- **DOTS is primarily an enforcement agency**: Undergraduates in particular associate DOTS with parking fees and fines, and in some cases fail to recognize the various services DOTS provides.
- **Transportation fees and parking permits are used to fund other University functions**: Many undergraduates assume DOTS has a "profit motive" and is therefore primarily interested in increasing fees and fines to generate revenue for the University.
- **DOTS is primarily concerned with student issues rather than community-wide transportation services**: Some members of the business and development community feel that DOTS does not have a long-term planning function and does not prioritize strategic partnerships in working to solve transportation issues within the greater College Park community.
- **The DOTS organization is siloed, making it difficult to work with a single point of contact for coordination of special events or TDM programs:** Some campus staff and other members of the business community find it difficult to partner with DOTS due to the difficultly identifying a single point of contact.

Tools to Support Strategic Communications

Communicating about parking and transportation requires both technical savvy and an understanding of the often-intense emotions that are experienced when dealing with parking and transportation issues.

Regardless of what the message is, any change to a customer's "normal" parking experience can lead to frustration, complaints, and rapid dissemination of incorrect information through informal networks. And in the absence of information, one thing is certain: people will make up their own "truths", so it is strongly recommended that DOTS continue its investment in organizational time and resources to ensure that staff have the right communication tools and tactics to successfully communicate about parking and transportation program changes.

As such, the following communication strategies are recommended to guide DOTS staff as they continue to inform, educate, and forecast changes to key stakeholder groups.

Short-Term Strategies

Create a Project "One Pager" / FAQ Sheet for all New Programs / Pricing Changes

At a minimum, this document should include:

- **Why:** Use the Key Messages / Talking Points as a foundation for this brief narrative.
- **What:** Rate changes; changes to enforcement days/times; Shuttle-UM service changes, etc.
- **Who:** Contact information for questions / concerns
- **When:** Timing for change
- **Resources:** Website link and brief FAQ

This information should be available in print form, on the website, and posted on social media.

Leverage Partnerships

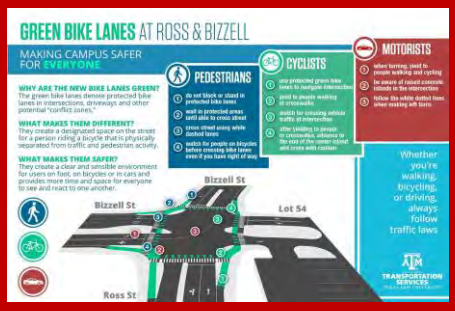
For any new program, pricing change, or service change, DOTS should contact key community partners and request inclusion of information about the change in their regular stakeholder communication vehicles. This ask should be made in a targeted way to a specific and trusted staff person. All written information that is shared or promoted by a partner organization through their channels should be crafted (and/or thoroughly reviewed for accuracy) by the appropriate DOTS staff member.

- **Website:** Brief story in the news section (or similar location) with a link to the DOTS website.
- **Social media:** Teaser with a link to the Project Fact Sheet / FAQ on the DOTS website.
- **E-newsletter story**
- **Presentation:** to board and/or regular membership gathering

Developing and maintaining relationships with key partners will be important not only for effective communication, but also in identifying community needs over time and building consensus around new programs and projects.

Texas A&M University

In an effort to improve intersection safety and promote walking and biking, researchers at Texas A&M University implemented a Dutch intersection design at a key campus intersection and added solar-powered paint that is bright green in the day and glow-in-the-dark at night. The design reduces conflicts between motorists and bicycle riders and improves visibility where they do cross paths. The intersection received widespread press coverage, and A&M Transportation Services effectively used a one-page project sheet to promote the project benefits for all users:



Schedule Presentations with Members of the College Park Community

This can be a very time-consuming endeavor; however, it is also very effective because it often provides direct access to key community stakeholders within the College Park community.

Create a targeted list of businesses and community partners that are likely to feel the most impact from changes to DOTS programs and services and ask to speak to organizational leadership at a regular monthly meeting and/or give a special presentation to interested staff. Be prepared to offer information about direct impact / change that employers/employees will see along with information about the range of transportation services provided by DOTS.

Mid- to Longer-Term Strategies

Performance Measures

Just as DOTS tracks a number of performance measures within the Annual Report related to services, ridership, and revenue, performance measures related to the Strategic Communication Program are a key component of tracking progress. The following performance measures can serve as a useful starting point to track over time, but should be adapted to fit DOTS' specific needs:

- **Website Visits**
- **Social Media Posts**
- **Press Releases (Including Campus Email)**
- **Newspaper Articles**
- **Open Forum Events**
- **Community Presentations/Events**

After developing and tracking a refined list of strategic communication performance metrics, DOTS can then make annual comparisons of the return on investment of communication dollars. Additional investments in outreach events, as an example, may require additional staff resources, and specific measures of community outreach success may be important to maintain continued investments in a strategic communication program.

Develop a Video (or Video Series) to Tell the Story

Increasingly, parking and mobility programs are turning to short videos to "tell the story" about their programs, policies, and technology. While video can be an expensive endeavor, it doesn't have to be. Programs have gotten creative and used local talent and visible community members to demonstrate parking and transportation system benefits and/or share information about important safety initiatives.

DOTS should consider developing a short video (or video series) highlighting some the program's benefits, community investments, and/or to provide instructional information on how to utilize new technology / apps that can improve the experience of accessing campus.

Invest in Creating an Annual Communication Strategy

Strategic communication and public relations are most effective when done within the context of a larger annual plan. Planning for investment in these types of activities is usually done concurrently with other annual planning for the organization. This allows the organization to consider and plan for important initiatives, campaigns, programmatic changes for which the organization will need to have a coordinated and complementary communication strategy. This type of pre-planning also includes creating a specific annual budget for communication, marketing, and advertising investment as well as investment in staff training / professional development.

Montgomery County, MD

As part of their "Vision Zero" initiative, Montgomery County has made use of a variety of communication tools in pursuit of the goal of achieving no traffic deaths by 2030. A specific "Stay Alert, Stay Alive" website focuses on distracted driving and walking, a comment form is available for sharing feedback, a mapping tool is available for identifying specific safety concerns, and an up-to-date progress table is linked from the website to demonstrate whether individual action items are on schedule.

VISION ZERO

Monitor Progress Towards Meeting All IPMI APO "Marketing and Communication" Criteria

IPMI's Accredited Parking Organization (APO) Program is a tool to help guide parking and mobility organizations towards meeting national and internationally endorsed standards for professionalism, accountability, creativity, responsibility, and performance. "Accredited Parking Organizations" are recognized as national leaders in parking and mobility management, and regardless of whether DOTS wishes to pursue accreditation, the criteria related to "Marketing and Communication" can provide a useful benchmark in tracking the success of the communication program.

Accreditation Criteria

1. Develops and maintains a communications and marketing plan that supports the program's larger strategic goals.
2. Strategic-planning documents specifically focus on communications and marketing, which are reviewed annually and current.
3. Annual budget includes dedicated funding for communication and marketing activities.
4. Provides opportunities for customer feedback (at least quarterly) and responds to feedback.
5. Media relations protocols include a specific list of approved media spokespeople and chain of command for approving and reviewing information that is released to the media.
6. Employs a current media list that includes key media organizations and contact information for key staff.
7. Uses a press/news release template.
8. Crisis/emergency situation protocols, including a specific list of key contacts, clearly defined chain of command, and areas of responsibility are in place.

9. Maintains expedited method of communication specifically for crisis/emergency situations.
10. Maintains policies and/or procedures for addressing annual, seasonal, campaign-based, and event-specific communications functions in a timely manner (i.e., special events, construction, service disruption, and routine maintenance).
11. Branding includes a logo or distinct visual marker that is consistent across media.
12. Website includes 1) map of facilities, pricing, payment options; 2) contact email, phone number, hours of operation; 3) instructions for after-hour emergencies; 4) how to pay and/or appeal a citation; 5) information on monthly parking, if applicable; 6) ADA information

Accreditation with Distinction Criteria

13. Shares best practices in marketing and communications with parking industry colleagues.
14. Conducts information sessions for the public and can demonstrate how feedback is incorporated into operational efforts.
15. Posts up-to-date information on programs and practices in public places and online.
16. Participates in public events, public-education sessions, lunch-and-learn sessions, or other awareness- and confidence-building activities.
17. Utilizes new communication technologies (YouTube, social media, blogs, etc.) to reinforce its message to the public.
18. Uses resources to support community quality-of-life programs.

Strategic Communications Recommendations Summary

The University of Maryland and College Park are undergoing a significant transformation that is widely recognized by students, faculty, staff, and the surrounding College Park community. DOTS clearly has a desire and a key role to play in helping to shape this transformation, and there is broad recognition among the campus community that DOTS is in a unique position to help develop and implement transformative programs. As DOTS' role in shaping growth, both on campus and off, expands and evolves, it will be even more important to maintain a strategic communication program to share information, promote successes, and leverage partnerships within the community.

General

- Encourage registration for the DOTS email listserv and not just those with parking permits.
    - Possibly when people sign up for the Nextbus system.
- Continually increase the effectiveness of the communication, marketing, and outreach efforts related to promotion of campus transportation offerings.
    - Increase awareness of and engagement with the DOTS many TDM programs and services.
    - Increase engagement with all user groups, including visitors, faculty, staff, College Park residents and workers, and the business and development community.

    - Increase social media presence (Facebook and Twitter) to improve communications.
- Build partnerships with other University departments to promote DOTS transportation offerings and TDM programs.
- Integrate parking permit and alternative transportation options websites to present all transportation options in a singular manner and as multiple considerations for transportation options.

Short-term Strategies

- Create a Project "One Pager" / FAQ Sheet for all New Programs / Pricing Changes to improve clarity and transparency of program changes.
- Leverage University departmental partnerships by requesting inclusion of information about the change in their regular stakeholder communication vehicles.
- Schedule presentations with members of the College Park community to describe and discuss transportation options and changes.

Mid and long-term strategies

- Develop a video (or video series) to "Tell the Story" of policy or transportation changes.
- Invest in creating an annual communication strategy to improve permeation into the campus community and increase effectiveness of strategic efforts.
- Monitor progress towards meeting all IPMI APO "Marketing and Communication" criteria.

Transportation Demand

Existing Transportation Demand

The Fall 2017 class schedule indicates that campus class demand peaks between 11 AM and 2 PM on any given week day (excluding Friday), as shown on **Figure 6**. The maximum enrollment demand at this time is approximately 13,500 students. Note that this value does not include the number of instructors, other campus faculty, other campus staff, or students which do not have class at that time. Based on this information and given that the student population is the largest population group at the University, an, average, Fall-Semester Tuesday is used in this report as the 'study day' in the transportation demand analysis.

Note that the above information may not fully account for the number of individuals on campus at any given time, as students may have classes earlier or later than the midday peak enrollment period but are not accounted for in class at all hours of the day. For this reason, the following paragraphs describe the estimation methodology for developing cumulative campus demand.

The University employed approximately 14,300 people at the College Park campus in 2017. In order to accurately reflect the demand of these employees across the campus, reductions were taken to account for staff which work partial weeks (i.e. Tuesday and Thursday only), by the hour, or are accounted for elsewhere as student employees.

Additionally, it is estimated that approximately 750 people visit the University on an average day. To accommodate fluctuations in visitor levels, arrival and departure times were distributed throughout the day.

Lastly, there is a segment of commuter student population which may arrive early or stay after class enrollment time. To account for these students, it is estimated that an additional 10% of the hour-to-hour enrollment time population may be on-campus commuters who are not in class.

The total of the above values and percentages provides an hour-by-hour estimation of the on-campus demand, and is estimated as shown in **Figure 7**. These values account for trips to the number of individuals which the transportation network must serve at that time of day, either with parking occupancy or by reducing the demand with other transportation options. This does not account for the on-campus, residential student population; rather this accounts for only persons who are actively engaging with the campus and transportation network.

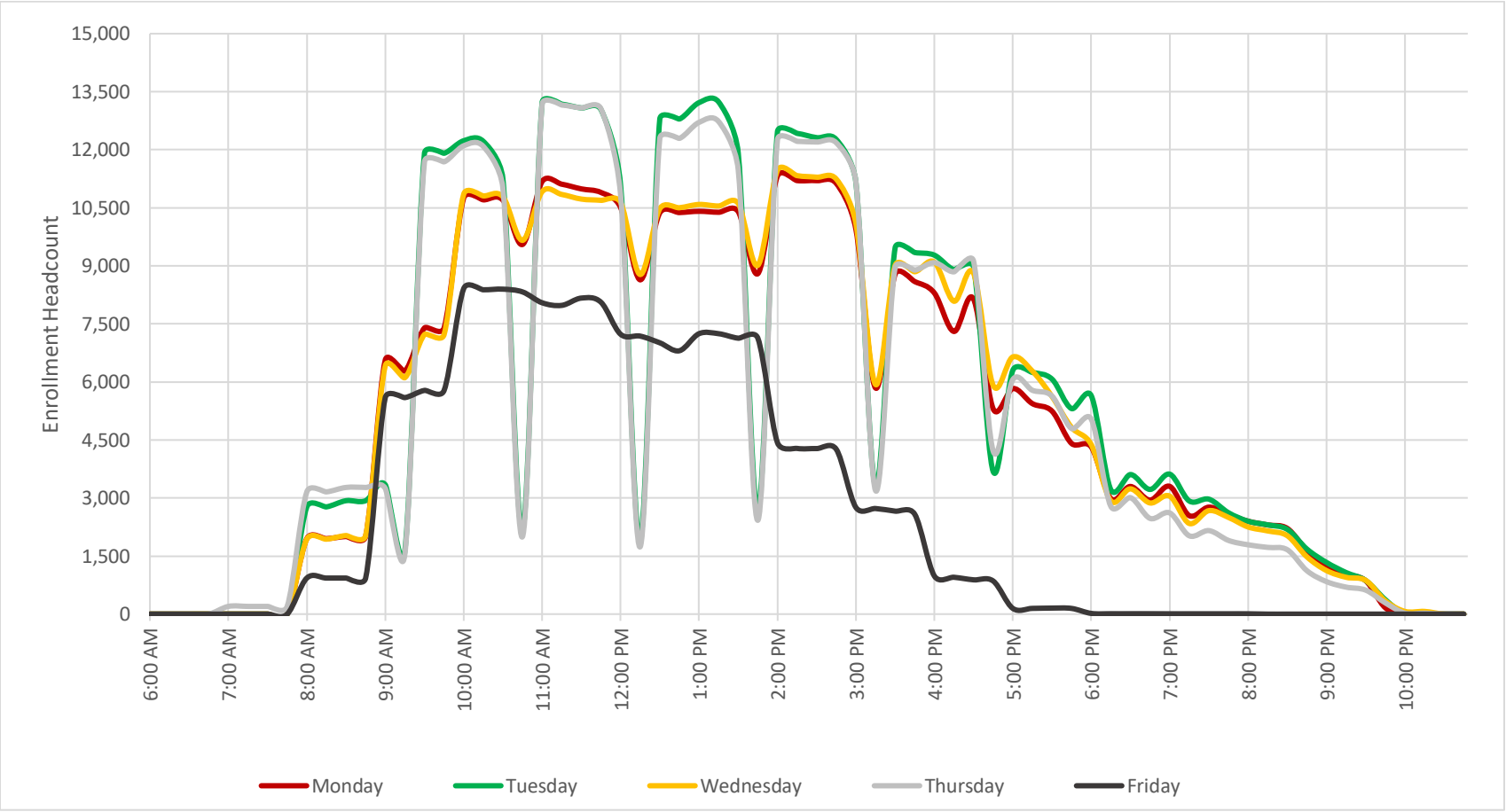


Figure 6: Sum of Class Enrollment Headcount by Quarter Hour, Fall 2017 Semester

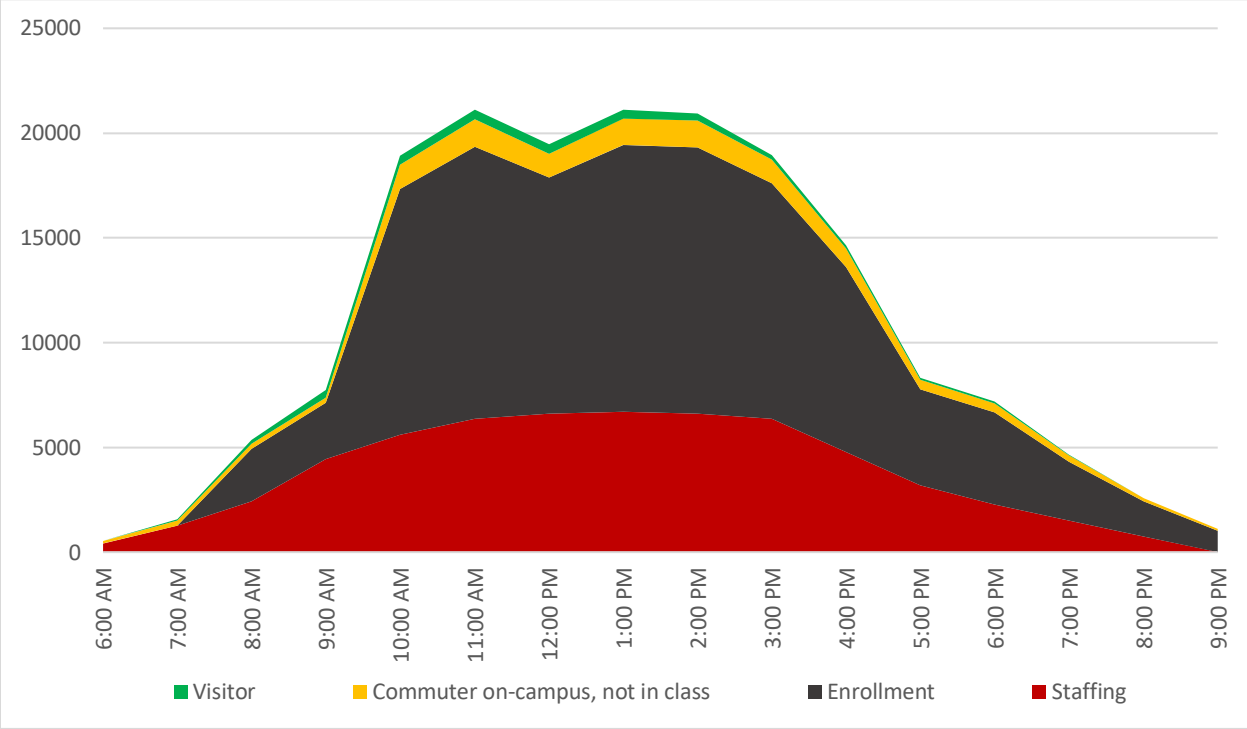


Figure 7: Cumulative Campus Person-Demand by Hour

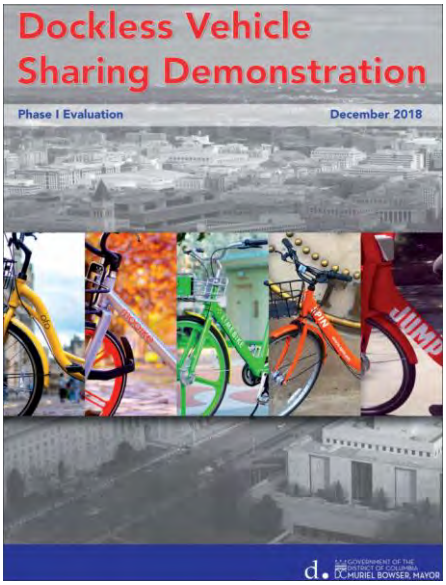
Given the above, it is estimated that an approximate maximum of 21,100 persons are actively engaging on campus on any average typical day during the Fall 2017 semester. Note that the reduction at 12:00 PM is likely not a true representation of demand at that time, as fewer classes are scheduled for that time slot. It is likely that most of the campus population remains on or near campus for lunch.

Emerging Technologies and Opportunities

The ever-changing landscape of transportation technologies has had a meaningful impact on nearby communities, most notably that of urban Washington, D.C. While advanced technologies such as autonomous vehicles are many years from integration into the transportation network, several current technologies and new shared mobility options are currently or will soon be incorporated into the University transportation network including bike sharing, dockless bicycles, scooter sharing, shared mobility, and smart city technologies.

"Smart City" technology can be simple to incorporate, such as the use of sensors. Autonomous vehicles won't work without sensors, particularly ones that monitor and track a vehicle's position relative to other vehicles on the road. Sensors also record large amounts of network data allow autonomous cars or wayside infrastructure to spot humans and other hazards. Sensors embedded into roads, traffic signs and other places throughout a city can provide information that can be used to allow people to plan their trips and mitigate potentially adverse conditions. Sensors can also help manage traffic flow by adjusting the length and frequency of traffic signals, or dim streetlights when no one is around. Some cities already put sensors to good use, tracking public buses as they move between stops. Currently, University DOTS is looking to install sensors at campus entrances to track vehicle entrances and exits across campus to better inform traffic patterns and improve campus safety and security. Related to a sensor network, origin-destination (O-D) information, which identifies the exact path of a person or vehicle, may be used to track locations of vehicles into, on, and off of campus. This data may aid DOTS in making better, more informed decisions related to patterns of commuting, parking, and internal campus circulation.

A recent trend which has impacted certain urbanized areas significantly is the advent of the dockless scooter (and in some cases dockless bicycles). Recently, the city of Washington, D.C. began a pilot program with a limited number of scooter company providers and deployment. Given its success thus far, the city is expanding the pilot. It is likely that the success of the initial deployment is due to the diligent planning and preparation of the District Department of Transportation (DDOT) in both policy and communications. Many other cities and universities have been partnering with scooter share companies, such as Bird and Lime, over the past few years to pilot scooter share programs that eventually lead into permanent installation or removal based on the reception of the community. Scooter shares would be a useful addition to campus since many users expressed in focus groups and the survey that there is not an efficient way to get from place to place on campus without using a personal vehicle or bicycle. However, before these scooters are placed on the campus it is necessary that the bike lanes be installed to provide a safe facility for both bicycles and scooters to operate separate from pedestrians. It is recommended that the scooters are ridden on the bike lanes so that they do not cause safety conflicts with the pedestrians. As such, it is important that DOTS create policies regarding the scooters' usage to ensure the safety of the campus. Policies to consider include a limited pilot program, designated parking areas, requiring attendance of a safety and information session before one can use a scooter, requiring students sign a detailed agreement to follow these policies, and development of a membership and charging system.



Source: DDOT

Impact and Influence of the Purple Line

The MTA Purple Line is an above-ground, light rail transit service extending from the west end of Bethesda to the east end of New Carrolton. It is anticipated to open in 2022. The proposed alignment will extend east-west through campus and stop at five stations on campus:

- M Square,
- College Park Metro Station,
- Baltimore Avenue – East Campus,
- UM Campus Center,
- Adelphi Road/West Campus.

Source: Maryland DOT

The University has negotiated a buy-down of fare such that any valid University ID holder may ride between the above five College Park stations listed above free of charge. The alignment of the Purple Line, as well as regional Purple Line stations are shown in **Figure 8**.

It is anticipated that the Purple Line Light Rail will service approximately 69,000 daily riders in 2030, with a portion of those riders being University affiliates. For the purposes of this study, it is assumed that the opening day ridership for University affiliates is approximately 500 riders per day, growing to approximately 3,500 riders by 2030. The installation of the Purple Line is congruent with University goals as it will aid in the reduction of parking demand and improve the transit mode share of the University population. Additionally, it is assumed that the Purple Line will improve the overall mode split of the region.

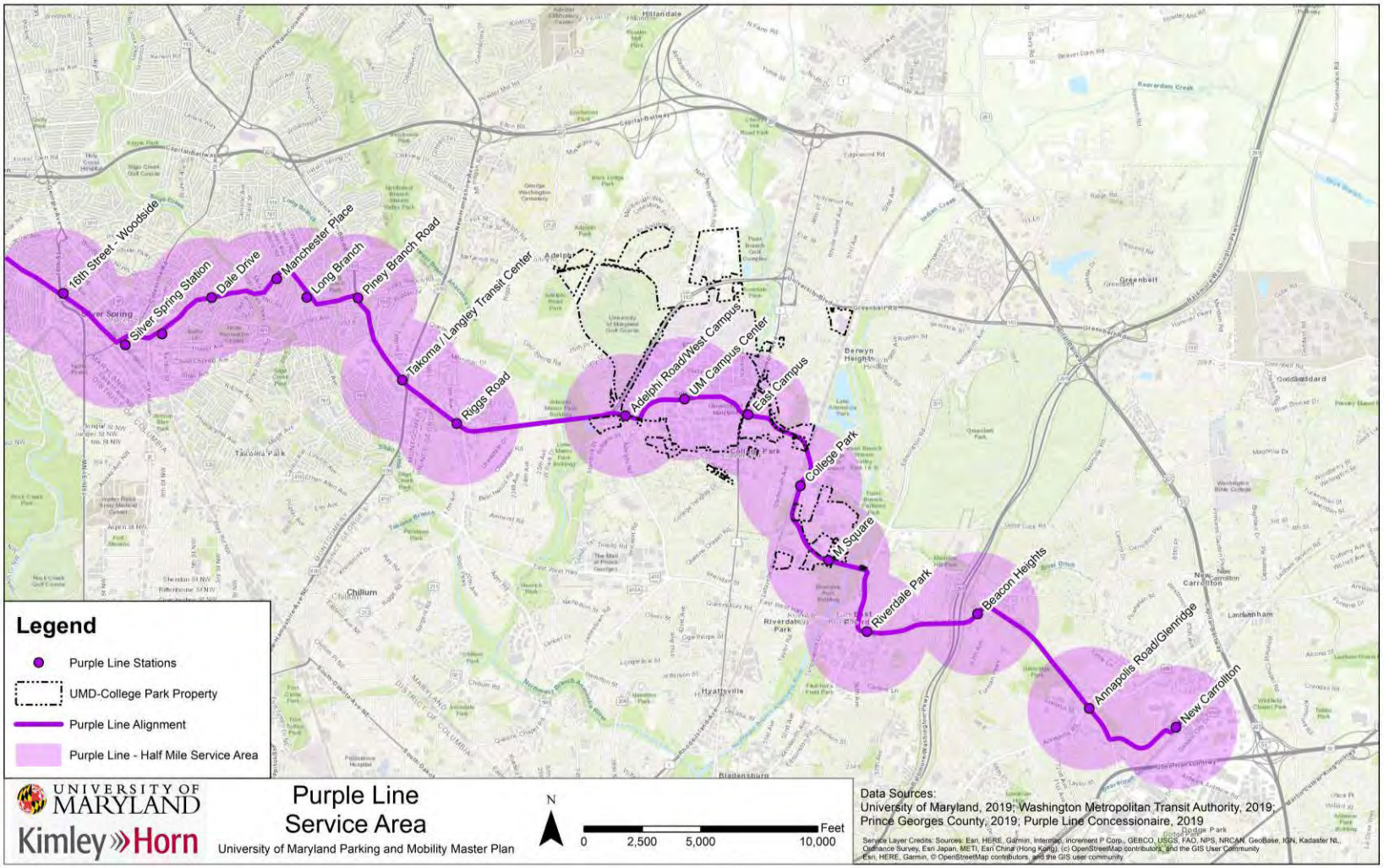


Figure 8: Purple Line Service Area

Access to and Within Campus

The Student Union is located in the core campus area, as are a number of other student-centric facilities. However, the campus core is generally very difficult to access quickly on a Shuttle-UM bus from other parts of the campus due to vehicular congestion and pedestrian activity. The Purple Line will have some dedicated right-of-way but will likely have similar difficulty traversing the core of campus unless greater preference and protection is provided to the light rail at key pedestrian crossings. This preference to right-of-way is also critical as the Purple Line is planned to run at 7 to 7.5-minute headways on-peak, and 10 to 15-minute headways off-peak.

Relationship to Existing University Services

The Purple Line may duplicate several University bus routes, which include the entirety of Routes 104 (College Park Metro) and 111 (Silver Spring). Partial duplication occurs along the 126 (New Carrollton), 109 (River Road), and 123 (Discovery District) bus routes. Furthermore, the entirety of the Purple Line will provide greater regional access to and from the University, as well as improve connectivity of the local University transportation network to that of the greater region.

In order to quantify the impact of the Purple Line on the University transportation network, a geospatial analysis was performed considering the following assumptions:

- The Purple Line train stations have a ½-mile service area
- Any bus service provides a ¼-mile service area
- Any combination of bus service provides access to the University given that it requires no more than 1 transfer or connects to a major transportation hub near the University

Based on the above, this analysis indicated that approximately 83% of Shuttle-UM service (by area served) will be redundant considering the other existing local transit service and completion of the Purple Line. The redundant coverage is shown in **Figure 9**.

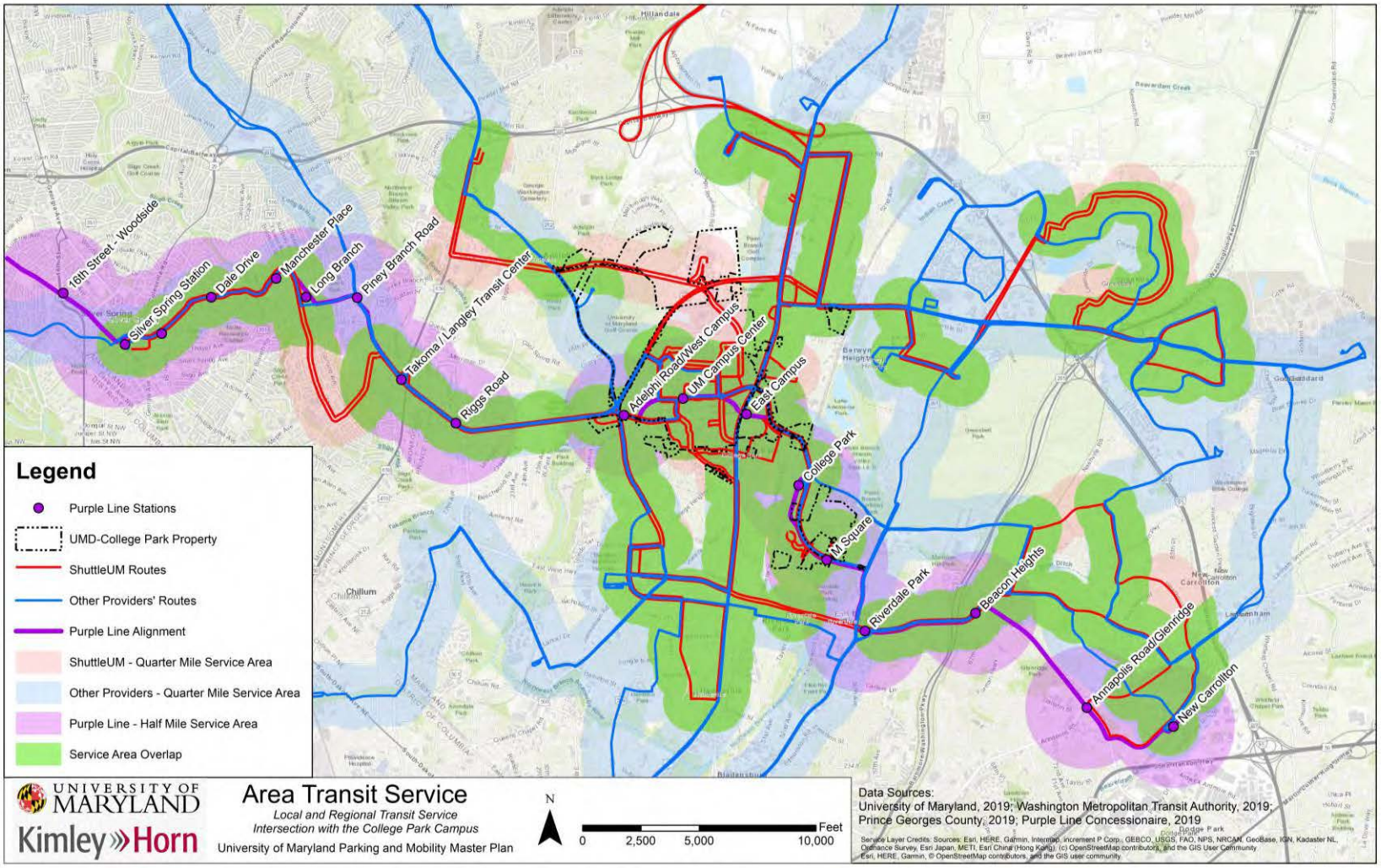


Figure 9: Local and Regional Transit Service Overlap

Peer Institution Comparative Analysis

Note that for the purposes of this section, peer institutions selected for comparison differ from those of the organizational analysis. This was done by request of University staff to select institutions that have a similar environment, whereas the organizational review focused on size of school and type of institution. A comparison of key transportation services is shown in **Table 16**.

Of the services commonly provided, the most frequently seen were internal and external bus and shuttle lines, car sharing, carpool programs, and bikeshare. The University compares well in most of these categories, except with local transit passes- most universities partner with local providers to provide a full-coverage transit network, and only operate university shuttles on their core campuses.

Table 16: Peer Transportation Services Comparison

Institution	Shuttle Service	Carshare (Zipcar)	Local Transit Passes	Carpool Program	Bikeshare	Ride-Hailing Pickup Zone (Uber/Lyft)	Guaranteed Ride Home
University of Maryland	Yes	Yes		Yes	Yes		Staff
Purdue University	Yes	Yes	Yes	Yes	Yes		
Indiana University	Yes	Yes	Yes	Yes			Yes
University of Baltimore	Yes	Yes	Fee				Yes
Ohio State University	Yes	Yes	Yes		Yes		
Penn State University	Yes	Yes	Yes	Yes	Yes		Yes
University of Illinois	Yes	Yes	Yes	Yes			
University of Maryland Baltimore	Yes	Yes	Fee	Yes	Limited		Yes
University of Minnesota	Yes	Yes	Discount	Yes	Yes		Yes

Future Transportation and TDM Needs Assessment

Future demand on the transportation network in and around the University will be subject not only to a growing campus population and area of influence, but the changing environment of the surrounding areas. The City of College Park, as well as the region as a whole, is moving toward a more urbanized setting with higher land use density and increased reliance on public transportation.

A detailed parking demand forecast is presented in the parking section of this report. Note that this analysis considers the increase of non-SOV mode use in the Washington, D.C. Metropolitan

Region by approximately 4% by the year 2040. It is assumed that this increase will be reflected in the University faculty and Staff populations, and the student population mode split remains approximately the same. It is also assumed that this change in mode split will be accommodated through a combination of the Purple Line, increased reliance on bus transit, and technology improvements.

Future population demand is also considered in this analysis based on the following factors as published by the University of Maryland in the most recent Facilities Master Plan update:

- Both Faculty and Staff population will grow approximately 12%,
- Student Enrollment will remain approximately the same for the next 10 years, and
- The commuter proportion of the student population will reduce by approximately 15% as a result of increased on-campus residence.

Biking

The areas surrounding the University are well-connected with shared-use trails, and US Route 1 will soon have an improved bike facility connecting to campus. In order to capitalize on these facilities, the University may prioritize bicycle facility improvements to facilitate greater network connectivity. Enhancements may include improved bicycle wayfinding, dedicated pedestrian and bicycle signals, and the intentional separation of pedestrian, bicycle, vehicular, and light rail transit modes.

Transit

As noted previously, the University negotiated free fares for University affiliates at the five Purple Line stops on campus. The University also has the option to buy-down the fares of additional Purple Line stations adjacent to the five campus ones. This study finds that future buy-downs may be an option to consider, but funding for other transportation options should be prioritized over the buy-down of fares at additional Purple Line stations. In the future, it is recommended that buy-down consider the concentration and access a station provides to existing student/staff residences or potential new development centers.

Other services in the area that have the potential to augment the existing University transportation network is MTA commuter lines. It is recommended that the University evaluate buy-down of fare for University-affiliates on MTA 204 line and remove duplicative Shuttle-UM service for the 141 to Gaithersburg. The University may also consider partnerships with the MTA regarding the 345 as it has the potential for College Park service given its route to Washington, D.C.

In conversations with University staff, Kimley-Horn determined that a University-WMATA partnership is possible, although likely at high cost. It is recommended that the University continue to engage with WMATA staff in determining a potential partnership for service. Specifically, it is suggested that the University buy-down the fares for the New Carrollton F6 route and run Shuttle-UM service to supplement primarily on weekends. The University may also consider buy-down of the F4 and T16 routes in the New Carrollton area to expand the Purple Line service area.

Related to the Purple Line, Kimley-Horn recommends the elimination the Shuttle-UM 104 and 111 routes. Furthermore, the University should consider the elimination or consolidation of Shuttle-UM 109, 123, and 126 routes. In the long-term, the University should consider removal of all routes duplicated by the Purple Line to and from Metro Stations.

Additionally, Kimley-Horn recommends that the University provide enhanced Shuttle-UM service outside typical Purple Line operating hours if needed, stopping at the Purple Line stations. This enhanced Shuttle-UM service can provide high frequency service when Purple Line service is reduced to 15-minute headways off-peak, but still maintain consistent high-capacity travel routes on-campus. Also, the University should consider operating a Shuttle-UM circulator route within the discovery district to replace the 109 and 123 routes and augment Purple Line service areas.

Lastly, Kimley-Horn recommends that the University reallocate resources from consolidated or eliminated Shuttle-UM service to enhance on-campus shuttle service, providing high-frequency service throughout the day across campus. This recommendation is related to the shift in campus mentality such that removing SOVs from the core of campus will facilitate more reliable transit service as well as improved pedestrian and bicycle safety.

Commuting Options

Additional commuting options may be considered for both students and faculty/staff of the University. Telecommuting is becoming an increasingly popular option in the academic setting, given the improvement of telecommunications technology and success of remote classrooms.

Given the preliminary success of the University carpool/vanpool benefits, DOTS has the opportunity to increase the marketing effort and expand other shared commuting options. This could be an application of sustainability funding to bolster the program without incurring additional expenses to the DOTS budget.

Lastly, the University may consider developing a credit system for non-single occupancy vehicle commuters. This system could be developed such that individuals may purchase a parking permit for their own use but receive either cash back or future credit towards transportation options if they share their trips with others or choose not to drive on any single day. This strategy is similar to that employed at the Seattle Children's Hospital, where the entirety of transportation and commuting is managed through a single technology platform called Luum.

Transportation Demand Management Recommendations

This section summarizes the considerations and recommendations above and includes additional considerations from best practices in transportation demand management.

Goal Setting

- Carbon emission reduction goals have been established by the Office of Sustainability to achieve carbon neutrality by 2050.
    - Consider a carbon offset fee from vehicle emissions.

    - Some of the funds designated (e.g. general fund and grants) to achieve carbon neutrality should be applied to the TDM program.
- Establish campus mode split goals to align with anticipated population growth and construction.
- Establish performance measures for all transportation services, specifically transit ridership and travel time.
- Recommit to customer service as a priority for all transportation functions.

Active Transportation

- Plan and implement a scooter pilot program, similar to the Portland, OR and Washington, D.C. programs.
    - Strategically locate bike and scooter parking around campus to meet demand.
    - Promote scooter usage and establish user behavior by defining scooter parking areas.
- Review Zagster (bikeshare) data to improve bike infrastructure along heavily used routes.
- Evaluate campus streets for accommodation of multimodal facilities including pedestrian and active transportation options.

Demand Management

- Continue to restrict sophomores from purchasing a parking permit based on parking occupancy threshold.
- Target employees that may be more willing to commute with investments in transit, carpool, vanpool, and other alternative transportation infrastructure improvements with incentives and other communications.
- Define alternating telework schedule by department to reduce parking demand throughout the week and work with supervisors to promote teleworking.
- Implement parking cash-out program campus-wide (employees and students) with parking pass bundle pack and free bikeshare membership.
- Apply for appropriate grants to fund TDM programs at a sustainable level.
- Create a standardized TDM survey to issue annually and track results.

Transit

- Assess the impact of the Purple Line on transportation demand before and after construction.
    - Collect and evaluate origin-destination data to determine popular routes.
    - Evaluate buy-down options as development occurs along Purple Line, consistent with collection of the above data.
- Monitor changes and relationship of network-wide ridership (Purple Line and Shuttle-UM).
- Improve prioritization for transit movement through campus over general purpose traffic.
- Refine shuttle routes based on current and projected faculty, staff, and student demand.
- Focus UM Shuttle service to immediate campus area.
    - Develop partnership and offer subsidized Metro passes to commuters and employees living outside the UM Shuttle service area.

- Assess DOTS employee hiring process and training of shuttle drivers to determine any inefficiencies and improvements to the current practices.

Current Parking Program Assessment

Existing Facilities and Assets

As of 2018, The University of Maryland Department of Transportation Services reports over 17,000 parking spaces available at the College Park campus. This includes five parking garages and nearly 120 surface lots. The majority of campus lots are permit controlled, using License Plate Recognition (LPR) software. Several facilities are gate-controlled, and visitor facilities are pay-by-space parking stalls.

The assessment performed for this study involves several data sources and describes the University's parking supply as an aggregate of facilities. This approach was used to determine the long-range need for parking at the University and present a conservative analysis for general parking needs.

Parking Supply/Demand Analysis

In March 2019, Kimley-Horn conducted a survey of parking surface lots on and around the College Park campus, including lots not controlled by DOTS and parking facilities not owned by the University of Maryland – College Park. The parking survey was conducted on Wednesday, March 6, 2019 and Thursday March 7, 2019. Three teams of surveyors conducted counts during the following three time periods:

- 8:00 AM to 12:00 PM
- 12:15 PM to 4:00 PM
- 4:30 PM to 7:30 PM

Note that the durations of the above data collection periods introduce variation within each time period; however, based on the number of facilities and congestion of campus during typical class hours, it was impractical to produce further, more granulated analysis. Since the survey was conducted during the month of March, results may underestimate the demand experienced on campus during the beginning of semesters or during the Fall semester. However, Spring break (the week of March 18, 2019) did not likely impact the survey. Lastly, several prospective student information/tour sessions were conducted on March 7, 2019 during the second session of parking surveys (likely adding to the visitor counts). Full results from the parking survey conducted by Kimley-Horn may be found in **Appendix E.**

DOTS also conducts a bi-annual survey of lot occupancy at selected critical facilities; namely those which serve daily commuters and other students whom regularly drive to campus. This survey data is typically conducted during the first two weeks of the Fall and Spring semesters, when demand is elevated as a result of new classes and students. Full results from parking surveys conducted by DOTS may be found in **Appendix F.**

Facilities

Parking facilities considered for this study fall into one of a number of different categories, which include:

1. Lots/Garages owned, maintained, and managed by the University and DOTS which are available for University parking permit allocation.
2. Lots/Garages owned, maintained, and managed by the University and DOTS which are **not** available for University parking permit allocation (for example, public-private housing)
3. Lots/Garages owned, but not maintained or managed by the University and DOTS (for example, parking facilities in the discovery district)
4. Lots/Garages not owned, maintained, or managed by the University and DOTS (for example, parking facilities in privately developed apartment buildings)

The reason for considering the classification of facilities noted above is to consider parking and mobility at the University as a total system, regardless of owner or operator. With this mentality, this study may identify the role of DOTS and the University in serving the parking demand from a strategic and numerical standpoint.

The total number of parking spaces for category 1, above, is 17,621 parking spaces based on the University Department of Facilities Management records for Fall 2018-Spring 2019. Within the two aforementioned parking surveys, 6,276 parking spaces were documented in Kimley-Horn's survey and 7,568 parking spaces were captured by DOTS survey in 2019. It is assumed that the remaining 21% (primarily visitor and parking garage spaces) would follow a similar occupancy trend to those surveyed by DOTS during the first two weeks of the semester based on the permitting of the remaining facilities.

The total number of parking spaces for category 2, above, is 2,118 as captured by Kimley-Horn's parking survey. The University does not maintain readily-available records for these facilities.

The total number of parking spaces for category 3, above, is 1,439 as captured by Kimley-horn's parking survey. Note that these facilities consist of primarily Terrapin Development Corp (TDC)-owned facilities but are located on University-owned property.

The last category of parking supply above (category 4) varies widely based on what is considered at or near the College Park campus. Following the University supply/demand analysis, it was determined that any potential parking supply surpluses in non-University facilities has minimal impact on the outcomes of this study.

The remaining discussion in the following three sections are based solely on the parking spaces described by category 1 in order to present a University-focused and conservative analysis.

Existing Conditions

The existing conditions analysis accounts for only University-owned and DOTS-controlled spaces. This is for the purposes of assessing the University's role in providing on-campus parking without consideration for external and environmental changes to parking capacity.

Campus parking facilities occupancy was derived from a combination of Kimley-Horn and DOTS survey data. The Kimley-Horn survey indicated that, over the course of 4 hours, an approximate maximum of 47% of surveyed parking spaces were occupied on Wednesday from 4:15 PM to 7:30 PM. In a worst-case aggregate scenario (using the maximum observed occupancy per parking facility at any time or day), occupancy is a theoretical 57% as shown in **Table 17**.

Table 17: Kimley-Horn Occupancy Survey

Out of 6,276 total spaces	**Wednesday, March 6**			**Thursday, March 7**			**Maximum**
	Morning	Midday	Evening	Morning	Midday	Evening	**Any Period**
Occupied Spaces	2,456	1,982	2,926	2,538	1,909	2,768	**3,598**
Occupancy	39%	32%	47%	40%	30%	44%	**57%**

Note that the Kimley-Horn survey was not conducted during the peak-time of year based on feedback from DOTS. However, based on the timing and purpose of this study, the theoretical maximum values, in combination with other conservative estimates, was determined to sufficiently accommodate fluctuations in demand throughout the year. The period of highest demand on the transportation network is understood to occur the first two weeks of the semester, particularly in the fall semester, based on University staff observations and data. However, it is unadvisable to use data collected during this time to account for campus parking demand, as this period of demand is unstable. This maximum demand does not reflect the typical conditions that the transportation network experiences, and will lead to results indicating a greater demand than a parking supply will need to fulfill. Additionally, decisions to supply the volume of spaces required to meet this demand is unwise as it would represent surplus parking during all other time periods. While design and construction solutions may be deemed unwise to address this period of demand, management solutions should be explored as they are more flexible and responsible to specific conditions of need.

An additional point of consideration based on the field-collected data indicates that parking rates remain consistent from afternoon to evening periods. This is likely a result of the time periods of parking restrictions from 7:00 AM to 4:00 PM. Between the hours of 4:00 PM and 7:00 AM, most parking facilities are uncontrolled. This encourages evening commuters and students to drive to and park on campus and is supported by the Kimley-Horn field-collected data. Note that at the time of publication of this report, DOTS staff are assessing the impacts of 24-hour parking restrictions. Another option the University should consider is allowing parking during the evenings but charging for parking.

The survey conducted by DOTS during Fall 2018 indicated that the highest occupancy experienced on any one day was 88% occupied on September 6, 2018. Over an aggregate of surveys from September 4 through September 19, using only Tuesday, Wednesday, or Thursday records, the theoretical maximum occupancy is 94% (using the maximum observed volume in a parking facility at any time or day), as shown in **Table 18**.

Table 18: UMD DOTS Occupancy Survey (Fall 2018)

Out of 7,276 total spaces	9/4	9/5	9/6	9/11	9/12	9/19	Maximum
Occupied Spaces	6,701	6,722	6,780	6,675	6,756	6,593	**7,117**
Occupancy	87%	87%	88%	87%	88%	85%	**94%**

The remaining 3,777 parking spaces not accounted for in either Kimley-Horn or DOTS surveys are a combination of parking garage and visitor spaces on the main College Park campus. It is conservatively assumed, that these spaces are 95% occupied during the peak period.

Based on the peak parking occupancy counts and assumption that the non-surveyed parking is 95% occupied during the peak period, it is estimated that parking at the University is approximately 81% occupied during a typical peak weekday. This figure is based on proportionately applying occupancy to the total available on-campus spaces with respect to the two completed surveys. The overall University peak parking occupancy calculations are shown in **Table 19**.

Table 19: University Parking Facilities Occupancy

	Total Spaces	Theoretical Maximum Occupied Spaces	Occupancy
Kimley-Horn Survey	6,276	3,598	57%
DOTS Survey	7,568	7,114	94%
Non-surveyed	3,777	3,588	95%
Total	17,621	14,300	81%

Lastly, as the University is a community asset and world-class research institution, it is home to numerous athletics, academics, and community events throughout the year. In order to accommodate event parking demand, a 750-vehicle 'buffer' was applied to hold parking spaces in reserve for event guests and special functions. This 'buffer' factor of 750 vehicles was considered in the parking supply/demand calculations for the purposes of planning to accommodate peak demand during an event. Other large-scale special event scenarios may require a greater number of spaces; however, for the purposes of this study, the focus is on a typical event.

An occupancy heat map with the above information for each on-campus facility during peak occupancy is shown in **Figure 10**. Results from this visual analysis indicate that excess parking capacity is located at the periphery of campus in larger facilities, as well as distributed across smaller lots throughout campus. This is the result of two factors: 1) the parking permit system controls lots as a whole (not on an individual space by space basis) and 2) individuals looking to park have difficulty identifying locations to park if their options are spread out or if their navigation is uninformed.

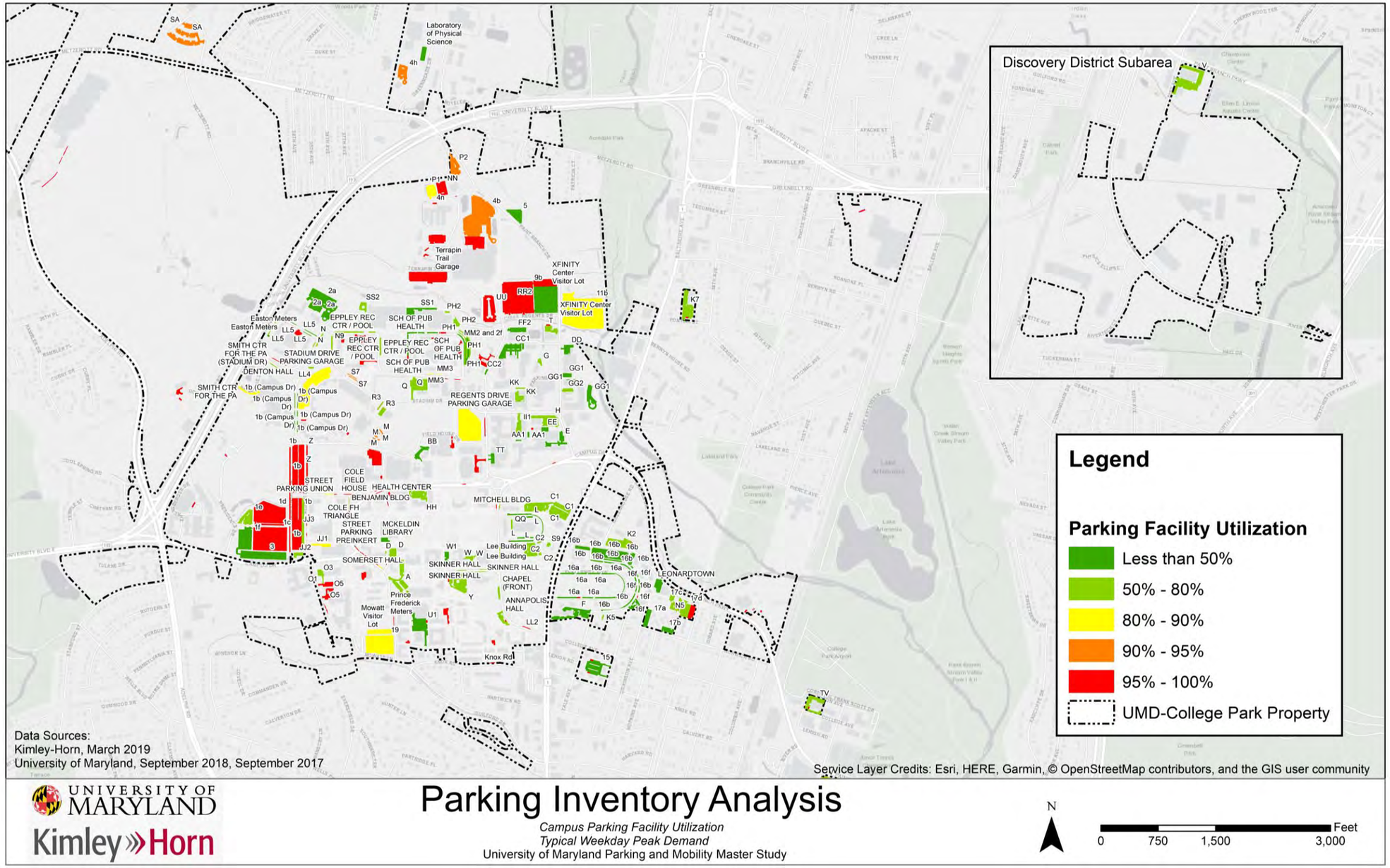


Figure 10: Parking Occupancy Heat Map

Future Conditions

Assessment of future parking conditions is based on the existing peak parking demand, effective parking supply, mode split, future campus construction, anticipated re-allocation of or changes to campus parking facilities, and the projected regional change in mode split including impact of the Purple Line. A spreadsheet of historical and projected population and parking values are included in **Appendix G**. Assumptions related to the existing and future projections of parking demand include the following:

- The gross parking space supply figures are taken directly from the University Facilities Management "Parking/Construction Impact Forecast – Summary" dated May 6, 2019.
    - These figures estimate a total of 17,181 parking spaces will be available for DOTS management in 2023.
    - The net effective parking space supply accounts for a 10% practical capacity factor, which assumes that a 10% surplus of spaces should be provided across the system to provide a high level of service for users and prevent frustration from locating available parking in an unreasonable amount of time and experiencing traffic congestion from users looking for the last space.
    - The net effective parking space supply includes a 750-space reduction for event parking 'buffer'.
    - A potential project discussed by University staff includes a new access point from Baltimore Avenue (US Route 1) to campus between Berwyn House Road and Regents Drive through Lot 11b. For the purposes of this study, Kimley-Horn anticipates a 118-space reduction to occur starting in 2028.
- The parking demand calculation for this study is based on publicly-available population data reported by the University as well as additional staff input describing staffing changes and potential growth.
    - Kimley-Horn assumes a typical visitor demand on any given day of 750.
    - University staff described that new research buildings, totaling an approximate 800,000 gross square feet, will be constructed by 2024. This is included in projected population growth using industry-standard vehicle trip generation.
    - Vehicle mode split is based on the campus survey conducted for this study.
    - Peak parking demand is based off the 2018-2019 campus daily population swell and verified using the 2019 parking occupancy surveys presented in the Existing Conditions section.
- The region will experience an approximate 4% vehicle mode split improvement by 2030, based on local transportation planning documents.
- Installation of the Purple Line will contribute towards the 4% regional mode split reduction. It is estimated that upon opening in 2022, approximately 500 University affiliates will use the Purple Line instead of driving. This number will increase to an approximate 3500 vehicle reduction by 2030, consistent with Purple Line planning documentation.

The above assumptions generally form a conservative estimate, considering higher vehicle demand and reduced parking supply. A summary of historical, current, and future parking demand versus supply is shown in **Figure 11**.

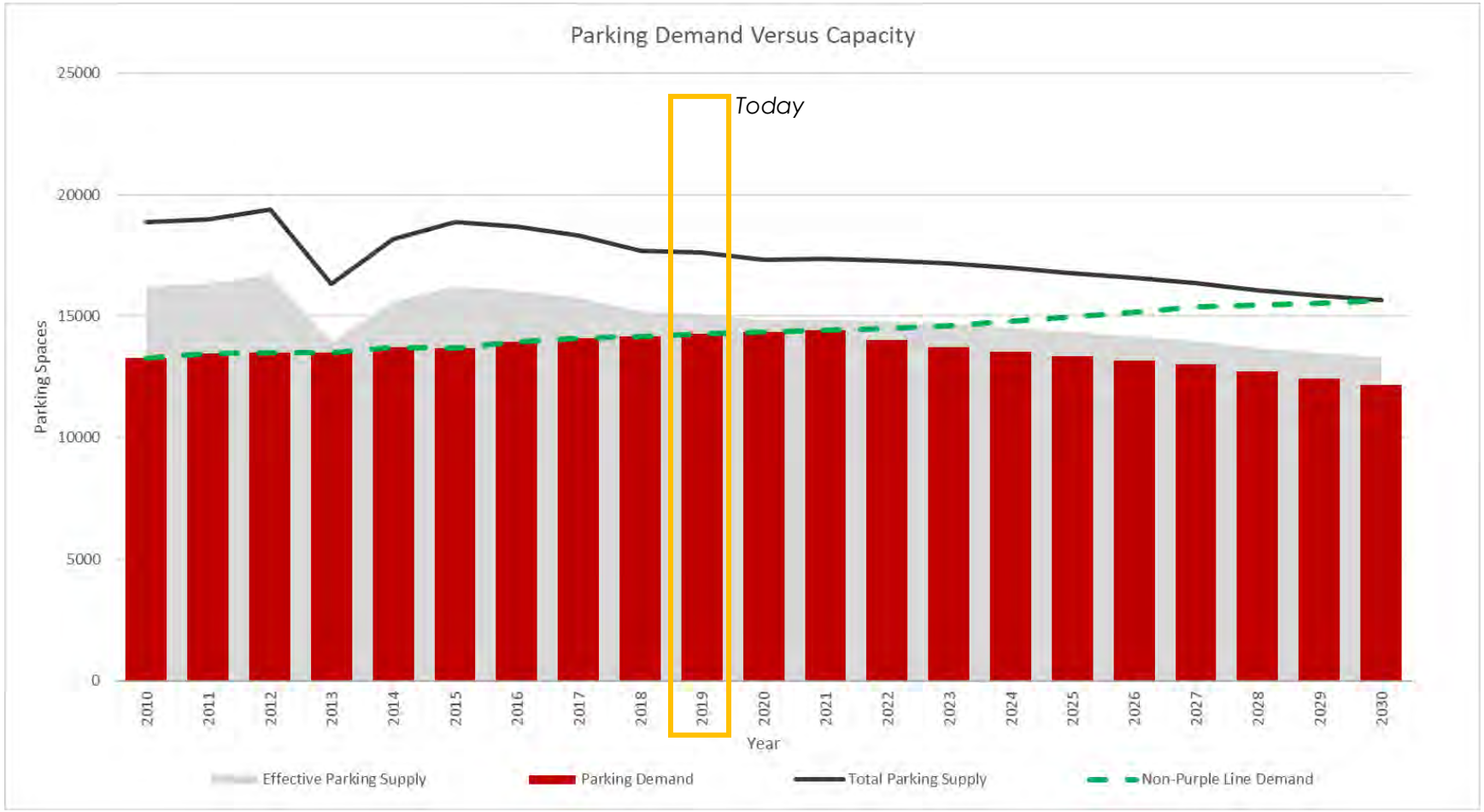


Figure 11: Parking Demand versus Gross and Net Supply

Note that parking demand and supply projections for this study are shown through 2030 as they are based on 10-year historical rates and projected growth or changes (where available). The total gross parking supply is shown as a black line. The effective parking supply (grey fill) accounts for UMD-owned and DOTS-controlled parking spaces, less a 10%space reduction (i.e. practical capacity or "effective supply" factor) to provide a high level of service and a 750-space event 'buffer'. The parking demand (red bar) accounts for all parking demand at the University, including student, faculty, staff, and visitors. The green line represents the continued increase in parking demand considering all other described factors without any Purple Line ridership adjustments.

Needs Assessment

Based on the existing and future conditions assessments, parking demand is currently accommodated within the parking capacity at the University. Based on field-collected data and a population-based assessment, the University currently has an approximate 700-space surplus in parking capacity. This is calculated from the total current net parking demand and total current net supply after a 10% space reduction (i.e. practical capacity factor).

In the next 10 years, parking demand and supply are projected to decrease at a similar rate to one another. This is a result of year-over-year increases in Purple Line ridership and the rate of parking space reduction (consistent with 10-year rates). The lowest surplus occurs in 2021 during Purple Line construction (approximately 270 surplus spaces), with the greatest surplus in 2030 (nearly 1,000 spaces). However, starting in 2030, it is likely that the Purple Line will experience only marginal increases in ridership from UMD's population, and UMD population growth will surpass parking space reduction by 2040. However, by then there may be substantial changes in traffic and parking demand from the advent of autonomous vehicles.

Lastly, there may be additional demand for special large-scale events. This topic was discussed several times throughout the study as a potential consideration for parking supply. These events are likely more strategic in nature than the parking supply-demand analysis presented in this study, since the events have not been determined or held at the University historically. Such events include larger athletic tournaments, concerts, or festivals. An event traffic and parking management plan should be developed for these large events and develop strategies to use existing parking resources and identify potential off-campus parking facilities with shuttle service, when needed.

Financial Analysis

The financial analysis as part of this study includes consideration of both the shuttle/ transportation program and the parking system, and measures DOTS's ability to respond to changing conditions regarding its financial capabilities. The following examination utilizes annual expenses and revenues as routinely reported by DOTS over the past 10 years, and assumes reductions in revenue generating parking spaces, annual operating and maintenance expense increases, and student/faculty/staff fee rate increases to determine the program's financial strengths or weaknesses. It should be noted that the numbers presented in this study are not to determine the program's bonding capacity, are not based on a detailed examination/audit of

current or projected costs and are only offered to assess the program's relative capacity to grow and change as conditions dictate.

Current Financial Reporting/Status

As noted previously, DOTS (until recently) was a self-supporting program under the supervision of the Vice President of Student Affairs and it operates under the financial constructs of an auxiliary fund. Auxiliary services supply the necessary additional services that universities offer students to fulfill their non-academic needs on campus. These include housing, dining, event hosting, and parking/transportation services among others.

Auxiliary funds or auxiliary enterprise funds mean funds intended to be profit making or, at a minimum, self-supporting when providing products or services to university customers. In effect, DOTS's parking and shuttle operations must operate in a business-like manner where revenues offset operating expenses and where decisions on rate increases and/or expansion of related services are reviewed by faculty, staff, and student representatives and, ultimately, are approved by the University President. As a business and service provider, DOTS has 467 employees, which includes 159 student employees, 79 transit service vehicles, manages 17,095 parking spaces, issued 20,876 parking permits, and served over 3.3 million shuttle-UM riders as published in the 2018 DOTS Annual Report (note that the number of parking spaces used in this study varies from those presented in the 2018 annual report as a result of facilities changes).

The DOTS annual report notes the program's mission statement, announces major achievements in service, identifies staffing/organizational chart, and reports revenues, expenditures, and transfer fees under parking and shuttle separately. Parking and shuttle revenues include (but are not limited to):

- Student fees
- Faculty/staff parking fees
- Visitor fees
- Student transportation fees
- Contributions from nearby apartments for shuttle services (e.g. the Enclave and the Varsity).

Expenditures for both programs include (but are not limited to):

- DOTS salaries and wages
- Debt on existing parking facilities
- Shuttle operations and maintenance expenses.

The 2018 actual figures for parking revenue, expenditures, and transfers equaled $17,042,131, $14,159,108, and $3,039,111, respectively resulting in loss of $156,088 and an ending fund balance of $343,706. Ending fund balance takes into consideration carry over from the previous year. The revenue, expenditure, and transfer figures for the shuttle program during this same period equaled $10,799,438, $10,347,357, and $421,833, respectively. This resulted in an operating loss of $68,752 and a reduced ending fund balance of $448,706.

Table 20 and **Table 21** present the full range of revenues and expenses for the parking and shuttle program for FY2018. This analysis indicates that DOTS is not generating a profit and at the current rate is likely to operate at a loss in the very near future. Under an auxiliary fund structure, DOTS cannot operate at a loss and either additional revenues need to be created or future cuts to parking and shuttle services are required. As a case in point, prior to the initiation of this parking and mobility study DOTS was, in May 2018, forced to cut and reduce multiple shuttle routes to compensate for a budget deficit of $700,000.

Table 20: FY2018 Actual Parking Financials

Parking	Actual FY2018
Revenue	
Student Fees	$4,917,280
Faculty/Staff Parking Fees	$5,368,573
Visitor Fees	$2,611,754
Special Event Fees	$1,398,846
Penalty Fines	$2,246,782
Parking Meters	$411,556
Other Revenue	$87,340
Total Revenue	$17,042,131
Expenditures	
Salaries and Wages	$10,803,155
Operating	$1,967,816
Utilities and DFM Maintenance	$344,748
Facility Renewal	$662,265
Campus 5 Tier Employee Parking Subsidy	-$214,300
Campus Overhead	$595,424
Total Expenditures	$14,159,108
Transfers	
Transfer to Plant	$178,939
Transfers to Debt Service	$2,830,635
Transfers for 3 Yr. Fee Ramp Up (Yr.1)	$0
Transfer for New Garage - 4 Yr. Fee Ramp Up	$0
Transfer for Fund Bal. Reversion Plan	$29,537
Total Transfers	$3,039,111
Total Expenditures and Transfers	$17,198,219
Parking Overage (Loss)	-$156,088
Ending Fund Balance	$343,706

Table 21: FY2018 Actual Shuttle Financials

Shuttle	FY2018
Revenue	
Student Fee Revenue	$6,678,352
Charter Revenue	$1,185,774
Riverside Association Agreement	$72,976
UMUC Transit Service	$105,725
Shady Grove	$44,372
UMB	$1,140,181
University View	$154,950
University Club	$48,565
Seven Springs Village Apartments	$101,030
UB	$378,764
Municipalities	$16,452
MGM	$97,932
Franklin Park	$150,815
Varsity	$168,210
Enclave	$86,470
Health Center	$7,473
Summer School	$156,852
Other	$105,545
Total Revenue	$10,700,438
Expenditures	
Salaries and Wages	$4,750,767
Operating	$4,011,565
UMB Expenses	$1,140,181
Utilities	$102,876
Cost Containment	$14,718
Campus Overhead	$327,250
Total Expenditures	$10,347,357
Transfers	
Transfer to Plant	$421,833
Transfer to Debt Service	$0
Total Transfers	$421,833
Total Expenditures and Transfers	$10,769,190
Parking Overage (Loss) - Increase (Decreas	-$68,752
Ending Fund Balance	$448,706

Conceptual Financial Projections

This section describes a projection of the strength or weakness of DOT's auxiliary fund balance based on reported annual financial data from 2012 to 2018 and the following assumptions:

- The number of revenue-generating parking spaces based on the Department of Facilities Management projections
- Historic cost of living adjustments
- Student and faculty/staff parking rate increases

While the number of lost spaces in FY2020 is estimated at only 287 (relative to current supply), FY2030 lost spaces are estimated to be 1,972 spaces. Transfers to debt service for existing parking structures is going to be reduced from $2,481,484 to zero by FY2025. Note that this figure assumes than no new parking structures are developed.

To account for variation in cost of living adjustments and parking rates, four financial forecast scenarios were completed. The results of each are presented graphically in **Figure 12** through **Figure 15**. Scenario A assumes a 3.5% annual increase in student and faculty parking fees, all other revenue held constant, 3.5% annual increase in expenditures, debt service on garages is eliminated, no new parking structures are developed, and a loss of 1,972 parking spaces between 2019 and 2039 is anticipated. Scenario B is identical to Scenario A except the annual increase in expenditures is 5.8% as opposed to 3.5%. The 5.8% figure is based on average annual increase imposed by other departments but are related to parking and shuttle services. Scenario C and D are identical to Scenario A and B, respectively, except the annual increase in student and faculty parking fees is 4.0%.

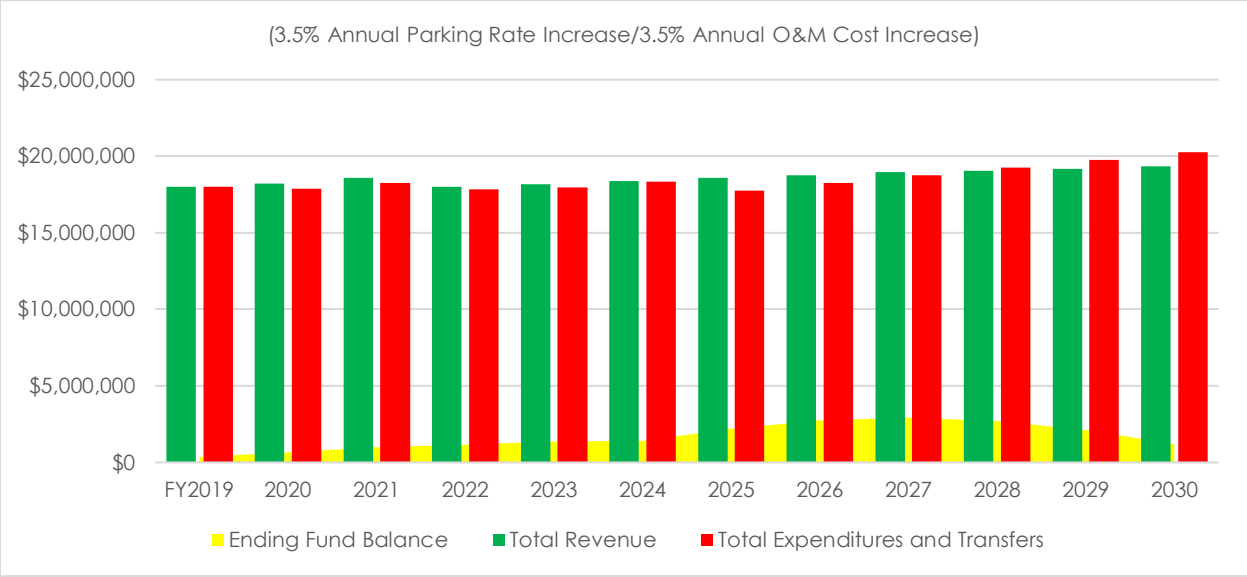


Figure 12: Scenario A DOT Financial Forecast

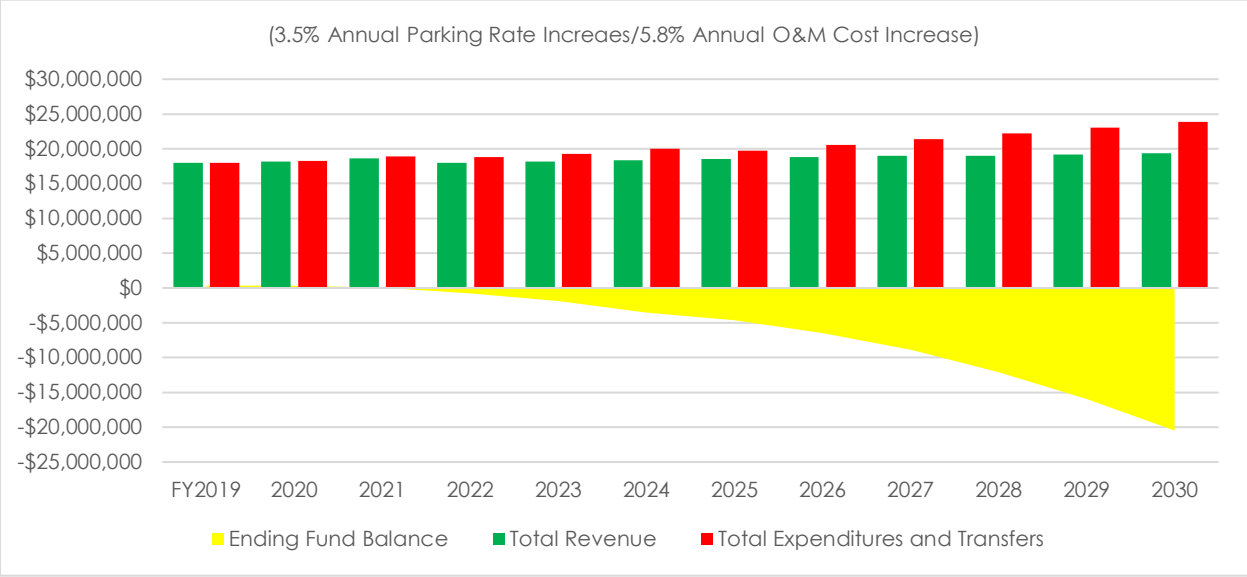


Figure 13: Scenario B DOTS Financial Forecast

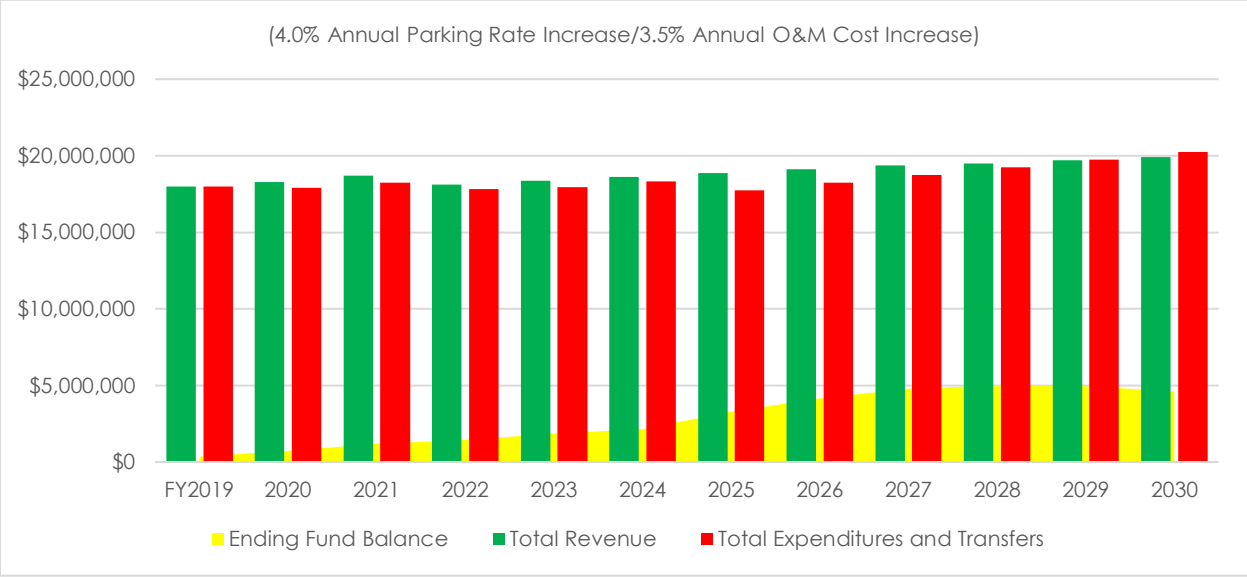


Figure 14: Scenario C DOTS Financial Forecast

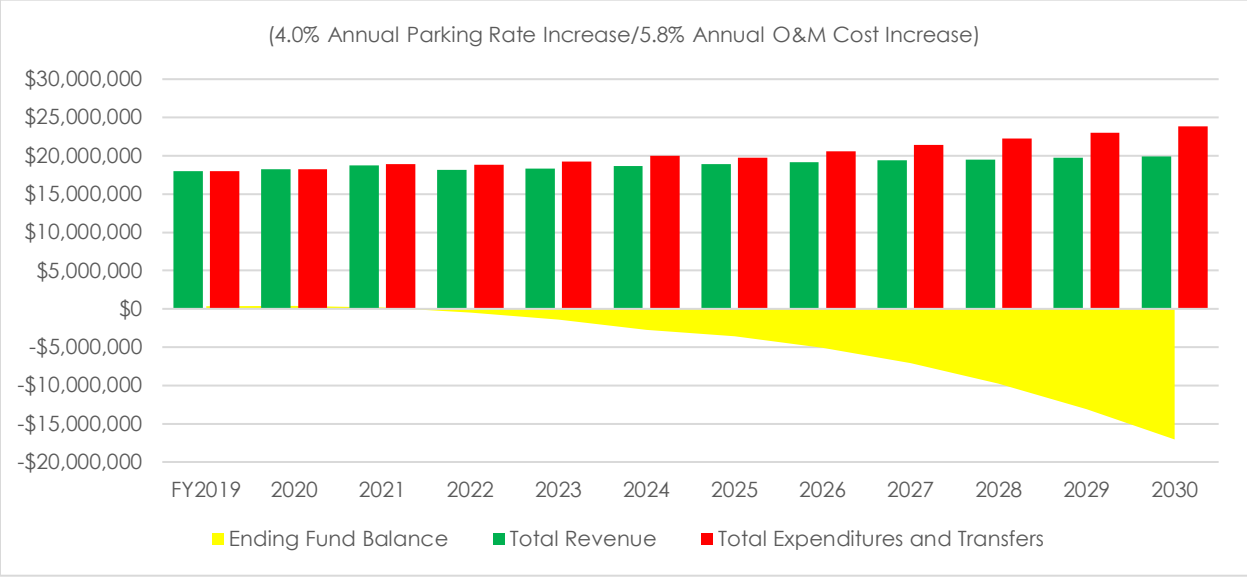


Figure 15: Scenario D DOTS Financial Forecast

While the graphic projections of DOTS's financial forecast are conceptual and are for understanding the program's overall financial condition, analysis indicates that controlling annual operating expenses is a key factor in the auxiliary fund's sustainability. Given the current 5.8% annual increase in operating costs, neither a 3.5% (see Scenario B) or a 4.0% (see Scenario D) annual increase in student and faculty fees would be enough to retain the solvency of the auxiliary fund. It is likely that rates would need to increase 6.0% to 8.0% to keep DOTS auxiliary services fund in balance.

Based on stakeholder engagement and conversations with University staff, it is unlikely that students, faculty, and staff would be willing to accept annual rate increases in the 6.0% to 8.0% range. However, as noted in this study's peer institution analysis, current parking fees at the higher end of faculty and staff permits are less than most of the rates at peer institutions. Faculty/staff rates at Ohio State, Penn State, Iowa, Michigan, Minnesota, Nebraska, and Wisconsin are higher than the fees charged at the College Park campus. This is particularly interesting when considering that unlike these peer institutions, the University of Maryland is located in a major metropolitan area where monthly fees for parking can reach $250 to $300, which equate to $3,000 to $3,600 per year.

Furthermore, it is unlikely that DOTS could make significant reductions to existing operations without major reductions in other expenditures, primarily shuttle operations. As parking costs are linked primarily to infrastructure, it is unlikely that significant reductions in parking operating and maintenances costs can be achieved beyond the elimination of annual debt service payments that were already included. However, shuttle service has proven effective at meeting the University and region's larger transportation and environmental goals and large-scale reductions in shuttle service would return faculty, staff, and students to a dependence on parking.

The last category for expense reduction is to consider labor costs. Labor costs for most enterprises tend to be the largest cost; as such the natural tendency for businesses owners who are struggling with profitability is to reduce labor. At DOTS, the volume of labor associated with parking and shuttle services is high when compared to its peer institutions. Therefore, DOTS may wish to revisit/reduce current staffing levels while attempting to maintain its high and desired level of customer service. Related to staffing, DOTS may be unusual in its relationship with students, academic achievement, and students' ability of afford higher education. It is unclear what return on investment the University receives from DOTS student employees who use their income to pay for classes and how that benefit compares (positively or negatively) to utilizing third-party contractors- who may be more efficient and cost effective on a per employee and per hour basis. Reductions in labor levels, particularly student labor, in return for reductions in parking and shuttle operating costs should be thoroughly studied before any labor cost saving strategies are employed.

Financial Summary

This analysis shows that the existing auxiliary fund model for transportation services is unsustainable given the assumed rate increases and parking facility reductions. Forecasted changes in revenue (such as reduction in debt service) are not able to offset growing expenditures in the future and, as a result, additional revenue must be generated, or expenditures reduced. Strategies to ensure the continued financial stability of transportation services may include:

- Increase in student, faculty, and/or staff parking rates
- Reduction in Shuttle-UM service
- Draw on additional funding streams such as a sustainability fund for transit services
- Move away from a transportation auxiliary fund model and leverage general fund money for transit services

Long-Term Parking Management

Parking management strategies and policy should be designed to create a convenient, well maintained and financially sustainable parking system at the University. A number of long-term recommendations have been developed based on observations, review of materials, discussions with Administration and stakeholders, questionnaire surveys, and the parking demand analysis. Parking management recommendations address the following topics:

- Parking rates
- Financial policy
- Parking and transportation analytics
- Parking and transportation planning
- DOTS management
- Parking enforcement
- Parking management
- Parking supply

Parking management strategies and policy recommendations are intended to address high-level issues.

Parking Rates

Parking rates should allow the parking system to operate at a financially sustainable level and help support some of the transportation goals of the campus. Parking rates can be used as a tool to adjust people's transportation habits and deter traffic in the campus core area. By adjusting parking allocation and incentivizing people to park on the periphery it can help reduce traffic in the core area from reduce "hunting" for a premium space. One of the suggested goals with adjustments to the parking rates is to at least maintain current parking revenue levels for the next 2-3 years. This will help ensure a financially sustainable parking and transportation system.

Parking rates at the University for students are a range of flat-rates based on the type of parking user (e.g. resident, overnight, and commuter) and the time period (e.g. annual, fall semester, spring semester, summer semester). Based on the assessment of peer universities, the cost of student parking at the University is higher than average. The results of the transportation survey show that the cost of parking is one of the biggest complaints from students. Student parking is primarily designated in the periphery parking facilities on campus. It is not suggested that the student rates are increased or adjusted to a demand-based system unless the University begins to offer student parking in the core campus area during the day.

Faculty and staff parking permit rates are based on salary levels and not location. The low end of the parking permit rates is high compared to other universities, but the high-end permit rate is on the lower to medium-end compared to peer universities. For faculty/staff parking it is suggested that a hybrid system of a demand-based parking rate that also reflects salary levels is implemented. This will help incentivize utilization of periphery/less utilized facilities and reduce traffic on campus. This type of parking strategy provides faculty/staff lower cost parking options. Since the high-end faculty/staff parking permit rates are low compared to peer universities, it is suggested that an additional tier level above the $80,000 salary level is created.

Visitor parking rates were found to be equal to or greater than most peer institutions. The fact that there is no daily visitor parking rate encourages turnover. It is suggested that the University modify the visitor parking rates to adjust demand between the less and more utilized facilities. This will require proper education of the parking rates through the University website, parking app, and signage.

Based on the parking occupancy counts, it was determined that many of the facilities experience peak demand during the evening since many of the facilities are unrestricted and free after 4:00 PM By providing free parking it encourages students to drive onto campus. It is suggested that a discounted parking rate is implemented during the weekday evenings (between 4:00 PM to 7:00 AM) and on the weekends for the facilities that currently allow unrestricted/free parking and are located in the core campus area. To implement pay parking during the evenings and weekends it will require an investment in pay stations for some facilities and increased enforcement efforts. However, there is substantial revenue potential based on

the parking occupancy counts. This additional revenue should be applied to allow the parking system to operate at a financially sustainable level and help fund transit and TDM strategies.

An even more progressive parking pricing strategy than just demand-based is to eliminate the parking permit system all together and charge for parking on a daily basis for faculty/staff and students. A daily parking pricing strategy makes people consider the cost of parking daily, which tends to promote alternative modes of transportation, if priced appropriately. This type of parking pricing strategy would require a substantial investment in parking access and revenue control equipment for each facility and increased enforcement efforts. The rate for students and faculty/staff would be discounted compared to the visitor rate, but would be greater than the current permit rate, if a person parks at least five times per week. Eliminating the parking permit system and implementing a daily rate for faculty/staff and students is recommended if the University is willing to implement a bold strategy towards reducing parking demand.

Financial Policy

One of the main DOTS goals is to create a financially sustainable parking and transportation system. Based on a review of the DOTS financial system and information learned from stakeholder meetings, there are several issues having a substantial impact on DOTS financials, including: subsidizing transit, inhibiting the increase in parking and transit rates, and having no recuperation fee for parking displaced from new development. There also needs to be proper financial planning in case of the need for a future parking facility.

A substantial portion of parking revenue is applied to subsidize other transportation services. It is suggested that the DOTS budget model is revised so that transit, TDM incentives, and other modal services are not solely dependent on parking revenue. Either the general fund or grant programs should be leveraged to help fund these other transportation services and programs.

One main reason that transit is dependent on parking revenue is the transit fee structure for faculty/staff. Currently, the Shuttle-UM service fee is included in the parking permit fee for faculty/staff. If faculty/staff choose not to purchase a parking permit they are automatically charged $45.00 per month for Shuttle-UM service. By combining the parking and transit fee it makes it difficult to adjust either rate to be reflective of the cost of each service. It is suggested that transit and parking fees for faculty/staff are separated. This will allow the fees to be adjusted appropriately to align with the cost of each service.

Another substantial impact on DOTS financials is the displacement of parking from new developments without any recuperation fee. Recently, a large quantity of parking on the campus has been displaced from new development, without being replaced. To help recuperate this potential loss of revenue, a one-time parking displacement fee from new development should be implemented on the responsible University department that can be applied to fund parking operational costs, constructing replacement parking facilities, or supporting alternative modes of transportation. The displacement fee should be reflective of the cost to replace parking on a per space basis assuming new structure costs. A parking replacement fund should be established to allow for proper planning for a new parking facility, which would be partially funded by the recuperation fee.

Parking and Transportation Analytics

Analytics is an important element to create efficiencies and help ensure that parking, transit and transportation infrastructure and services are being managed and operated in the most effective manner. There are a number of analytics that should be applied by DOTS to improve operations, including the new Passport system, leveraging the Information Sciences School, collecting parking occupancy data using LPR equipment, tracking operational costs, collecting transit ridership data, and updating the parking supply/demand analysis.

The recent implementation of a new permit, citation, and customer management system (Passport) by DOTS should allow for a variety of analytic capabilities. It is suggested that DOTS continue to work with Passport staff to understand the full capacity of the system and how it can help provide data to improve the parking permit and enforcement system.

It is suggested that DOTS consistently analyze parking and transit data to create a financially efficient system that effectively serves all users by eliminating/reducing underutilized services and adding/enhancing underserved services. A great resource to assist with this data analytics is the Information Sciences School at the University; which DOTS is currently working with to analyze transit data. It is suggested that DOTS continue to leverage this relationship with the Information Sciences School to help maximize parking allocation, parking pricing, transit routes, and transit schedules.

Parking occupancy data should be collected on a regular basis. Using the four LPR-equipped vehicles, parking utilization can be tracked. This information can help improve parking allocation and adjust parking fees with a demand-based pricing system. Parking availability technology should also be installed in the larger parking facilities to communicate real-time parking availability information online/app/social media and on dynamic signage. A variety of real-time parking availability technology is available and is dependent on the level of accuracy and type of facility (e.g. garage or lot).

With enhanced parking data gathering and tracking, DOTS will be able to report parking supply, occupancy, and availability trends to University faculty, staff, students, and visitors. Depending on the level of sophistication employed in parking occupancy data collection, DOTS could publish (through online services and/or a cell phone application) monthly, daily, or real time information on space availability. Though monthly permit holders are assigned parking facilities/zones, they would nonetheless benefit from the confidence that a space would be available within their designated section. Visitors to the campus would also benefit from this information given the fact that they are less knowledgeable of parking management practices and need to be educated on appropriate parking locations before they arrive.

The operational costs for each parking facility and transportation service should be regularly tracked to determine opportunities for efficiency. This will help improve maintenance and operation decisions and which facilities should be concentrated on to help reduce costs, or which facilities may be more neglected and need additional attention.

It is suggested that UM-Shuttle ridership is tracked on regular basis by user type. This would require installing ID card swipe devices on each bus to track the user type. This information can

help with pricing of transit passes and with adjusting the number of buses, schedule, and routes to improve efficiency and reduce costs.

The parking supply/demand model developed as part of this study should be updated, at least, every 5 years and after the Purple Line is operating. The parking needs should be analyzed on a per user basis (e.g. faculty/staff, commuter students, resident students, and visitors) to allow proper adjustments regarding parking needs, allocation, and effective management of the system.

Parking and Transportation Planning

In addition to collecting and analyzing data to improve operations and decision making, it is suggested that DOTS be regularly involved in the planning of the parking and transportation system. Feedback from stakeholder meetings revealed that there is a lack of coordination between DOTS and University Facilities Management Department. It is essential that the Facilities Management Department is aware of issues DOTS is facing to improve transportation and parking. If parking is displaced by new development, DOTS should have the ability to provide input how this would impact the campus parking and transportation system and what solutions are possible. Also, this continual collaboration between DOTS and the Facilities Management Department will help in developing a unified vision for how the transportation system is designed to provide safe access to parking facilities and support alternative modes of transportation. It is recommended that the DOTS program assign someone the role as a parking/transportation planner liaison or create a new position for a transportation planning function that works with Facilities Management.

As part of this collaboration between DOTS and the Facilities Management Department, reducing traffic in the core campus area should be a main goal, as it is essential to creating a pedestrian-friendly and safe campus environment. Facilities Management should work with DOTS staff on a regular basis to promote alternative modes of transportation through parking policy and infrastructure improvements. One such improvement could include changing street design to one-way pairs and installing bike lanes. Another strategy to reduce traffic in the core campus area is by constructing replacement parking on the periphery of the campus or at nearby campus locations. As discussed previously, parking allocation has a big impact on traffic in the core campus area. The number of parking permits allocated in core parking facilities should be limited and the University should strive to achieve no greater than a 90% peak occupancy level and limit traffic "hunting" for a space. This parking allocation planning effort requires proper tracking of parking utilization per facility.

DOTS Management

The state of any parking and transportation system is reflective of the management practices of the parking and transportation department. The management of DOTS should strive to be organized, efficient, collaborative, and unified. This can be better achieved by implementing regularly scheduled inter-department meetings, becoming an Accredited Parking Organization (APO), conducting operational audits every two years, and establishing goals.

There are a variety of different departments/services within DOTS. To help improve collaboration and create a unified vision, it is suggested that weekly department meetings and monthly

meetings between each DOTS department are conducted. These meetings should serve as an opportunity to collaborate on strategies to improve the parking and transportation system and keep staff well informed of any planned changes. It is also suggested that all DOTS staff are condensed into one building, if possible, which would also help improve collaboration between services.

It is suggested that DOTS become an Accredited Parking Organization (APO) through the International Parking and Mobility Institute (IPMI). This will help DOTS concentrate on applying best practices regarding operations, customer service, professional development, technology, safety, and security.

A third-party audit should be conducted every two years of all costs and expenses incurred/charged by other University departments related to DOTS operations. This will improve operational efficiencies, reveal the true costs of operations, and help properly allocate funds to support DOTS services.

DOTS should establish goals annually regarding customer satisfaction and operational efficiency based on previous year analytics. This type of assessment will require issuing a customer service satisfaction survey and tracking costs, labor hours, parking utilization and transportation service volumes.

Parking Enforcement

Parking enforcement is a necessary function to maintain order and help ensure people adhere to the rules. However, parking enforcement can be managed in a way to help improve its image by enforcement staff having a customer service focus, offering first-time warning for parking violations, and having appropriate staffing levels.

Parking enforcement staff should have a focus on customer service and not just writing citations. It is suggested that enforcement staff are properly trained regarding the parking policies, transportation services, and general campus layout so that they can serve as an ambassador while out on the field to help people with transportation/parking questions. They should be equipped with proper educational flyers/material to assist people with understanding parking policies and navigating the campus.

Currently, parking fines are a flat-rate. One way to improve relations between the University population and DOTS enforcement officers is to offer a warning for first-time parking violations. However, for repeat offenders a gradually increased fine structure should be applied to help reduce the number of violations.

Based on an assessment of the number of enforcement staff to the number of spaces, the University has a lower efficiency compared to other peer universities. This means they have an abnormally high number of enforcement staff, which leads to a high number of citations issued per person on campus. There are also a high number of appeals, but a low number of citations forgiven or reduced. This can lead to frustration among users and a feeling of an aggressively enforced and unforgiving system. It is suggested that the number of enforcement staff is tracked to determine if staff can be reduced without a big drop in coverage. A reduction of

enforcement staff may reduce the number of citations, but this can help with DOTS public relations.

Parking Supply

Based on the future parking demand analysis, it was determined that there is adequate parking to support existing and future demand. However, the perception is that campus parking is constrained and difficult to find a space. This is primarily because parking is not located in the ideal locations, in front of everyone's destination. Instead of constructing additional parking, parking allocation should be modified to ensure that no facility is experiencing greater than 90% occupancy levels. Any new or replacement parking, if needed, should not be constructed in the core campus area as this will add traffic onto campus. Savings from not constructing additional parking could be partially applied to improve transit service for periphery parking facilities.

To reduce the need to construct additional parking supply, it is suggested that the University implement strategies to reduce parking demand and support alternative modes of transportation through infrastructure investments and TDM strategies. However, the financial sustainability of TDM programs should be considered. A parking cash-out pilot program was recently implemented at the University that pays people not to get a parking permit and instead use alternative modes of travel. While this program is great at reducing parking demand it also creates a financial dilemma by reducing parking revenue and placing a cost on DOTS. This type of program is good if it is necessary to eliminate the need to construct an additional parking facility. It should be determined if the cash-out program and other TDM programs are eliminating the need for additional parking on campus and if the environmental benefits are worth the cost of the program.

Conclusion Summary of Recommendations

This section summarizes, at a high level, the Kimley-Horn team's recommendations for the improvement of parking and mobility at the University of Maryland, College Park. It is broken down by study phases, including Transportation Demand Management, Parking Policy and Management, and Strategic Communications.

Parking Policy and Management

Parking Rates

- Implement a demand-based parking rate structure for faculty/staff to incentivize utilization of periphery/less utilized facilities and reduce traffic on campus.
- Consider implementing a discounted evening/weekend rate in the lots that become unrestricted during the weekday evening and weekends.
- Modify current parking allocation policies and rates to ensure that current parking revenue levels remain unchanged for the next 2-3 years.
    - Refine faculty/staff parking pricing and permit structures to better align with parking demand, space allocation, and affordability.
    - Expand faculty-staff parking pricing tiers (create additional tier level above $80,000 annual salary level for employee parking permits).
    - Student parking rate increases should only be implemented to maintain current revenue levels.
- Consider implementing a daily discounted parking rate for employees and students to help reduce need for permits and promote alternative modes of transportation.

Financial Policy

- Revise the DOTS budget model to eliminate the sole dependence of transit, TDM incentives, and other modal dependency on parking revenue.
- Separate the faculty/staff parking permit and Shuttle-UM fees to allow appropriate adjustments to reflect changes in the cost of providing each service.
- Implement a parking displacement fee on campus from new development.
- Establish a parking replacement budget that would be partially funded by the parking displacement fee.

Parking and Transportation Analytics

- Understand and utilize the new Passport parking permit and enforcement management system.
- Leverage University Informational Sciences School to assist with data analytics of transportation data (e.g. parking demand, transit ridership, etc.) to assist with decision making regarding transit routes, parking pricing, and parking allocation.
- Collect parking data and transit usage regularly and completely.
    - Track the operation costs of each parking facility and transportation service to help determine opportunities for efficiency.

  - Track parking utilization data using LPR technology to improve parking allocation and limit the number of people permitted to park at facilities located in core campus areas.
  - Provide real-time parking availability information online/app/social media and on dynamic signage outside parking facilities.
  - Track UM-Shuttle ridership by user type.
- Update the parking supply/demand model at least every 5 years.

Parking and Transportation Planning

- Improve coordination of DOTS parking/transportation planning efforts with the Facilities Management Department.
  - Create a parking/transportation planner liaison within the DOTS program.
  - OR create and support transportation planning functions in collaboration with facilities management.
- Campus planning should strive to reduce parking demand and support alternative modes of transportation.
  - Analyze opportunities to implement bike lanes by converting two-way streets to one-way pairs.
  - New or replacement parking, if warranted, must be located at the periphery of the campus or in nearby (but off-core) campus locations.
  - Limit permit allocation of facilities located at the core of campus to reduce traffic in high pedestrian areas.
- Improve parking demand distribution across facilities throughout campus using an improved permitting structure or technology improvements to disseminate parking occupancy data to DOTS and end users.

DOTS Management

- Host weekly/monthly staff meetings within (or between) each department to improve coordination and addressing issues or decisions.
- Condense DOTS staff into one building to improve coordination.
- Become an Accredited Parking Organization (APO) through IPMI.
- Conduct third-party audit every two years of all costs and expenses incurred/charged by other University departments related to DOTS operations.
- Establish goals as metrics to measure customer service and operational efficiency.

Parking Enforcement

- Train parking enforcement staff to have a customer-friendly approach to help educate people regarding parking policies and campus navigation.
- Offer a warning for first-time parking violations and a gradually increased fine structure for repeat offenders.
- Assess opportunities to reduce the number of enforcement staff and improve efficiency.

Parking Supply

- Based on the future parking demand analysis and financial implications, a new parking structure is not warranted and would limit the capacity to invest in alternative modes of transportation.
- Implement TDM strategies and invest in transportation infrastructure to reduce parking demand but assess the cost-benefit of each program to prevent the need for additional parking, including the parking cash-out program.
- Use parking and data collection technology to inform end users of parking options throughout campus.

Transportation and Demand Management

Goal Setting

- Carbon emission reduction goals have been established by the Office of Sustainability to achieve carbon neutrality by 2050.
    - Consider a carbon offset fee from vehicle emissions.
    - Some of the funds designated (e.g. general fund and grants) to achieve carbon neutrality should be applied to TDM program.
- Establish campus mode split goals to align with anticipated population growth and construction.
- Establish performance metrics for all transportation services, specifically transit ridership and travel time.
- Recommit to customer service as a priority for all transportation functions.

Active Transportation

- Plan and implement a scooter pilot program, similar to the Portland, OR and Washington, D.C. programs.
    - Strategically locate bike and scooter parking around campus to meet demand.
    - Promote scooter usage and establish user behavior by defining scooter parking areas.
- Review Zagster (bikeshare) data to improve bike infrastructure along heavily used routes.
- Evaluate campus streets for accommodation of multimodal facilities including pedestrian and active transportation options.

Demand Management

- Continue to restrict sophomores from purchasing a parking permit based on parking occupancy threshold.
- Target employees that may be more willing to commute with investments in transit, carpool, vanpool, and other alternative transportation infrastructure improvements with incentives and other communications.
- Define alternating telework schedule by department to reduce parking demand throughout the week and work with supervisors to promote teleworking.

- Implement parking cash-out program campus-wide (employees and students) with parking pass bundle pack and free bikeshare membership.
- Apply for appropriate grants to fund TDM programs at a sustainable level.
- Create a standardized TDM survey to issue annually and track results.

Transit

- Assess the impact of the Purple Line on transportation demand before and after construction.
    - Collect and evaluate origin-destination data to determine popular routes.
    - Evaluate buy-down options as development occurs along Purple Line, consistent with collection of the above data.
- Monitor changes and relationship of network-wide ridership (Purple Line and Shuttle-UM).
- Improve prioritization for transit movement through campus over general purpose traffic.
- Refine shuttle routes based on current and projected faculty, staff, and student demand.
- Focus UM Shuttle service to immediate campus area.
    - Develop partnership and offer subsidized Metro passes to commuters and employees living outside the UM Shuttle service area.
- Assess DOTS employee hiring process and training of shuttle drivers to determine any inefficiencies and improvements to the current practices.

Strategic Communications

General

- Encourage registration for the DOTS email listserv and not just those with parking permits.
    - Possibly when people sign up for the Nextbus system.
- Continually increase the effectiveness of the communication, marketing, and outreach efforts related to promotion of campus transportation offerings.
    - Increase awareness of and engagement with the DOTS many TDM programs and services.
    - Increase engagement with all user groups, including visitors, faculty, staff, College Park residents and workers, and the business and development community.
    - Increase social media presence (Facebook and Twitter) to improve communications.
- Build partnerships with other University departments to promote DOTS transportation offerings and TDM programs.
- Integrate parking permit and alternative transportation options websites to present all transportation options in a singular manner and as multiple considerations for transportation options.

Short-term Strategies

- Create a Project "One Pager" / FAQ Sheet for all New Programs / Pricing Changes to improve clarity and transparency of program changes.
- Leverage University departmental partnerships by requesting inclusion of information about the change in their regular stakeholder communication vehicles.

- Schedule presentations with members of the College Park community to describe and discuss transportation options and changes.

Mid and long-term strategies

- Develop a video (or video series) to "Tell the Story" of policy or transportation changes.
- Invest in creating an annual communication strategy to improve permeation into the campus community and increase effectiveness of strategic efforts.
- Monitor progress towards meeting all IPMI APO "Marketing and Communication" criteria.

Appendix

A: Recent, Planned, and Pending Developments

ID	Name	Location	Size	Status	Planned or Existing Parking Supply	*Notes*
1	The Hotel at UMD	7777 Baltimore Ave, College Park, MD 20740	297 guest rooms 1,500 person ballroom 20,000 sqft office	Complete	900 parking spaces	Hotel is first phase of a $1M development
2	Terrapin Row (Residential Mixed-Use)	4300 Hartwick Rd, College Park, MD 20740	445 units	Complete	470 parking spaces	1,500 beds
3	Cambria Hotel	8321 Baltimore Ave, College Park, MD 20740	150 rooms	Complete	Estimated 240 parking spaces	
4	Landmark (Residential Mixed-Use)	4500 College Avenue College Park, MD 20740	267 unit 2-level parking garage (unknown count)	Complete	2 - level parking garage	140,000 sqft Target store
5	Alloy by Alta (High-Rise Residential)	4700 Berwyn House Road	275 units	Under Construction	335 parking spaces	
6	Greenbelt Station	Greenbelt	195 units, 13.16 acres	Pending		Townhomes
7	Hillel Center	7505 Yale Avenue College Park	38,000 sqft	Pending		Student cultural center
8	Sterling Place (Multi-Use Residential)	4340 & 4422 Knox Road	759 beds (331 units) 31,000 sqft retail	Pending	326 new parking spaces Remove 120 parking spaces	multi-family, some retail Construction start Spring 2020 Open Fall 2022
9	Southern Gateway (Bozzuto) (Multi-Use Residential and Retail)	7150 Baltimore Ave	393 units 70,000 sqft retail	Pending	190 retail spaces 460 residential spaces	http://www.collegeparkmd.gov/Quality%20Inn%20Presentation_FINAL_9-19-17.pdf construction Q1 2020 Completion summer 2022
10	The Mosaic at Turtle Creek	7500 Mowatt Lane College Park	90 units	Pending		Townhomes
11	College Park Metro Station (Residential Mixed-Use)	College Park Metro	440 units REMOVAL of 530 park-and-ride spaces	Planned		
12	Riverdale Park Station	East side of US 1 North of its intersection with East West Highway	900 units 150,000 sqft retail	Proposed and newly constructed		
13	ERCO SUBDIVISION (Mixed-Use Residential)	Cul De Sac of Rivertech Court	10.63 acres Current tenants at the Discovery District include federal agencies NOAA, USDA, FDA, the College Park Academy Charter School, private sector companies, research institutes and more. Future plans include a hotel, pop-up park, food hall and mixed-use community with retail and 120 town homes	Proposed and newly constructed		https://www.sjpi.com/wp-content/uploads/2017/02/5600-Rivertech-C-G.pdf 110,000 sqft retail
14	Greenbelt Town Center at Beltway Plaza	Greenbelt Mall - NORTH OF MD 193 AT CHERRYWOOD LANE	700 Multifamily dwelling units 22,000 Square feet of retail space	Pending		
15	Discovery District	5801 University Research Court 5825 University Research Court 4400-4600 River Road Rivertech Court Other	75,000 sqft office unknown 450,000 office 450,000 office 450,000 office 450,000 office 52,680 sqft 57,120 sqft 50,107 sqft 500,000 sqft office	Complete Complete Planned Complete	363 parking spaces unknown 3/1,000 GSF 640 parking spaces	Estimate sqft based on 100,000-600,000 RSF, or custom built 150,000-450,000 sqft office space 4/1,000 SF ratio Per Ken Ulman
16	City Hall Site	4500 Know Road	40,000 sqft office/other	Planned		
17	Greenbelt Metro Station - Potential FBI Location	Greenbelt Metro Station	1,000,000 sqft mixed use 2,500,000 office/other	Planned	unkown	Displacement and replacement of 3,400 parking and 300 kiss and ride spaces
18	Berwyn House Road	8320/8400 Baltimore Avenue		Planned	unkown	Redevelopment Possible new roadway connection
19	College Park Academy	5751 Rivertech Cout	School	Complete	143 parking spaces	School
20	Old Leonardtown	4608 Norwich Road	unknown	Planned	unkown	On-campus housing
21	UMD Pipeline	Misc.	unknown	Planned	unkown	Various locations; on-campus properties
21a	Hotel Adjacent (Parcel B & C)	Diamondback Drive, College Park, MD 20740	565,000 office 20,000 retail	Planned	750 new parking spaces 325 removed parking spaces	

B: Preliminary Organizational Review

University of Maryland at College Park

PARKING AND MOBILITY STUDY

Task Report: Organizational Structure Review

3/12/2019

UNIVERSITY OF MARYLAND

Table of Contents

Introduction

As part of the "Current Program Assessment" section of the University of Maryland (UMD) Parking and Mobility Master Plan project, Kimley-Horn is reviewing the Department of Transportation Services (DOTS) organizational structure. Having an effective organizational structure, financial sustainability, and constructive interdepartmental collaboration are all dimensions of what it takes for companies and organizations to be successful.

An organizational structure is described as "a system used to define a hierarchy within an organization. It identifies each job, its function and where it reports to within the larger organization." The organizational structure defines how the institution operates to execute its goals.

There are many types of organizational structures. There are the more traditional functional organizational structures (this is what UMD has now), the divisional structure, the matrix structure and the "flatarchy" structure as well as some more contemporary alternatives that are discussed later in this task report. Each organizational structure comes with different advantages and disadvantages and may only work for companies or organizations in certain situations or at certain points in their life cycles.

> *"Poor organizational design and structure can result in a bewildering morass of contradictions: confusion within roles, a lack of coordination among functions, failure to share ideas, and slow decision making, creating unnecessary complexity, stress and conflict."*
>
> *-Gill Corkindale, the Harvard Business Review*

Ultimately, it's important to have an effective organizational structure that promotes institutional values, streamlines operational efficiency, promotes effective communication and collaboration between business units while also providing high level customer service and accountability. DOTS has been under the Student Affairs division for many years. While this fact alone argues for at least a cursory review of this organizational arrangement, that does not necessarily mean that drastic changes are warranted. However, sometimes taking environmental and social changes that have occurred over decades into account or identifying areas of concern based on operational assessments (such as this study) might identify opportunities for new approaches that could provide benefits on a number of levels. Reasons often cited for considering organizational structure change include:

- Changes in work place demographics
- Technological advancements
- Globalization
- Changes in market conditions
- Program growth
- Poor performance
- Planning or communications issues

Task Report Overview

This task report reviews the DOTS current program organizational structure and how DOTS is incorporated into the larger UMD College Park organizational framework. This report also incorporates interviews with key UMD staff responsible for guiding the DOTS program.

Kimley-Horn reviewed a number of other university organizational structures for comparison purposes including some outreach to current top tier university parking and transportation management professionals to get their perspective related to organizational issues and challenges.

Kimley-Horn also reviewed and summarized a number of articles and publications by experts in the field of organizational development to provide some basic organizational concepts and formats, including some contemporary alternatives to traditional organizational approaches.

All of this is followed by some specific recommendations for UMD to consider relative to the DOTS program going forward.

Potential Issues

In assessing organizational effectiveness for other parking and transportation projects, the following issues have sometimes been identified. While these may or may not apply specifically to the DOTS program at UMD, they are the kinds of issues that tend to arise related to parking and transportation functions and are sometimes related to where the department is located organizationally.

- Communications issues when related functions report to different vice presidents
- Poor coordination or lack of appreciation between land use and transportation connections
- Lack of a comprehensive or orchestrated campus development plan
- Power struggles
- Lack of perspective or knowledge regarding related areas by various departments
- Lack of customer focus
- Siphoning of funds from core department needs
- Lack of effective planning – reactive not proactive
- Siloed perspectives
- The reasons a department was located in a certain area has changed over time
- Lack of creative thinking ("We've always done it this way.")

Current Program Organization

DOTS is currently located, organizationally, in Student Affairs and reports to the Vice President for Student Affairs, Dr. Linda Clement and Assistant Vice President for Student Affairs Dr. Mary Hummel.

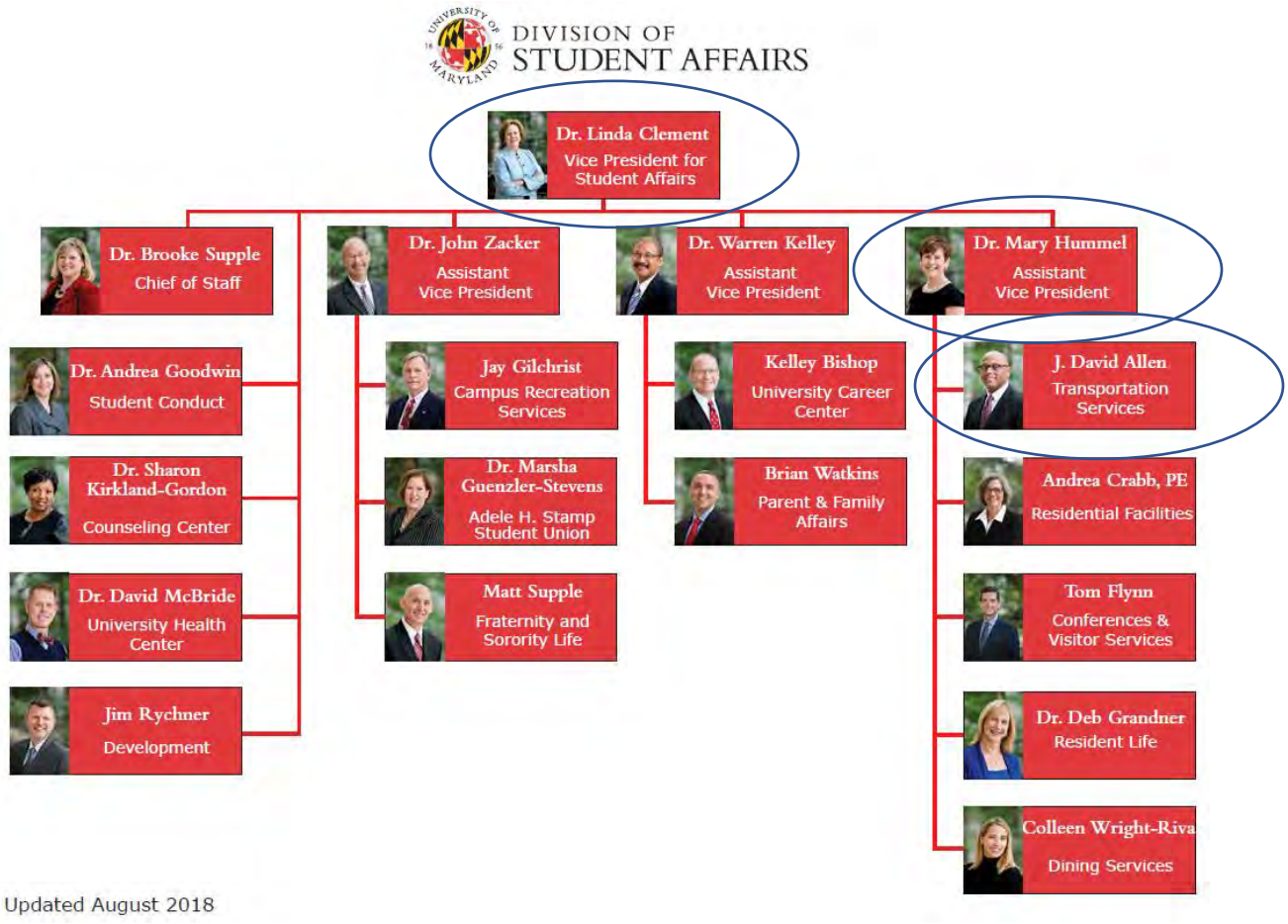


Figure 1: Division of Student Affairs Organizational Structure

The Department of Transportation Services is led by Mr. David Allen, Executive Director of Transportation Services. The department organizational structure would be classified as a "functional model". The functional structure is based on an organization being divided up into smaller groups with specific tasks or roles. The DOTS organization is currently broken down into the following functional areas:

- Administration
- Charter
- Safety and Training
- Transit Operations
- Enforcement
- Special Events

- Facilities Maintenance
- Vehicle Maintenance
- Human Resources and Training
- Information Technology (IT)
- Data Management
- Marketing
- External Communications
- Parking Administration
- Special Projects
- Budget/Finance

Please see **Appendix A** for detailed departmental organizational charts by functional areas.

Key Staff Interviews

Kimley-Horn conducted brief interviews with key staff from the DOTS organization to identify potential organizational issues, opportunities or challenges. Summaries of these interviews are provided in the following section. These are organized by questions asked by Kimley-Horn staffer Dennis Burns and highlights the subsequent conversation.

Mr. David Allen, Executive Director, Transportation Services

- **Key Issues:**
  - Overall, David thinks all University parking and transportation departments should be under Student Affairs. David's focus is on the wellbeing of students and "enhancing the student experience". He believes this is the department's number one goal. He believes DOTS has the best interest of students at heart.
  - To maintain this focus, the department meets with student groups multiple times per month to inform, listen and address specific issues. DOTS has become an integral part of student life on campus, and David is concerned that some of the student focused parking and transportation initiatives listed below would not be initiated if the department were under a different department.
    - DOTS provides a "fan bus" to non-revenue producing team games to boost team support and provide improved access for students.
    - DOTS helps deliver excess food from campus cafeterias to local shelters as part of a student-initiated program known as the "Food Recovery Network".
    - DOTS provides a "rush bus" for sororities to mitigate some negative behaviors.
    - DOTS "programs" their transportation assets to promote institutional goals (such as promoting modal split goals or more socially relevant messaging such as "having an empty seat on busses on Rosa Park's birthday" to reinforce culturally significant events).
    - Shuttle programs are paid for through a student fee. Faculty and staff also use the shuttles, but do not pay for them (except indirectly through parking fees). Some students have an issue with this and share these concerns with DOTS staff.
  - Communications with Facilities Management is challenging from time to time.
    - At times, there is a disconnect between Facilities Management and DOTS.
    - When planning happens, the issues that impact parking are not always addressed adequately.

- This Fall, DOTS will lose another 400 spaces. Facilities Management recently notified DOTS that they will lose another 800 spaces in approximately 14 months.
- The Hotel project cost DOTS approximately $800K per year in revenue due to loss of contractor parking, according to David. This was an unanticipated outcome and given the significant issue of long-term financial viability of the DOTS program, not an insignificant one.
- There is a Student Fee Advisory Committee that has an advisory function in reviewing any proposed fee increases. This group has a lot of power and are very "fee increase averse".
- There is currently a cap on employee parking fees. (Union driven)
- Facilities Planning has a new Director that just recently started. This could be an opportunity for developing an improved and more collaborative relationship.
- Facilities Management recently conducted a Five-Year Campus-Wide Transportation Impact Study for 2013 – 2018. The study was done by Sabra & Associates.
- In general, Facilities Management does campus planning (not DOTS). DOTS will work with Facility Management on sections of the master plan related to parking and transportation when asked.
- David has not seen his role as having a planning focus.

Dr. Mary Hummel, Assistant Vice President, Student Affairs

- **Key Issues:**
  - Not aware of any organizational issues.
  - Dennis observed that DOTS has been under Student Affairs for many years (approximately 25) and asked whether the rationale for this organizational structure was still valid. Mary was unaware of any compelling reason to consider a change to the organizational structure.
  - Mary reinforced that their biggest challenge is related to financial structure and long-term financial viability, including the following issues:
    - Negotiating parking with unions and student fee advisory committee is challenging
      - Fees are largely set by groups outside of transportation
    - Rates are artificially low – not at market rate
    - Managing the loss of parking is a big part of the problem
    - Key issue going forward is overall financial sustainability
    - There was some discussion of funding alternatives including a potential "lost parking replacement policy".
  - From the Student Affairs/DOTS perspective, there is a lack of communication from Facilities Management / Terrapin Development Company (TDC)
    - One example is that Dr. Hummel has a residence hall that is on land now owned by TDC. She learned in the paper that the land had been sold. No one communicated that to her directly.
  - Facilities Management is sometimes slow to provide information important to DOTS – for example potential parking losses that DOTS needs to prepare their budgets for the new fiscal year.
  - Student Affairs needs sufficient lead time to plan for operational changes and to inform patrons of pending changes.

- Student Affairs has a strong customer service focus. Customer communications need to be proactive.

- **Does the current organizational structure create any unusual issues, challenges or opportunities?**
  - The DOTS program has diverse staff resources, and DOTS being in Student Affairs contributes to having a more diverse staff.

- **In considering alternate organizational structure options, are there any specific models or ideas that you have seen in other Universities that you feel are applicable at UMD College Park?**
  - One minor organizational change that was discussed was to consider adding a planner position to the DOTS team specifically to work on parking and transportation related issues and mine the many new sources of parking and transportation data now available.
  - This new planner position could develop a digestible parking and transportation data set to share with Facilities Management, Administration and the Terrapin Development Corporation.
  - Another potential initiative related to this enhanced parking and transportation planning function might be to develop an industry peer group for comparative data analysis and actively track industry trends and key performance metrics

- **Other Issues**
  - Big challenge is rate setting – our hands are tied – something I would change if I could
  - What are we NOT doing that we could be doing to be the among the industry best?
  - DOTS likes to be proactive not reactive
    - Example – Implementing license plate recognition technology (LPR) was innovative at the time

Dr. Linda Clement, Vice President, Student Affairs

- **Key Issues:**
  - Dr. Clement verified that DOTS has been in the Student Affairs organizational sphere for over 25 years.
  - Dr. Clement could not think of any compelling reasons for considering an organizational change at this time.
  - Everyone seems to agree that the central area of concern relative to DOTS is the long-term financial sustainability of the program (since the majority of program funding is derived from parking which is being lost at a dramatic rate).
  - Dr. Clement believes that for DOTS to remain a financially viable program long-term, the program will have to be funded by more than just parking revenues and a student transportation fee.
  - Students have a lot of input relative to shuttle programs (as this program is funded by a student fee). Because of this influence, DOTS has a close working relationship with students and a strong customer service and programming focus.

- **Does the current organizational structure create any unusual issues or challenges?**

- The one issue that has been raised by multiple parties is a less than ideal level of communications and collaboration between DOTS and Facilities Planning (and to some degree between DOTS and the Terrapin Development Corporation).
- The impacts that certain land-use decisions have on parking and transportation has both resource implications as well as program funding implications and customer relations issues.
- The idea of having DOTS place a greater emphasis on parking and transportation planning was discussed. DOTS has several new systems (LPR/NuParc/etc.) which have the potential for generating new and valuable planning data and metrics if properly "mined" (perhaps by a new DOTS analyst position).
- By investing in parking and transportation planning data and by sharing this data with facilities planning staff, an improved relationship might be created to bring these teams closer together and provide an opportunity to identify common University goals as well as providing a greater understanding of the impacts to both groups. Seemingly small matters such as greater notice of parking losses or providing needed information in a timely manner (to ensure that departmental budget projections etc. can be delivered on-time) is an interdepartmental courtesy and accountability issue.

- **In considering alternate organizational structure options, are there any specific models that you have seen in other Universities that you feel are applicable at UMD College Park?**
  - While acknowledging that having the parking and transportation function under "Student Affairs" is somewhat atypical organizationally, there are some practical and philosophical benefits to this arrangement specifically from a resource programming, communications and "enhancing the student experience" perspective.
  - Dr. Clement noted that faculty and staff may have a slight advantage when it comes to parking (fee caps, resource allocation, etc.), but students have more leverage over the shuttle programs.

Other University Parking and Transportation Organizational Structures

Kimley- Horn reviewed the organizational reporting relationships of university parking/transportation programs from around the United States for over a dozen different universities. One objective of this review was to determine if there was discernable pattern or strong preference for where parking and transportation departments reside organizationally within universities.

The results indicate a pattern or preference for locating the parking/transportation function in areas related to either "administration/finance" or "campus planning/operations/facilities management". It should be noted that locating the parking/transportation function under the "student affairs" division is atypical. Below is a summary list of 16 university campuses that were reviewed as part of this analysis.

University Name	Department Name		Reports to:
Boise State University	Transportation, Parking and Safety Systems		Public Safety
Clemson University	Parking and Transportation Services		Emergency Mgmt./Student Affairs
Harvard University	Transportation		Campus Services
Humboldt State University	Parking and Commuter Services		Facilities Management/Administration
MIT	Parking and Transportation		Campus Services/Treasurer
Univ. of Colorado Springs	Parking and Transportation		Planning & Fac. Mgmt.
UC Berkeley	Parking and Transportation		Administration
UC Davis	Transportation Services		Campus Planning & Environ. Stewardship
UC San Diego	Transportation Services		Resource Mgmt. & Planning
UMD Baltimore	Parking and Transportation Services		Facilities and Operations
UNLV	Parking and Transportation		Administrative Services
UT Austin	Parking and Transportation		Financial and Administrative Services
Stanford University	Parking and Transportation		Land, Buildings and Real estate
Cal State Fullerton	Parking and Transportation		Chief of Operations
Cornell University	Parking and Transportation		Facilities and Campus Services
Texas A&M University	Parking and Transportation		Finance and Operations

University Transportation Professional Interviews

Kimley-Horn reached out to several top tier Parking and Transportation management professionals with a brief survey to gauge their opinions related to the "ideal organizational home" for parking and transportation services in a university environment. The comments in this section reflect the feedback received from the identified parking and transportation professionals.

Texas A&M University

Mr. Peter Lange, Associate Vice President
Transportation Services | Texas A&M University

- ***Where is your parking and transportation function located within your larger institutional organization chart?***
  - Texas A&M Transportation Services reports to the EVP of Finance and Operations who reports to the president.

- ***Are both parking and transportation (Shuttle programs) under your control or are they separated?***
  - Both are under our control. They do have separate budgets. We also have responsibility for the fleet.

- ***Based on where you are located organizationally, what would you say are the greatest benefits and obstacles/issues to this organizational approach?***
  - **Benefits -** Our division (Finance and Operations) has just about all the non-academic units except student affairs. The working relationships we have in the division and all reporting to the same VP keeps us well aligned.
  - **Obstacles/Issues –** We do not have all the auxiliary units grouped together at A&M so during budget and funding discussions in the division, I am often the outlier.

- ***Given your experience managing a parking and transportation program on a university campus, if you had the opportunity to advocate for a reorganization, where would you propose to locate this function to improve operational effectiveness?***
  - Not public safety and not facilities. I would say auxiliary services or administration & finance.

- ***Why this recommendation?***
  - I think a lot depends on the how big the scope of the P&T department is. For us, it makes sense to report to the VP of Finance. With almost 49 million in revenue and 175 FTEs plus another 350 student workers, we are a very large department on campus. In addition to all normal parking and transportation infrastructure maintenance, we have also taken on maintenance of roads, including traffic markings and signs, sidewalks and a large chunk of campus wayfinding. We support our Galveston campus and run an A&M System (with a community college) campus parking operation. Our transit operation has 96 buses and does over 7 million rides a year. We are just big and when we do have issues they tend to be big issues.

Other comments or observations?

- There are not a lot of departments on campus that count their customers as faculty, staff, students, former students and the community. Our customers are both internal and external and the reporting structure needs to reflect that understanding. We are also financially self-sustaining and mixing in with mainly groups that are centrally funded is a challenge. I have seen where the majority of a P&T department's revenue has been funneled to fund police or another campus department that should be centrally funded leaving P&T financially crippled and unable to carry out typical functions.

Washington State University

Mr. John Anthony Shaheen, Director
Transportation Services | Washington State University

- ***Where is your parking and transportation function located within your larger institutional organization chart?***
  - At WSU Transportation Services reports to Public Safety who reports to the VP of Finance and Administration.

- ***Are both parking and transportation (Shuttle programs) under your control or are they separated?***
  - Parking is under our direct control and we manage the contract with our local transit agency. We don't have a university-run shuttle system.

- ***Based on where you are located organizationally, what would you say are the greatest benefits and obstacles/issues to this organizational approach?***
  - **Benefits:** Our boss, the AVP for Public Safety/Chief of Police "gets it", as does his boss the VP of Finance and Administration!

  - **Obstacles/Issues:** We are in good shape under public safety with the current senior staff in place. This could be a different story with a less effective and supportive leadership team.

- ***Given your experience managing a parking and transportation program on a university campus, if you had the opportunity to advocate for a reorganization, where would you propose to locate this function to improve the operational effectiveness?***
  - ***I would recommend:*** Being aligned with whatever area includes other major auxiliaries. This seems typically to be under an administration and finance area/VP.

- ***Why this recommendation?***
  - Major auxiliaries understand the concepts of running a small non-profit business, including being financially self-sustaining, financial forecasting, financing, planning and construction, maintaining facilities, the role of reserves, etc.

- ***Other comments or observations?***

- We currently enjoy great relationships with our Public Safety, Facilities Services and Planning partners. It is mostly due to the leadership of those groups. It seems to me that success is more closely tied to the individual players than to the organizational structure.

Ohio State University

Ms. Sarah Blouch, President and Chief Executive Officer,
CampusPark | Ohio State University

Note: Ohio State University is somewhat unique organizationally, having had the Parking and Transportation function "privatized" through a monetization process several years ago.

- ***Given your experience managing a parking and transportation program on a university campus, if you had the opportunity to advocate for a reorganization, where would you propose to locate this function to improve the operational effectiveness?***
  - I believe Parking & Transportation should be an auxiliary service. These tend to report up to various VPs in different universities, but the reason I believe auxiliary services makes sense is because parking funds are almost always the primary source to fund alternative transportation modes (be they bus, bike, scooter, shared cars or vanpools or subsidized passes to any of these modes), and the P&T entity needs flexibility to be able to spend funds between the "segments" as necessary.
  - When parking is part of another entity, the focus and strategy for the department will start to mirror that entity's mission, which may not be providing access or exceptional customer service. As an example, my experience has been that when P&T is with the police, the funds are generally taken to fund items that are not necessarily related to P&T issues. When part of facilities, there is a higher focus on the facilities and less on the transportation and/or customer service. Student Life has been another home that I've seen – and this could work – but it can also potentially send the message to faculty and staff that there is a bias toward student issues.
  - Of all the other options, I think the planning group makes sense. P&T is infrastructure, and often that part of the planning is not considered early enough. Perhaps if it was part of that unit it would get the attention it deserves.
  - Another logical area is the Finance area, due to the push for expanding alternative transportation (that is often funded thru parking dollars). I've talked with a lot of P&T directors asking how they balance the spend, and the answer is generally "when we can no longer afford to subsidize the alternative modes as we do today, we will simply raise the cost for them. The problem with this approach is that at the point in time this becomes problematic, it could be too late to address infrastructure needs to enable the mobility amenities needed.

University of California – San Diego

Mr. Josh Kavanagh, Director of Transportation
University of California – San Diego

- ***Where is your parking and transportation function located within your larger institutional organization chart?***
    - I report to the Vice Chancellor for Resource Management and Planning. He reports to the Chancellor. VCRMP is a unique portfolio. It would be comparable to a VC/VP for business and finance at most universities but does not serve as the CFO. Our VC-RMP oversees P&TS, Police, EH&S, Facilities Management, Police, Bookstore, Childcare, Policy & Records, Campus Planning, Capital Program Management and Sustainability, etc.

- ***Are both parking and transportation (Shuttle programs) under your control or are they separated?***
    - I oversee both parking and shuttles. I also own transit contracting (U-PASS) and all "alternative transportation" programs. I do not currently oversee the university's Fleet Services operation but a transfer of that unit to P&TS is likely in the near future.

- ***Based on where you are located organizationally, what would you say are the greatest benefits and obstacles/issues to this organizational approach?***
    - **Benefits:** Operational adjacency to planning, capital program management, facilities, police, EH&S enables collaboration, speeds decision-making, and promotes organizational alignment. Because we are not the only auxiliary reporting to VC-RMP there is general understanding of how we are different than state-funded functions. Reporting directly to a vice-chancellor rather than through an AVC helps with exposure to and support from the administration.
    - **Obstacles:** There are no obstacles to this placement of P&TS. The split between the CFO role and VC-RMP does occasionally create a challenge, but that's more an issue with how the next tier up is organized. As long as those roles are divided, we're better off reporting to VC-RMP where we have operational adjacency and alignment to our most significant partners.

- ***Given your experience managing a parking and transportation program on a university campus, if you had the opportunity to advocate for a reorganization, where would you propose to locate this function to improve the operational effectiveness? Why this recommendation?***
    - I'd want us to stay put. I can't overstate the value of reporting directly to a VC, especially in this moment of rapid change for the campus. I am looking forward to the prospect of incorporating Fleet so that we can manage all personal and business mobility functions in an integrated fashion.

- ***Other comments or observations?***
    - Optimal placement has a lot to do with the challenges the department will face on a 5 -10 year horizon. Being organizationally aligned with key business partners

reduces some of the friction I've seen at other institutions and catalyzes improvement.

Conclusions

The feedback from some of the most respected university parking and transportation professionals (including two programs that were honored by the International Parking and Mobility Institute as "Programs of the Year" as well as their leaders being honored as "Parking Professionals of the year") indicates a preference for locating parking and transportation under either administration/finance or campus services/planning.

A few key comments that emerged from these seasoned professionals include:

- I think a lot depends on the how big the scope of the P&T department is. For us, it makes sense to report to the EVP of Finance and Operations. With almost 49 million in revenue and 175 FTEs plus another 350 student workers, we are a very large department on campus. ***(DOTS is similar in size and scope.)***
- There are not a lot of departments on campus that count their customers as faculty, staff, students, former students and the community. Our customers are both internal and external and the reporting structure needs to reflect that understanding. We are also financially self-sustaining and mixing in with mainly groups that are centrally funded is a challenge. ***(This issue has been raised at UMD College Park as well.)***
- Optimal placement has a lot to do with the challenges the department will face on a 5 -10 year horizon. Being organizationally aligned with key business partners reduces some of the friction I've seen at other institutions and catalyzes improvement. ***(UMD is currently undergoing a time of change internally and externally and planning will be critical in the next 5 – 10 year horizon.)***
- I can't overstate the value of reporting directly to the Vice Chancellor for Resource Management and Planning, especially in this moment of rapid change for the campus.
- We're better off reporting to VC-RMP where we have operational adjacency and alignment to our most significant partners.
- Of all the other options, I think the planning group makes sense. P&T is infrastructure, and often that part of the planning is not considered early enough. Perhaps if it was part of the planning unit it would get the attention it deserves.
- Another logical area is the Finance area, due to the push for expanding alternative transportation (that is often funded thru parking dollars).

Organizational Structures: Concepts and Formats

The following section describes different types of both traditional and non-traditional organizational structures, as well as pointing out uses and benefits of one over another. Key takeaways from this review are summarized at the end of the section.

Traditional Types of Organizational Structures

Functional

A functional structure is one of the most common forms of organization for businesses. It is based on an organization being divided up into smaller groups with specific tasks or roles. For example, a company could have a group working in information technology, another in marketing and another in finance.

Each department has a manager or director who answers to an executive a level up in the hierarchy who may oversee multiple departments. One such example is a director of marketing who supervises the marketing department and answers to a vice president who is in charge of the marketing, finance and IT divisions.

An advantage of this structure is employees are grouped by skill set and function, allowing them to focus their collective energies on executing their roles as a department.

One of the challenges this structure presents is a lack of inter-departmental communication, with most issues and discussions taking place at the managerial level among individual departments. For example, one department working with another on a project may have different expectations or details for its specific job, which could lead to issues down the road.

In addition, with groups paired by job function, there's the possibility employees can develop "tunnel vision" — seeing the company solely through the lens of the employee's job function.

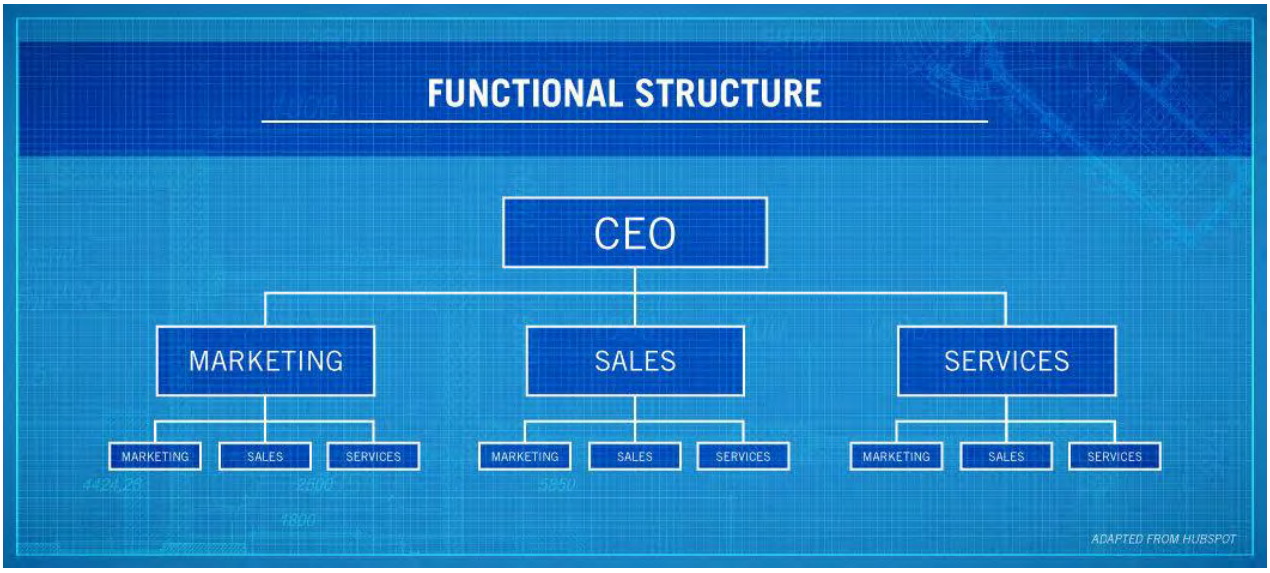


Figure 2: Example Functional Organization Structure

Divisional

Larger companies that operate across several horizontal objectives sometimes use a divisional organizational structure. This structure allows for much more autonomy among groups within the organization. One example of this is a company like General Electric. GE has many different divisions including aviation, transportation, digital and renewable energy, among others.

Under this structure, each division essentially operates as its own company, controlling its own resources and how much money it spends on certain projects or aspects of the division.

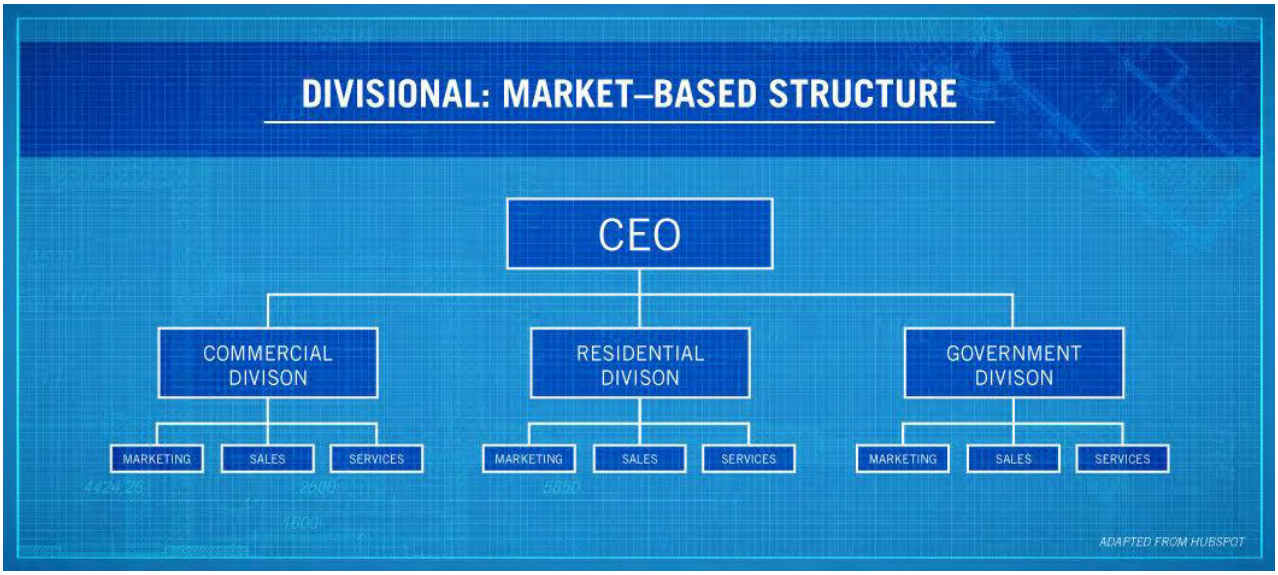


Figure 3: Example Divisional (Market-Based) Organization Structure

Additionally, within this structure, divisions could also be created geographically, with a company having divisions in North America, Europe, East Asia, etc.

This type of structure offers greater flexibility to a large company with many divisions, allowing each one to operate as its own company with one or two people reporting to the parent company's chief executive officer or upper management staff. Instead of having all programs approved at the very top levels, those questions can be answered at the divisional level.

A downside to this type of organizational structure is that by focusing on divisions, employees working in the same function in different divisions may be unable to communicate well between divisions. This structure also raises issues with accounting practices and may have tax implications.

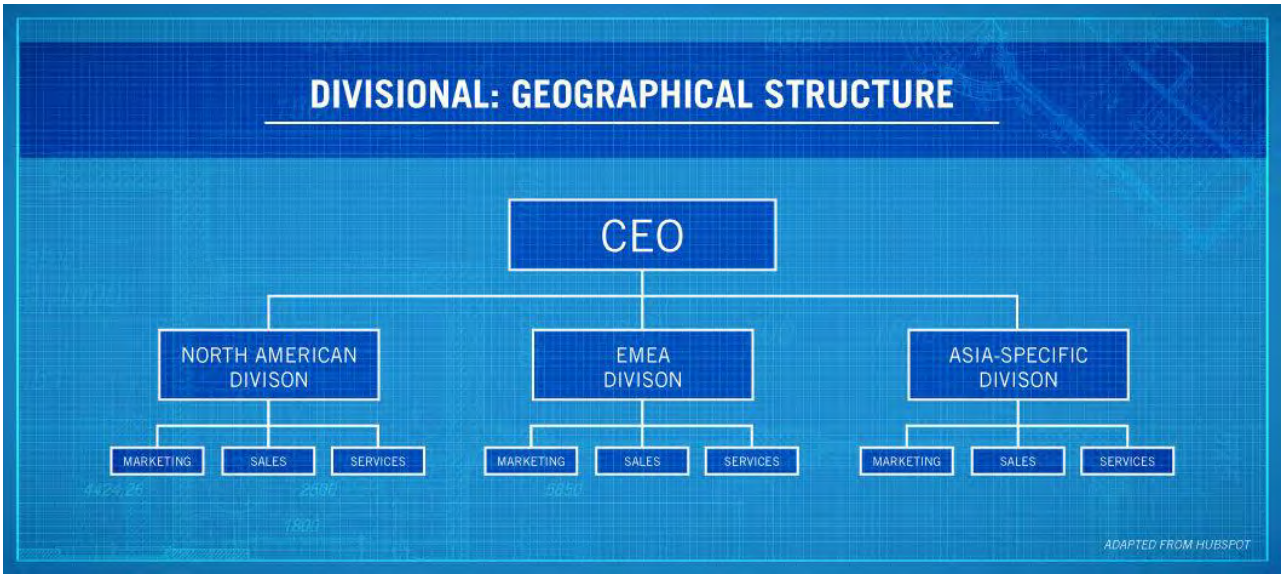


Figure 4: Example Divisional (Geographic) Organization Structure

Contemporary Forms of Organizational Structures

Business has become global, moving into new economies and cultures. Previously nonexistent industries, such as those related to high technology, have demanded flexibility by organizations in ways never before seen. The diverse and complex nature of the current business environment has led to the emergence of several types of organizational structures. Beginning in the 1970s, management experts began to propose organizational designs that they believed were better adapted to the needs of the emerging business environment. Each structure has unique qualities to help businesses handle their particular environment.

Matrix Organizations

Matrix organizations have a design that combines a traditional functional structure with a product structure. Instead of completely switching from a product-based structure, a company may use a matrix structure to balance the benefits of product-based and traditional functional structures.

Specifically, employees reporting to department managers are also pooled together to form project or product teams. As a result, each person reports to a department manager as well as a project or product manager. In a matrix structure, product managers have control and say over product-related matters, while department managers have authority over matters related to company policy.

Matrix structures are created in response to uncertainty and dynamism of the environment and the need to give particular attention to specific products or projects. Using the matrix structure as opposed to product departments may increase communication and cooperation among departments because project managers will need to coordinate their actions with those of department managers. In fact, research shows that matrix structure increases the frequency of informal and formal communication within the organization. Matrix structures also have the benefit of providing quick responses to technical problems and customer demands. The existence of a project manager keeps the focus on the product or service provided.

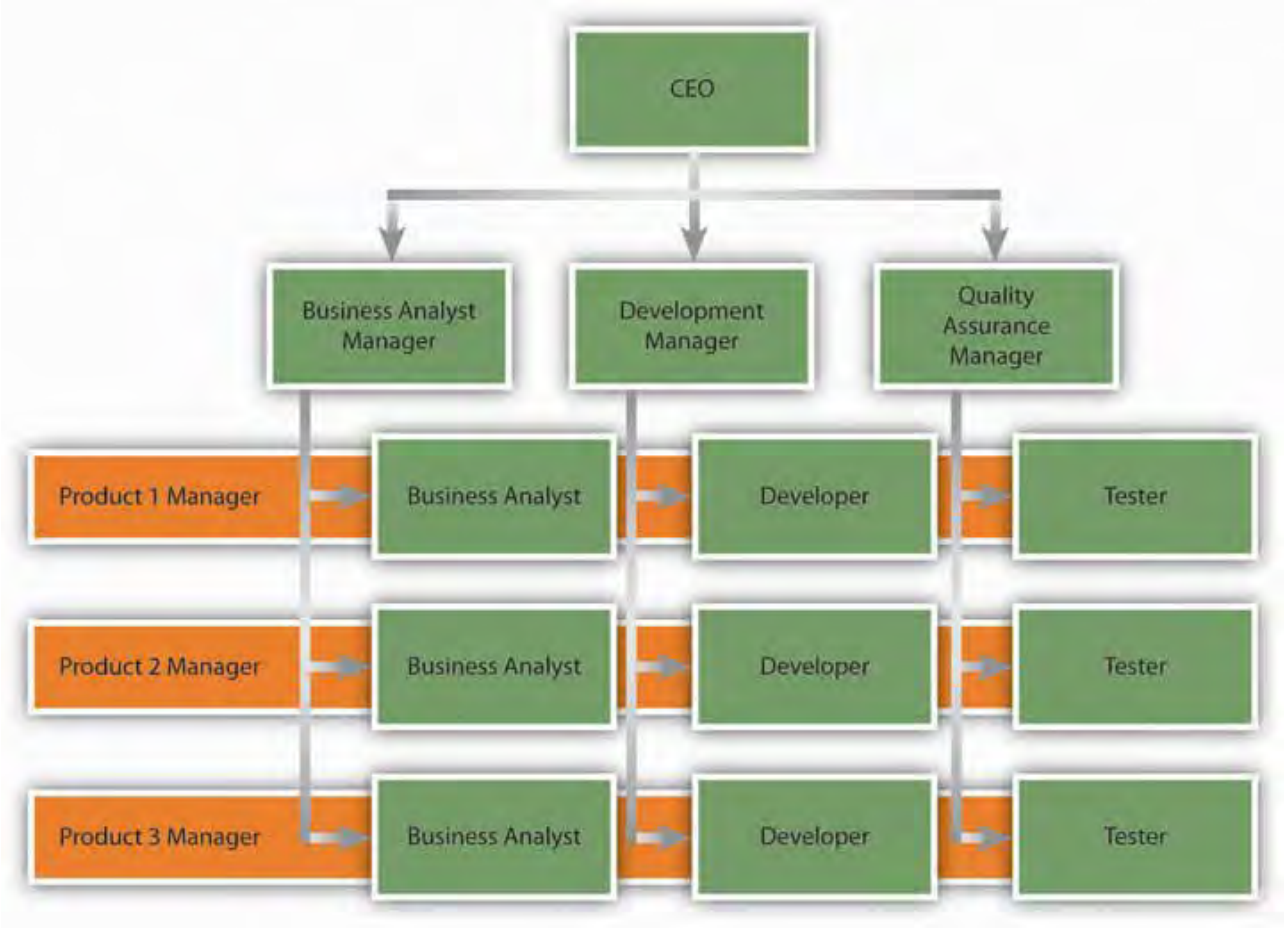


Figure 5: Example Matrix Organization Structure

Despite these potential benefits, matrix structures are not without costs. In a matrix, each employee reports to two or more managers. This situation is ripe for conflict. Because multiple managers are in

charge of guiding the behaviors of each employee, there may be power struggles or "turf wars" among managers. As managers are more interdependent compared to a traditional or product-based structure, they will need to spend more effort coordinating their work. From the employee's perspective, there is potential for interpersonal conflict with team members as well as with leaders. The presence of multiple leaders may create role ambiguity or, worse, role conflict—being given instructions or objectives that cannot all be met because they are mutually exclusive. The necessity to work with a team consisting of employees with different functional backgrounds increases the potential for task conflict at work. Solving these problems requires a great level of patience and proactivity on the part of the employee.

The matrix structure is used in many information technology companies engaged in software development. Sportswear manufacturer Nike is another company that uses the matrix organization successfully. New product introduction is a task shared by regional managers and product managers. While product managers are in charge of deciding how to launch a product, regional managers are allowed to make modifications based on the region.

Boundaryless Organizations

Boundaryless organization is a term coined by Jack Welch during his tenure as CEO of GE; it refers to an organization that eliminates traditional barriers between departments as well as barriers between the organization and the external environment. Many different types of boundaryless organizations exist.

One form is the modular organization, in which all nonessential functions are outsourced. The idea behind this format is to retain only the value-generating and strategic functions in-house, while the rest of the operations are outsourced to many suppliers.

An example of a company that does this is Toyota. By managing relationships with hundreds of suppliers, Toyota achieves efficiency and quality in its operations. Strategic alliances constitute another form of boundaryless design. In this form, similar to a joint venture, two or more companies find an area of collaboration and combine their efforts to create a partnership that is beneficial for both parties.

In the process, the traditional boundaries between two competitors may be broken. As an example, Starbucks formed a highly successful partnership with PepsiCo to market its Frappuccino cold drinks. Starbucks has immediate brand-name recognition in this cold coffee drink, but its desire to capture shelf space in supermarkets required marketing savvy and experience that Starbucks did not possess at the time. By partnering with PepsiCo, Starbucks gained an important head start in the marketing and distribution of this product.

Finally, boundaryless organizations may involve eliminating the barriers separating employees; these may be intangible barriers, such as traditional management layers, or actual physical barriers, such as walls between different departments. Structures such as self-managing teams create an environment where employees coordinate their efforts and change their own roles to suit the demands of the situation, as opposed to insisting that something is "not my job."

Learning Organizations

A learning organization is one whose design actively seeks to acquire knowledge and change behavior as a result of the newly acquired knowledge. In learning organizations, experimenting, learning new things, and reflecting on new knowledge are the norms. At the same time, there are many procedures and systems in place that facilitate learning at all organization levels.

In learning organizations, experimentation and testing potentially better operational methods are encouraged. This is true not only in response to environmental threats but also as a way of identifying future opportunities.

3M is one company that institutionalized experimenting with new ideas in the form of allowing each engineer to spend one day a week working on a personal project. At IBM, learning is encouraged by taking highly successful business managers and putting them in charge of emerging business opportunities (EBOs). IBM is a company that has no difficulty coming up with new ideas, as evidenced by the number of patents it holds. Yet commercializing these ideas has been a problem in the past because of an emphasis on short-term results. To change this situation, the company began experimenting with the idea of EBOs. By setting up a structure where failure is tolerated and risk taking is encouraged, the company took a big step toward becoming a learning organization.

Learning organizations are also good at learning from experience—their own or a competitor's. To learn from past mistakes, companies conduct a thorough analysis of them. Some companies choose to conduct formal retrospective meetings to analyze the challenges encountered and areas for improvement. To learn from others, these companies vigorously study competitors, market leaders in different industries, clients, and customers. By benchmarking against industry best practices, they constantly look for ways of improving their own operations. Learning organizations are also good at studying customer habits to generate ideas.

For example, Xerox uses anthropologists to understand and gain insights to how customers are actually using their office products. By using these techniques, learning organizations facilitate innovation and make it easier to achieve organizational change.

Key Takeaways

The changing environment of organizations creates the need for newer forms of organizing.

- Matrix structures are a cross between functional and product-based divisional structures. They facilitate information flow and reduce response time to customers but have challenges because each employee reports to multiple managers.
- Boundaryless organizations blur the boundaries between departments or the boundaries between the focal organization and others in the environment. These organizations may take the form of a modular organization, strategic alliance, or self-managing teams.
- Learning organizations institutionalize experimentation and benchmarking.

Following the "Key Issues Assessment" below, Kimley-Horn presents two potential organizational recommendations/approaches that may improve the defined issues primarily related to the need to improve the relationship/integration of DOTS and campus planning.

Key Issues Assessment

The following table summarizes the key issues identified in this assessment of organizational goals as well as the current program's strengths and areas needing improvement.

	Current Program Organizational Goals Assessment			
Criteria	**Area Needing Improvement**	**Meets Expectations**	**Strength**	**Comments**
Supports Campus Vision/Master Plan				While generally strong in the operational and customer service areas, planning has not historically been a DOTS program priority. There appears to be an overall lack of coordination and collaboration with Facilities Planning.
Efficient and Cost-Effective Operations				Preliminary results from the SP+ current program assessment indicates that the current program exceeds staffing and costs compared to "program peer institutions". Creation of specific program operational benchmarks and key performance indicators are recommended to help track and assess operational costs going forward.
Customer Service Focus				This is seen as a current program strength relative to the student population, but this could also be a weakness as DOTS has a larger responsibility than just student satisfaction. How is the org meeting overall institutional goals like developing downtown, increasing access to campus for faculty, staff and visitors, supporting the academic mission, etc.

Criteria	Area Needing Improvement	Meets Expectations	Strength	Comments
Effective Planning and Demand Forecasting				While generally strong in the operational and customer service areas, planning has not historically been a DOTS program priority. New investments in parking technology will generate new data that could provide valuable planning data if better tracked and leveraged to the benefit of all. The creation of a "parking planner/analyst" position is recommended combined with a focused effort to improve coordination and collaboration with Facilities Planning.
Responsive to Local Community & Stakeholders				This criterion relates to the DOTS interaction with the City of College Park and other community stakeholders. DOTS current focus is primarily internal (campus). This is not uncommon nor inappropriate, however, should the University have a goal of enhancing community relations with the City or other potential regional partners, transportation can be an effective area of focus as there are often many opportunities for partnership and collaboration.
Financial Planning				While DOTS tracks a number of high level financial metrics they do not seem to be focused on several key issues such as debt service payment schedules or the tracking of actual parking resource utilization that directly impacts departmental finances and future infrastructure development projections.

Criteria	Area Needing Improvement	Meets Expectations	Strength	Comments
Program Financially Viable				While the program's financial assessment is currently on-going, there is a general concern that the program is on an unsustainable financial trajectory. Additional analysis related to future parking asset losses, future parking demand projections, existing parking facility debt-service obligations, parking rates, changes to local/regional transportation options, etc. are currently being assessed as they relate to long-term program financial sustainability.
Effective Coordination				The operational nature of parking and transportation programs requires effective coordination with the wide range of institutional departments, customer groups and community partners. DOTS does an effective job in this area overall. The primary area identified as needing improvement is in the area of campus planning.
Provides Needed Parking and Transportation Management Expertise				David Allen and his staff are parking and transportation professionals and consistently provide quality services to a diverse group of campus constituents. The one area of frustration that we have heard in our evaluation of the current program returns to the area of overall campus planning and parking and transportation resource utilization and demand forecasting.

Criteria	Area Needing Improvement	Meets Expectations	Strength	Comments
Strong Operational Capabilities				Parking programs in particular are often criticized for being "too reactive" (not proactive) or too focused on "operational issues" (lacking in strategic vision). While this has some basis in fact, the reality is that successful parking programs need to be very operational and customer service focused.
Supports Campus Development Initiatives				Improving the communications, coordination and collaboration between administration, campus facilities planning and parking/transportation should be made a priority. Facilities Planning should engage DOTS staff re: development projects as early as possible not only to make DOTS aware of potential impacts in the future, but also to gain a better understanding of the impacts to DOTS and the campus overall. For example, why couldn't DOTS have been allowed to manage the new hotel garage for a fee rather than giving that contract to a private firm? Was the impact of this change truly understood? We heard anecdotally that DOTS lost approximately $800K in revenue due to parkers (including construction workers) choosing to park in the new hotel garage as opposed to buying DOTS permits. Was this result anticipated? Understood? Is there another dimension to this from the development side that should be better understood by DOTS? With another 1,400 surface parking spaces slated to be lost

				in the coming year, this continues a pattern of reducing parking revenues into the future and may result in the need for the University to provide an operational subsidy to keep the DOTS program financially sustainable in the future. Better integrating campus development planning with parking and transportation planning and the administrative vision would benefit all parties.
Criteria	**Area Needing Improvement**	**Meets Expectations**	**Strength**	**Comments**
Facilitates Interdepartmental Coordination		▲		In general, interdepartmental coordination on a wide range of operational facets seems to be effective. Addressing the lack of a planning focus within the DOTS program and improving coordination with Facilities Planning and administration needs to be addressed.
Supports the Principal of "Vertical Integration"			▲	The principal of "vertical integration" refers to having all aspects of the parking and transportation management under one department organizationally. Often in parking programs there is a tendency toward "horizontal fragmentation". This tends to occur more in municipal organizations than in university environments. For example, in some municipal programs, Public Works may manage on-street parking, facility services may manage garages and surface lots, Police may administer the parking enforcement program and Finance may oversee budgets and audits.

				At UMD College Park all aspects of parking and transportation are consolidated under the DOTS program with the exception of a more robust parking and transportation planning focus.
Criteria	**Area Needing Improvement**	**Meets Expectations**	**Strength**	**Comments**
Facilitates New Campus Mobility Vision/Goals				Developing and updating a campus mobility vision and implementation plan needs to be integrated with a larger campus master plan. This has not been seen (by DOTS) as a function that they are responsible for. This is reinforced by the fact that the project that we are currently working on (the Campus Parking and Mobility Master Plan) was generated by and is being funded through the administration. There is nothing wrong with this approach, but it underscores that DOTS has historically not been focused on planning as a core departmental function.
Promotes Alternative Transportation and Multi-modal Transportation Options				The following quote is from the SP+ Current Program Assessment chapter of the Parking and Mobility Master Plan: *"DOTS offers one of the most comprehensive alternative transportation programs we have come across to date."* The missing piece again is planning as it relates to understanding the potential impacts of the new Purple Line and other local/regional transportation projects. However, this study was authorized to address these concerns. The majority of

				projects such as this campus parking and mobility master plan that we have worked on would typically be initiated by the Parking and Transportation departments.
Criteria	**Area Needing Improvement**	**Meets Expectations**	**Strength**	**Comments**
Fosters Innovation and Mission Broadening				The DOTS program has been innovative in terms of acquiring/updating new parking technology and in the expansion of their transportation demand management and alternative transportation strategies. The field of transportation is perhaps one of the fastest changing industries in the world today. Topics such as autonomous/connected vehicles, shared mobility, mobile communications/trip planning, mobility as a service, etc. must be tracked, understood and planned for. The future will be increasingly "multi-modal" and the department's mission and vision should reflect and anticipate this emerging reality.

Recommendations

Introduction

This recommendations section is divided into two options. The first proposes an incremental change approach related to the current organizational structure based on the current program review, staff interviews, feedback from industry professionals, and academic literature on the subject.

The second option takes a more direct "organizational shift" approach and includes a more comprehensive reassessment of the program's organizational structure. Once the parking and transportation master plan has been completed and vetted by various University departments, any changes to program vision/mission or service delivery will need to be adopted and internalized. Based on these potential changes, use the five-step process outlined below to reassess the current organizational structure with an eye toward improving service delivery, financial outcomes and alignment with larger institutional objectives moving forward. These two options are described in more detail below.

Option 1: Incremental Change

Shift to a Matrix organizational structure that integrates planning as a key departmental function and that balances the needs of all campus constituents. The current structure, under Student Affairs does a good job of addressing student needs sometimes to the detriment of other groups (example: killing the research building shuttle program).

Key objectives within this organizational option:

- Maintain what is working well (customer service for students, operational focus for example).
- Enhance identified areas needing improvements.
- Improve data collection and analysis.
- Improve interaction with Facilities Planning.
- Identify data points and metrics that DOTS and Facilities Planning needs to monitor and track on an on-going basis.
- Develop a compelling vision re: parking and transportation needs that reflects the campus master plan.
- Improved inter departmental communications/collaboration.
- Promote a better understanding of the long-term campus planning goals and direction.

Discussion:

There seems to be consensus on one key "problem area", which is the relationship between Facilities Planning/The Terrapin Development Corporation and the DOTS program. There are several potential reasons for this situation. One may be that DOTS has acknowledged that "planning" has not been a core departmental function. With the primary responsibility for planning "living" in Facilities Planning, DOTS has essentially waited to be engaged by Facilities Planning. Kimley-Horn sees this issue as being significant enough to consider an organizational shift.

DOTS has been located organizationally under Student Affairs for many years and acknowledges that placing the parking and transportation function under Student Affairs is somewhat atypical.

However, we have been impressed with the customer service focus of the DOTS program. In our assessment, the DOTS program does an exceptional job of engaging with, supporting and advocating for the student population. This is a highly valuable and difficult to achieve outcome and one which many parking and transportation agencies fail to realize. However, the program could do a better job of serving the wider (non-student) campus constituencies and improve in the area of parking and transportation planning to better integrate with the overall campus development vision.

Many parking and transportation programs have come to realize that planning for parking and transportation is a somewhat unique and complex endeavor. Advanced planning capabilities are sometimes outside the skill sets of operationally focused parking programs, however many campuses have grown this capability within the department while others have developed collaborative relationships with campus planning departments or have shifted the parking and transportation function to be under Administration/Finance or Campus Planning/Facilities to better address the substantial infrastructure needs related to transportation.

When incorporated into a larger campus master plan, campus parking and transportation often gets only a few pages in a much larger report. Best-in-class parking and transportation departments have begun to leverage the rich data sets available from newer technologies to provide more specific and proactive parking and transportation planning functions as an internal department responsibility. This specialized mobility and parking focused planning work is then shared with the campus planning team to facilitate more in-depth discussions, policy recommendations and collaborative "development program action plans".

In addition to the shift to a matrix type organizational model, we recommend that the DOTS department add a parking and transportation planner position to work with Mr. Allen to make parking and transportation planning a well-defined program element. Going forward, the fiscal realities of creating a sustainable DOTS program funding model will have to be factored into planning level discussions and new policy initiatives. Developing a cross-functional relationship and liaison relationship or committee to better integrate planning/development and transportation resources is recommended.

By mining the data sets available from a variety of sources (including some of the newer parking systems recently implemented – LPR/NuParc, etc. as well as potentially other new systems that will be recommended in other sections of the parking and mobility master plan) and developing a customized set of program planning metrics, the DOTS team can work more closely and collaboratively with the Facilities Management/Planning group.

The recent hiring of a new Facilities Planning Director could provide an opportunity to create an enhanced working relationship between the departments. Kimley-Horn recommends that this initiative should be a University priority. Developing a set of parking and transportation specific issues and metrics would better inform the issues created by losses of parking supply or the addition of new facilities (which may require new mobility support). Thus, the Facilities Planning group would gain an engaged partner that can help craft better campus access solutions to advance the larger campus development and sustainability goals.

Option 2: Organizational Shift

If the incremental change approach described above does not satisfactorily address the key issues identified, move the department under a different division that has a broader scope and that reflects a more typical organization location for the Parking/Transportation function, such as Administration and Finance. Leverage the process outlined below to facilitate and inform this organizational shift

- One - Understand the Current State
- Two - Develop a Compelling Vision - A Future State
- Three - Determine Core and Support Functions - Build the Org Chart
- Four - Create Clarity and Alignment for all Stakeholders
- Five - Build a Culture of Accountability

Organizational Shift Process Recommendations

Organizational structure is a keystone element that ties the entire management framework together to contribute to overall organizational success. Kimley-Horn recommends that UMD consider the five-step process outlined below. Note: this approach below summarizes research published by Mr. Paul Ham, founding principal of Enterprise Facility Solutions - a facilities management consulting firm.

The following process is recommended for organizations that feel the time is right to reassess or tweak their organizational structure.

An important factor in developing a best-in-class parking and transportation management program is hiring and retaining the right people - and placing them in a structure designed to meet the future demands of the organization. Leveraging the investment in a new campus Parking and Mobility Master Plan – including a refreshed departmental vision and action plan - provides the perfect opportunity to reassess potential organizational changes using the approach outlined below.

Step One - Understand the Current State

Someone, at some point, created the current organizational structure. The vast majority of the time, this was done deliberately, with good reasoning and sound judgement. It served a purpose. It solved a problem. And it probably still works relatively well. It is critical to take the time to understand how and why things were done in the past and how they are working today. Before exploring potential changes to a structure, ask and find answers to the following questions:

- Why was the current structure implemented?
- Was the current department structured to fit in neatly with other departments? Have those relationships changed?
- Was the structure built around key people, processes or systems? If so, what are they and are they still valid?
- What skillsets and capabilities exist today? Are there any gaps as you look to the future?

Answering these questions will position you well to evolve from where you are - to where you need to go.

Step Two - Develop a Compelling Vision - A Future State

Change is constant, if not accelerating. Determining the trajectory of the organization as a whole is a key next step in shaping the future needs of the parking and transportation department. Once that trajectory is clear, it is possible to create an updated and compelling vision for the facilities department that aligns with, and supports, the bigger picture. This project to develop a campus parking and transportation master plan provides an excellent opportunity to reassess organizational structure in the context a changing societal, communications and transportation landscape.

Key considerations:

- Does the organization need to prepare for scalable growth, stable operations or contraction?
- Is the organization trending towards insourcing or outsourcing?
- Is the organization trending towards centralization or decentralization? Consistency or autonomy?
- Does the current parking and transportation department have a clear purpose, mission, vision and guiding principles that align with the larger institutional vision, or do these items need to be created or reimagined?
- What are the key objectives of the campus overall and the parking and transportation services needed to support the larger institutional vision going forward? What will be the impacts of local or regional projects on the status quo (Example: the coming Purple Line addition)? What are the potential impacts of larger industry changes on future departmental operations and financing (Examples: Advances in shared mobility and micro-mobility, the potential impacts of autonomous vehicles, the availability of mobile communications and trip planning resources, changes in consumer preferences related to vehicle ownership, etc.)?
- Will the future of the organization require new and different skillsets?

The answers to these questions will help shape the future vision of the department. The vision should be simple and convincing - develop the right amount of support with internal and external leaders before launching.

Step Three - Determine Core and Support Functions - Build the Org Chart

A best-in-class parking and transportation department requires access to expertise in many areas, including: operations, maintenance, engineering, financial management, vendor management, project management, procurement/sourcing, analytics and reporting, Information Technology (IT), planning and Human Resources (HR). When creating an organizational structure, one must first assess how much support is required in each of these areas and then determine what skillsets should be embedded in the parking and transportation organizational structure versus leveraging other internal departments or external vendors/consultants to provide that expertise. Critical, core functions should be embedded in the department, while non-critical support functions should be engaged from others as required. There is no solid formula for this analysis as it is a unique challenge for the current state of any organization. It must be customized.

Here are a few suggestions to help navigate this analysis:

- Capabilities required to manage and meet the core objectives of the department should be internalized. If you are working to drive down expenses - think carefully about building a capability around parking and transportation management, planning, customer service, technology/IS and financial management.
- Capabilities that support the strategic advantage of the organization should be internalized. If you are working to create a consistent brand from facility to facility or between varied customer groups - think about building process/program management capability.
- Capabilities that are required, but only occasionally, should be outsourced. If you operate a lot of parking ramps/garages - you probably don't need a structural parking expert on staff. Hire it out.
- If the organization requires a high level of branded and consistent customer service or an extremely fast response time, you'll want to consider having that in-house. Otherwise, outsource that function and build a top-notch procurement and vendor management function.

Once you've determined the capabilities you need, focus on creating an organizational structure that has clearly defined job descriptions that are structured to align key responsibilities with the authority to make decisions that move the organization towards its vision.

Step Four - Create Clarity and Alignment for all Stakeholders

Establishing a clearly defined and mutually understood vision is not a simple task. The Parking and Mobility Master Plan will provide a forward-looking framework and action plan for the department and the campus overall, the department will still be responsible for creating an internal departmental roadmap - a tool to help people understand the near and mid-term objectives and priorities that will move the program towards its long-term vision. Engage the team, and your "clients", to help you develop this roadmap. An effective departmental roadmap should accomplish the following:

- Contain your mission, vision, core values and guiding principles.
- Differentiate the core day to day responsibilities of the department from the more strategic initiatives that move you forward. Stated differently, the day to day "stuff" is core to what you do and doesn't change from year to year, while your strategic initiatives have a start and end date with a defined objective and outcome.
- Don't have more than 3-5 strategic initiatives in a given year.
- Ensure all teams involved in the strategic initiatives share the same priorities.
- Define a routine (monthly or quarterly meeting) to hold people and teams accountable for advancing each initiative. Provide the right resources and eliminate roadblocks as necessary
- It is extremely common for a team or department to have dozens of priorities - if this is allowed, the team will most likely accomplish none of them. Keep the team focused and aligned on what's most important. Don't stray from that focus.

Step Five - Build a Culture of Accountability

What matters most? Results. Building and maintaining a culture of accountability is critical for any organization. Establish this culture early and reinforce it often. Here are ten steps to building and maintaining this culture:

- Right person, right place, right time
- Clear understanding of what is expected
- Mutually understood consequences
- Detailed follow up plan
- Course correct when needed
- Be consistent
- Be involved
- Assume nothing
- Recognize performance
- If success doesn't come, go back to step #1

Additional Considerations

Without support, a single leader will rarely be successful in driving change. This includes building support up, down and across the organization. Many books and articles are written around change leadership; here are a few points to summarize what you'll read:

- Build support with key leaders - find and leverage advocates.
- Get your direct reports involved - let them develop the "how" associated with your vision. Get them to take ownership.
- Identify your supporters and dissenters early. Strategically influence your supporters to get others on board with the change.
- Don't go too far too fast. Using the analogy of a rubber band, if the leader is pulling the organization to far and too fast, it will break. Make sure you take the time for the team to catch up.
- Watch for viruses - people that are indirectly influential in the department. Those that are solid performers, yet both vocal and influential in a negative way. Address these situations swiftly in ways that reinforce the new direction of the department.
- Keep it simple. Repeat your vision over and over. Motivate and empower staff. Recognize behaviors that reinforce your vision.
- What are you doing to drive organizational change in your multi-site facilities department? Don't be afraid to get support from the consulting world to help you define and implement your vision. Engaging a 3rd party can be a great way to validate your vision and support your change management efforts.

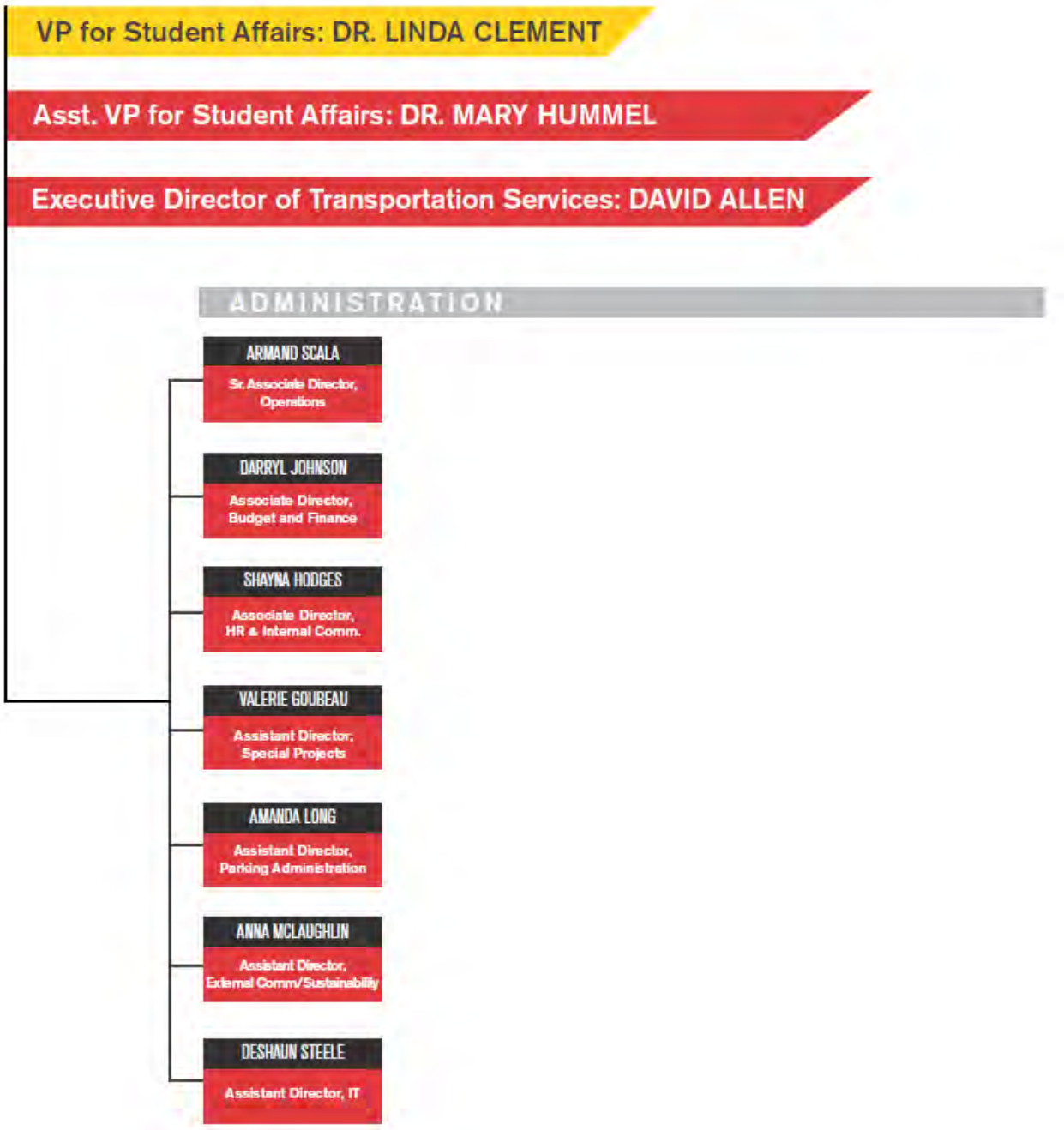
References

1. Ham, P. Organizational Structure - Getting It Right with Multi-Site Facilities Teams, Enterprise Facility Solutions
2. McGoon, C. (March 1995). Secrets of building influence. Communication World
3. Michelman, P. (July 2007). Overcoming resistance to change. Harvard Management Update
4. Stanley, T. L. (January 2002). Change: A common-sense approach.
5. Montana, P. and Charnov, B. Management: A Streamlined Course for Students and Business People. (Hauppauge, New York: Barron's Business Review Series, 1993)
6. Best Practices in University Transportation Services – Hanover Research, 1700 K Street, NW, 8th Floor, Washington, DC 20006 www.hanoverresearch.com

APPENDICES

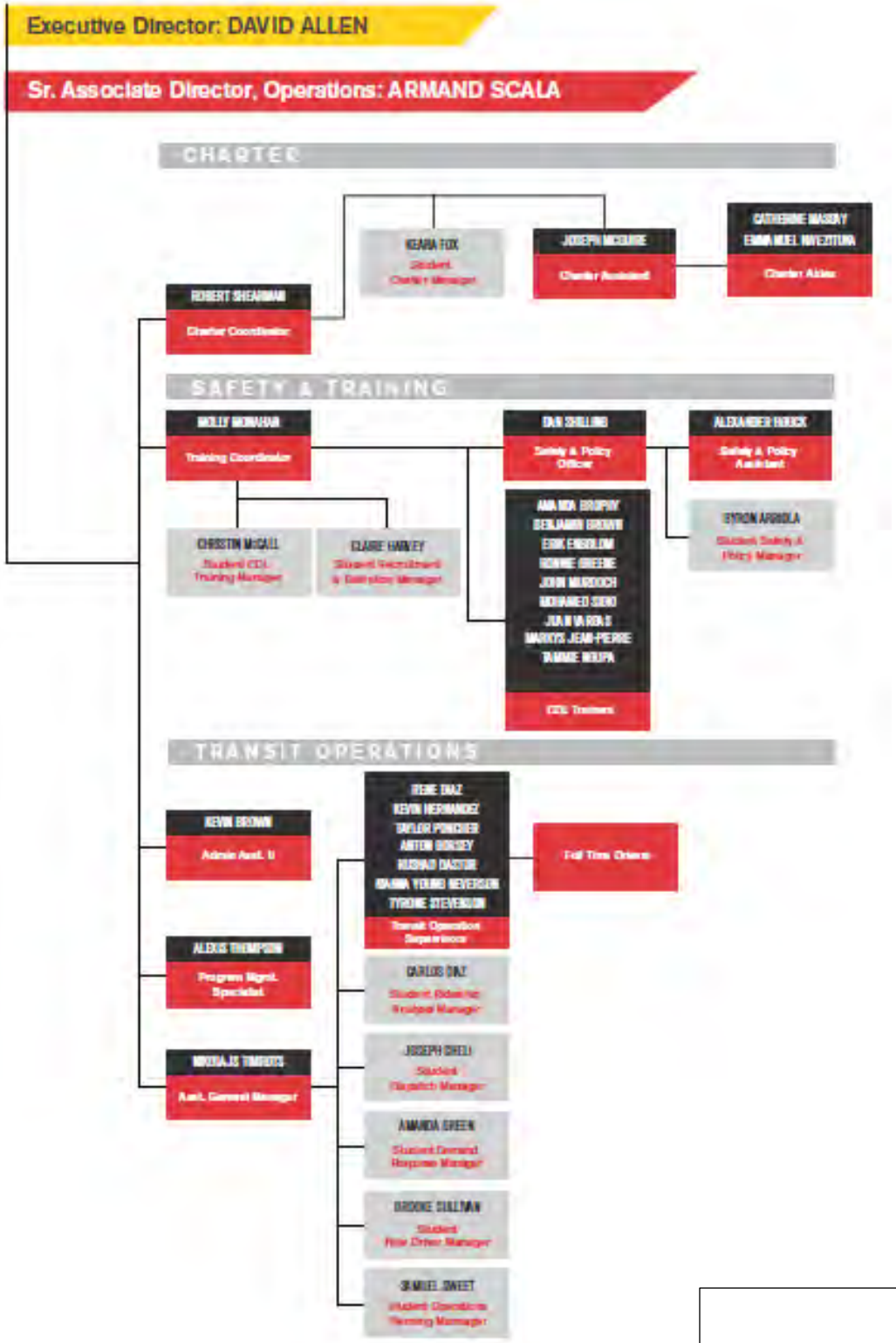
APPENDIX A

Departmental Organizational Charts



Appendix A

Departmental Organizational Charts

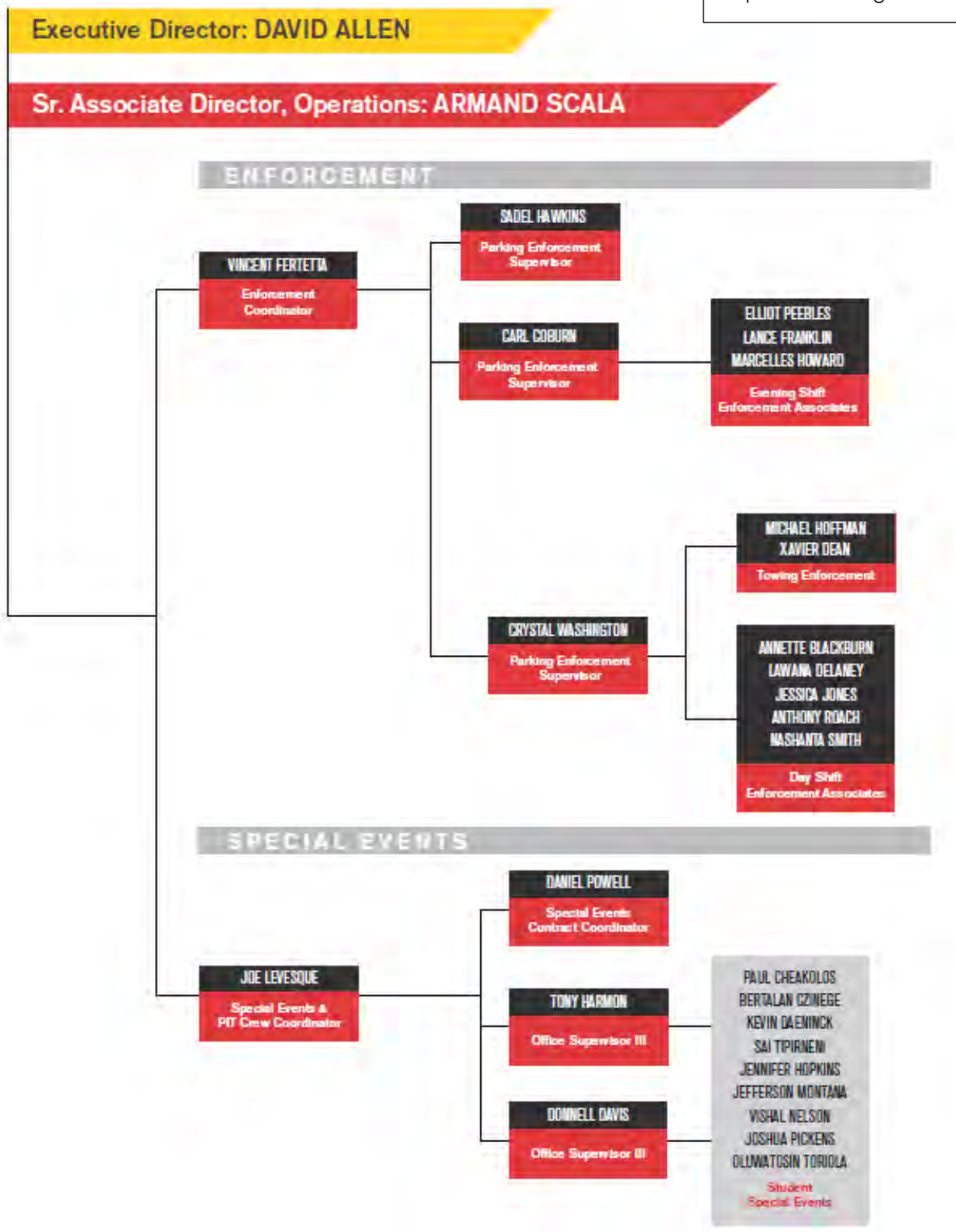


Appendix A

Departmental Organizational Charts

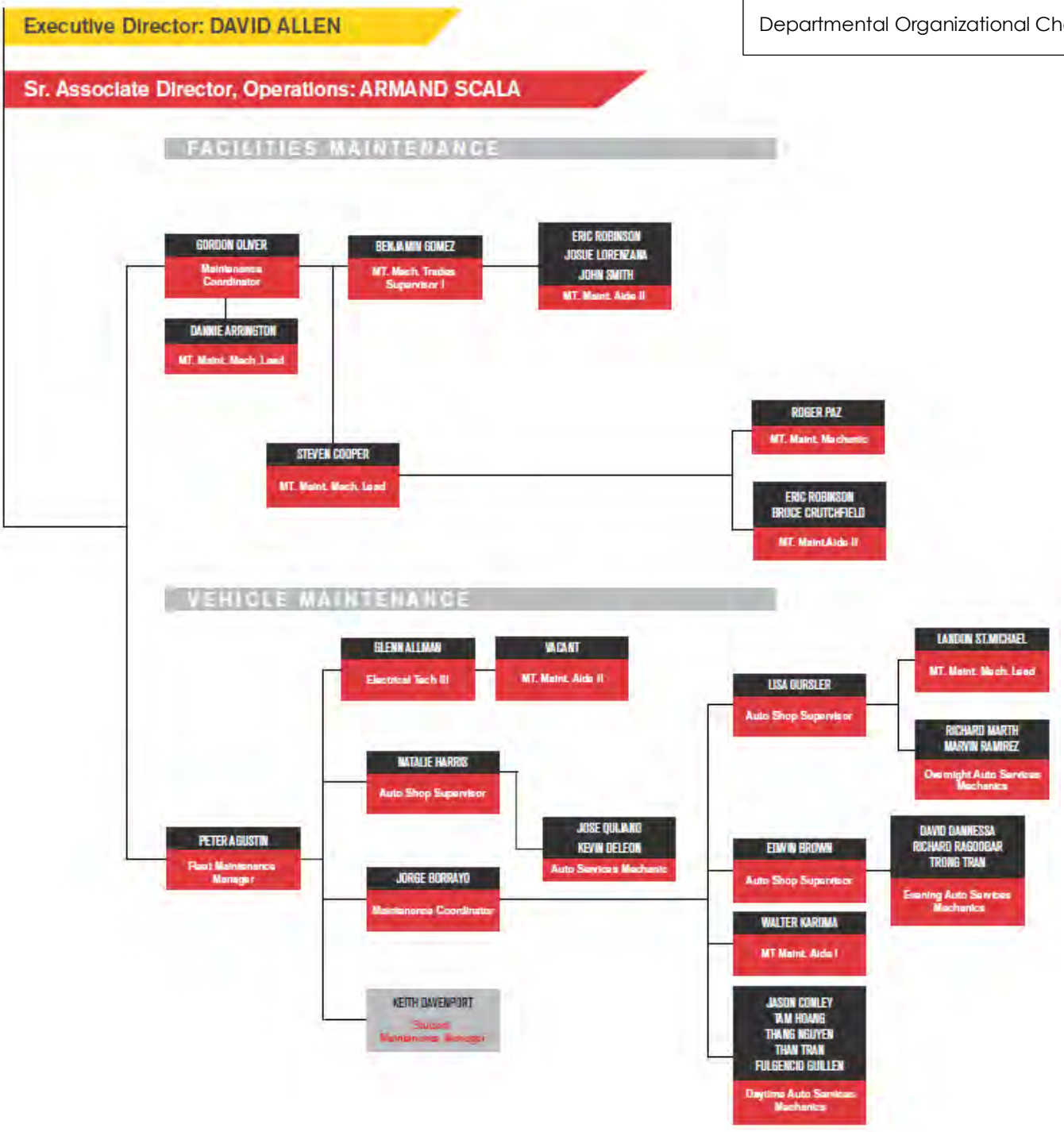
Appendix A

Departmental Organizational Charts



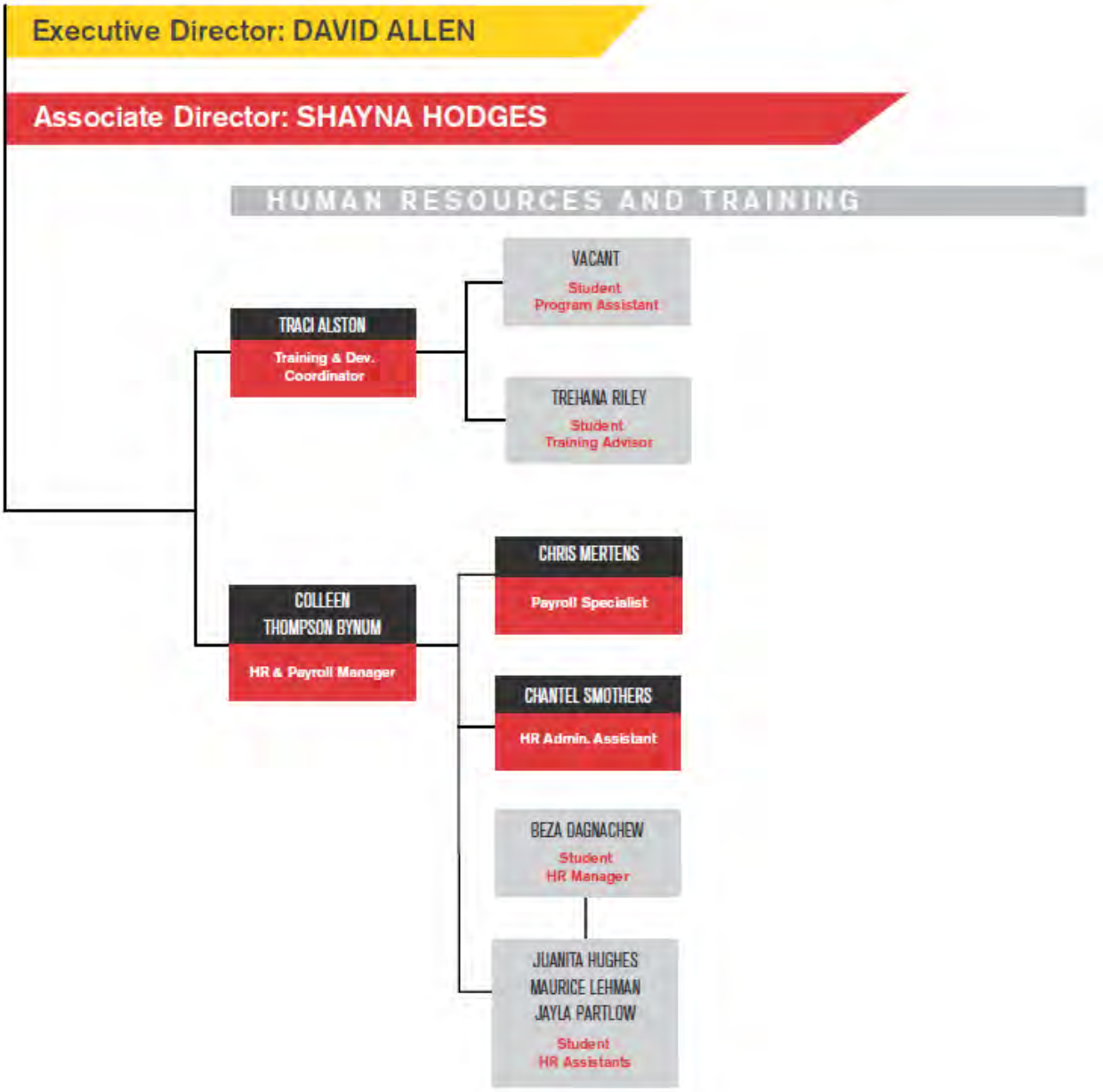
Appendix A

Departmental Organizational Charts



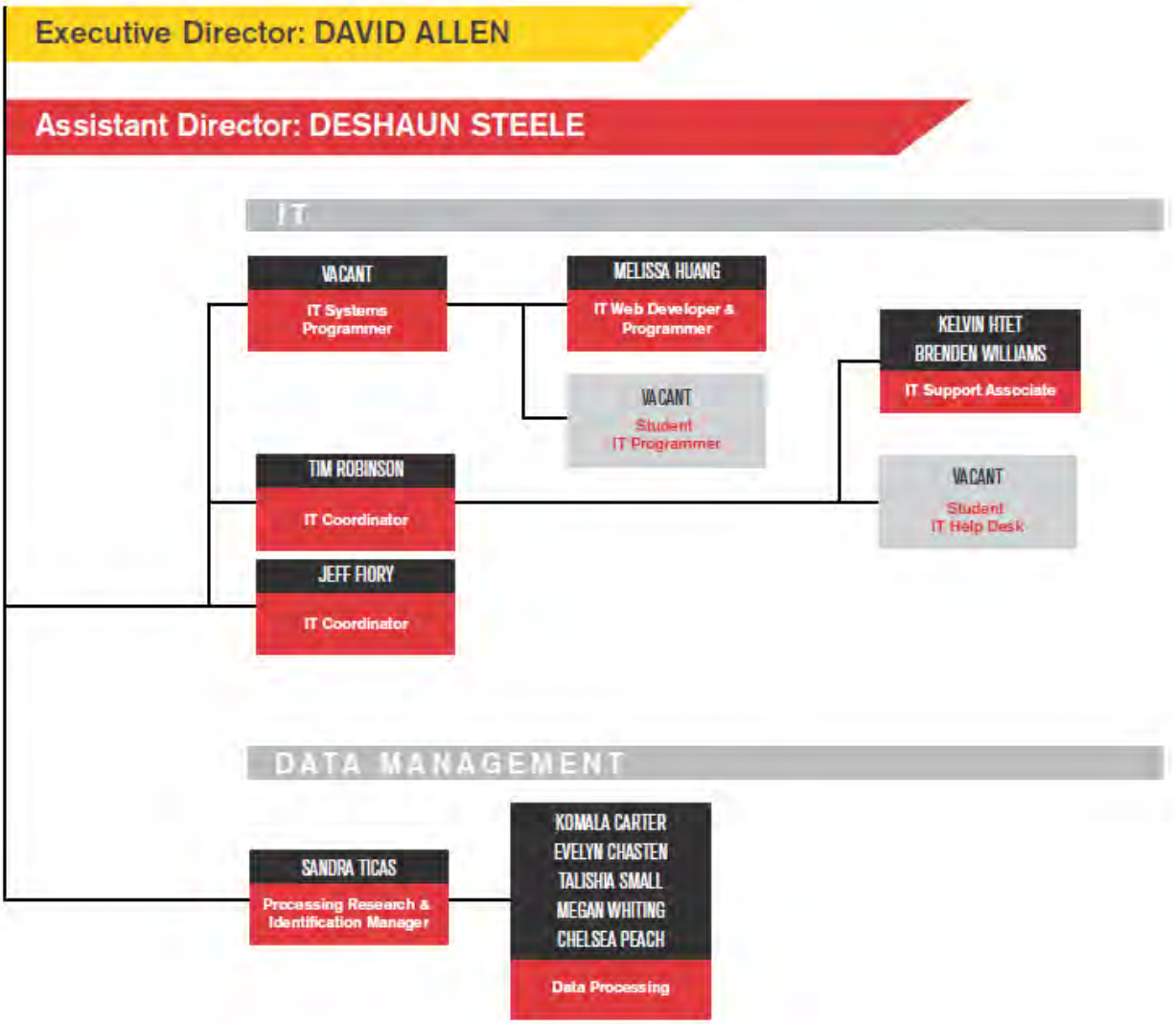
Appendix A

Departmental Organizational Charts



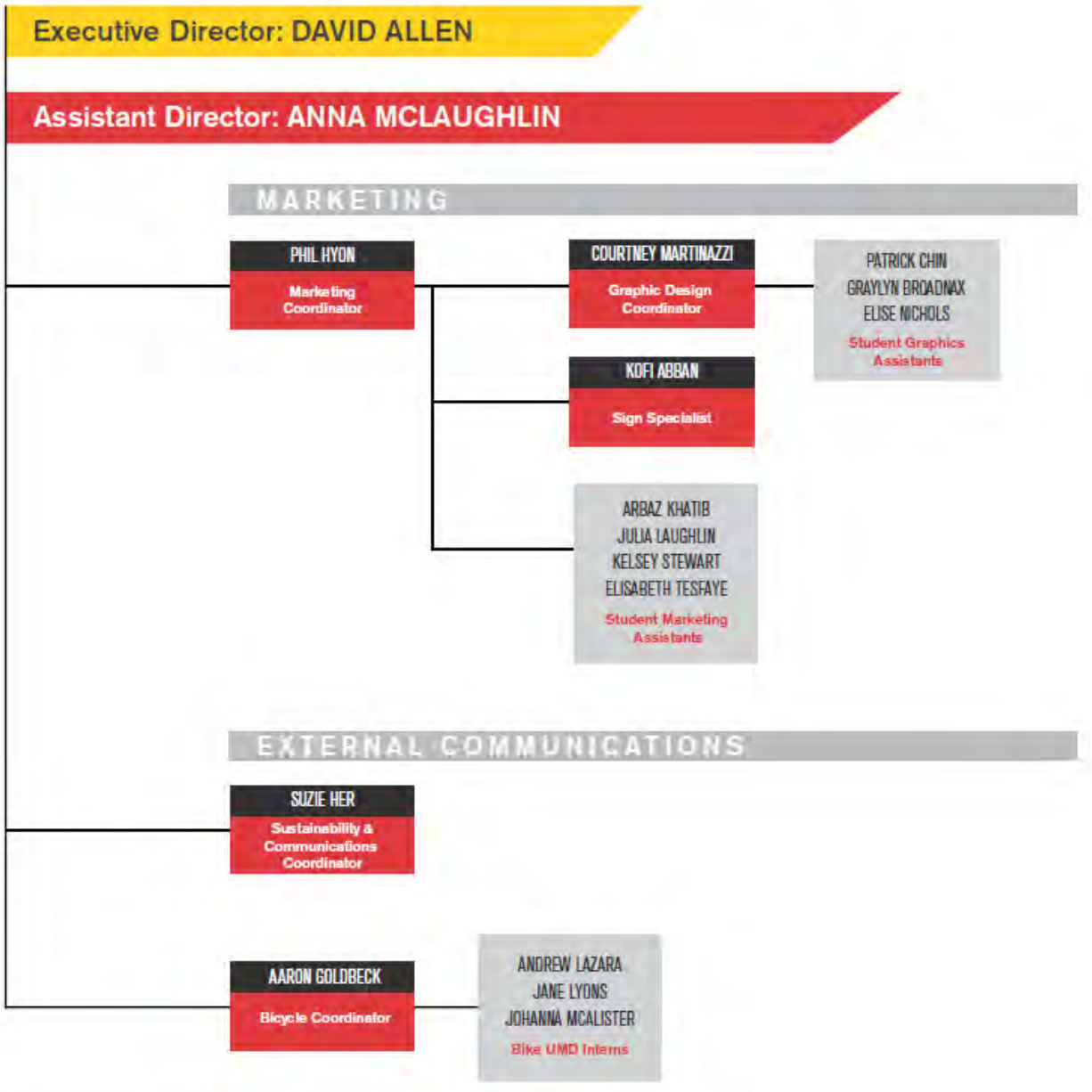
Appendix A

Departmental Organizational Charts



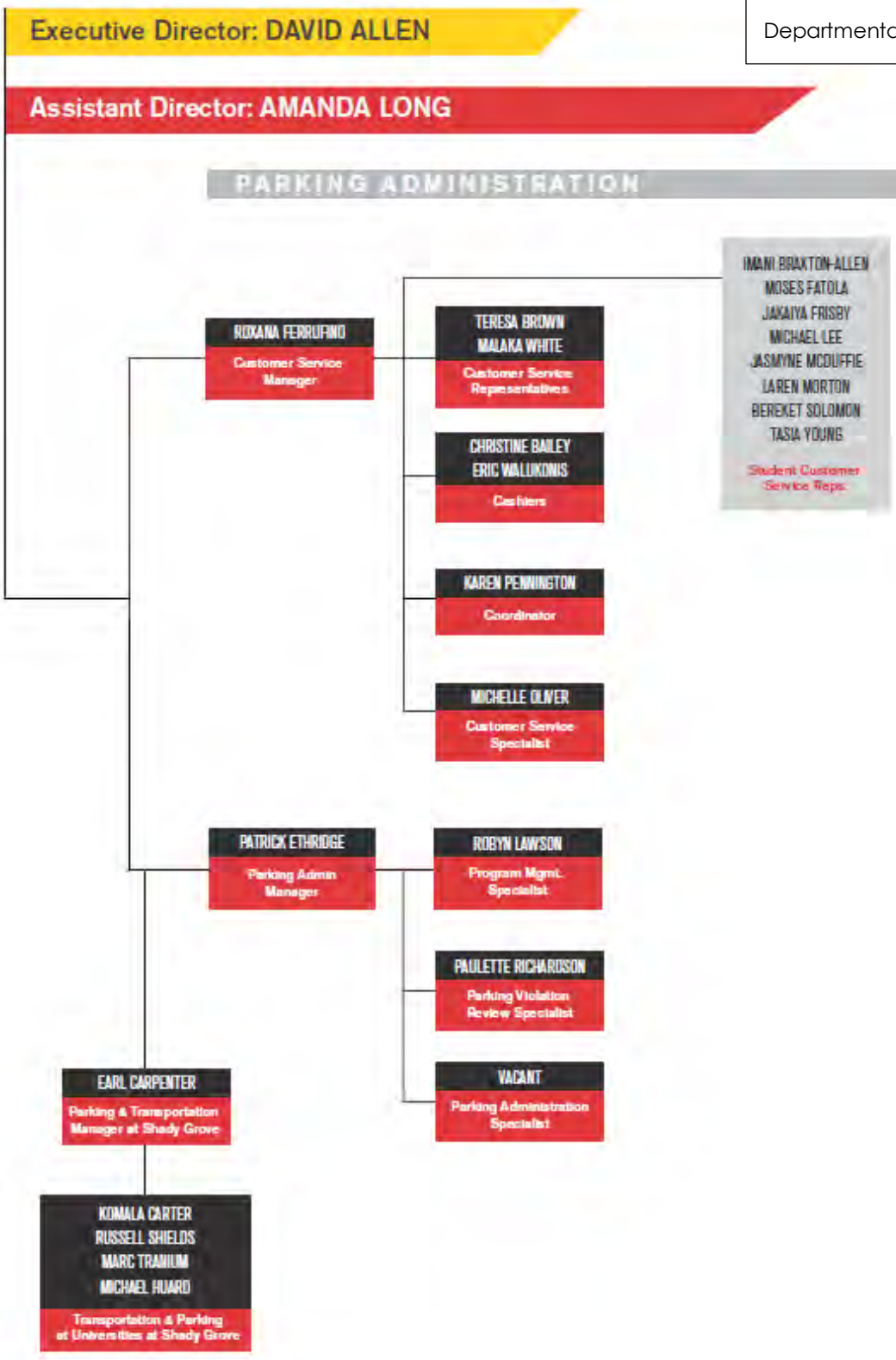
Appendix A

Departmental Organizational Charts



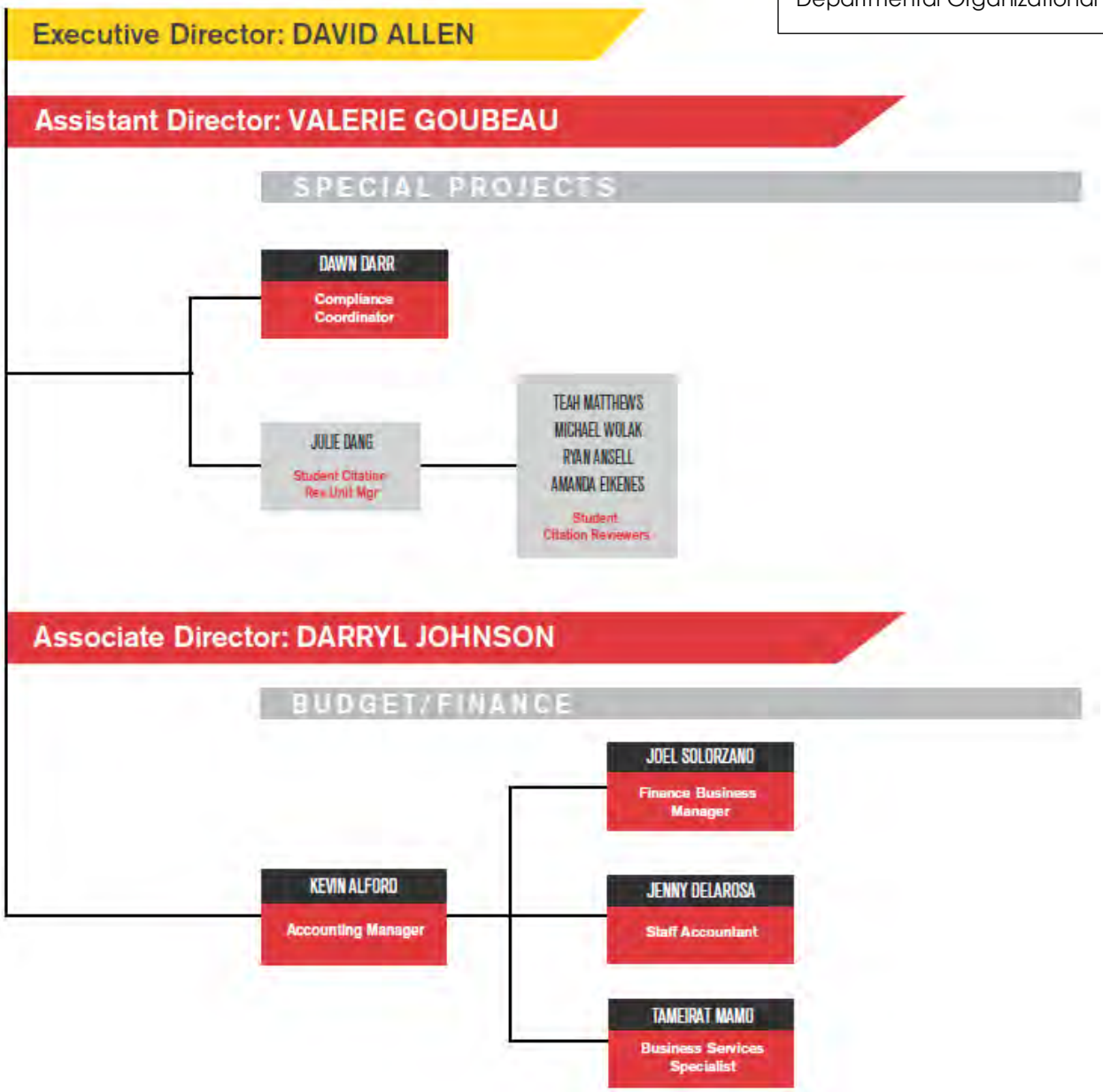
Appendix A

Departmental Organizational Charts



Appendix A

Departmental Organizational Charts



FULL TIME DRIVERS

Elbert Mack
Leonard Price
Bill Rawlinson
Jay Boswell
Amine Ashkar
Hal Cagle
Bruce Fritzche
Dominique Geneste
Ian Bholai
Anil Keshia
Grady Frey Jr.
Misael Medina
Kiana VanHorne
Valerio Martinez
C. Jason Murray
Renee Brown
Jackson Saintvill
Kathleen Booker
Vilma Diaz
Edward Garcia
Daniel Simison
Benjy Shyovitz
Earnest Izzard
Eddy Leveille
Andy Bueno
Andrew Malone
Seifu Yimer
Michael Williams
Angel Coleman
Kenny Jones
Bryan Page
Shawn Allen
Walter Michaca
Narrys Edward
Slobodan Ivanov
Kavin Yarbrough
Kossi Awusu
Nancy Vaughn

Jason Singh
Alan Sines
Sadick Abubakar
Andra King
Deitra Rankine
Dwight Hicks
Darryl Johnson
Justin Fergeson
Babington Harvey
David Casto
Jennifer Quintana
Conor Rogers
Kola Robinson
Viktors Bebris
Ken Aukerman
Glen Adams
Keenan Willis
Ke'Von Sauls
Janay Kittrell
Alaric Bethea
Jolomi Rice
Carlton Watson
Paul Young
Felix Gouater
Edgar Carballo
Erin Cornelius
Ronald Torres
Isaac Indgjer
William Poynter
Roland Kougblenou
E. Doc Akonawe
Jacinth Chijindu
Olga Rozman
Nathan Sparks
Nacole Brown
Joan Santana
Justin Gallardo
Shola Anderson

E. Benjamin Atchole
Jakeetah Alston
Nicole Sealey
Michael McCoy
Joshua Williams
Troy Poynter
Michael Teklu
Avery Collins
Jacob Wolf
Timothy Vettel
Susan Salgado
Corey Rogers
Vanessa Chaparro
Karl Crosby
Edwin Brown Jr.
Jessika Brunson
Rosette Tchakouebou
King Smith
Reynold Morris
Robert Bowering
Ruben Zuniga
Darrell Moore
Richard Delabrer
Jamaal Moore
Steve Gierisch
Kevin Richardson
Eric McCutchen
James Baker
Anthony Stoddard
Tenzin Chophel
Khalid Poynter
Jose Aguilar
Karen Valenzuela
Jacob Lescalleet
Cecil Barnes
Rolando Merlos
Kimberly Wood
Marjorie Atkinson

PART TIME DRIVERS

Milton Jackson
Troy Moten
Reggie Brown
Ryan Peters
Dustin Barrall
Gabe Schneider
George Miller
Greg Parcher
Kassahun Hailu
Sergey Kolyabin
Wanderson Erase
Riyad Bandak
Eunice Robinson
Eurica Fletcher
Gabrielle Hapi
Louis Griffin
John Staten

Russell Geater
Emily Macri
Christofer Barnes
Nebiy Teyodrose
Jean Bosquet
Alexis Robinson
Erin Macri
A.J. Williams
Max Cushner
David Peter
Daniel Llosa
Jennifer Mendez
Michael Hager
Panagiotis "Peter" Fotopoulos
Kontessa Roebuck

STUDENT DRIVERS (NEW)

William England
Sutton Gasper
Andrew Quinn
John Strawley
Derek McNamara
Jade Walls
Steven Newton
Michael Roeder
Eugene Won
Cody Niblett
Konrad Anderson

Rodion Shkolnik
Kishon Pinckney
Maria Matthews
Jasjeet Singh
Adina Schwartz
Jonathan Espinoza
William Tolley
Aljamal Truss
Nydia Stukes-Jones
Brendan Hansel

Appendix A

Departmental Organizational Charts

STUDENT DRIVERS (JUNIOR)

Jennifer Siewierski
Aleksandr Kostylev
Mirousse Pierre-Louis
Kumie Tesfaye
Aaron Stanley
Tumasang Che
Oumou Sidibe
Michael Brennan

STUDENT DRIVERS (SENIOR)

Michael Engels
Tamar Lambert-Brown
Dakota Sparks
Sanjay Forrest
John Hannan

PARATRANSIT SPECIALISTS

Zhane' Rice
Ebonie Massey
Sylvanus Newstead
Emma Dobry
Edgar Zhu
Haroon Jaweed
Michael Abercrombie
Leon "Tim" Dawson

PART TIME OPERATIONS SPECIALISTS

Maximilien Duvra
Philip Malcolm
Alexandra Schafer
Michael Winger
Mark Wrathall
Alexander Roth
Dymond Green

STUDENT TRAINERS

Barrington Brice
Sydney Shiver
Geoffrey Palo

STUDENT TRANSIT OPERATIONS

Porter Polcaro
Niree Turner
Victoria Notaro
Ryan Pistorio
Hunter Garrison
Alberto Torres-Ramos
Tyler Ziegler
Mark Baxter
Philip Rindone
Jacob Zeitler
Trevon Miller
Alec Pskowski
Shannon McDonell

PART TIME CHARTER SPECIALISTS

Kenny West
Charles Shell
Pat Alcendor
Bernard Botchway
Ababee Eado
Roger Peters
Bobby Wood
Brandon Goodwin

STUDENT CHARTER SPECIALISTS

Keyvan Mashayekifard
Yuanzhao Zhao

STUDENT MANAGER ASSISTANTS

Nicholas Schweiker — Operations Planning Analyst
Vacant — Dispatch Manager Assistant
Vacant — Student Safety and Policy Specialist

Appendix A

Departmental Organizational Charts

APPENDIX B

Best Practices in University Transportation Services

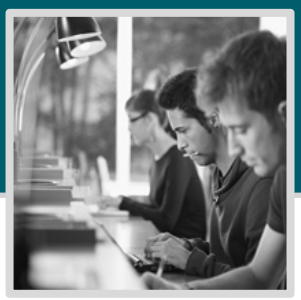
Hanover Research 2014

In this report, Hanover Research reviews best practices in university parking and transportation administration (and organization) and profiles the transportation services offered by five large universities.

Best Practices in University Transportation Services

May 2014





In the following report, Hanover Research reviews best practices in university parking and transportation administration and profiles the transportation services offered by five large universities.

HANOVER RESEARCH

Table of Contents

EXECUTIVE SUMMARY AND KEY FINDINGS

INTRODUCTION

This report examines the administration of parking and transportation services at large universities. The main focus areas include administrative and financial structures and considerations, physical capacity and fleet sizes, and operational details, such as the frequency of shuttle service to perimeter lots. In order to gather this information, Hanover Research conducted both primary and secondary research on best practices and practices at large universities.

The report is structured as follows:

- **Section I** highlights best practices in parking and transportation administration and operation, and it also discusses transportation demand management; and
- **Section II** presents five profiles of parking and transportation administration and operation, with information drawn from secondary sources as well as interviews with institutional contacts.

The key findings of our research are provided below.

KEY FINDINGS

ORGANIZATIONAL STRUCTURE

The majority of the institutions profiled for this report integrate parking and transportation services and responsibilities. However, it is important to note that information pertinent to this report is substantially more forthcoming from institutions with integrated services. While the sample is biased toward institutions with integrated services, **contacts from these institutions stressed how critically important it is to take an integrated approach**. However, the various components of parking and transportation services, such as parking, transit, and fleet operations, are separate entities for accounting purposes, even at institutions with an integrated approach. Furthermore, all units are auxiliary units, and they are not subsidized by the university.

Of the institutions profiled for this report, Penn State, Texas A&M, the University of Colorado Boulder, and the University of Virginia consolidate all university-run transportation operations in one department or division. At Iowa State, there are multiple entities covering these services.

TRANSIT

Of the institutions examined for this report, three rely on university-owned and university-operated bus routes to transport students on campus. Texas A&M operates all transit service on and around its campus. Meanwhile, the University of Colorado Boulder

operates a shuttle that connects its multiple campuses and provides very limited service within the main campus, and the University of Virginia provides transit service within its campus. Both of these institutions also partner with local transit authorities to provide free service for students, faculty, and staff. Finally, Penn State has established transit authorities in coordination with local governments, with the university serving as the primary local source of revenue.

PARKING

Most institutions examined for this report are facing pressure as parking moves to the perimeter of the campus or as the number of parking spaces is being reduced due to building growth. **The primary response to this pressure is to shift away from parking and single-occupancy vehicle use**. All institutions researched for the report provide transportation to parking lots or rely on local authorities to do so. This includes storage lots at the perimeter of campus, which are a staple across campuses. Bus service to these lots is typically very frequent on weekdays and approximately every 20 minutes on weekends, with hours of operation varying but starting and ending later on weekends. Contacts responsible for parking operations universally noted that pricing structures for parking permits include lower prices for perimeter parking to shift congestion out of the main campus areas. A central challenge and concern is generating sufficient revenue to cover the costs of parking facilities maintenance. Challenges in this area include capped revenues for faculty and staff, as well as university policies for free and reduced-price permits.

FLEET

Fleet and charter services are typically a small component of parking and transportation services at the profiled institutions. The fleet sizes for the two institutions publicly releasing that information were between 600 and 700 vehicles. For those institutions with a full-service maintenance center, compliance is a major component of their work.

TDM INITIATIVES AND PROGRAMS

With space limited and at a premium, TDM initiatives are becoming a very prominent component of the work done by parking and transportation entities. These include car sharing, ride sharing, bike sharing, and other commuter programs. Generally speaking, universities partner with outside entities around car sharing, ride sharing, and bike sharing. Other commuter benefits, such as carpool incentives, are typically more internal and relate to parking operations. However, Penn State partners with the local joint transit authority for commuter benefits. Many bicycle programs, such as registration and designated bicycle trails and lanes, are also more internal for the university.

SECTION I: BEST PRACTICES

The transportation challenges facing colleges and universities are complex. Universities face rising enrollments that bring rising demand for parking and transportation, as well as increasing congestion in surrounding areas. In addition, the university campus integrates a wide variety of transportation types, including pedestrians, bicyclists, cars, and buses. Traffic from these various modes of transportation often creates bottlenecks, and the intersection of jurisdictional authority further complicates matters.[1]

In considering the organizational structure for transportation at and around a university campus, there are three main areas of consideration, in addition to the cross-cutting considerations of transportation demand management (TDM). These three areas include transit, parking, and fleet services. While identified separately here, **the vast majority of research in this area promotes an integrated approach** that considers each component in the context of transportation at the university as a whole.

As there are very few sources describing best practices in parking and transportation services among universities in the United States, this section draws on a limited range of reports identifying common and effective practices.

TRANSIT

One of the core responsibilities for transportation authorities at universities is transit service, particularly bus transportation. Universities typically provide free transportation services for the campus community; offer unlimited local transit passes to students, faculty, and staff; or support the local transportation authority in providing no-fare transit services for the campus community.[2] A recent report from the Frontier Group and the national consumer group and research entity, U.S. PIRG, identifies 101 colleges and universities in the United States with either no-fare transit or unlimited transit pass (U-Pass) systems for their students. The report also lists 36 colleges and universities that offer fare discount programs.[3]

A 2010 report from the Texas Transportation Institute (TTI), an institution of the Texas A&M University System, asserts that it is common practice for universities to collaborate with the

[1] Ibid., pp. 3-4.
[2] [1] Van Heeke, Sullivan, and Baxandall, Op. cit., p. 5.
[2] Primary research cited in Section II.
[3] Van Heeke, T., E. Sullivan, and P. Baxandall. "A New Course: How Innovative University Programs Are Reducing Driving on Campus and Creating New Models for Transportation." US PIRG Education Fund and Frontier Group, 2014, pp. 34-35. http://www.uspirg.org/sites/pirg/files/reports/US_A_New_Course_scrn_0.pdf

surrounding community and government agencies to negotiate transportation options for students:[4]

> It is common that universities collaboratively plan and manage transit services on their campuses with host cities in terms of fares, routes, schedule, and terminal locations to maximize serviceability, flexibility, and connectivity.[5]

The report highlights methods for linking on-campus transportation to public transit and remote parking lots. According to the TTI, most universities have shuttles servicing inner campuses and connecting them to perimeter parking lots. In addition, the report notes the benefits of having a public transit terminal on or adjacent to the campus.[6]

PARKING

In addition to transit, parking is a large component of university transportation departments. Whether as a parking department solely or integrated with other transportation offerings, parking officials are responsible for parking facilities maintenance, planning, and management. The TTI report notes that, due to its importance, many institutions address parking separately from other transportation issues. However, "[e]ffective parking planning and management should consider the needs and challenges of all components of the university transportation system and the surrounding transportation system."[7] In addition to working with other transportation actors within the university, parking officials should also collaborate with and involve surrounding neighborhoods and local authorities.

Normally, parking is more expensive at premium lots located closer to the inner campus and in garages, while remote storage lots are less expensive. Pricing can be used as a mechanism to regulate demand in and around campus. To promote parking in more remote lots and to ensure safety and connectedness, it is important to have reliable shuttle service and safety measures, including adequate lighting. Clear signage and, if possible, dynamic parking and traffic information, can improve the parking experience and regulate the flow of vehicular traffic and density of parking.[8]

FLEET

University fleet management typically functions as an auxiliary business unit that is similar to a car rental entity. One of the few best practices shared on this topic is the process of selecting appropriate fleet vehicles to purchase. The University of Nebraska – Lincoln has a self-supporting Transportation Services department within Business and Finance, and the department focuses on fleet vehicles. In response to rising fuel costs, the department

[4] Aldrete-Sanchez, R., J. Shelton, and R. Cheu. "Integrating the Transportation System with a University Transportation Master Plan: Best Practices and Lessons Learned." Texas Transportation Institute, Texas A&M University System, 2010, p. 6. http://d2dtl5nnlpfr0r.cloudfront.net/tti.tamu.edu/documents/0-6608-3.pdf
[5] Ibid., p. 9.
[6] Ibid., pp. 8-9.
[7] Ibid., p. 9.
[8] Ibid., pp. 9-10.

revisited its fleet vehicle selection process. Incorporating the needs and desires of departments and other fleet renters, as well as fuel efficiency, the department chose to shift its fleet composition. By analyzing the needs and desires of stakeholders, the department was able to both save money and improve the service it provided.[9]

TRANSPORTATION DEMAND MANAGEMENT AND INTEGRATED SERVICES

Universities are increasingly integrating their transportation services and promoting alternative methods of transportation. A report from the University of North Carolina – Chapel Hill compared its transportation demand management program with those offered at Duke University, the University of Washington, University of British Columbia, and Cornell University. The report found that "**[a]ll of the universities have at least one full-time staff member dedicated to promoting alternative transportation and TDM efforts**," who is typically based within the main parking and transportation department.[10] The report also notes that car sharing, ride sharing, bike sharing, carpooling, and other commuter benefits are nearly universal at these institutions. As Section II notes, these observations also hold true for the majority of institutions examined for this report. One major bicycle program implemented by the University of California – Berkeley is providing "bicycle-parking spaces in covered, locked cages or under security-camera surveillance."[11]

[9] Barrett, P. "University of Nebraska Transportation Services Best Fit Vehicle Selection Process." CACUBO 2007 Best Practices Award Program, Proposal. http://cacubo.org/files/docs/resources/University_of_Nebraska_Lincoln_Best_Fit_Vehicle.pdf

[10] Watterson, B. "Transportation Demand Management on UNC's Campus: Evaluation, Best Practices and Recommendations for Reducing Single-Occupancy Vehicle Use." University of North Carolina at Chapel Hill, Master's Project, 2011. p. 4. Available from: https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=11&cad=rja&uact=8&ved=0CCcQFjAAOAo&url=https%3A%2F%2Fcdr.lib.unc.edu%2Findexablecontent%2Fuuid%3A4089985f-62f9-405a-b0ab-37d6459abbfe%3Fdl%3Dtrue&ei=nWUfU-zeEILp2QWu6ICYBQ&usg=AFQjCNHblqP1aiCVKbMhco3zODO7lpamMQ&sig2=xr5uWIrbtoLG7iqsf3oo9Q&bvm=bv.62788935,d.dmQ

[11] "Best Practices Make, If Not Perfect, Pretty Darn Close." UC Berkeley News, 2004. http://www.berkeley.edu/news/berkeleyan/2004/04/14_bestpr.shtml

SECTION II: PROFILES IN PRACTICE

This section presents five profiles of university practice in parking and transportation services. For each profile, this report provides contextualizing facts related to the student and surrounding population and to parking and transportation services. The student and surrounding population figures draw on statistics from the National Center for Education Statistics (NCES) and the U.S. Census Bureau's American FactFinder, respectively.[12] In most cases, the population estimates for the surrounding city include at least some of the students attending the university. The footnote for each figure provides additional relevant citations.

[12] All of the institutions draw from the same citations for the NCES and Census data:
[1] Custom search. College Navigator, National Center for Education Statistics. http://nces.ed.gov/collegenavigator/default.aspx?s=all&l=93+94&ic=1&en=20000&lc=3+2+1&hs=1&xp=1
[2] Custom searches. Community Facts, American FactFinder, United States Census Bureau. http://factfinder2.census.gov/faces/nav/jsf/pages/community_facts.xhtml

IOWA STATE UNIVERSITY

Located in Ames, Iowa, north of Des Moines, Iowa State University (Iowa State) is home to more than 30,000 students in a city of fewer than 60,000 residents. As one university contact noted, the Iowa State student body represents the majority of the city's population.[13] Iowa State University "is primarily a pedestrian campus" and encourages "pedestrian, bicycle, and bus traffic."[14]

Figure 2.1: Reference Figures, Iowa State University

Total Student Population:	30,748
Undergraduate Student Population:	25,553
Total Number of Students Residing on Campus:	11,222*
Population of the Surrounding City:	58,965
Integration of Parking and Transportation Services:	No
Total Number of Buses:	**
Total Number of Fleet Vehicles:	Unknown
Total Number of Parking Spaces:	19,487

* This is the total number of students in university-operated housing: 10,102 students in residence halls and 1,120 students in other university-operated housing
** 89 buses operated by CyRide, a partnership between the university and the local government but technically a city entity
Source: Census Bureau, NCES, and Iowa State University[15]

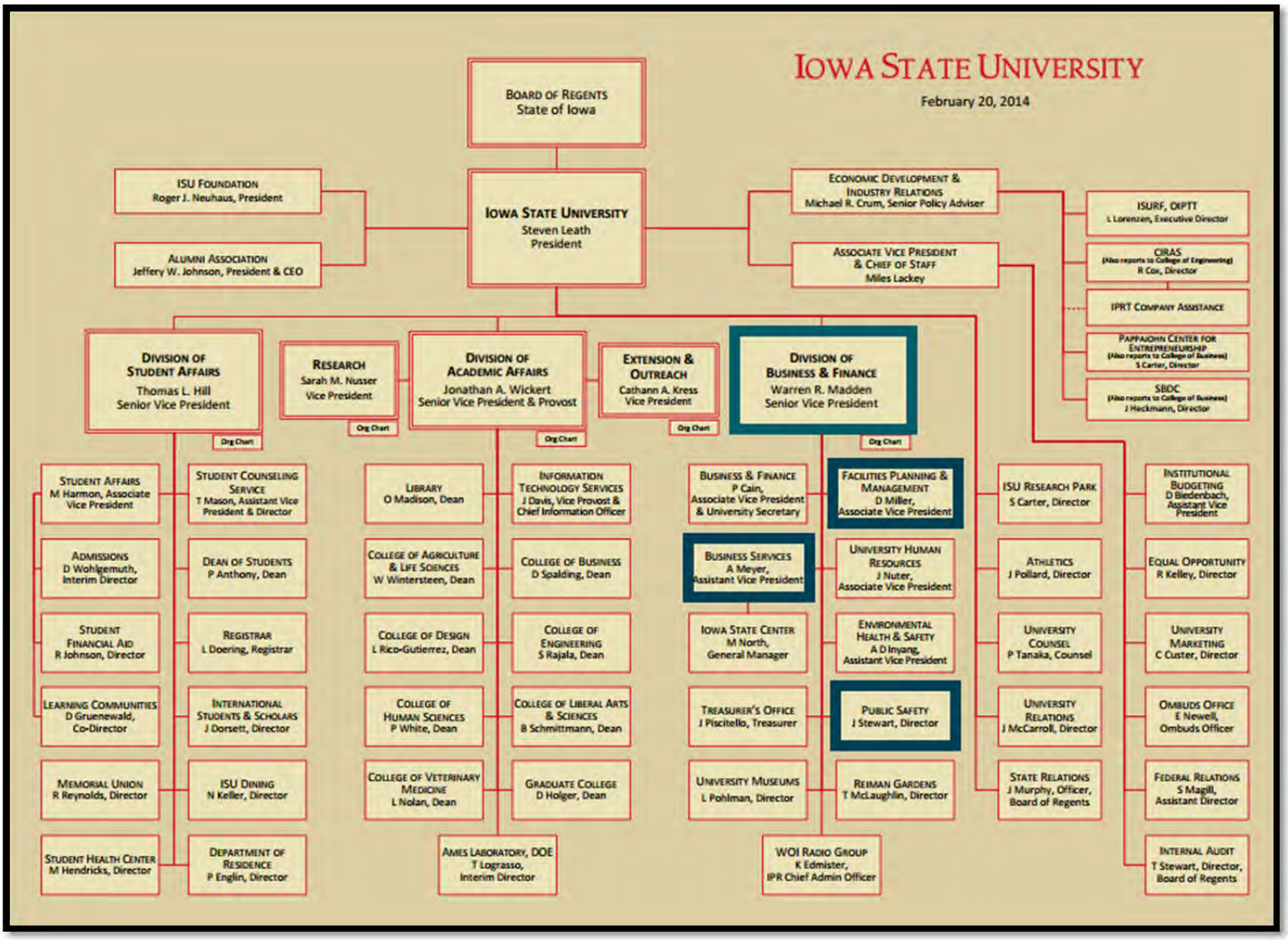
ORGANIZATIONAL STRUCTURE

Parking and transportation responsibilities are spread across a variety of departments at Iowa State, although all of them are within the Division of Business and Finance. Parking is a division within Public Safety, while Facilities Planning and Management handles flight services and sustainability initiatives, which include TDM initiatives. Transportation Services, located within Business Services, is responsible for fleet management.[16] The organizational chart on the following page highlights departments responsible for parking and transportation services. In addition to the administrative units, there is a Transportation Advisory Council, which incorporates students, faculty, and staff. The purpose of the Council is to articulate input from various user groups for transportation policy. Representing some of the entities most involved in transportation are staff from Facilities Planning and

[13] Rankin, M. Sustainability Director, Iowa State University. Phone interview, March 31, 2014.
[14] "The Iowa State University Parking Division Manual." Iowa State University. http://www.parking.iastate.edu/about/docs/ParkingManual.pdf
[15] [1] "Enrollment by Housing Type." Office of Institutional Research, Iowa State University. http://www.ir.iastate.edu/FB14/PDF%20files%20as%20of%20Nov%2020/047%20Enrollment%20by%20Housing%20Type.pdf
[2] Miller, M. Assistant Director, Parking Division, Department of Public Safety, Iowa State University. Email correspondence, March 31, 2014.
[3] "CyRide Performance Stats 1977 to 2013." CyRide. Available from: http://www.cyride.com/index.aspx?page=1240
[16] Rankin, Op. cit.

Management and from the Department of Public Safety, primarily from the Parking Division.[17]

Figure 2.2: Organizational Chart, Iowa State University

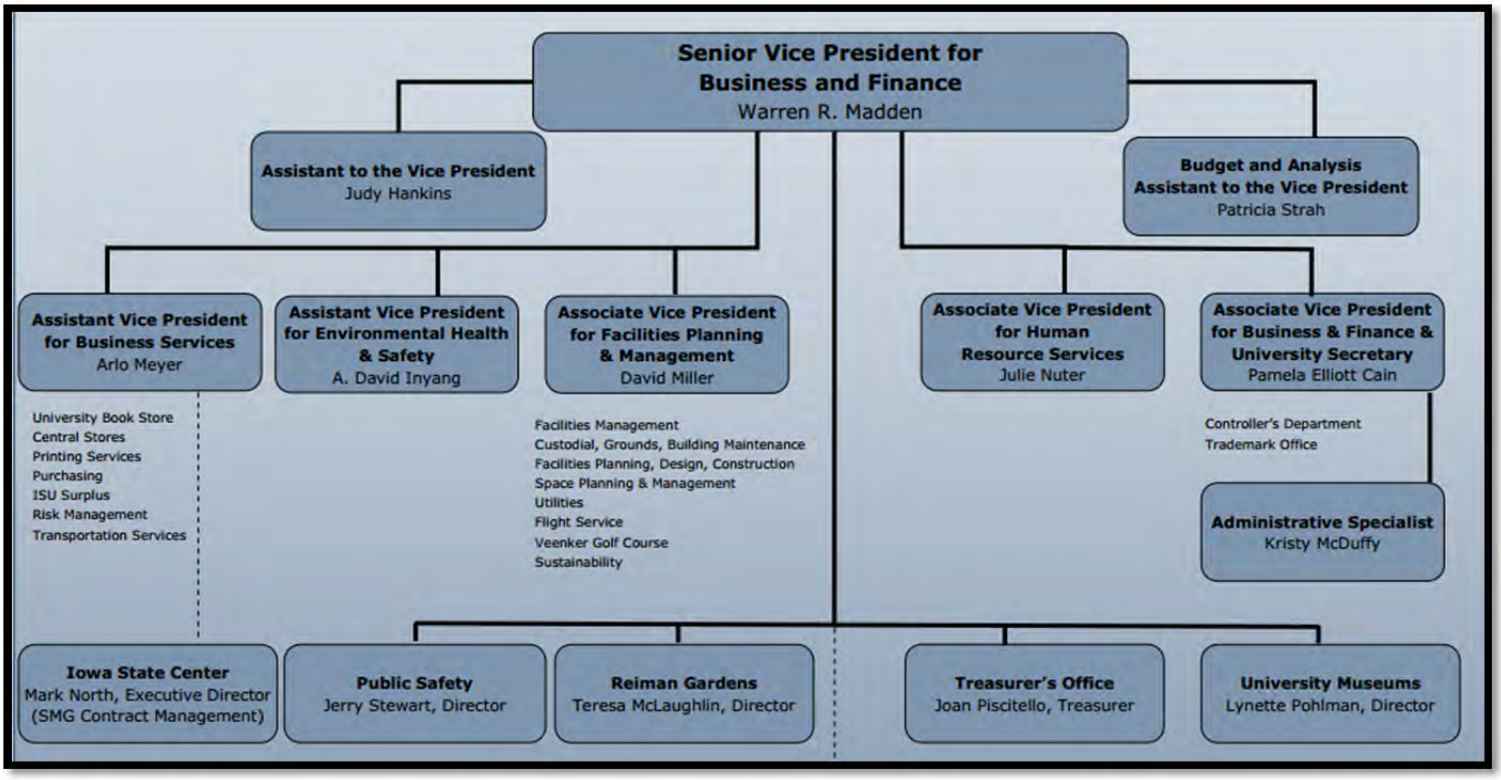


*Blue boxes highlight departments within the Division and Finance responsible for parking and transportation services.
Source: Iowa State University[18]

[17] "Transportation Advisory Council." Iowa State University. http://www.committees.iastate.edu/comm-info.php?id=15

[18] Organizational chart. Office of the President, Iowa State University. http://www.president.iastate.edu/org/univorg.pdf

Figure 2.3: Organizational Chart, Business and Finance at Iowa State



Source: Iowa State University[19]

TRANSIT

The centerpiece of transit operations at Iowa State is the bus system of the Ames Transit Agency (CyRide), which is not an Iowa State entity. CyRide is the public bus system for the city of Ames, Iowa, and it is a collaboration between the City of Ames, Iowa State, and Iowa State's Government of the Student Body (GSB). The agency is an administrative agency of the City of Ames, though it is governed by a Board of Trustees including representatives from each of the three constituent institutions. The CyRide Board of Trustees includes the Ames City Manager, a city council member, a mayoral appointee, the Senior Vice President of Business and Finance for the university, and two representatives from the university's GSB: the President and Vice President of the Board of Trustees.[20] In terms of budgeting, the university community contributes more than one-half of local revenues, but this is primarily from the GSB. For the past five fiscal years, the GSB contribution has been slightly more than 50 percent of local revenue, while the university itself has contributed 10 percent of local revenue.[21]

[19] "Senior Vice President for Business and Finance Organizational Chart." Office of the Senior Vice President for Business and Finance, Iowa State University. http://www.vpbf.iastate.edu/sites/default/files/imported/pdf/Senior%20VPBF%20Org%20Chart%20-%2006-18-13.pdf

[20] "Board of Trustees." CyRide. http://www.cyride.com/index.aspx?page=911

[21] "CyRide Performance Stats 1977 to 2013." CyRide. Available from: http://www.cyride.com/index.aspx?page=1240

Figure 2.4: CyRide Revenues, 2009 to 2014

Revenue Source	2009 - 2010	2010 - 2011	2011 - 2012	2012 - 2013	2013 - 2014*
Farebox Revenue	$317,590	$315,716	$322,600	$330,847	$360,000
Other Transportation Revenue	$276,608	$278,493	$356,683	$294,360	$300,000
Other State/Federal Grants	-	$197,675	$204,432	$162,345	$247,000
Tax Levy	$1,309,644	$1,306,309	$1,355,883	$1,452,687	$1,501,714
Government of the Student Body	$2,898,278	$3,008,118	$3,204,263	$3,499,053	$3,726,491
Iowa State University	$557,302	$576,808	$599,880	$641,872	$658,561
Miscellaneous Revenue	$204,274	$227,830	$178,332	$220,112	$194,600
Total Local Revenue	*$5,563,696*	*$5,910,949*	*$6,222,073*	*$6,601,276*	*$6,988,366*
IDOT Operating Assistance	$448,180	$497,650	$613,424	$606,634	$600,000
FTA Operating Assistance	$1,574,500	$1,490,918	$1,528,279	$1,540,702	$1,845,414
Total Revenue	***$13,150,072***	***$13,810,466***	***$14,585,849***	***$15,349,888***	***$16,422,146***

* The 2013-2014 year uses estimated data.
Source: CyRide[22]

In exchange for supporting the majority of the budget, the students of the university do not pay any fare. Moreover, the Parking Division at Iowa State subsidizes passes for staff and faculty members.[23] Additionally, nearly every CyRide route services the Iowa State campus, and multiple routes link perimeter parking and buildings to the main campus.[24]

Parking

The Parking Division is part of the Department of Public Safety at Iowa State. While the institution pays a fee for a route to bring those parking in auxiliary lots to campus, there is not a substantial level of coordination with CyRide. Perimeter parking is used for both storage parking and daily parking, with free bus service to campus. Buses frequently service storage lots every day of the week, except Sunday, when service is closer to every 40 minutes. Service runs from around 7 A.M. to as late as 2:30 A.M. on Saturdays. All of the nearly 20,000 spaces require permits, with designated staff and student lots. Those lots around residence halls are typically reserved for students.[25]

As the campus expands, providing close parking at a reasonable price is the division's main challenge.[26] A representative from Iowa State noted that the university has one of the lowest rates for parking in the region. While officials would like to increase fees to support better parking facilities maintenance and other priorities, these changes receive substantial pushback and must be approved by the administration.[27]

[22] Ibid.
[23] "Fares." CyRide. http://www.cyride.com/index.aspx?page=19
[24] Route map. CyRide. http://www.cyride.com/modules/showdocument.aspx?documentid=8345
[25] Miller, Op. cit.
[26] Ibid.
[27] Rankin, Op. cit.

FLEET

Fleet management is provided by the Transportation Services office.[28] Available vehicles include compact and mid-size cars, minivans, various types of pickup trucks, cargo vans, SUVs, 15-passenger vans, enclosed trailers, car-hauling trailers, and flatbed trailers.[29] Vehicles are available for short-term rental, long-term rental, or a rental period of one to 12 months. Hanover was unable to ascertain the number of vehicles.

TDM INITIATIVES AND PROGRAMS

Iowa State has several TDM initiatives, including a car share program, a ride share program, and a vanpool program.[30]

[28] Rankin, Op. cit.
[29] "Vehicles and Rates." Transportation Services, Iowa State University. http://www.transportation.iastate.edu/vehicles
[30] Rankin, Op. cit.

PENNSYLVANIA STATE UNIVERSITY – MAIN CAMPUS

The main campus of Pennsylvania State University (Penn State) is located in State College, Pennsylvania. The population of the surrounding town is approximately equal to the student body at the university, with a total of nearly 154,000 residents in the county. According to the local government, the greater State College area is home to approximately 96,000 residents, and 75 percent of the residents of the Borough of State College are Penn State students. The town and the university are highly interconnected and have grown together since the institution's founding.[31]

Figure 2.5: Reference Figures, Pennsylvania State University

Total Student Population:	45,783
Undergraduate Student Population:	39,192
Total Number of Students Residing on Campus:	14,635*
Population of the Surrounding City:	42,034
Integration of Parking and Transportation Services:	Single Dept.
Total Number of Buses:	**
Total Number of Fleet Vehicles:	***
Total Number of Parking Spaces:	****

* This figure represents on-campus capacity. The institution notes that occupancy ranges from 100 to 105 percent during the year.
** CATABUS serves the campus, as well as a greater service area. Among all fixed routes, CATABUS operates 66 buses.
*** The university does not publicly offer this number. The fleet vehicle options are noted below.
**** The university does not note the number of spaces available for faculty and staff. There are approximately 18,000 spaces available for students.
Source: Census Bureau, NCES, and Pennsylvania State University[32]

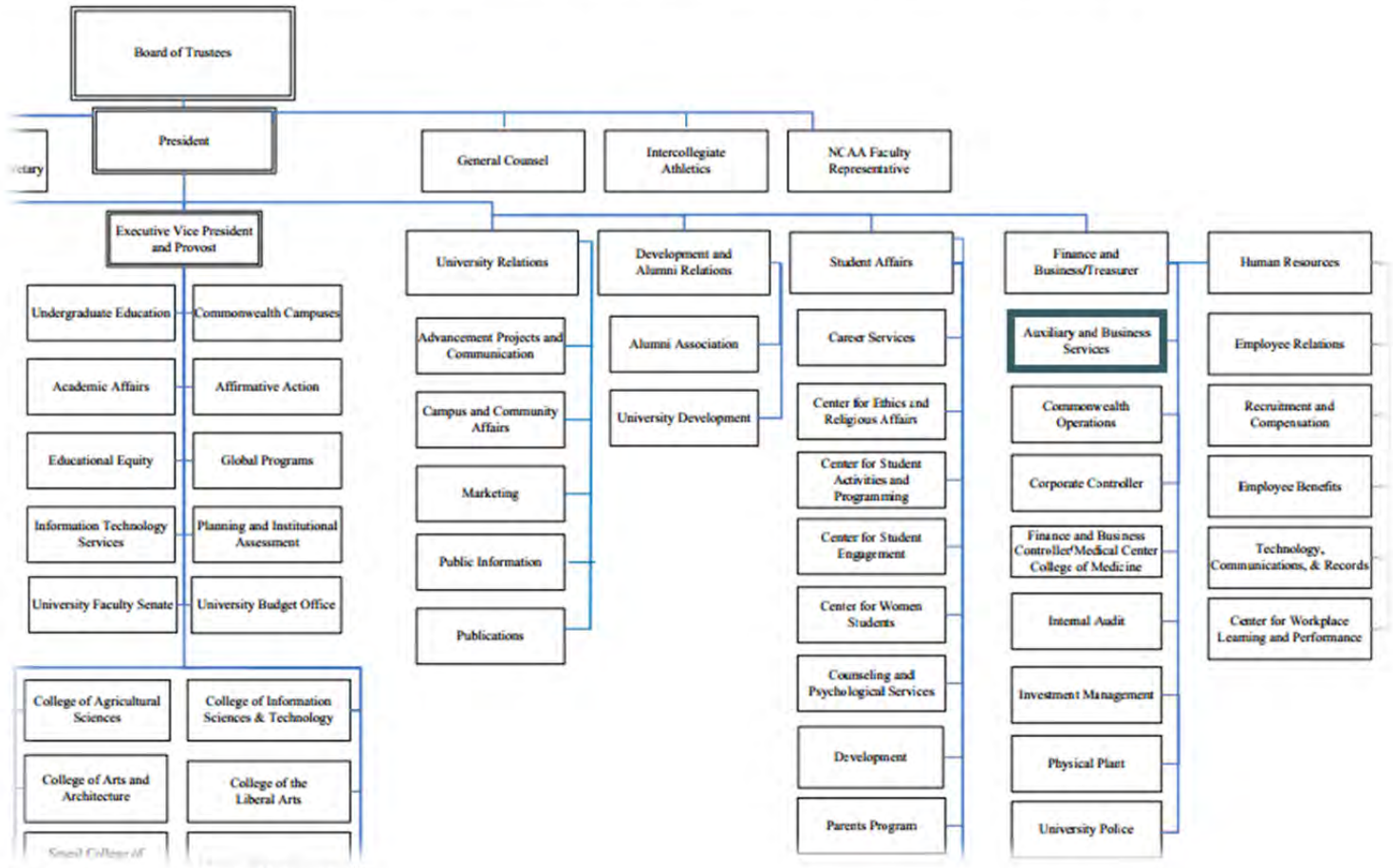
ORGANIZATIONAL STRUCTURE

The Transportation Services Department (Transportation Services) is located within the Auxiliary and Business Services department of the Finance and Business division.[33] The department contains offices for transportation services, parking, and fleet services.[34] Figure 2.6 notes the relationship between auxiliary units, such as Transportation Services, and the rest of the administration, with the auxiliary units highlighted with a green outline. The Director of Transportation Services reports directly to the Associate Vice President for

[31] "Mayor's Welcome." Borough of State College Government. http://www.statecollegepa.us/index.aspx?nid=1158
[32] [1] "Policies, Safety & U: 2013 Annual Security and Fire Safety Report." Pennsylvania State University. http://www.police.psu.edu/clery/security-reports/upload/122425ePoliciesSafetyU_UP.pdf
[2] "CATA Annual Report Fall 2012/13." CATA. http://www.catabus.com/AboutCATA/Budget/AnnualReport/AnnualReport1213.pdf
[33] [1] "Directory entry for TRANSPORTATION SERVICES." Pennsylvania State University. Result of a search for "Transportation Services" in the Department Directory: http://www.work.psu.edu/ldap/dept/
[2] "The Pennsylvania State University Administrative Organization." Pennsylvania State University. http://www.psu.edu/provost/assets/Administrative.pdf
[34] "Contact Us." Transportation Services, Pennsylvania State University. http://www.transportation.psu.edu/transportation/contact-us.cfm

Auxiliary and Business Services. Due to the transit relationship discussed in this profile, the primary division within the department is between parking and fleet operations, with one staff member each in facilities and finance, as shown in Figure 2.7.[35]

Figure 2.6: Organizational Chart Excerpt, Pennsylvania State University

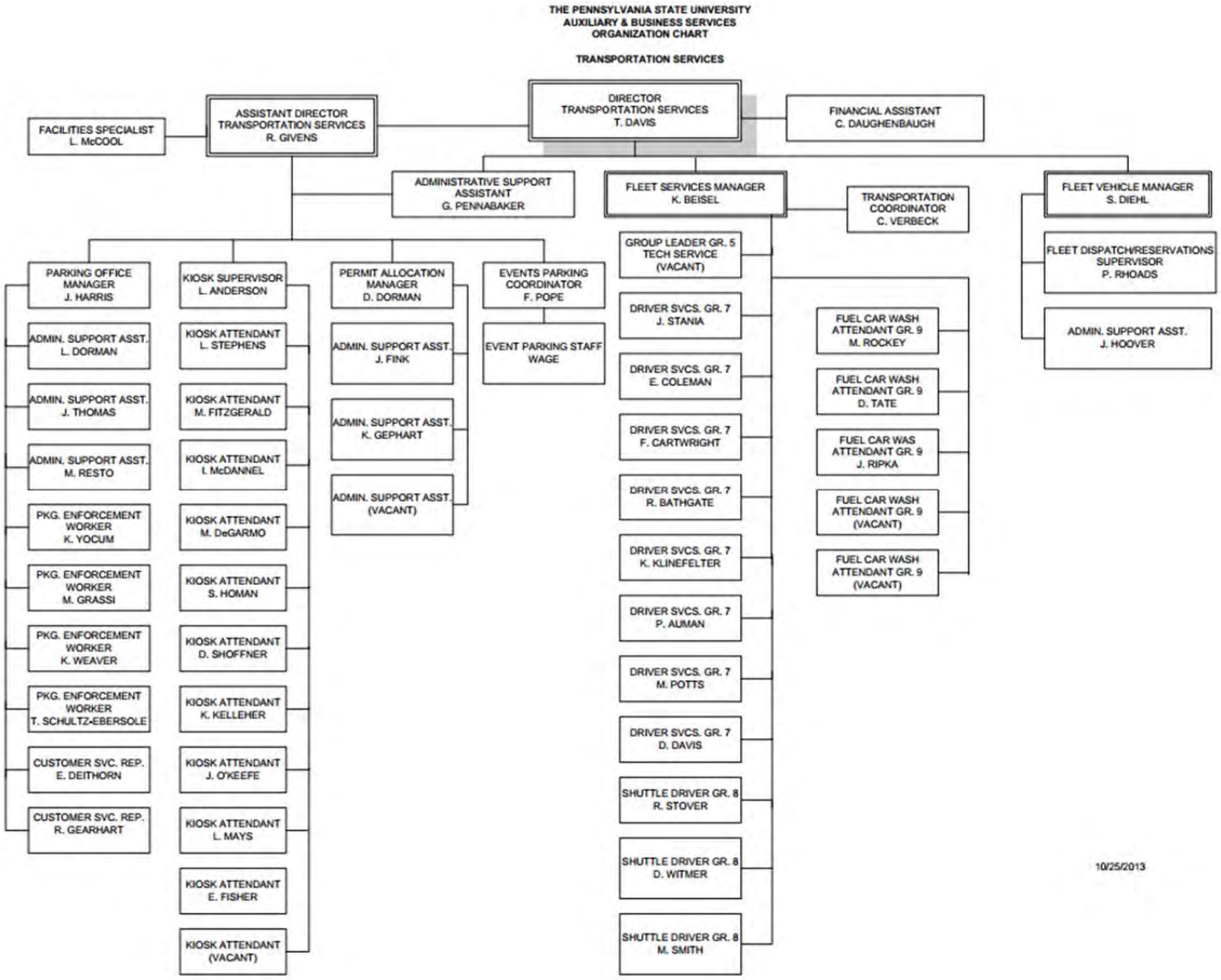


Source: Pennsylvania State University[36]

[35] Organizational charts. Auxiliary and Business Services, Pennsylvania State University. http://www.abservices.psu.edu/abservices/upload/ABS_UnitOrgCharts.pdf

[36] Organizational chart. Office of the Provost, Pennsylvania State University. http://www.psu.edu/provost/assets/Administrative.pdf

Figure 2.7: Organizational Chart, Transportation Services, Pennsylvania State University



Source: Pennsylvania State University[37]

[37] Organizational charts. Auxiliary and Business Services, Pennsylvania State University, Op. cit.

TRANSIT

Campus Transit offers a variety of bus and shuttle services on and around the campus, as well as routes to other areas in the county. **The University partners with the Centre Area Transportation Authority (CATA) to provide almost all bus service**.[38] CATA is a Joint Municipal Authority formed by and serving the majority of Centre County, and it was first incorporated in 1974.[39] CATA categorizes its bus routes as Community Service and Campus Service. While the Community Service routes require one-way fares, Campus Service is a no-fare service made possible by a partnership between CATA and Penn State Transportation Services.[40] For the 2012-13 fiscal year, CATA estimated the University's contribution at $118,535, in addition to $2,133,500 from Penn State to pay for the no-fare campus routes and $50,800 in passenger fare revenue from the Football Shuttle. This represents 18 percent of the total estimated revenue for the year, which amounted to $12,765,431. While state and federal contributions support the bulk of the organization's budget, **Penn State contributes far more to the CATA operating budget than any of the local governments**. The university pays for nearly 25 percent of the budget not covered by subsidies and revenues, as determined by a formula that incorporates ridership, mileage, and costs.[41]

While CATA provides on-campus bus service, including the Loop and Link routes, the University also offers two additional bus lines on campus. First, the Campus Shuttle provides no-fare transportation around campus at 15-minute intervals between 7 A.M. and 6 P.M on weekdays, servicing 23 stops.[42] Second, as part of disability services, the Paratransit Shuttle has 16 stops and operates in the reverse direction every 20 minutes from 7:15 A.M. to 6 P.M. on weekdays.[43]

PARKING

The University provides a wide variety of parking permits for faculty, staff, and students.[44] There are approximately 18,000 parking spaces for students, including commuter, storage, and residential spaces.[45] Residential student lots are zoned by the section of campus where

[38] "Loop/Link Bus." Transportation Services, Pennsylvania State University. http://www.transportation.psu.edu/transportation/campus-transit/loop-link.cfm
[39] "About CATA." CATA. http://www.catabus.com/AboutCATA/index.html
[40] "CATABUS." CATA. http://www.catabus.com/ServiceSchedules/CATABUS/index.html
[41] "Centre Area Transportation Authority Budget FY 2013/14 Final." CATA. pp. 2-3, 11. http://www.catabus.com/AboutCATA/Budget/Budgets/FY20132014FinalBudget.pdf
[42] [1] "Campus Shuttle." Transportation Services, Pennsylvania State University. http://www.transportation.psu.edu/transportation/campus-transit/shuttle.cfm
[2] "Shuttle Map." Transportation Services, Pennsylvania State University. http://www.transportation.psu.edu/transportation/campus-transit/upload/ShuttleMap.pdf
[43] "Paratransit Shuttle." Transportation Services, Pennsylvania State University. http://www.transportation.psu.edu/transportation/disability-services/upload/paratransit-shuttle-change-3.pdf
[44] [1] "Student Parking Permits." Transportation Services, Pennsylvania State University. http://www.transportation.psu.edu/transportation/parking/students/student-permits.cfm
[2] "Faculty/Staff: Parking Permits." Transportation Services, Pennsylvania State University. http://www.transportation.psu.edu/transportation/parking/faculty-staff/fac-staff-permits.cfm
[45] [1] "Student Parking." Transportation Services, Pennsylvania State University. http://www.transportation.psu.edu/transportation/parking/students/index.cfm

the resident lives. Commuter lots are primarily located around the football stadium and basketball arena, with all four CATABUS campus service routes stopping in the vicinity. The only identified storage lot is located next to student residences on the outside edge of one corner of campus, but the Blue Loop services the complex, and there is also a White Loop stop fairly close to the lot. The longest wait time any day of the week is 22 minutes, with service as frequent as every five minutes during peak hours.[46]

FLEET

The university does not offer a substantial amount of information on its fleet vehicle services. There is a wide variety of available options for renting, with prices slightly more expensive than the local Enterprise Rent-A-Car location.[47]

TDM INITIATIVES AND PROGRAMS

To encourage alternatives to single-occupancy driving, Penn State offers ride sharing programs for students and for faculty and staff, as well as discounts for faculty and staff on CATA bus routes for commuters. For full-time employees with no daytime parking permit, Penn State offers a discounted unlimited monthly CATA bus pass for just five dollars, which can be paid pre-tax.[48] Furthermore, the institution partners with CATA and CATACOMMUTE for faculty and staff ride sharing and with AlterNetRides.com for student ride sharing.[49] For these various systems, CATA and Penn State offer a guaranteed ride home to assuage fears of being stranded.

---

[2] "Student Parking Map." Transportation Services, Pennsylvania State University. http://www.parking.psu.edu/transportation/maps/parking-maps/upload/2014-student-parking-map.pdf

[46] "Map, Hours & Frequencies." CATABUS. http://www.catabus.com/ServiceSchedules/CATABUS/CampusService/Schedule/Web/whiteloop.html

[47] [1] "Rates." Transportation Services, Pennsylvania State University. http://www.transportation.psu.edu/transportation/fleet/vehicle/rates.cfm
[2] Search conducted for Enterprise Rent-A-Car in State College, Pennsylvania. Enterprise Rent-A-Car. http://www.enterprise.com/car_rental/deeplinkmap.do?gpbr=4025&bid=004&cnty=US

[48] "Ride for Five." Transportation Services, Pennsylvania State University. http://www.transportation.psu.edu/transportation/parking/faculty-staff/ride-for-five.cfm

[49] [1] "Faculty/Staff Rideshare." Transportation Services, Pennsylvania State University. http://www.transportation.psu.edu/transportation/parking/faculty-staff/fac-staff-rideshare.cfm
[2] "Student Rideshare." Transportation Services, Pennsylvania State University. http://www.transportation.psu.edu/transportation/parking/students/student-rideshare.cfm

TEXAS A&M UNIVERSITY – COLLEGE STATION

The flagship campus of the Texas A&M University System is located in College Station. The campus is home to approximately 10,000 students in a small city of just under 94,000 residents.

Figure 2.8: Reference Figures, Texas A&M University

Total Student Population:	50,627
Undergraduate Student Population:	40,103
Total Number of Students Residing on Campus:	10,000*
Population of the Surrounding City:	93,857
Integration of Parking and Transportation Services:	Single Dept.
Total Number of Buses:	79
Total Number of Fleet Vehicles:	700*
Total Number of Parking Spaces:	36,963

* Approximate
Source: Census Bureau, NCES, and Texas A&M University[50]

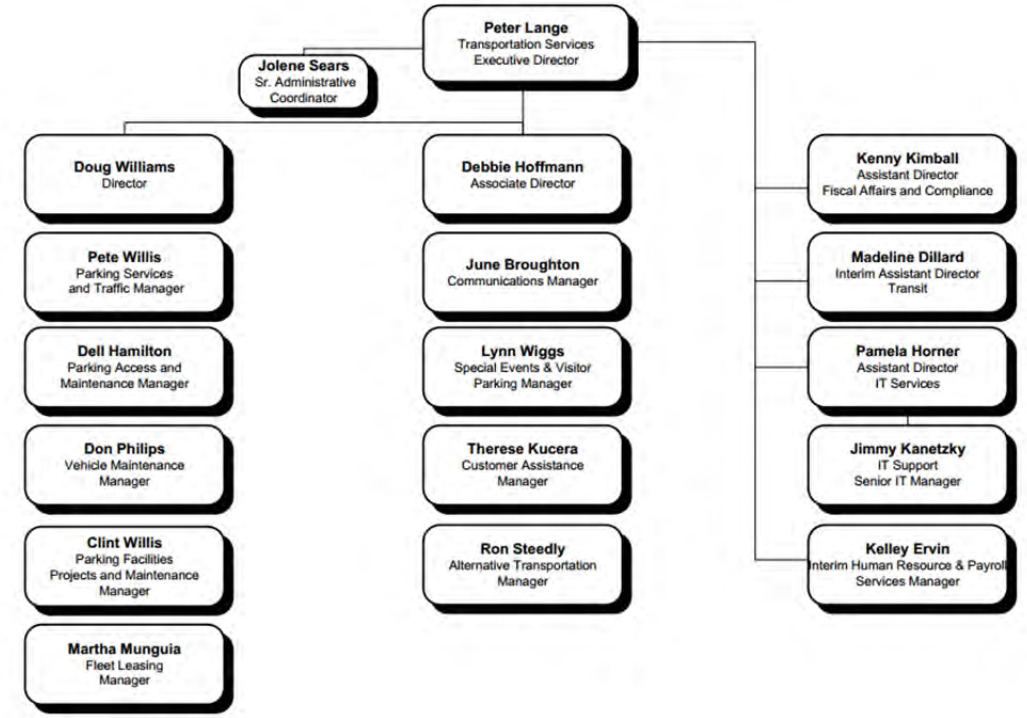
ORGANIZATIONAL STRUCTURE

The Department of Transportation Services is a single administrative entity consisting of three primary auxiliary units. While parking, transit, and fleet operations coordinate administratively, they are technically separate for accounting purposes. As the Executive Director notes, while parking could give money to transit, this "never happens."[51] Figure 2.9 presents the organizational chart for the department, and the division of responsibilities illustrates the integrated approach. The Executive Director reports directly to the Vice President for Finance and Administration.[52]

Beyond operations, the department conducts TDM and research efforts, and also integrates parking and transit planning and management to the extent possible. This profile notes some of the research that the department conducts, such as its parking permit benchmarking. In addition, the department also provides charter bus service and traffic planning and control.[53]

[50] [1] Lange, P. Executive Director, Department of Transportation Services, Texas A&M University. Phone interview, March 17, 2014.
[2] "Parking Facts & Figures." Department of Transportation Services, Texas A&M University. http://transport.tamu.edu/parking/facts.aspx
[51] Lange, Op. cit.
[52] Organizational chart. Division of Finance and Administration, Texas A&M University. http://finance.tamu.edu/media/63347/vpfinanceorgchart.pdf
[53] "The History of Transportation Services." Department of Transportation Services, Texas A&M University. http://transport.tamu.edu/about/history.aspx

Figure 2.9: Organizational Chart, Transportation Services, Texas A&M University



Source: Texas A&M University[54]

TRANSIT

Texas A&M provides all of its own transportation services. The University owns 79 buses, having recently sold one. The buses are primarily 40-foot vehicles, and they operate on six on-campus routes and 10 off-campus routes.[55] In order to determine routes and maintain an efficient transit system, the department continually monitors ridership. The department overlays student addresses for a heat map of student density and considers the effect on the people in the university community. However, the Executive Director indicated that removing a route or even reducing the number of buses operating on a given route is politically difficult, and the department has faced strong opposition to scaling back service even on routes with extensively diminished ridership.[56] The department is self-sufficient, but the transit area depends on the Student Success Fee and bus charter income.[57]

PARKING

Parking is a self-sustaining auxiliary unit funded through user fees.[58] With an estimated 6,500 resident students bringing a car to campus, many of the 20,741 parking spaces

[54] Organizational chart. Department of Transportation Services, Texas A&M University. http://transport.tamu.edu/about/files/OrgChartMgr.pdf
[55] "Transit Facts and Figures." Department of Transportation Services, Texas A&M University. http://transport.tamu.edu/transit/facts.aspx
[56] Lange, Op. cit.
[57] The History of Transportation Services," Op. cit.
[58] Lange, Op. cit.

available for students are taken by commuters. However, the university combined resident and commuter permits beginning with the fall semester of 2004. The Executive Director estimates that approximately 10,000 faculty and staff park at the university as well. The department regularly benchmarks its parking permit price, and it maintains and publishes detailed information on parking.[59] Since the University can oversell certain lots, such as commuter lots, the department issues more than 40,000 permits each year, including students, faculty, and staff.[60] Recent building growth has resulted in the loss of parking spaces. While the University plans to add garages, parking garages are more expensive to construct than lots, and the department considers a main challenge to be dealing with reduced space without substantially increasing the cost of permits.

The department implements different price points for different types of spaces, with incentives to park in outer areas. The department uses **a priority system to assign permits to faculty, staff, and students on the basis of various characteristics, such as time at the institution.** While most students park close to where they live, some students must park in perimeter lots farther away and are placed on a waitlist for a better permit.[61] Multiple bus routes service the perimeter spaces, resulting in fairly frequent service during class time and service at least every 30 minutes on nights and weekends.[62]

Fleet

The fleet area of the department leases more than 700 vehicles owned by the University and maintains more than 1,200 vehicles and 3,000 pieces of equipment.[63] University departments may purchase long-term rentals akin to leasing the vehicles. According to the Executive Director, the department regularly benchmarks its rental rates.[64] At one point the fleet maintained a motor pool and 15-passenger vans, but both were shut down because the motor pool was losing money and the vans were largely unused.

TDM Initiatives and Programs

As noted above, the department engages in an integrated approach to parking, transit, and the general transportation landscape. The University offers ride share, car share, bike share, and other bicycle services. The ride sharing program relies on Zimride, while the car sharing program is a partnership with Hertz 24/7. Notably, University departments may also establish department accounts for the car sharing program. The bike sharing program relies on MaroonBikes, a bike-sharing company.[65]

---

[59] "Parking Facts & Figures," Op. cit.
[60] "The History of Transportation Services," Op. cit.
[61] Lange, Op. cit.
[62] "Bus Routes." Department of Transportation Services, Texas A&M University. http://transport.tamu.edu/busroutes/
[63] "The History of Transportation Services," Op. cit.
[64] Lange, Op. cit.
[65] [1] "Car Share." Department of Transportation Services, Texas A&M University. http://transport.tamu.edu/Alternative/carshare.aspx
[2] "Ride Share." Department of Transportation Services, Texas A&M University. http://transport.tamu.edu/Alternative/rideshare.aspx

UNIVERSITY OF COLORADO BOULDER

Located in Boulder, Colorado, the flagship campus of the University of Colorado is home to over 30,000 students, representing approximately one-third of the city's population.

Figure 2.10: Reference Figures, University of Colorado Boulder

Total Student Population:	31,945
Undergraduate Student Population:	25,941
Total Number of Students Residing on Campus:	6,000*
Population of the Surrounding City:	97,385
Integration of Parking and Transportation Services:	Single Dept.
Total Number of Buses:	20
Total Number of Fleet Vehicles:	624**
Total Number of Parking Spaces:	11,354***

* Approximate
** Most fleet vehicles are department-owned
*** Of these, Parking Services operates 8,242 spaces.
Source: Census Bureau, NCES, and the University of Colorado Boulder[66]

ORGANIZATIONAL STRUCTURE

Parking and Transportation Services (PTS) is a division within the Department of Public Safety at the University of Colorado Boulder. **However, the parking and transportation components are not very integrated, according to the Director of Parking and Transportation Services**.[67] There is an associate director for each, and each unit is an auxiliary unit. Transportation services are provided in a separate, third area. The division is currently working on generating greater integration within the division and into the University, and there has been a recent change of leadership. In 2013, PTS welcomed a new Director who had previously been an Associate Director at Cornell University, where he helped launch and manage alternative transportation programs. In his current post, the Director notes that the division is working toward better clarity of goals for PTS from the senior level. The Director is also encouraging the University to consider commuter benefits to be employee benefits, which would help ensure the financial viability of PTS. The organizational structure of the department is shown below.

[3] "Bicycle Services." Department of Transportation Services, Texas A&M University. http://transport.tamu.edu/alternative/bicycles/services.aspx
[4] "Our Story." MaroonBikes. http://maroonbikeshare.com/our-story/

[66] [1] "Students." University of Colorado Boulder." http://www.colorado.edu/news/facts/students
[2] "2013 Annual Report." Parking and Transportation Services, University of Colorado Boulder. http://www.colorado.edu/pts/sites/default/files/attached-files/2013%20Annual%20Report.pdf
[3] Lieb, D. Director of Parking and Transportation Services, University of Colorado Boulder. Phone interviews, March 14 and 17, 2014.

[67] Lieb, Op. cit.

Administration	*Business Operations*	*Field Operations*	*Transportation Services*
▪ Accounting ▪ Communications ▪ IT ▪ Projects and Planning ▪ Transportation Options	▪ Appeals, Billing, Correspondence ▪ Customer Services ▪ Permits ▪ Revenue Control	▪ Enforcement ▪ Events ▪ Maintenance	▪ Fleet Management ▪ Vehicle Maintenance ▪ Driver Training ▪ Lease Operations ▪ Transit Operations[68]

TRANSIT

The only transit operation on campus is the Buff Bus, which connects Williams Village to the Main Campus, with an additional stop at the corner of the East Campus. PTS pays for the shuttle service, except for a portion of nighttime service paid for by the major student environmental group on campus. On weekdays, the Buff Bus runs approximately every five minutes from 6:45 A.M. until midnight. On weekends, the bus runs every 20 to 25 minutes from 10 A.M. until shortly before midnight.[69] According to the Director, there are currently 20 buses, with a maximum of seven buses on the route at any given time. The vehicles are also used as charters for students and departments. At this time, PTS is evaluating the need to increase campus bus service, given expansion in the student population and the physical size of the institution. However, there are currently no plans to expand.[70]

Off campus, there are two bus pass programs. All faculty and staff receive an EcoPass, valid for unlimited use of all regular bus and light rail service within the Regional Transit District (RTD), the public transit system of central Colorado.[71] Meanwhile, the student-led Environmental Center manages student passes, which are paid through fees determined by student government. The fee for Student Bus and Bike Programs, which includes the RTD CollegePass, bike programs, and other services, is $85 per semester.[72] The CollegePass also grants no-fare rides on most RTD service.[73]

PARKING

The current parking focus at PTS is to minimize parking. PTS sells approximately 3,000 permits to students and an additional 3,000 to faculty and staff. Due to the constraints of space and the addition of buildings, campus growth has been pushing parking toward the perimeter. In order to preserve space for other uses, PTS has been looking toward TDM to lower the demand for parking.[74]

[68] "About PTS Slideshow." Parking and Transportation Services, University of Colorado Boulder. Available from: http://www.colorado.edu/pts/about-us
[69] "Buff Bus." Parking and Transportation Services, University of Colorado Boulder. http://www.colorado.edu/pts/sites/default/files/attached-files/Buff%20Bus%20Brochure%2013-14.pdf
[70] Lieb, Op. cit.
[71] "EcoPass." RTD. http://www.rtd-denver.com/EcoPass.shtml
[72] "Student Fees." Bursar's Office, University of Colorado Boulder. https://bursar.colorado.edu/tuition-fees/fees-description/student-fees/
[73] "CollegePass." RTD. http://www.rtd-denver.com/CollegePass.shtml
[74] Lieb, Op. cit.

One issue in this area, however, is the structuring of institutional policies. The Director noted that the university had been giving retirees free parking permits, paid and administered through PTS, as opposed to human resources and employee benefits. As the Director notes, free permits mean that other permit holders are subsidizing these groups. Accordingly, the Director is working toward the re-categorization of these and other commuter benefits as employee benefits.[75]

Fleet

The majority of the University of Colorado's fleet of 624 vehicles is housed at the Boulder campus. In the 2013 fiscal year, PTS completed 1,108 lease reservations for the use of 49 lease vehicles within the broader fleet.[76] The vast majority of the fleet is department-owned.[77]

TDM Initiatives and Programs

TDM initiatives and programs are a major part of the agenda for PTS. The division manages carpooling and vanpooling programs, an eGo CarShare, and the guaranteed ride home program for the institution.[78] In conjunction with the Environmental Center, PTS also manages bicycle programs, though the Director of PTS notes that money for Environmental Center programs does not flow through PTS.[79] Notably, there are over 13,000 bicycle parking spaces on the Boulder campuses.

One of the major challenges for TDM and the division generally is the financial structure of PTS. TDM initiatives are dependent on parking revenue, so it is difficult to obtain funding for TDM programs.[80] The Director also noted that a related challenge is shifting funding from parking to TDM. Since parking lots and garages are expensive and take away potential sites for university buildings, the cost of not implementing TDM is high. However, it can be challenging to act on this, as the division depends on student fees and parking revenue.[81]

[75] Ibid.
[76] "2013 Annual Report," Op. cit.
[77] Lieb, Op. cit.
[78] "2013 Annual Report," Op. cit.
[79] Lieb, Op. cit.
[80] Ibid.
[81] Ibid.

UNIVERSITY OF VIRGINIA

The University of Virginia has a student population of nearly 24,000. It is located in Charlottesville, Virginia, a city of approximately 45,000 residents.

Figure 2.11: Reference Figures, University of Virginia

Total Student Population:	23,907
Undergraduate Student Population:	15,822
Total Number of Students Residing on Campus:	6,000*
Population of the Surrounding City:	43,475**
Integration of Parking and Transportation Services:	Single Dept.
Total Number of Buses:	34***
Total Number of Fleet Vehicles:	N/A
Total Number of Parking Spaces:	7,000****

* Approximate
** Unlike many other figures, this population does not include the university's campus and residence halls
*** The Department of Parking and Transportation provides on-campus transit with 34 buses, in addition to its four charter buses. This does not include the city buses that provide service connecting to the campus
**** Approximate, based on estimated three to four thousand each for students and for faculty and staff.
Source: Census Bureau, NCES, and the University of Virginia[82]

ORGANIZATIONAL STRUCTURE

The Department of Parking and Transportation at the University of Virginia is a single department with an integrated approach to the administration of parking and transportation operations. While the department does maintain a charter bus service, it does not provide fleet vehicles. The department operates financially as one autonomous entity, though the business office technically lists parking and transportation as separate accounting entities. When the income from parking fees, citation revenue, charter revenue, and other services exceeds expenditures, the department reduces fees.[83]

TRANSIT

Members of the University of Virginia community benefit from both University Transit Service (UTS) and unlimited free rides on buses run by the City of Charlottesville. Covering the main arteries of the campus with 34 transit buses, of which 27 are in service at any given time, UTS is a free shuttle bus service for students, faculty, and staff.[84] In addition, the university pays a lump sum to the city for its students, faculty, and staff to ride city buses for

[82] [1] "University of Virginia-Main Campus." NCES College Navigator. http://nces.ed.gov/collegenavigator/?q=university+of+virginia&s=all&id=234076
[2] Mansfield, A. Associate Director, Department of Parking and Transportation, University of Virginia. Phone interview, March 19, 2014.
[83] Mansfield, Op. cit.
[84] Ibid.

free. The Charlottesville Area Transit (CAT) routes include service along and within campus boundaries.[85]

PARKING

Since first-year students are not permitted to bring cars to campus, most residential student parking is located near dormitories for students in their second year or later. In addition, there are storage lots, which are more attractively priced to encourage parking outside the center of campus. The Associate Director estimated that approximately 3,000 to 4,000 students, as well as a similar number of faculty and staff, buy parking permits. **As the Department has increased permit prices and worked to convince students, faculty, and staff to use alternative means of transportation, permit sales have declined**. The Associate Director notes that this is one of the primary reasons he feels parking and transportation need to work together closely. The Department also offers a parking permit for occasional use, including the option to park only between Thanksgiving and Christmas.[86]

The UTS lines servicing garages and perimeter parking operate frequently on weekdays from 6 A.M. until 8 P.M. An additional bus line operates every 15 minutes from 8 P.M. to 12:30 A.M. daily. On weekends, service runs every 20 minutes from noon until 8 P.M. [87]

FLEET

Instead of fleet operations, the Department focuses on car sharing and other TDM programs. However, the Department does manage charter operations. In addition to using the standard transit buses, the Department owns four charter buses, including three full-size and one smaller bus.[88] The services are for university departments, organizations, students, faculty, and staff.[89]

TDM INITIATIVES AND PROGRAMS

The Department is extensively focused on TDM programs to reduce parking and improve transportation for the university community. These programs include Zipcar car share, Zimride ride sharing, a university-specific carpool and vanpool known as Cavpool, and the occasional parking permit mentioned above. Zipcar membership has grown tremendously in the past four years and currently stands at approximately 12,400 members. Other TDM services have experienced similar growth.[90] Carpooling commuters receive a discount on parking permits, with larger discounts provided for additional passengers per vehicle, and also have access to a guaranteed ride home program to cover the cost of taxi fare or a

[85] "Transit Service Routes." Department of Parking and Transportation, University of Virginia. http://www.virginia.edu/parking/documents/maps/Bus_Map_Layers_Web.pdf
[86] Mansfield, Op. cit.
[87] "Routes and Schedules." Department of Parking and Transportation, University of Virginia. http://www.virginia.edu/parking/uts/routes/index.html
[88] Ibid.
[89] "Charter Services." Department of Parking and Transportation, University of Virginia. http://www.virginia.edu/parking/charter/index.html
[90] Mansfield, Op. cit.

rental car if stranded.[91] In addition, there are several programs to promote bicycling. Overall, **the Associate Director stressed the importance of having a transportation demand manager on staff for the success of the department**.

[91] "CAVPOOL: U.Va's Carpool Incentives Program." Department of Parking and Transportation, University of Virginia. http://www.virginia.edu/parking/TDM/CAVPOOL/index.html

Project Evaluation Form

Hanover Research is committed to providing a work product that meets or exceeds partner expectations. In keeping with that goal, we would like to hear your opinions regarding our reports. Feedback is critically important and serves as the strongest mechanism by which we tailor our research to your organization. When you have had a chance to evaluate this report, please take a moment to fill out the following questionnaire.

http://www.hanoverresearch.com/evaluation/index.php

Caveat

The publisher and authors have used their best efforts in preparing this brief. The publisher and authors make no representations or warranties with respect to the accuracy or completeness of the contents of this brief and specifically disclaim any implied warranties of fitness for a particular purpose. There are no warranties which extend beyond the descriptions contained in this paragraph. No warranty may be created or extended by representatives of Hanover Research or its marketing materials. The accuracy and completeness of the information provided herein and the opinions stated herein are not guaranteed or warranted to produce any particular results, and the advice and strategies contained herein may not be suitable for every partner. Neither the publisher nor the authors shall be liable for any loss of profit or any other commercial damages, including but not limited to special, incidental, consequential, or other damages. Moreover, Hanover Research is not engaged in rendering legal, accounting, or other professional services. Partners requiring such services are advised to consult an appropriate professional.

1700 K Street, NW, 8th Floor
Washington, DC 20006

P 202.559.0500 F 866.808.6585
www.hanoverresearch.com

C: Focus Group Results

Undergraduate Students – Student Government Reps

Overview

- **Date**: Wednesday, February 27, 2019
- **Time**: 1:00 PM – 2:00 PM
- **Location**: 2111 Main Administration
- **Format**: 1-Hour Discussion
- **Attendees**: 6 Total

Key Themes

- **Parking Tickets**: Many students have an unfavorable view of DOTS, viewing them primarily as an organization that issues tickets rather than a customer service-first organization.
- **Communication**: Transportation options are not well-communicated to students; many students are unaware of their options other than to purchase a parking permit; Nite Ride is an example of a confusing service (difficult to understand times, pick-up/drop-off areas, etc.)
- **Pedestrian Safety**: Campus design forces vehicles and transit to use very few access points, creating pedestrian/vehicle conflicts at the major gateways to campus; Undergraduates in this group feel that the University should consider removing traffic from campus altogether (other than transit vehicles) with parking on the outside edges; pedestrian safety will be key when the Purple Line begins operation.
- **Bicycle Access/Scooters**: Need much better bicycle connectivity to surrounding neighborhoods; campus feels car-focused rather than bicycle/pedestrian focused; many cyclists ride on sidewalks due to lack of options; if e-scooters are allowed on campus, users will likely ride on sidewalks unless better bicycling connectivity is added.
- **Bus Schedules and Frequency**: Current bus schedules do not adequately meet student needs; many routes are infrequent and not useful; bus service needs to be reliable and frequent to a variety of destinations (including Metro stations) in order to allow students to avoid bringing a car to campus; a robust transit network that allows students to quickly access off-campus destinations, including grocery stores and dining, would be one of the most effective improvements in reducing the need for vehicles on campus.
- **Strategic Planning and Sustainability**: DOTS should focus on sustainability as a key mission and develop a transparent plan in working towards specific long-term goals; currently there is a perception of increasing fees with diminishing service.
- **On-Campus Transportation**: There is a need for more options to get around campus; if students are able to easily move around campus and to key destinations without a car, there will be a reduced need to store vehicles on campus.
- **Flexible Parking Options**: There are not enough options for those who drive infrequently to campus, particularly those who park overnight occasionally.

Undergraduate Students – On-Campus Residents

Overview

- **Date**: Wednesday, February 27, 2019
- **Time**: 4:00 PM – 5:00 PM

- **Location**: 2111 Main Administration
- **Format**: 1-Hour Discussion
- **Attendees**: 6 Total

Key Themes

- **Financial Sustainability**: There is significant concern among students regarding the sustainability of the DOTS funding model; fees are rising while bus service is being cut; many feel DOTS is headed in the wrong direction and the funding issue needs to be addressed; more funding sources are needed other than just student fees and parking permits; consider obtaining additional funding for DOTS when a parking lot is removed (to avoid bus service cuts and/or parking fee increases); also consider additional fees for those who use commuter-focused shuttle service.
- **Communication**: Transportation options are not well-communicated to students; many students are unaware of their options other than to purchase a parking permit; signage and route maps are inadequate, and a much better bus location app is needed to effectively communicate transit options; many student do not use existing service because it is difficult to determine which options are available; the routing app should show when buses are running full in real-time to avoid having students wait for a full bus.
- **Bus Schedules and Frequency**: There are many routes that work well for some students, but not all; many routes are very infrequent and not useful; bus service needs to be reliable and frequent to a variety of destinations to make it easy to not have a car on campus; getting students to key destinations (particularly to the grocery store) on frequent and reliable schedules should be a priority.
- **Partnerships**: DOTS should partner with transit providers (WMATA) and the City of College Park to allow for more strategic planning that better connects the campus to its surroundings; avoid redundancy and leverage partnerships to increase efficiency of service; integrate with the WMATA system.
- **On-Campus Transportation**: There is a need for more options to get around campus; if students can easily move around campus and to key destinations without a car, there will be a reduced need to store vehicles on campus.
- **Bicycle Access/Scooters**: Need much better bicycle connectivity to surrounding neighborhoods; campus feels car-focused rather than bicycle/pedestrian focused; bike lanes could serve both cyclists as well as scooter riders.
- **Parking Supply**: Consider transitioning parking to the edges of campus or to satellite lots connected with high frequency shuttle service.

Undergraduate Students – Commuters

Overview

- **Date**: Wednesday, February 27, 2019
- **Time**: 3:00 PM – 4:00 PM
- **Location**: 2111 Main Administration
- **Format**: 1-Hour Discussion
- **Attendees**: 5 Total

Key Themes

- **Pedestrian Safety**: Conflicts between pedestrians and vehicles need to be addressed; pedestrian bridges/underpasses are needed; also consider eliminating traffic from campus (only allow transit service); campus should be a pedestrian-focused (rather than vehicle-focused) area; construction is a constant issue for pedestrians on campus.
- **Bus Schedules and Frequency**: Current schedules do not adequately meet student needs; many routes are very infrequent and not useful; they seem to focus exclusively on morning and evening service and do not allow for variable schedules.
- **Parking Supply**: Consider transitioning parking to the edges of campus or to satellite lots connected with high frequency shuttle service; new buildings should come with new parking.
- **Partnerships**: DOTS should partner with WMATA to allow for more strategic planning, avoid redundancy, and increase efficiency of service; integrate with the WMATA system.
- **Financial Sustainability**: Many feel DOTS is headed in the wrong direction; fees are rising while bus service is being cut; linking funding for bus service to parking permits with a diminishing supply is not sustainable; consider partnerships to operate commuter buses.
- **On-Campus Transportation**: There is a need for more options to get around campus; improved bicycle connectivity, bike share, or scooters could help address this need.
- **Parking Availability**: It can be difficult to find parking in garages; implement a system to direct parkers to available spaces.
- **System Priorities**: Permit holders should not be required to move their vehicles to accommodate sporting events, demonstrates misplaced priorities.
- **Pick-Up/Drop-Off Zones**: There should be designated zones for rideshare pickup; drivers currently circulate very slowly looking for passengers.

Graduate Student Group

Overview

- **Date**: Thursday, February 28, 2019
- **Time**: 9:00 AM – 10:00 AM
- **Location**: 2101 Main Administration
- **Format**: 1-Hour Discussion
- **Attendees**: 5

Key Themes

- **Bus Schedules and Frequency**: There are many routes, but not frequent enough to serve the needs of all users (particularly on weekends); Many routes stop service in the early evening, making it an unviable option for graduate students with evening classes to rely on transit.
- **Partnerships**: DOTS should partner with WMATA to provide regional transit service rather than run many infrequent routes within limited service. DOTS service should focus on local transit (getting around campus), and very frequent service to specific locations (satellite parking lots).
- **Manage the Existing Parking Supply**: Parking lot locations are not always convenient; there should be an option to use additional, more convenient lots, during off-peak times

(such as evenings and weekends) when many lots sit largely empty; in general, there is adequate parking in your assigned lot, but it can be inconvenient; most parking stalls are very small and can be inefficient if a vehicle takes up two spaces.

- **Parking Permit Costs**: Consider alternative pricing models, such as a tiered structure based on where there is highest demand; some would consider lower cost option with a shuttle; parking permit costs can be high, particularly when graduate students must occasionally use paid hourly parking to access buildings.
- **On-Campus Transportation**: There is a need for more options to get around campus without having to walk several miles each day; transit service is not a reliable option for getting around campus; consider transit-only lanes and transit priority.
- **Bicycle Access/Scooters**: Need much better bicycle connectivity to surrounding neighborhoods; many more students would bike if it were safer with better connectivity; scooters could also use bicycle facilities and could be a good option if they help to reduce the need for vehicle trips to campus.
- **Pedestrian Safety/Vehicle Conflicts**: Conflicts between pedestrians and vehicles on campus needs to be addressed; consider grade separation; students should be able to move freely without delaying transit.

Staff Groups

Overview

- **Date**: Wednesday, February 27, 2019
- **Time**: 9:00 AM – 10:00 AM (Group #1); 2:00 PM – 3:00 PM (Group #2)
- **Location**: 2111 Main Administration
- **Format**: 1-Hour Discussion
- **Attendees**: 9 Total; Group #1: (6), Group #2: (3)

Key Themes

- **Parking Permit Costs**: Fees are too high for some staff; there should be more tiers as highly compensated employees pay very similar costs to lower income staff; parking tickets are also very expensive.
- **Pedestrian Safety**: Conflicts between pedestrians and vehicles on campus need to be addressed immediately, preferably through improved traffic control. Lighting is also inadequate in the early AM; it feels unsafe to walk long distances in the early morning.
- **Bus Schedules and Frequency**: Current shuttle schedules are student-focused and do not always adequately serve staff needs (particularly for early AM arrivals); there are many routes, but not frequent enough to serve the needs of all users. Need to invest in reliable, convenient, high-frequency transit in order to allow more people to avoid driving to campus.
- **Bicycle Access**: Need much better bicycle connectivity to surrounding neighborhoods.
- **Parking Supply**: Parking is frequently removed and not replaced; parking garages are needed to allow the campus to continue to grow, particularly to support visitors/events; consider athletics revenue to construct additional parking; visitor parking options are confusing and inadequate; for staff/students/faculty, there have been fewer complaints in recent years that they are unable to find parking.

- **Satellite Parking**: Remote parking options should be considered (for a reduced fee), but it will always be important to maintain options for parking on campus (particularly for the elderly or those with disabilities); many staff already must park very far from their buildings, which can be a challenge for some individuals.
- **Housing Supply**: Apartment/housing pricing near campus is very expensive and staff therefore often must live far from campus without options to bike/walk.
- **On-Campus Transportation**: There is a need for more options to get around campus; driving or taking transit are not feasible options to get across campus; Facilities Management uses golf cars to get around campus/carry tools, but not all staff have convenient options for getting around campus.
- **Traffic**: Traffic on surrounding roadways and campus roads is a major issue; not feasible to use a vehicle to drive around campus.
- **Communication**: Transportation programs (such as the carpool program or transit subsidies) are not well-communicated; processes are confusing, serving as a barrier for many.

Faculty Groups

Overview

- **Date**: Wednesday, February 27, 2019 & Thursday, February 28, 2019
- **Time**: 10:00 AM – 11:00 AM (both sessions)
- **Location**: 2111/2101 Main Administration
- **Format**: 1-Hour Discussion
- **Attendees**: 5 Total; Group #1: (3), Group #2: (2)

Key Themes

- **Pedestrian Safety**: Conflicts between pedestrians and vehicles on campus needs to be addressed immediately, potentially with more pedestrian-only areas, transit priority, or improved traffic management (on surrounding roadways); major issue during class change.
- **Bus Schedules and Frequency**: There are many routes, but not frequent enough to serve the needs of all users; not a reliable option when a route only runs every hour or more; transit service is not optimized for current conditions and has been reduced in recent years; need to invest in reliable, convenient, high-frequency transit in order to allow more people to avoid driving to campus; transit service is very unreliable during poor weather (many buses run full, with no other options provided); when buses are full, this is not communicated to waiting passengers.
- **Parking Supply**: Parking is frequently removed and not replaced; parking garages may be needed, or additional (discounted) satellite parking options served by high frequency transit; if additional parking is constructed on campus, it will be important to build garages and avoid further reductions to green space.
- **Parking Permit Costs**: Fees too high for some staff; there should be more tiers as highly compensated employees pay very similar costs to lower income staff; there also should be lower cost options for those willing to walk further or take a shuttle; consider

occasional parking pass options (as an alternative to unlimited passes) to promote use of alternative modes.

- **Bicycle Access/Scooters**: Need much better bicycle connectivity to surrounding neighborhoods; campus feels car-focused rather than bicycle/pedestrian focused; bicycle infrastructure enhancements, traffic calming, bike share, and other bicycle amenities can work together to better connect with the surrounding neighborhoods; if e-scooters are allowed on campus, consider a policy to address potential safety concerns.
- **Partnerships**: DOTS should partner with transit providers and the City of College Park to allow for more strategic planning that better connects the campus to its surroundings; there needs to be more institutional flexibility to address issues that affect the entire campus community and surrounding neighborhoods.
- **Traffic**: Traffic on surrounding roadways and campus roads is a major issue and not well managed; need better options for crossing major roadways (by bike and on foot).
- **On-Campus Transportation**: Faculty would be more inclined to bike, walk, or take transit to campus if there were better, more reliable options for getting around campus.

Admissions and Visitor Perspective

Overview

- **Date**: Thursday, February 28, 2019
- **Time**: 11:00 AM – 12:00 PM
- **Location**: 2101 Main Administration
- **Format**: 1-Hour Discussion
- **Attendees**: 7 Total

Key Themes

- **Visitor Parking Supply**: It is becoming more difficult for visitors to access campus and find parking quickly and easily; the Visitor Center parking lot is far too small to meet the needs of visitors, and the time required to find parking and walk long distances to the Visitor Center leads to a very poor first impression; unlike other user groups, visitors can not be expected to rely on transit and a central, reliable parking facility is needed to serve the needs of visitors.
- **Parking Fines**: Issuing tickets to visitors leads to a very poor first impression, particularly given the lack of parking options and confusing regulations; although fines are typically forgiven, this requires the visitor to figure the system out on their own; a much better approach would be to issue a first time warning where the visitor does not need to take action; receiving a ticket in a rental car is particularly difficult.
- **Satellite Parking**: Existing parking garages require visitors to walk long distances as existing buses are infrequent and can be confusing; remote parking options can work if served by very high frequency shuttle service (similar to "Economy" lots at airports); if additional visitor parking is not added to campus, there should be a single garage/lot where staff can direct visitors to park and take a convenient, reliable shuttle to their destination; storage of student vehicles on campus should not be a priority, and requiring students to use remote parking options would not be a deterrent as long as there are reliable transit options.

- **Department Coordination**: DOTS should provide a single point of contact to assist with coordination of special events/visitor needs; Visitor services currently must reach out to a variety of contacts to attempt to coordinate events, and often simply resort to putting up additional signage on their own; when and how to pay for events/visitor parking can be very confusing, cumbersome, and inconsistent.
- **Customer-Service Orientation**: DOTS is perceived as an enforcement organization while their focus should be on customer service and helping campus visitors find parking and understand transportation options.
- **Communication**: Wayfinding and parking regulations are very confusing for visitors (except during special events when additional signage is added).
- **On-Campus Transportation**: There are no reliable options for getting around campus quickly and reliably; consider transit-only lanes and additional service to provide a reliable, high-frequency option for getting around campus.
- **Parking Permit Costs**: Fees too high for some staff; consider lower cost options for those willing to walk further or take a shuttle; some staff will continue to prefer higher cost, centrally located parking due to the need for flexibility.
- **Pedestrian Safety**: Conflicts between pedestrians and vehicles at the entry points to campus need to be addressed; pedestrians have priority once on campus, but the gateways to campus are not welcoming.
- **Traffic**: Traffic on surrounding roadways and campus roads is a major issue, not well managed, and getting worse; one accident can lead to extremely long delays.
- **Bus Schedules and Frequency**: There are many routes, but not frequent enough to serve the needs of all users; taking transit typically requires very long wait times.

Business Community Perspective

Overview

- **Date**: Thursday, February 28, 2019
- **Time**: 1:00 PM – 2:00 PM
- **Location**: 2101 Main Administration
- **Format**: 1-Hour Discussion
- **Attendees**: 6 Total

Key Themes

- **Pedestrian Connectivity**: Improved pedestrian connectivity, including sidewalks and wayfinding, are needed to better connect central campus to the Metro Station, Discovery District, and other campus areas; these areas are currently not integrated well with campus.
- **Transit Connectivity:** Improved transit is needed to connect the entire campus together (including the Discovery District and other districts); the Purple Line will help to address this issue but need to consider passes that can be used by visitors and others without a University pass; small-scale transit vehicles could serve as an additional option; the focus should be on last-mile connectivity (such as getting people between the Metro Station and Hotel); a multimodal hub could serve as a single point to transfer between multiple modes.

- **Communication**: There is a need for signage and wayfinding at the Metro station to welcome visitors to the area and direct them to campus; there is very little indication that they have arrived at the University when accessing from the Metro station.
- **Bicycle Access/Scooters**: Need much better bicycle connectivity to surrounding neighborhoods.
- **Transportation Demand Management**: There are a variety of transportation options, but there is a need for a more targeted approach to TDM and incentives for using alternative modes; a TDM plan should be developed for the University and Partners.
- **Partnerships**: DOTS should focus on developing relationships and partnerships and breaking down barriers; particularly with growth in Discovery District and the Purple Line, there is a need to focus on serving all user groups and the broader College Park community; cost-sharing agreements and other programs that allow the University to work with College Park stakeholders are currently difficult to structure.
- **Funding:** DOTS should seek additional funding sources to allow for a broader mission to focus on serving the entire community; with diminishing parking supplies and few options for increases in revenue, other options are needed.

D: Community Survey Results

Community Survey Summary

Undergraduate Students

Responses: 1,948 (34% of all respondents)

- **Frequency of Traveling to Campus**: 40% live on campus, 46% travel to campus daily during the week, 12% travel to campus between 2 and 4 times per week.
- **Typical Arrival Time**: 43% typically arrive on campus between 9 AM and 11 a.m., 36% typically arrive between 7 AM and 9 a.m., 11% typically arrive before 7 a.m., and 10% arrive after 11 a.m.
- **Typical Departure Time**: 43% typically depart campus after 5 p.m., 41% typically depart between 3 PM and 5 p.m., and 17% typically depart before 3:00 PM
- **Travel Time (Morning):** Undergraduates report the shortest average commute times, with 37% reporting a travel time of 10 minutes or less (including N/A responses), 61% reporting a travel time of 20 minutes or less, and 75% reporting a travel time of 30 minutes or less.
- **Travel Time (Evening):** Undergraduates report slightly longer travel times in the evening, with 37% reporting a travel time of 10 minutes or less (including N/A responses), 57% reporting a travel time of 20 minutes or less, and 71% reporting a travel time of 30 minutes or less.
- **Travel Time (Midday):** Among those who travel between 11 AM and 3 PM (excluding N/A responses, or 28% of respondents), 24% report a travel time of 10 minutes or less, 54% report a travel time of 20 minutes or less, and 73% report a travel time of 30 minutes or less.
- **Mode**: Undergraduates have the highest non-auto mode share, with only a 27% drive alone rate. 41% walk, 20% take Shuttle-UM, 6% bike, 4% take public transit (bus, Metro, etc.), and 2% carpool.
- **Reason for Mode** within each user group, based on primary reported mode of travel:
    - **Drive**: 53% for convenience, 24% for timing.
    - **Shuttle-UM**: 45% for convenience, 40% for cost.
    - **Walk**: 65% for convenience, 14% for timing.
    - **Bike**: 42% for timing, 39% for convenience.
    - **Public Transit**: 35% for convenience, 34% for cost.
- **Concerns about Current Commute**: Top concerns included travel time from home to campus (23% of votes), traffic/congestion (19% of votes), and costs (19% of votes). Among write-in answers, nearly 50% were most concerned with safety/lighting/weather while biking and walking on campus.
- **TDM Program Familiarity and Usage**: Undergraduates are not very familiar with the available TDM programs, with 65% or more not aware of the parking cash out program (9% reported participation), pre-tax transit benefit (1% reported participation), or the low emission vehicle discount (1% reported participation). 58% were not aware of any carpool/vanpool incentives (3% reported participation). However, most (69%) were aware of bike commuter benefits, with 11% reported participation.
- **Most Recent Parking Experience**: Undergraduate students reported the lowest levels of satisfaction with their most recent campus parking experience, with 37% reporting "poor/needs improvement" and only 29% reporting satisfactory or better.

- **Number and Types of Interactions with DOTS**: Undergraduate students reported the highest frequency of interactions with DOTS, with 31% reporting at least 3 interactions in the last year and only 29% reporting no interactions with DOTS. 30% reported receiving a ticket (and 21% reported appealing a ticket), 27% reported obtaining/modifying a parking permit, and 20% reported reaching out to obtain Shuttle-UM information.
- **Rating of DOTS Customer Service**: Undergraduate students reported the lowest levels of satisfaction with DOTS' customer service, with 27% reporting poor/needs improvement for overall satisfaction and 33% reporting satisfactory or better. "Willingness to work with me" scored the lowest rating, while "professionalism/courtesy" scored the highest.
- **Accessing DOTS Information**: Top preferences for receiving DOTS information include campus email (61%) and the DOTS website (54%).
- **Levels of Enforcement**: Undergraduate students overwhelmingly feel that enforcement on campus is "overly aggressive" (64%).
- **Parking Priorities**: Affordability is the top undergraduate priority for parking (44% of votes), followed by abundance (29%).
- **Incentives:** Undergraduate students are the most receptive to incentives to park farther from campus, with 73% expressing some willingness. A parking discount was the top-rated incentive to park farther from campus (28% of votes).
- **Improvements:** Of the answer choices provided, the top improvements selected included reduced parking rates (36% of votes), improved parking space/facility condition (19% of votes), and improved parking and transit option communication (15%). Among write-in answers, many expressed a desire for improved shuttle/transit service (35% of write-in votes), more parking options/availability (24% of write-in votes), and improved bicycle infrastructure (11% of write-in votes).

Graduate Students

Responses: 1,043

- **Frequency of Traveling to Campus**: 52% travel to campus daily during the week, 36% travel to campus between 2 and 4 times per week, and 7% travel to campus once per week.
- **Typical Arrival Time**: 42% typically arrive on campus between 9 AM and 11 a.m., 34% typically arrive between 7 AM and 9 a.m., and 24% arrive after 11 a.m.
- **Typical Departure Time**: Graduate students leave the latest of any group. 71% typically depart campus after 5 p.m., 24% typically depart between 3 PM and 5 p.m., and only 5% typically depart before 3:00 PM
- **Travel Time (Morning):** Among those who travel before 11 AM (excluding N/A responses, or 10% of respondents), 10% report a travel time of 10 minutes or less, 37% report a travel time of 20 minutes or less, and 62% report a travel time of 30 minutes or less; 38% travel for 30 minutes or more.
- **Travel Time (Evening):** Among those who travel after 3 PM (excluding N/A responses, or 4% of respondents), 8% report a travel time of 10 minutes or less, 30% report a travel time of 20 minutes or less, and 55% report a travel time of 30 minutes or less; 45% travel for 30 minutes or more.

- **Travel Time (Midday):** Among those who travel between 11 AM and 3 PM (excluding N/A responses, or 20% of respondents), 10% report a travel time of 10 minutes or less, 41% report a travel time of 20 minutes or less, and 65% report a travel time of 30 minutes or less; 35% travel for 30 minutes or more.
- **Mode**: Graduate students have the highest rate of Shuttle-UM usage (26%); 45% drive alone, 9% walk, 8% take public transit (bus, Metro, etc.), 7% bike, and 3% carpool.
- **Reason for Mode** within each user group, based on primary reported mode of travel:
    - **Drive**: 48% for convenience, 32% for timing, and 17% indicate no other viable option.
    - **Shuttle-UM**: 56% for cost, 31% for convenience.
    - **Walk**: 44% for convenience, 25% for timing.
    - **Bike**: 29% for convenience, 29% for cost, 27% for timing.
    - **Public Transit**: 39% for convenience, 28% for cost, and 24% indicate no other viable option.
- **Concerns about Current Commute**: Top concerns included travel time from home to campus (24% of votes), costs (17% of votes), and traffic/congestion (15% of votes). Among write-in answers, 48% were most concerned with limited Shuttle-UM / public transit service during their travel times, and 34% were most concerned with safety/lighting/weather while biking and walking on campus.
- **TDM Program Familiarity and Usage**: Graduate students are not very familiar with the available TDM programs, with 62% or more not aware of the parking cash out program (6% reported participation), pre-tax transit benefit (1% reported participation), or the low emission vehicle discount (<1% reported participation). 54% were not aware of any carpool/vanpool incentives (1% reported participation). However, most (68%) were aware of bike commuter benefits, with 13% reported participation.
- **Most Recent Parking Experience**: Nearly half (45%) were at least generally satisfied with their most recent parking experience, with 35% less than satisfied (12% fair, 23% poor).
- **Number and Types of Interactions with DOTS**: 24% reported at least 3 interactions with DOTS in the last year and 33% reported no interactions with DOTS. 22% reported receiving a ticket (and 16% reported appealing a ticket), 32% reported obtaining/modifying a parking permit, and 21% reported reaching out to obtain Shuttle-UM information.
- **Rating of DOTS Customer Service**: A minority of graduate students were less than satisfied with DOTS' customer service, with 16% reporting poor/needs improvement for overall satisfaction and 47% reporting satisfactory or better. "Willingness to work with me" scored the lowest rating, while "professionalism/courtesy" scored the highest.
- **Accessing DOTS Information**: Top preferences for receiving DOTS information include campus email (66%) and the DOTS website (54%).
- **Levels of Enforcement**: 42% of graduate students feel that enforcement on campus is "overly aggressive" while 38% expressed no opinion.
- **Parking Priorities**: Affordability is the top graduate student priority for parking (41% of votes), followed by convenience (35%).
- **Incentives:** Graduate students are generally receptive to incentives to park farther from campus, with 68% expressing some willingness. A shuttle with convenient/frequent times was the top-rated incentive to park farther from campus (28% of votes).

- **Improvements:** Of the answer choices provided, the top improvements selected included reduced parking rates (31% of votes), improved parking space/facility condition (17% of votes), and improved parking and transit option communication (17% of votes). Among write-in answers, many expressed a desire for improved shuttle/transit service (43% of write-in votes), more parking options/availability (26% of write-in votes), and improved bicycle infrastructure (9% of write-in votes).

Faculty

Responses: 861

- **Frequency of Traveling to Campus**: 57% travel to campus daily during the week, 34% travel to campus between 2 and 4 times per week, and 6% travel to campus once per week.
- **Typical Arrival Time**: 44% typically arrive on campus between 9 AM and 11 a.m., 42% typically arrive between 7 AM and 9 a.m., 5% typically arrive before 7 a.m., and 10% arrive after 11 a.m.
- **Typical Departure Time**: 57% typically depart campus after 5 p.m., 36% typically depart between 3 PM and 5 p.m., and only 7% typically depart before 3:00 PM
- **Travel Time (Morning):** Among those who travel before 11 AM (excluding N/A responses, or 3% of respondents), 5% report a travel time of 10 minutes or less, 21% report a travel time of 20 minutes or less, and 42% report a travel time of 30 minutes or less; 58% travel for 30 minutes or more.
- **Travel Time (Evening):** Among those who travel after 3 PM (excluding N/A responses, or 3% of respondents), 4% report a travel time of 10 minutes or less, 16% report a travel time of 20 minutes or less, and 35% report a travel time of 30 minutes or less; 65% travel for 30 minutes or more.
- **Travel Time (Midday):** Among those who travel between 11 AM and 3 PM (excluding N/A responses, or 27% of respondents), 6% report a travel time of 10 minutes or less, 23% report a travel time of 20 minutes or less, and 53% report a travel time of 30 minutes or less; 47% travel for 30 minutes or more.
- **Mode**: Faculty have the highest rate of public transit usage (11%); 66% drive alone, 9% take Shuttle-UM, 5% bike, 4% carpool, and 2% walk.
- **Reason for Mode** within each user group, based on primary reported mode of travel:
    - **Drive**: 53% for convenience, 28% for timing, and 16% indicate no other viable option.
    - **Shuttle-UM**: 55% for cost, 37% for convenience.
    - **Walk**: 50% for convenience, 13% for cost, and 25% for other benefits (exercise, environment, etc.)
    - **Bike**: 34% for other benefits (exercise, environment, etc.), 26% for cost, 21% for convenience, and 17% for cost.
    - **Public Transit**: 36% for convenience, 24% for cost, and 15% indicate no other viable option.
- **Concerns about Current Commute**: Top concerns included travel time from home to campus (23% of votes), traffic/congestion (21% of votes), travel time from campus to home (18%), and costs (14%). Among write-in answers, 35% were most concerned with

safety/lighting/weather while biking and walking on campus and 28% were most concerned with limited Shuttle-UM / public transit service during their travel times.

- **TDM Program Familiarity and Usage**: Most faculty are not aware of the parking cash out program (57%), with 5% reported participation. However, most (at least 59%) were aware of other programs, with 7% participation in the pre-tax transit benefit, 6% participation in the low-emission vehicle discount, 1% participation in the carpool program, and 8% participation in the bike commuter program.
- **Most Recent Parking Experience**: Most faculty were generally satisfied with their most recent parking experience (62% satisfied or better) with only 22% less than satisfied (9% fair, 14% poor).
- **Number and Types of Interactions with DOTS**: 22% reported at least 3 interactions with DOTS in the last year and 28% reported no interactions with DOTS. 19% reported receiving/appealing a ticket, 27% reported obtaining/modifying a parking permit, and 17% reported reaching out to obtain Shuttle-UM information.
- **Rating of DOTS Customer Service**: Most faculty are generally satisfied with DOTS' customer service, with 63% satisfied or better and only 9% reporting poor/needs improvement. "Willingness to work with me" and website scored the lowest, while "professionalism/courtesy" scored the highest.
- **Accessing DOTS Information**: Top preferences for receiving DOTS information include campus email (69%) and the DOTS website (51%).
- **Levels of Enforcement**: 36% of faculty feel that enforcement on campus is "overly aggressive," while 31% expressed no opinion and 31% felt enforcement levels are appropriate.
- **Parking Priorities**: Convenience is the top faculty priority for parking (41% of votes), followed by affordability (37%).
- **Incentives:** Faculty are the user group least receptive to incentives to park farther from campus, with just 54% expressing some willingness. A shuttle with convenient/frequent times was the top-rated incentive to park farther from campus (20% of votes).
- **Improvements:** Of the answer choices provided, the top improvements selected included reduced parking rates (31% of votes), improved parking space/facility condition (18% of votes), and improved parking and transit option communication (16% of votes). Among write-in answers, many expressed a desire for improved shuttle/transit service (32% of write-in votes), more parking options/availability (20% of write-in votes), and improved bicycle infrastructure (14% of write-in votes).

Staff

Responses: 1,854

- **Frequency of Traveling to Campus**: 87% travel to campus daily during the week, 9% travel to campus between 2 and 4 times per week, and 2% travel to campus once per week.
- **Typical Arrival Time**: 70% typically arrive on campus between 9 AM and 11 a.m., 17% typically arrive between 7 AM and 9 a.m., 11% typically arrive before 7 a.m., and 2% arrive after 11 a.m.
- **Typical Departure Time**: 45% typically depart campus after 5 p.m., 50% typically depart between 3 PM and 5 p.m., and only 4% typically depart before 3:00 PM

- **Travel Time (Morning):** Among those who travel before 11 AM (excluding N/A responses, or 2% of respondents), 5% report a travel time of 10 minutes or less, 20% report a travel time of 20 minutes or less, and 42% report a travel time of 30 minutes or less; 58% travel for 30 minutes or more.
- **Travel Time (Evening):** Among those who travel after 3 PM (excluding N/A responses, or 4% of respondents), 3% report a travel time of 10 minutes or less, 15% report a travel time of 20 minutes or less, and 33% report a travel time of 30 minutes or less; 67% travel for 30 minutes or more.
- **Travel Time (Midday):** Among those who travel between 11 AM and 3 PM (excluding N/A responses, or 41% of respondents), 7% report a travel time of 10 minutes or less, 27% report a travel time of 20 minutes or less, and 55% report a travel time of 30 minutes or less; 45% travel for 30 minutes or more.
- **Mode**: Staff have the overall highest drive alone rate (79%); 7% take public transit, 5% carpool, 4% take Shuttle-UM, 2% walk, and 1% bike.
- **Reason for Mode** within each user group, based on primary reported mode of travel:
    - **Drive**: 61% for convenience, 22% for timing, and 13% indicate no other viable option.
    - **Shuttle-UM**: 68% for cost, 22% for convenience.
    - **Walk**: 51% for convenience, 22% for cost, and 14% indicate no other viable option.
    - **Bike**: 46% for cost, 21% for convenience, 18% for other benefits (exercise, environment, etc.), and 11% for timing.
    - **Public Transit**: 38% for convenience, 38% for cost, and 12% indicate no other viable option.
- **Concerns about Current Commute**: Top concerns included traffic/congestion (25% of votes), travel time from home to campus (22% of votes), travel time from campus to home (19% of votes), and costs (19% of votes). Among write-in answers, 25% were most concerned with safety/lighting/weather while biking and walking on campus and 23% were most concerned with limited Shuttle-UM / public transit service during their travel times.
- **TDM Program Familiarity and Usage**: Staff are least familiar with the parking cash out program (45% not aware of), with 5% reported participation. However, most (at least 74%) were aware of other programs, with 6% participation in the pre-tax transit benefit, 4% participation in the low-emission vehicle discount, 3% participation in the carpool program, and 6% participation in the bike commuter program.
- **Most Recent Parking Experience**: Most staff were generally satisfied with their most recent parking experience (62% satisfied or better) with only 21% less than satisfied (8% fair, 13% poor).
- **Number and Types of Interactions with DOTS**: 25% reported at least 3 interactions with DOTS in the last year and 27% reported no interactions with DOTS. 19% reported receiving/appealing a ticket, 23% reported obtaining/modifying a parking permit, and 14% reported reaching out to obtain Shuttle-UM information.
- **Rating of DOTS Customer Service**: Most staff are generally satisfied with DOTS' customer service, with 68% satisfied or better and only 6% reporting poor/needs improvement.

"Willingness to work with me" and website scored the lowest, while "professionalism/courtesy" scored the highest.

- **Accessing DOTS Information**: Top preferences for receiving DOTS information include campus email (78%) and the DOTS website (49%).
- **Levels of Enforcement**: 43% of staff feel that enforcement on campus is "overly aggressive," while 20% expressed no opinion and 35% felt enforcement levels are appropriate.
- **Parking Priorities**: Affordability is the top staff priority for parking (45% of votes), followed by convenience (38%).
- **Incentives:** Staff are similar to faculty in terms of receptiveness to incentives to park farther from campus, with just 55% expressing some willingness. A parking discount was the top-rated incentive to park farther from campus (25% of votes).
- **Improvements:** Of the answer choices provided, the top improvements selected included reduced parking rates (39% of votes), improved parking space/facility condition (20% of votes), and improved parking and transit option communication (12% of votes). Among write-in answers, many expressed a desire for improved shuttle/transit service (31% of write-in votes), more parking options/availability (27% of write-in votes), and additional TDM programs/incentives (11% of write-in votes).

Visitors

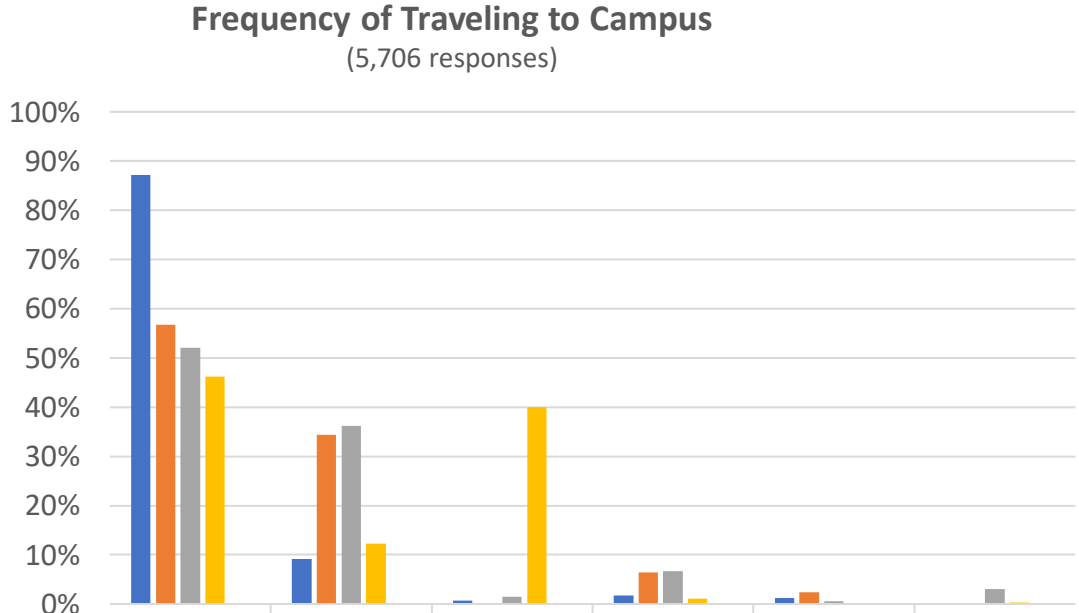
Responses: 103

- **Mode**: 73% of visitors typically drive alone to campus, 9% take Shuttle-UM, 6% carpool, 4% take public transit, 4% bike, and 3% walk.
- **Most Recent Parking Experience**: Most visitors were generally satisfied with their most recent parking experience (65% satisfied or better) with 24% less than satisfied (6% fair, 18% poor).
- **Number and Types of Interactions with DOTS**: 39% reported at least 1 interaction with DOTS in the last year and 61% reported no interactions with DOTS. 8% reported receiving a ticket, 8% reported obtaining/modifying a parking permit, and 8% reported reaching out to obtain Shuttle-UM information.
- **Rating of DOTS Customer Service**: Most visitors are generally satisfied with DOTS' customer service, with 75% satisfied or better and 13% reporting poor/needs improvement.
- **Accessing DOTS Information**: Top preferences for receiving DOTS information include the DOTS website (45%) and campus email (29%).
- **Levels of Enforcement**: 24% of visitors feel that enforcement on campus is "overly aggressive," while 40% expressed no opinion and 34% felt enforcement levels are appropriate.

Community Survey Question Results

Frequency of Traveling to Campus

Question: "Please select the answer that most accurately describes you"



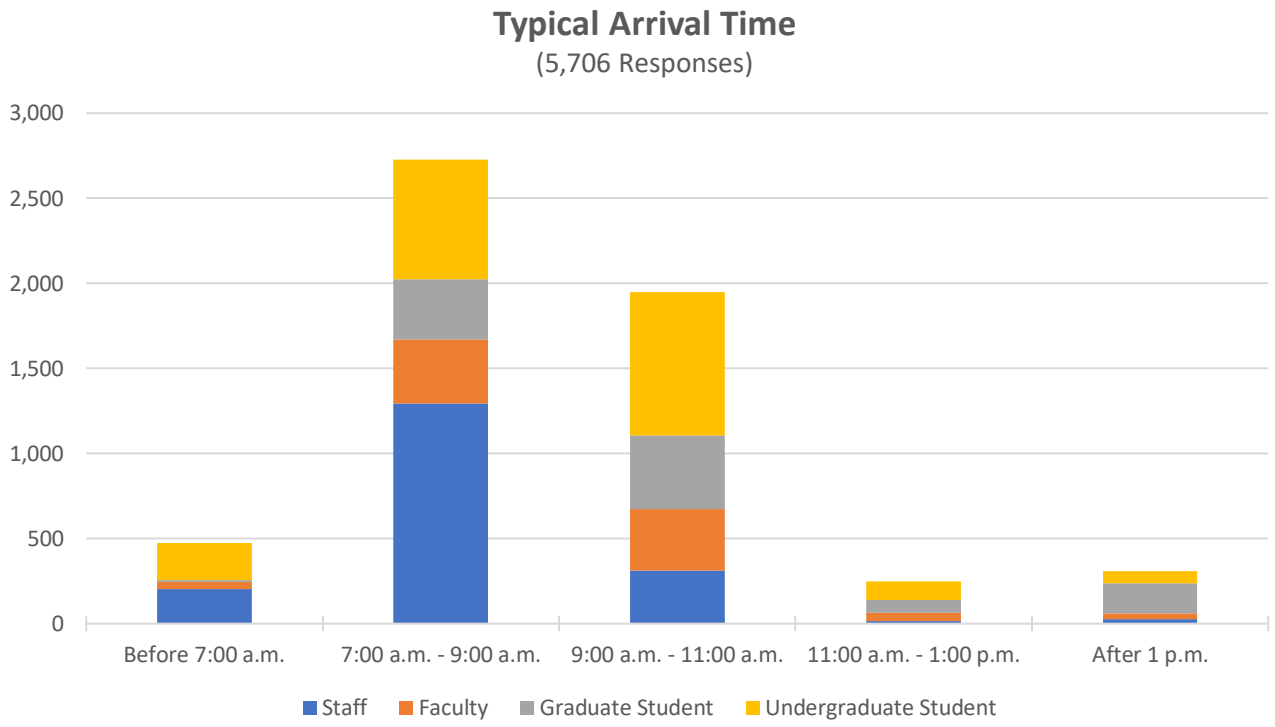
	I travel to campus daily during the week	I travel to campus 2-4 times per week	I live on campus	I travel to campus at least one time per week	I travel to campus less than once a week	I am an online or remote student
Staff	87%	9%	1%	2%	1%	0%
Faculty	57%	34%	0%	6%	2%	0%
Graduate Student	52%	36%	1%	7%	1%	3%
Undergraduate Student	46%	12%	40%	1%	0%	0%
Average	62%	19%	14%	3%	1%	1%

Notes:

- 103 Visitor responses excluded
- 94 "Other" responses were placed into one of the categories shown; "I travel to campus less than once a week" was added as a response type based on comments received.

Typical Arrival Time

Question: "When do you typically arrive on campus?"

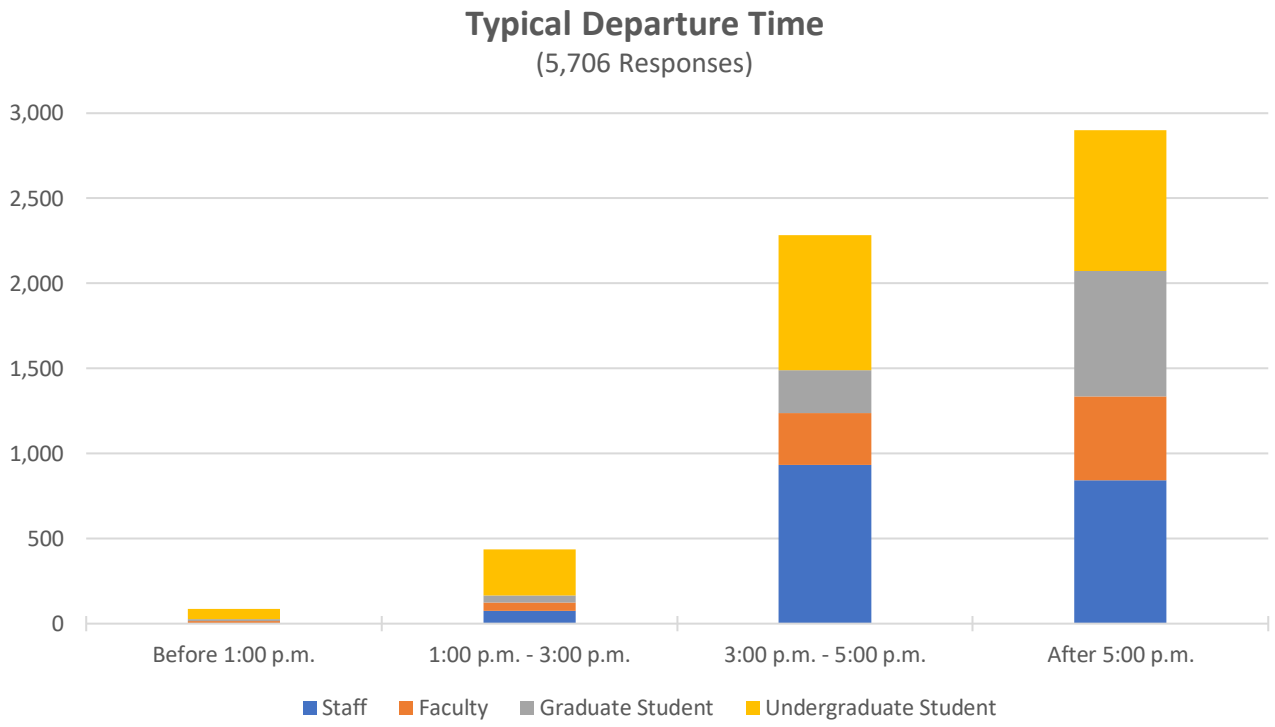


Notes:

- 103 Visitor responses excluded

Typical Departure Time

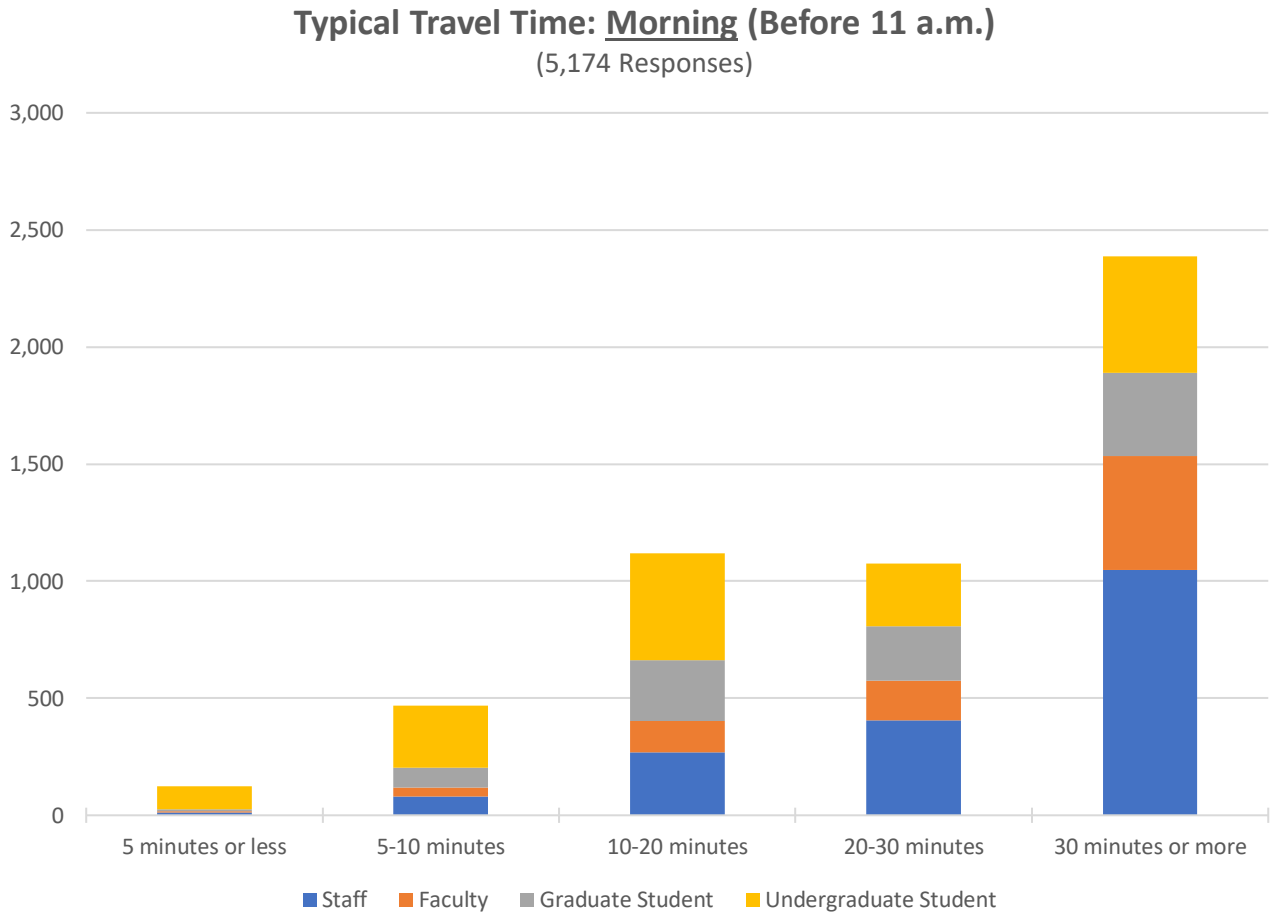
Question: "When do you typically depart campus?"



Notes:

- 103 Visitor responses excluded

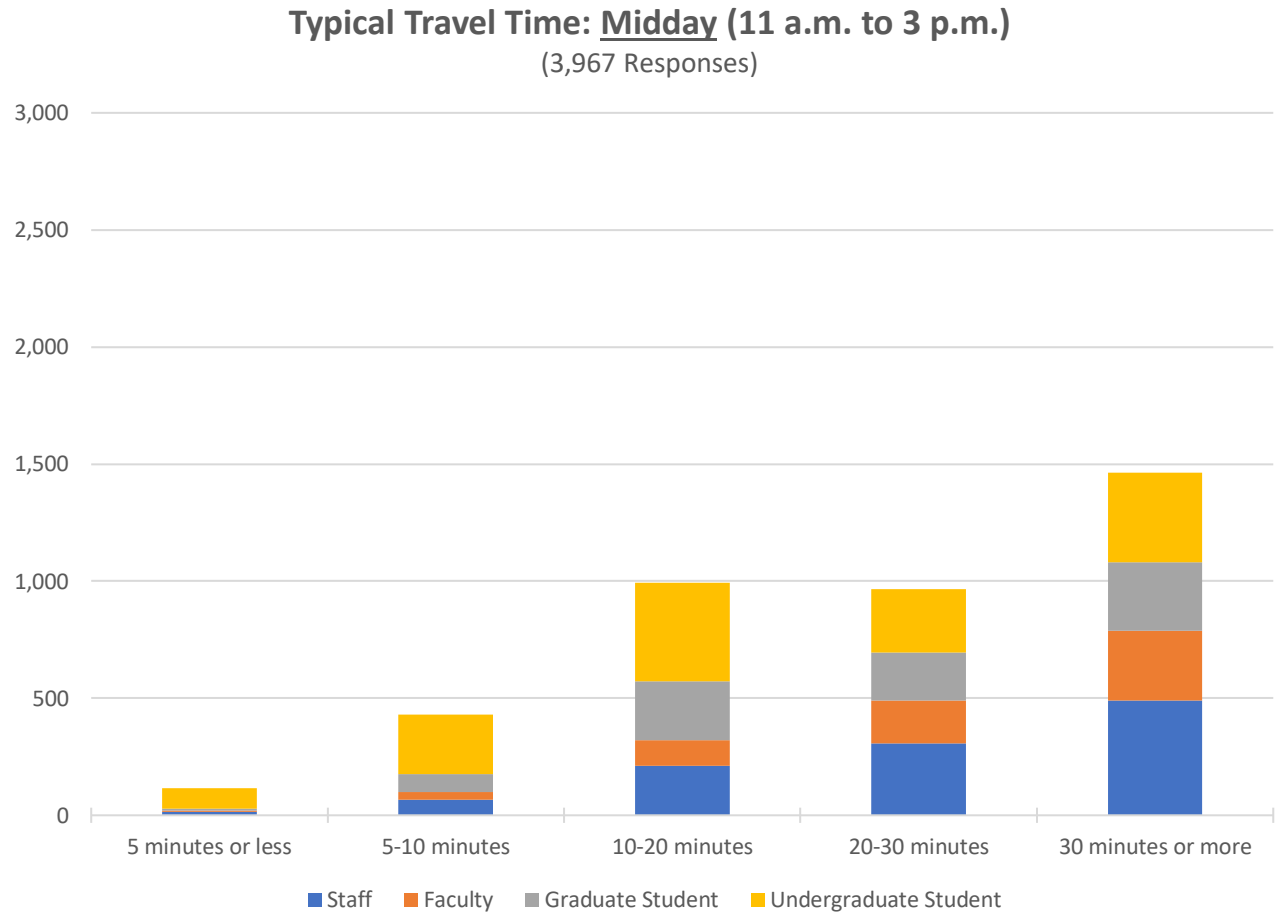
Morning Commute (Before 11:00 a.m.)



Notes:

- 39 of 1,854 Staff answered "N/A" (2%)
- 28 of 861 Faculty answered "N/A" (3%)
- 101 of 1,043 Graduate Students answered "N/A" (10%)
- 364 of 1,948 Undergraduate Students answered "N/A" (19%)
- 103 Visitor responses excluded

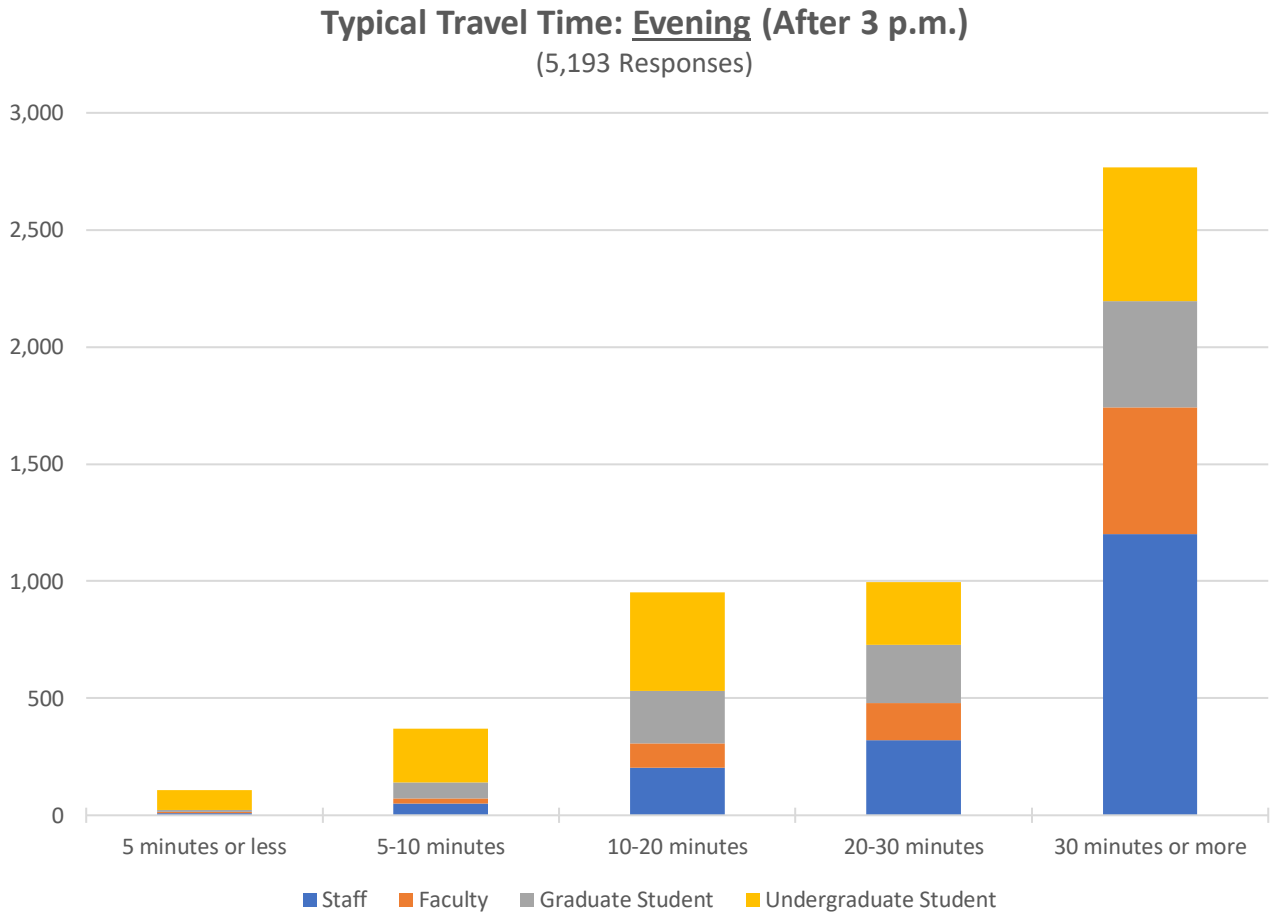
Midday Commute (Between 11:00 a.m. and 3:00 p.m.)



Notes:

- 767 of 1,854 Staff answered "N/A" (41%)
- 229 of 861 Faculty answered "N/A" (27%)
- 207 of 1,043 Graduate Students answered "N/A" (20%)
- 536 of 1,948 Undergraduate Students answered "N/A" (28%)
- 103 Visitor responses excluded

Evening Commute (After 3:00 p.m.)

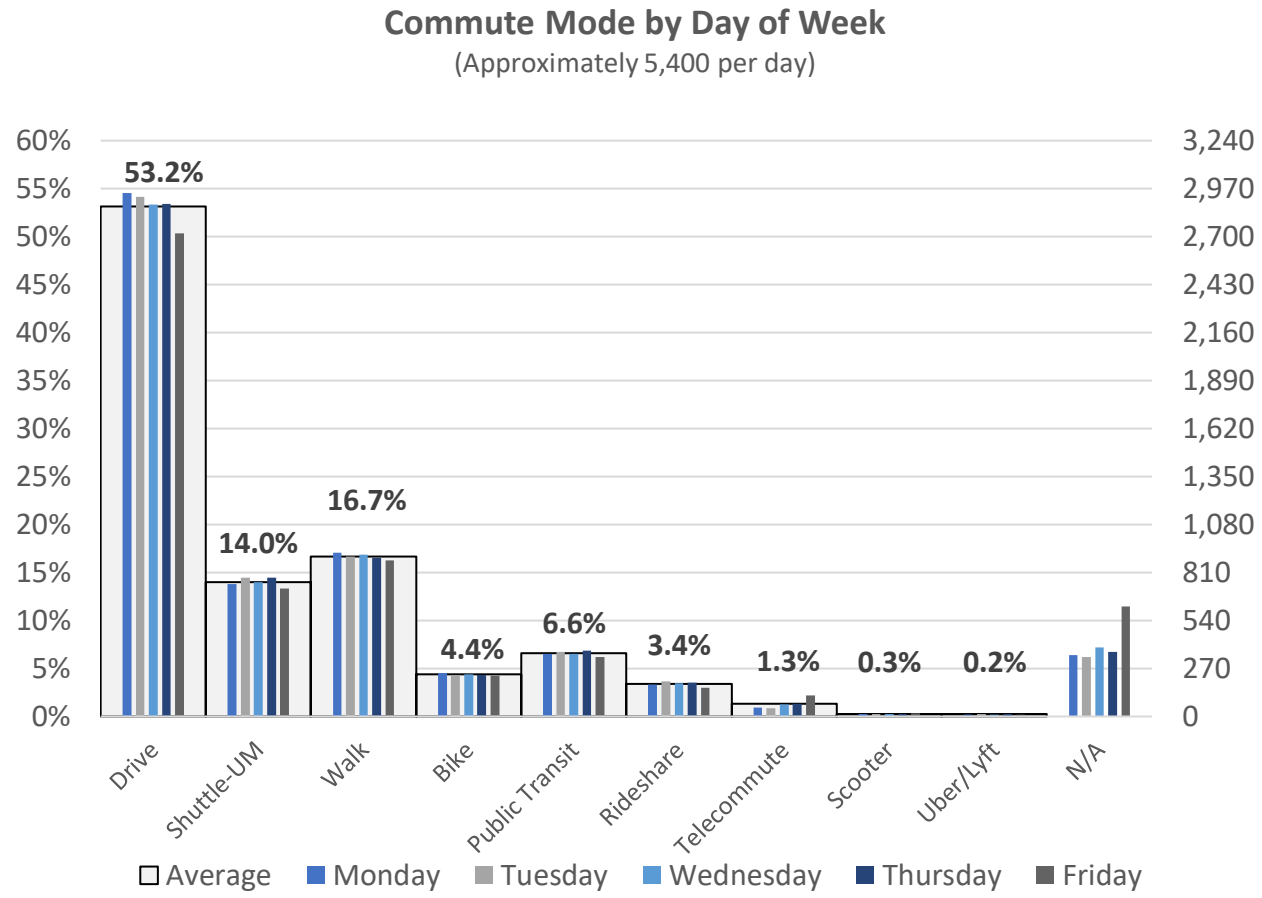


Notes:

- 72 of 1,854 Staff answered "N/A" (4%)
- 29 of 861 Faculty answered "N/A" (3%)
- 37 of 1,043 Graduate Students answered "N/A" (4%)
- 375 of 1,948 Undergraduate Students answered "N/A" (19%)
- 103 Visitor responses excluded

Typical Commute Mode (By Day of Week)

By Mode



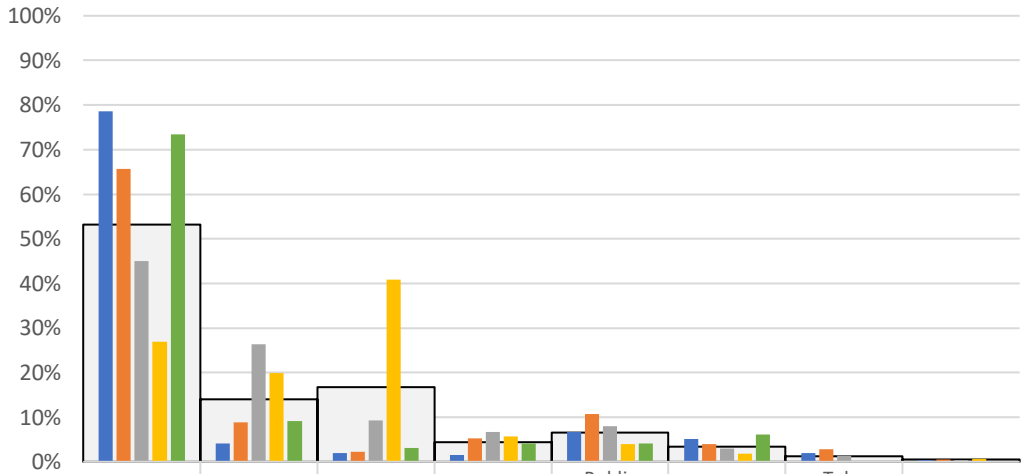
Notes:

- Drive alone categories merged as "Drive" (includes gas-powered, hybrid, and electric)
- Bus (Metrobus, MTA) and Train/Rail (MARC, Metrorail) merged as "Public Transit"
- Approximately 235 "N/A" responses per day from those who previously indicated that they live on campus were recategorized as "Walk"
- 257 "Other" responses (51 per day on average) were placed into one of the most appropriate categories (i.e. bike/bus placed into bike, etc.)
- Monday Responses (excluding blank and N/A): 5,462
- Tuesday Responses (excluding blank and N/A): 5,476
- Wednesday Responses (excluding blank and N/A): 5,420
- Thursday Responses (excluding blank and N/A): 5,447
- Friday Responses (excluding blank and N/A): 5,191
- Percentages shown based on 5,400 responses per day (rounded average)

By Affiliation

Typical Commute Mode by Affiliation

(Approximately 5,400 per day + 98 visitor responses)



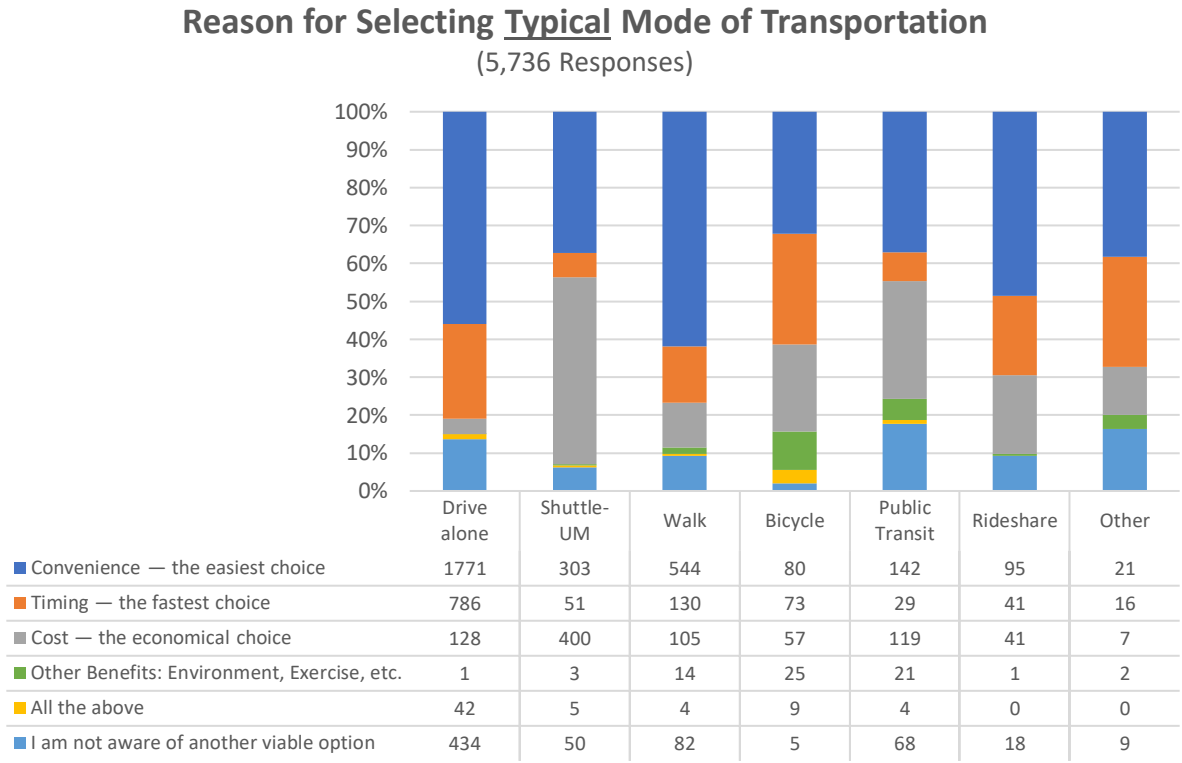
	Drive	Shuttle-UM	Walk	Bike	Public Transit	Rideshare	Tele-commute	Other
Average	53.2%	14.0%	16.7%	4.4%	6.6%	3.4%	1.3%	0.5%
Staff	79%	4%	2%	1%	7%	5%	2%	0%
Faculty	66%	9%	2%	5%	11%	4%	3%	1%
Graduate Student	45%	26%	9%	7%	8%	3%	1%	0%
Undergraduate Student	27%	20%	41%	6%	4%	2%	0%	1%
Visitor	73%	9%	3%	4%	4%	6%	0%	0%

Notes:

- Drive alone categories merged as "Drive" (includes gas-powered, hybrid, and electric)
- Bus (Metrobus, MTA) and Train/Rail (MARC, Metrorail) merged as "Public Transit"
- Approximately 235 "N/A" responses per day from those who previously indicated that the live on campus were recategorized as "Walk"
- Motorcycle/Scooter and Uber/Lyft condensed into the Other category
- 257 "Other" responses (51 per day on average) were placed into one of the most appropriate categories (i.e. bike/bus placed into bike, etc.)
- Average number of Staff responses: 1,819
- Average number of Faculty responses: 807
- Average number of Graduate Student responses: 911
- Average number of Undergraduate Student responses: 1,863
- Percentages shown based on approximately 5,400 responses per day (average)
- 98 Visitor responses excluded from the average shown, as the average is based on the day of week question; visitors were only asked "Please indicated your typical method of coming to campus," and these responses are shown in the chart.

Reason for Selecting Typical Mode of Transportation

Question: "Why have you chosen your typical (most used) method of transportation to and from campus?"



	Drive alone	Shuttle-UM	Walk	Bicycle	Public Transit	Rideshare	Other
Convenience — the easiest choice	1771	303	544	80	142	95	21
Timing — the fastest choice	786	51	130	73	29	41	16
Cost — the economical choice	128	400	105	57	119	41	7
Other Benefits: Environment, Exercise, etc.	1	3	14	25	21	1	2
All the above	42	5	4	9	4	0	0
I am not aware of another viable option	434	50	82	5	68	18	9

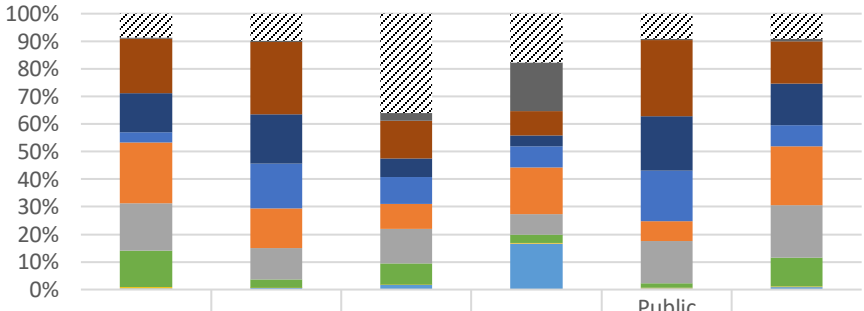
Notes:

- Drive alone categories merged as "Drive" (includes gas-powered, hybrid, and electric)
- Bus (Metrobus, MTA) and Train/Rail (MARC, Metrorail) merged as "Public Transit"
- Telecommute, Motorcycle/Scooter, and Uber/Lyft condensed into the Other category
- 358 "Other" responses were placed into one of the categories shown; "Other Benefits – Environment, Exercise, etc." and "All of the Above" were added as response types based on comments received.
- Because respondents selected mode by day of week and did not specify their "typical" mode, this was assigned based on the most common mode type indicated (judgement was used for ties; for example, 2 days driving alone, 2 days Shuttle-UM, 1 day telecommute typically assigned to drive alone).

Concerns about Current Commute

Concerns About Current Commute

(5,694 Responses;
1st Choice = 3 Votes; 2nd Choice = 2 Votes; 3rd Choice = 1 Vote)

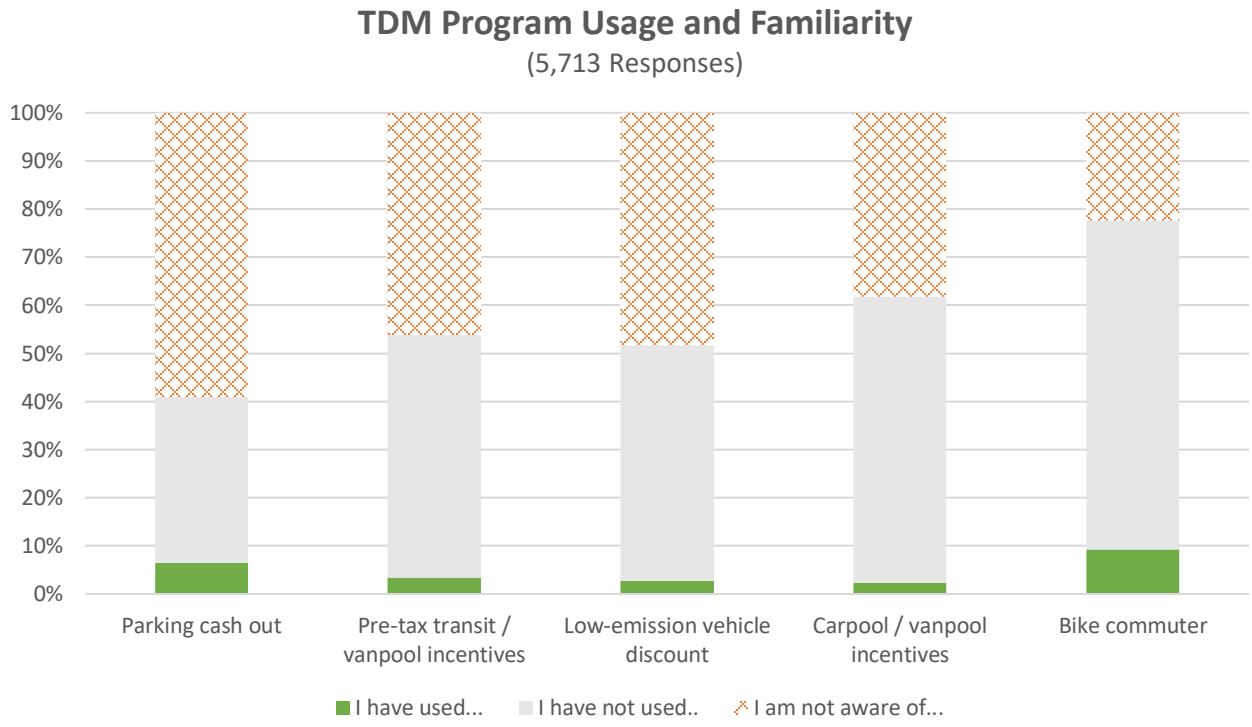


	Drive alone	Shuttle-UM	Walk	Bicycle	Public Transit	Other
I have no concerns about my current commute	1,627	474	1,984	262	205	133
Safety / Weather / Lighting	56	21	150	258	12	16
Travel time from home to campus	3,663	1,268	759	132	627	224
Travel time from campus to home	2,639	864	362	57	448	224
Access to public transit options	686	775	541	114	420	113
Congestion and/or traffic	4,106	702	491	249	162	314
Cost (permits, maintenance)	3,220	546	693	109	349	281
Finding a convenient parking space	2,463	141	419	47	37	154
Environmental Impact	80	3	3	2	2	3
Finding a convenient / safe bike parking space	72	30	99	246	12	14

Notes:

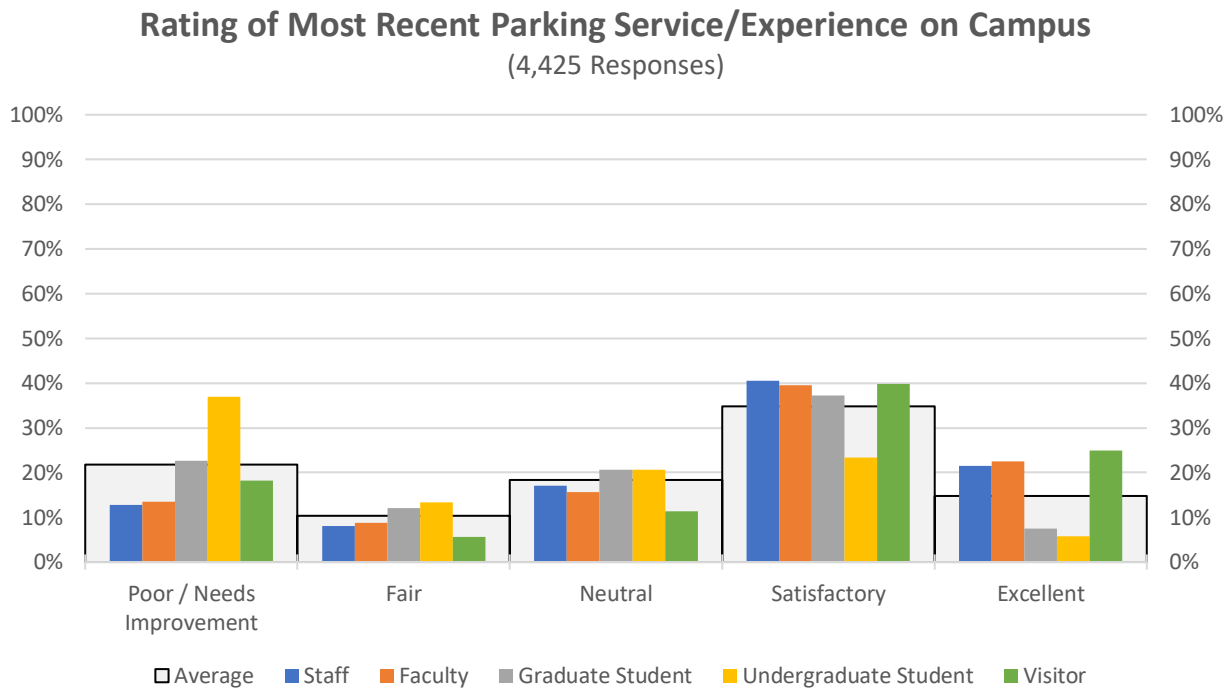
- Top priority answers weighted by 3, second priority weighted by 2, and third priority weighted by 1.
- 682 "Other" responses were placed into one of the categories shown; "Environmental Impact" added as response types based on comments received; "Safety / Lighting" category renamed to "Safety / Weather / Lighting" and comments related to ped/bike safety on campus and weather-related issues for walkers and bikers were assigned to this category.
- Rideshare, Telecommute, Motorcycle/Scooter, and Uber/Lyft condensed into the Other category

Familiarity with TDM Programs



Most Recent Parking Experience

Question: "Thinking of your **most recent** trip to campus (today, if applicable), how would you rate the parking service/experience on campus?"

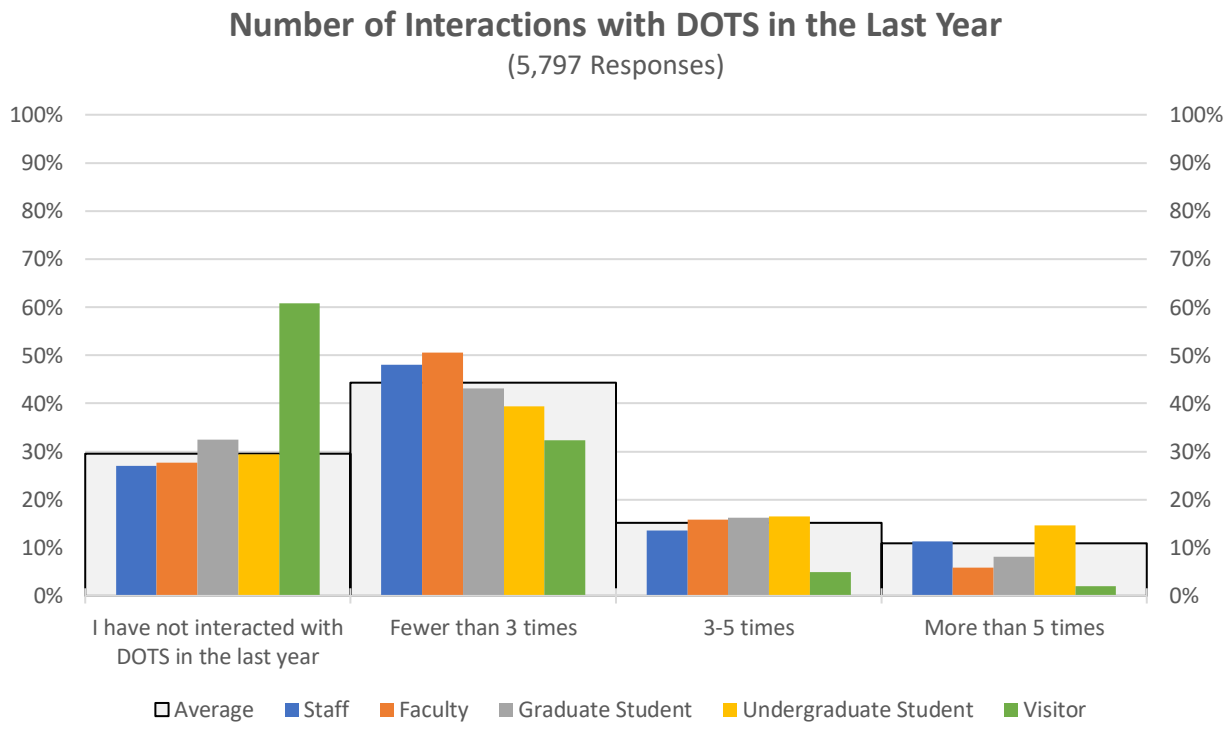


Notes:

- 1,372 "N/A" responses
- 12 blank responses

Number of Interactions with DOTS

Question: "How many times have you interacted with the Department of Transportation Services (DOTS) in the last year?"

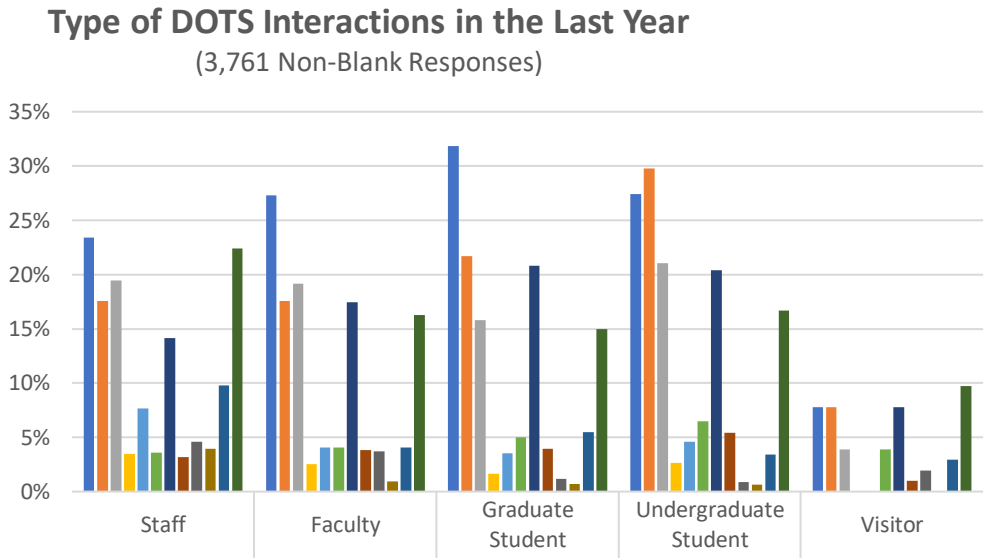


Notes:

- 3 of 1,854 Staff did not respond
- 2 of 861 Faculty did not respond
- 3 of 1,043 Graduate Students did not respond
- 3 of 1,948 Undergraduate Students did not respond
- 1 of 103 Visitors did not respond

Types of Interactions with DOTS

Question: "Indicate which of the following interactions you have had with DOTS in the past year."

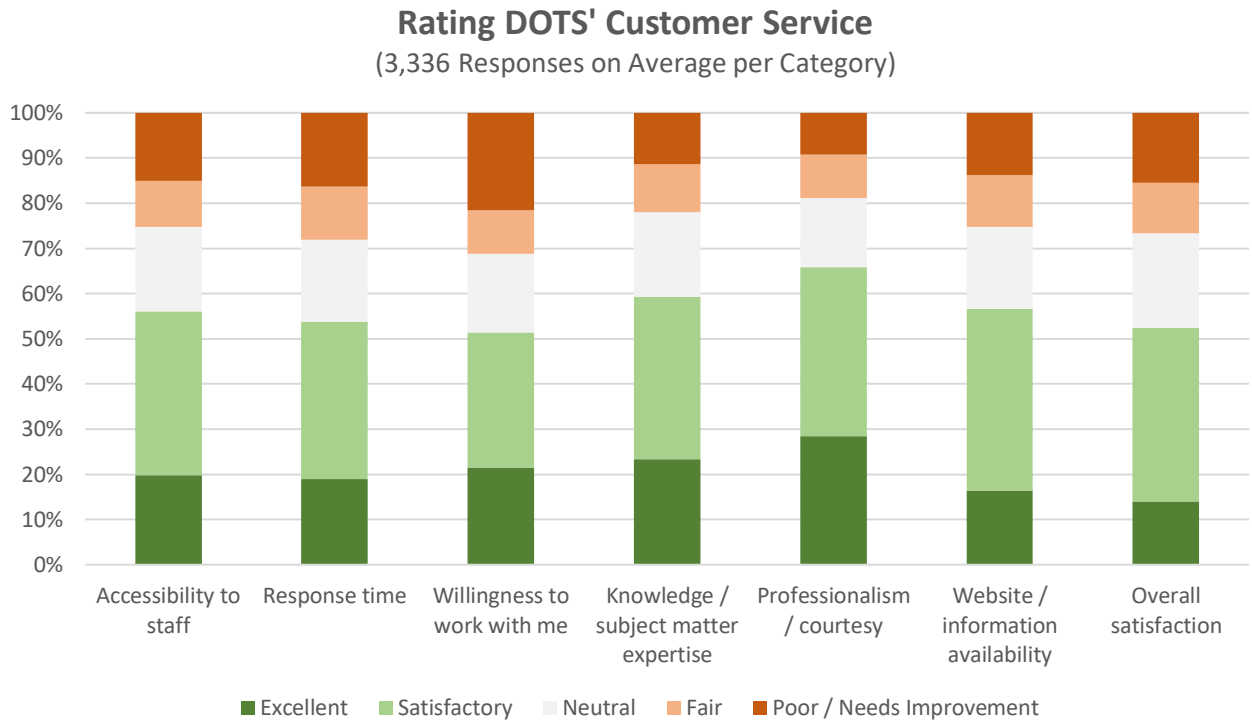


	Staff	Faculty	Graduate Student	Undergraduate Student	Visitor
Obtain / Modify Permit	23%	27%	32%	27%	8%
Received Ticket	18%	18%	22%	30%	8%
Appealed Ticket	19%	19%	16%	21%	4%
Vehicle Assistance	3%	3%	2%	3%	0%
Construction-related issues	8%	4%	4%	5%	0%
Public Transit Info	4%	4%	5%	6%	4%
Shuttle-UM Information	14%	17%	21%	20%	8%
Bicycle Information	3%	4%	4%	5%	1%
Alternative Mode Info	5%	4%	1%	1%	2%
Car/ Vanpool Info	4%	1%	1%	1%	0%
Special Event Info	10%	4%	5%	3%	3%
Other	22%	16%	15%	17%	10%

Notes:

- 627 of 1,854 Staff did not report a specific interaction with DOTS (34%)
- 290 of 961 Faculty did not report a specific interaction with DOTS (30%)
- 375 of 1,043 Graduate Students did not report a specific interaction with DOTS (36%)
- 687 of 1,948 Undergraduate Students did not report a specific interaction with DOTS (35%)
- 69 of 88 Visitors did not report a specific interaction with DOTS (67%)

Rating of DOTS' Customer Service



Notes:

- "Accessibility to staff" responses: 3,487
- "Response time" responses: 2,905
- "Willingness to work with me" responses: 3,056
- "Knowledge/ subject matter expertise" responses: 3,049
- "Professionalism / courtesy" responses: 3,279
- "Website Information / availability" responses: 3,713
- "Overall satisfaction" responses: 3,863

Experience Obtaining a Parking Permit

Question: "How would you describe your experience obtaining a parking permit at the University of Maryland, College Park?"

Of the 3,030 respondents who indicated that they have a parking permit, the following percentages *did not* report any specific issue with obtaining a permit:

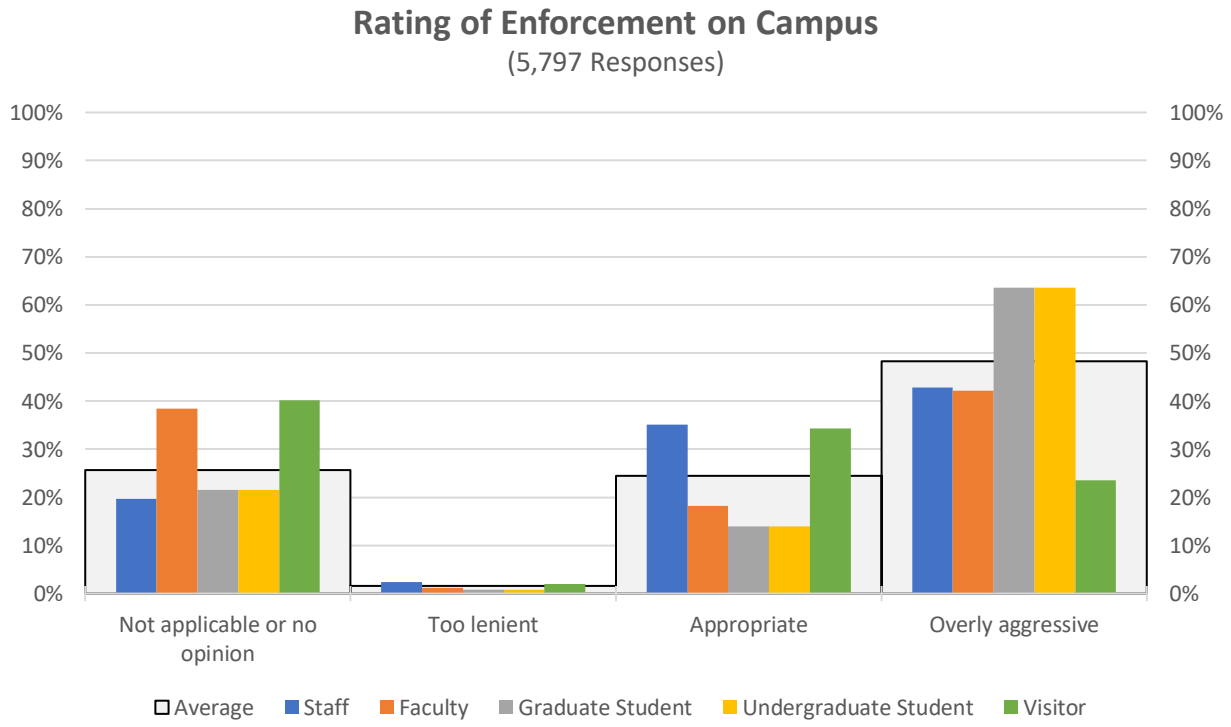
- Staff: 55%
- Faculty: 45%
- Graduate Students: 19%
- Undergraduate Students: 14%

More than one-third of graduate students and undergraduate students selected that they prefer to purchase online.

Full data not displayed due to potential for confusion in interpreting the question; it seems likely that some percentage of respondents who selected "I have an adequate number of choices when selecting a parking permit" may have read this as "inadequate number" because "inadequate number" was not available as an answer choice, only "adequate" and "too many." 90 respondents specifically commented that they felt that they wish there were more permit options, and many of the 717 who selected "an adequate number" may also feel this way. This can be inferred because those who feel they have an adequate number of choice would likely have selected "I do not experience any challenges obtaining a parking permit."

Level of Enforcement

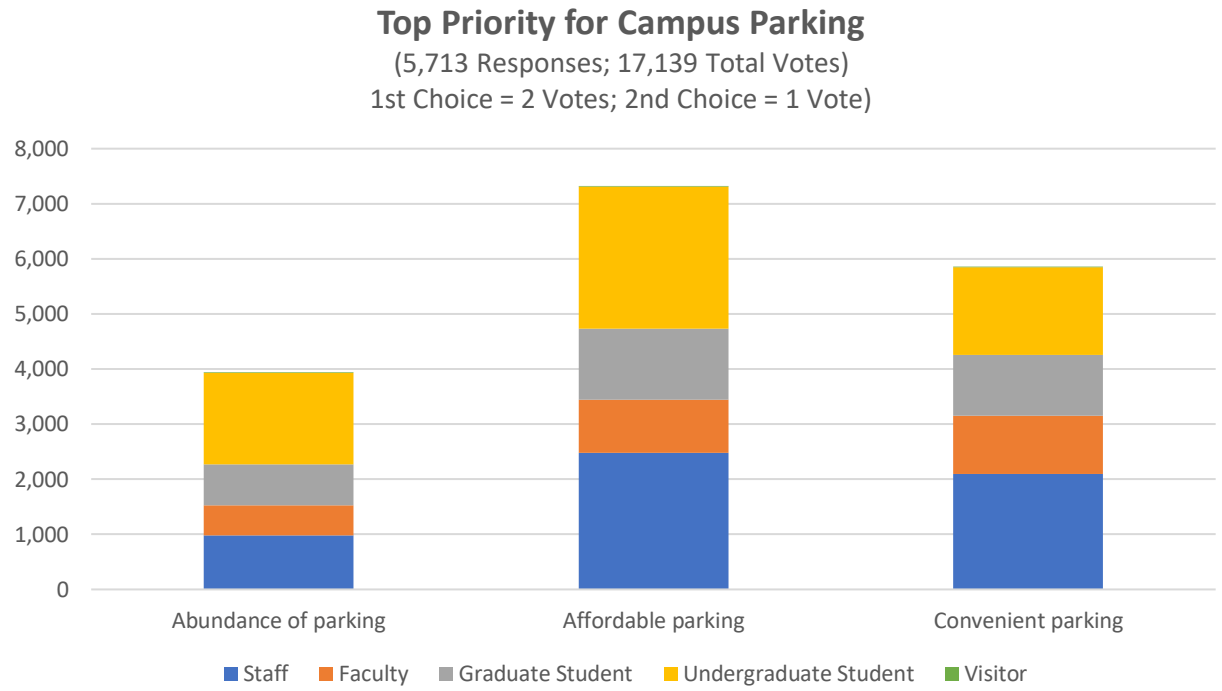
Question: "How would you describe the level of parking enforcement on campus currently?"



Notes:

- 12 blank responses

Priorities for Campus Parking



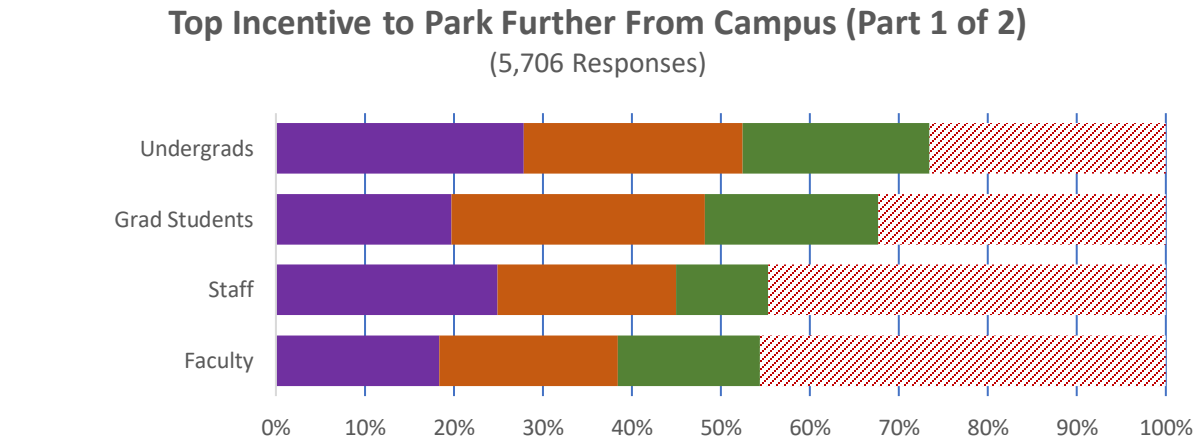
Notes:

- 96 blank responses
- 1st choice selected weighted double
- 2nd choice selection not weighted
- 3rd choice not included in total as this was the last choice option of the three and therefore received no weight.

Incentives to Park Farther from Campus

Question: "Would any of these incentives encourage you to park farther from campus, if made available?"

Receptiveness by Affiliation

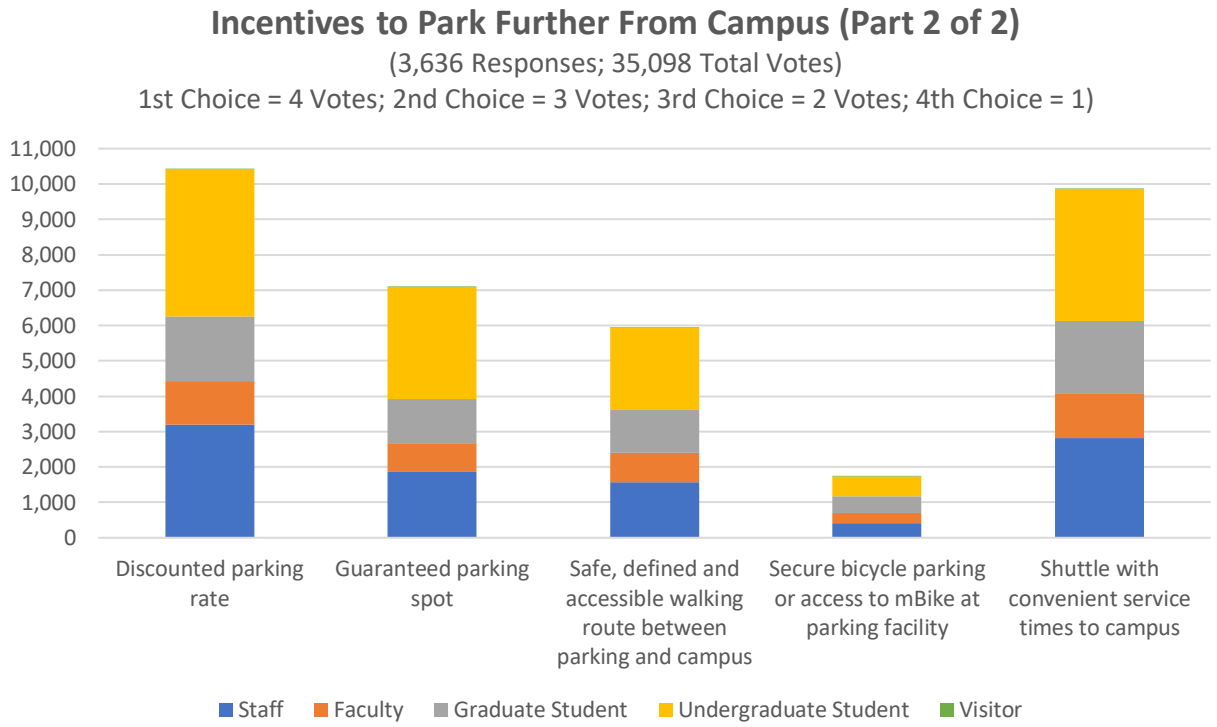


	Faculty	Staff	Grad Students	Undergrads
Discounted Parking Rate	18%	25%	20%	28%
Shuttle to Remote Lot	20%	20%	28%	25%
Other Incentives	16%	10%	19%	21%
Nothing	46%	45%	32%	27%

Notes:

- "Nothing" category includes both blank responses and "N/A; No incentive would encourage me to park farther away from campus" responses.

Most Popular Incentives



Notes:

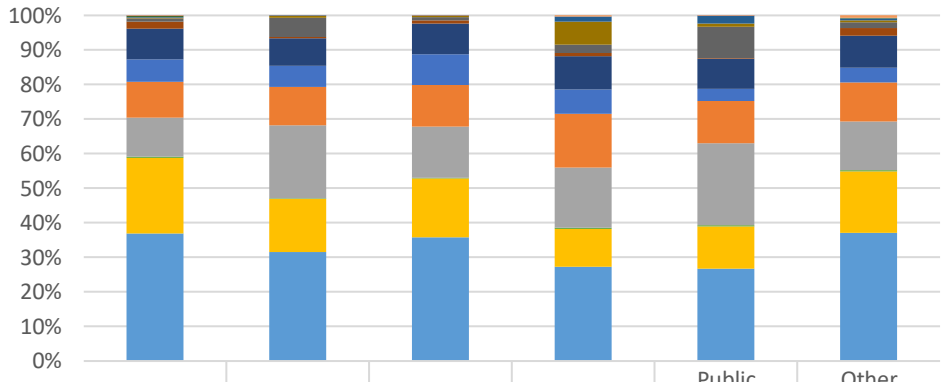
- 1st choice weighted by 4
- 2nd choice weighted by 3
- 3rd choice weighted by 2
- 4th choice weighted by 1
- 5th choice not included in total as this was the last choice option.

Top Improvements

All Responses

Top Improvements

(Approximately 5,700 Responses Shown;
1st Choice = 3 Votes; 2nd Choice = 2 Votes; 3rd Choice = 1 Vote)



	Drive alone	Shuttle-UM	Walk	Bicycle	Public Transit	Other Modes
Traffic Flow	28	2	1	5	2	10
More Open Space	6	0	0	0	1	0
More EV Charging Stations	54	0	0	0	0	4
TDM Programs / Incentives	44	8	6	21	49	8
Improved Bicycle Infrastructure	32	23	22	99	20	7
Improved Shuttle/Transit Service	162	263	53	35	199	26
More Parking Availability	390	21	45	14	8	33
Wayfinding and signage	1,695	379	487	139	190	137
Enforcement and adjudication	1,188	293	475	105	80	63
Enhanced safety / lighting	1,979	532	657	227	268	169
Parking and transit option communication	2,101	1,006	804	253	523	212
Simplified parking policies and regulations	65	4	9	6	9	5
Parking space / facility condition	4,135	735	922	161	270	265
Reduced parking rates	6,934	1,505	1,942	399	590	553

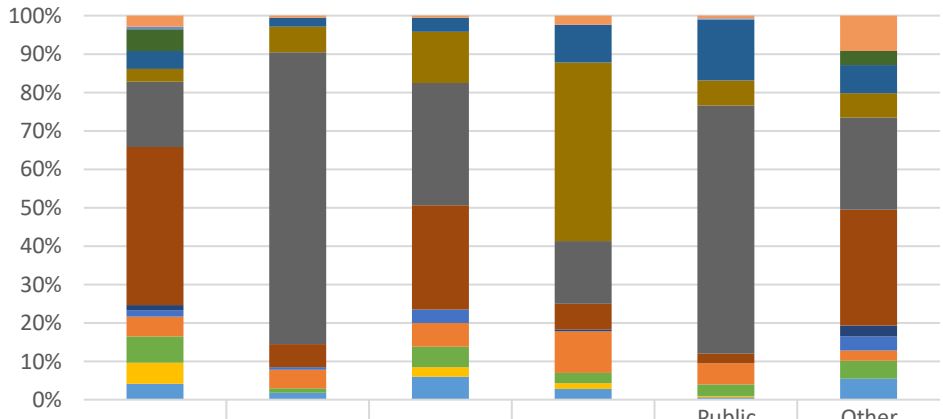
Notes:

- "Other Modes" Includes Rideshare, Telecommute, Motorcycle/Scooter, and Uber/Lyft
- Top priority answers weighted by 3, 2nd priority weighted by 2, and 3rd priority by 1.
- 1,150 "Other" responses were placed into one of the categories shown; "More Parking Availability," "Improved Shuttle/Transit Service," Improved Bicycle Infrastructure," TDM Programs/Incentives," "More EV Charging Stations," "More Open Space," and "Traffic Flow" all added as response types based on comments received.

Write-In Responses Only

Top Improvements (Write-in Responses Only)

(Approximately 940 Comment-Based Votes Shown;
1st Choice = 3 Votes; 2nd Choice = 2 Votes; 3rd Choice = 1 Vote)



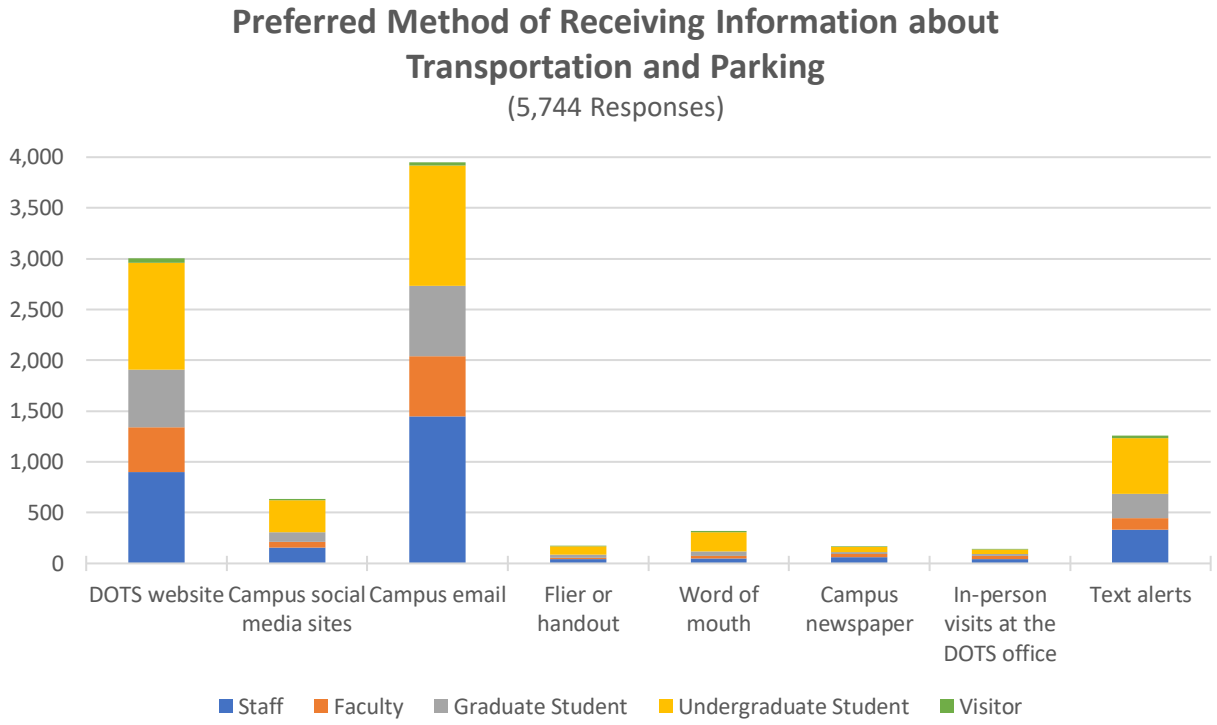
	Drive alone	Shuttle-UM	Walk	Bicycle	Public Transit	Other Modes
Traffic Flow	28	2	1	5	2	10
More Open Space	6	0	0	0	1	0
More EV Charging Stations	54	0	0	0	0	4
TDM Programs / Incentives	44	8	6	21	49	8
Improved Bicycle Infrastructure	32	23	22	99	20	7
Improved Shuttle/Transit Service	162	263	53	35	199	26
More Parking Availability	390	21	45	14	8	33
Wayfinding and signage	13	0	0	1	0	3
Enforcement and adjudication	16	2	6	0	0	4
Enhanced safety / lighting	49	17	10	23	17	3
Parking and transit option communication	0	0	0	0	0	0
Simplified parking policies and regulations	65	4	9	6	9	5
Parking space / facility condition	52	0	4	3	1	0
Reduced parking rates	40	6	10	6	2	6

Notes:

- With nearly 10% of all respondents electing to write a comment rather than select a choice, it was noted that the options available to survey respondents did not fully capture many key campus priorities. The data shown above draws from 940 comment responses and shows how the responses were ranked when respondents elected to share additional details. This chart therefore helps to show priority improvements by commute mode group for the additional improvement options added based on user input.

Preferred Method of Receiving Information

Question: "Please indicate you preferred method(s) of accessing information and/or receiving communication about transportation and parking news and programs."



Notes:

- 55 "Other" responses were placed into one of the categories shown, if appropriate.

E: March Parking Survey

Prepared by National Data & Surveying Services

Parking Study

City: College Park, MD

Project: 19-11026

Lot	Space Type	Inventory	Wednesday (3/6/19)			Thursday (3/7/19)			Notes
			8AM-12PM	12:15PM-4PM	4:15PM-7:30PM	8AM-12PM	12:15PM-4PM	4:15PM-7:30PM	
SA	Standard	121	42	48	89	99	71	120	
SA	HC	3	3	1	2	3	2	3	26 Spaces Obstructed
SA	Visitor	10	10	0	0	0	0	0	
8	Standard	593	105	180	311	277	280	366	
8	HC	28	0	12	14	11	15	20	
8	10A	74	0	0	0	0	0	0	
8	CY	18	0	0	0	0	0	0	7 Spaces Obstructed
8	Visitor	11	0	0	0	0	0	0	
8	Metered	18	0	0	0	0	0	0	
8	Moped	1	0	0	0	0	0	0	
4M	Standard	4	4	4	4	0	0	0	
4M	HC	3	0	3	3	3	2	3	
4M	Paystation	87	65	59	78	86	53	74	
4M	Courier	2	0	0	0	0	0	0	
LABORATORY OF PHYSICIAL SCIENCE	Standard	77	34	22	76	42	21	68	
LABORATORY OF PHYSICIAL SCIENCE	HC	2	0	0	0	1	0	2	
LABORATORY OF PHYSICIAL SCIENCE	Official LPS Van	2	0	0	0	0	0	0	
4H	Paystation	46	41	36	43	42	42	43	2 Spaces Obstructed
4H	HC	3	0	1	3	3	3	3	
K7	Standard	77	46	17	69	54	31	69	
K7	HC	5	0	0	4	3	4	5	
K7	State Vehicles	8	0	0	0	0	0	0	
K7	4A	9	0	0	0	0	0	0	
K7	Metered	6	0	0	0	0	0	0	
K7	Fire Marshall	4	0	0	0	0	0	0	
ARTEMESIA LOT	Standard	81	72	78	73	79	80	77	
ARTEMESIA LOT	Visitor	14	8	14	13	14	14	13	8 Spaces Obstructed
ARTEMESIA LOT	Paystation	78	45	33	35	35	22	27	
ARTEMESIA LOT	HC	4	4	4	4	4	4	3	
CYPRESS LOT	Paystation	50	40	38	35	45	39	40	
CYPRESS LOT	Reserved	4	4	0	0	0	0	0	
CYPRESS LOT	UMD	5	0	0	0	0	0	0	
TT	Standard	12	5	0	4	2	0	8	
TT	State Vehicles	1	1	0	0	0	0	0	
TT	Compact	2	0	0	0	0	0	0	
TT	Service	1	0	0	0	0	0	0	
II1	Standard	21	4	3	15	11	0	15	
II1	HC	1	0	1	1	0	0	1	
II1	State Vehicles	3	0	0	0	0	0	0	
II1	Service	3	0	0	0	0	0	0	
AA1	Standard	16	2	3	9	5	4	4	
AA1	AA1 State Vehicles	4	0	0	0	0	0	0	
AA1	HC	4	0	1	1	4	1	3	
AA1	AA2	7	0	0	0	0	0	7	
AA1	MC	14	0	0	0	0	0	0	
AA1	AA2 State Vehicles	3	0	0	0	0	0	0	
H	Standard	79	42	55	1	63	40	1	
H	HC	7	0	2	3	2	1	5	
H	State Vehicles	4	0	0	0	0	0	0	
H	Metered	7	0	0	0	0	0	0	
EE	Standard	24	1	2	6	7	1	3	
EE	HC	1	1	0	0	1	1	1	
EE	State Vehicles	1	0	0	0	0	0	0	
E	Standard	16	2	3	5	4	4	5	
E	HC	4	1	1	2	2	0	2	
E	Service	4	0	0	0	0	0	0	2 Spaces Obstructed
E	Courier	1	0	0	0	0	0	0	
E	Electric Vehicle	2	0	0	0	0	0	0	
GG2	HC	8	1	3	7	4	4	4	
GG2	Service	4	2	0	0	2	3	4	
GG1	Standard	78	16	10	30	38	13	29	
GG1	HC	3	1	1	2	1	1	1	
KK	Standard	26	4	2	17	8	0	9	
KK	HC	7	2	0	6	0	3	2	
G	Standard	10	1	0	6	3	3	5	
DD	Standard	29	12	9	2	14	4	0	
YY (Lot T - not YY)	Standard	20	7	0	18	10	8	15	
YY (Lot T - not YY)	HC	2	2	0	1	2	2	1	
YY (Lot T - not YY)	YY	6	0	0	0	0	0	0	
CC1	Standard	28	4	1	12	3	4	2	
CC1	HC	2	1	0	1	1	1	1	
CC1	Metered	4	0	0	0	0	0	0	
CC1	Loading Dock	2	0	0	0	0	0	0	
CC2	Standard	8	0	3	2	0	0	2	
MM2	Standard	17	3	9	13	4	6	13	
MM2	PH1	91	0	0	0	0	0	0	
MM2	HC	2	0	0	0	0	0	0	
MM2	Metered	9	0	0	0	0	0	0	
SCH OF PUB HEALTH	Standard	2	2	2	2	0	1	2	
SCH OF PUB HEALTH	State Vehicles	3	0	0	0	0	0	0	
SCH OF PUB HEALTH	HC	7	3	5	4	1	1	2	
SCH OF PUB HEALTH	Paystation	25	0	9	19	0	0	6	2 spaces obstructed (Wednesday Only)
SCH OF PUB HEALTH	N4	17	3	3	0	0	0	0	
SCH OF PUB HEALTH	Service	1	0	0	0	0	0	0	
SCH OF PUB HEALTH	MM1	16	0	0	0	0	0	0	
FF2	Standard	39	10	1	14	6	0	9	
FF2	HC	4	4	3	4	4	4	3	
SS1	Standard	36	6	7	18	2	4	11	
SS1	HC	2	1	2	1	2	1	1	
SS1	State Electric Vehicle	1	0	0	0	0	0	0	
PH2	Standard	24	1	1	17	0	1	9	
PH2	HC	2	0	0	2	0	0	0	
UU	Standard	131	60	48	47	64	53	43	

UU	HC	9	9	4	9	9	7	8	
UU	Metered	8	0	0	0	0	0	0	
XFINITY CENTER VISITOR	Paystation	130	8	5	13	7	7	12	
XFINITY CENTER VISITOR	XX1	270	114	105	103	111	114	98	
XFINITY CENTER VISITOR	State Vehicles	8	0	0	0	0	0	0	
XFINITY CENTER VISITOR	HC	7	5	4	4	5	5	7	
RR2	Standard	70	10	9	36	14	18	24	
RR2	State Vehicles	8	0	2	0	0	0	0	
5	Standard	76	20	22	23	18	20	24	
NN	Standard	56	34	39	56	35	37	49	
NN	HC	5	2	2	4	1	1	3	
NN	State Vehicles	1	0	0	0	0	0	0	
NN	Courier	1	0	0	0	0	0	0	
NN	Electric Vehicle	1	0	0	0	0	0	0	
P1	Standard	59	12	19	52	26	18	31	
4N	Standard	7	4	5	4	3	4	4	Gate is locked between 4:15PM - 7:30PM
4N	HC	1	1	1	1	1	1	1	
4N	Metered	1	0	0	0	0	0	0	
P2	Standard	60	24	11	60	12	17	28	2 Spaces Obstructed
P2	HC	3	0	1	3	0	0	3	
P2	Metered	7	0	0	3	0	0	0	
KNOX RD STREET PARKING	Metered	3	3	2	3	3	3	3	
CM	Standard	19	19	18	19	3	19	3	
O5	HC	3	2	0	2	3	0	0	
O5	State Vehicles	6	6	5	6	6	6	6	
O1	Standard	20	13	20	7	15	0	1	
O1	Metered	3	3	3	1	3	1	2	
O1	HC	3	1	3	2	3	0	0	
O3	Standard	8	5	0	0	0	0	0	Lot is fenced off
O3	HC	2	2	0	0	0	0	0	
PRINCE FREDERICK METERS	Courier	1	1	1	1	0	0	1	
PRINCE FREDERICK METERS	Metered	3	3	0	3	3	3	3	
MOWATT VISITORS	Standard	41	36	5	28	36	10	11	
MOWATT VISITORS	HC	2	2	2	1	2	2	2	
MOWATT VISITORS	Paystation	4	0	2	0	0	0	0	
MOWATT VISITORS	Service	19	19	11	19	18	3	2	
LEHIGH RD STREET PARKING	Metered	5	2	5	3	3	3	4	
LEHIGH RD STREET PARKING	State Vehicles	1	1	1	1	1	1	1	
U1	HC	12	4	3	4	5	2	4	
U1	Moped	6	0	0	0	6	0	6	
U1	S4	7	4	4	7	2	0	2	
U1	LL3	4	1	2	2	2	0	2	
U1	Service	12	6	4	6	4	1	5	
U1	Courier	1	1	0	0	1	1	1	
U1	Metered	6	6	4	3	0	4	4	
SCUB II	State Vehicles	9	8	7	8	8	9	6	
A	Standard	59	41	6	33	51	16	10	
A	HC	5	1	2	4	2	1	2	
A	State Vehicles	7	2	0	1	0	3	1	
A	Service	4	2	0	1	0	0	1	
A	Moped	8	0	0	0	0	0	0	
A	Hearing and Speech	10	7	1	5	9	4	5	
D	Service	2	1	2	1	2	2	0	
D	HC	13	1	1	10	8	3	2	
MCKELDIN LIBRARY	Service	6	1	3	3	1	3	3	
MCKELDIN LIBRARY	HC	1	0	0	0	0	0	0	
MCKELDIN LIBRARY	Special Permit	1	1	0	1	1	1	1	
SOMERSET HALL	HC	3	1	0	0	3	1	0	
SOMERSET HALL	Service	3	1	3	0	3	2	2	
SOMERSET HALL	Metered	2	2	1	1	1	1	2	
STREET PARKING PREINKERT	State Vehicles	1	1	1	0	1	1	1	
STREET PARKING PREINKERT	Courier	1	1	1	1	1	0	1	
STREET PARKING PREINKERT	Service	4	4	3	4	4	3	3	
COLE FH TRIANGLE	HC	1	0	1	1	0	0	0	
BENJAMIN BLDG	Metered	7	0	0	3	5	0	0	
BENJAMIN BLDG	HC	2	1	1	2	1	0	2	
BENJAMIN BLDG	Service	1	0	1	1	0	0	0	
COLE FIELD HOUSE	HC	1	0	1	0	1	0	0	
COLE FIELD HOUSE	Courier	1	0	1	0	0	0	0	
COLE FIELD HOUSE	Metered	8	3	8	6	6	1	2	
STREET PARKING UNION	Metered	8	2	2	5	7	3	1	
JJ3	Standard	119	75	22	41	92	36	46	
JJ3	HC	12	9	3	5	10	2	2	
JJ3	Courier	1	0	0	0	0	1	1	
JJ3	Metered	3	2	0	0	0	2	1	
JJ2	Standard	18	1	2	0	13	8	7	
JJ2	HC	3	3	1	2	2	0	0	
3	Standard	269	77	77	79	75	70	81	
UMUC	Standard	9	3	3	3	0	6	1	2 Spaces Obstructed (Thursday)
12A	Standard	237	80	105	101	58	96	101	
12A	Leasing	4	1	4	4	2	4	4	
12A	Service	2	1	1	1	1	1	2	
14A	Standard	94	80	81	74	79	81	83	
14A	Visitor and Resident	3	2	3	2	2	2	2	
14A	Zipcar	2	0	0	0	0	0	0	
14B	Visitor and Resident	21	8	10	11	5	9	6	
14C	Visitor and Resident	9	3	4	4	2	4	5	
14C	Service	2	1	1	1	2	1	2	
UMUC 2ND LOT	Standard	76	8	8	43	15	3	5	
JJ1	Standard	10	3	3	9	6	1	1	
JJ1	Metered	1	0	0	1	0	0	0	
JJ1	HC	1	1	1	0	1	0	0	
HEALTH CENTER	Staff	1	0	0	1	0	0	1	
HEALTH CENTER	HC	2	0	1	2	0	0	0	
HEALTH CENTER	Patient Drop Off	1	1	1	1	1	1	1	
HH	Standard	44	12	2	24	12	8	10	
HH	HC	4	0	0	1	0	0	1	
HH	State Vehicles	3	1	1	2	2	0	2	
HORNBAKE LIBRARY	Standard	0	0	0	0	0	0	0	Lot is fenced off due to construction

MITCHELL BLDG	HC	2	0	1	0	0	0	0	
MITCHELL BLDG	Service	1	1	1	1	1	1	1	
MITCHELL BLDG	Courier	1	1	1	1	1	0	1	
W	Standard	6	1	2	4	2	2	1	
W	HC	2	1	0	1	0	0	0	2 Spaces Obstructed
W	State Vehicles	2	2	1	1	0	0	1	
W	CNL Lab	2	0	1	1	1	1	1	
W1	Standard	28	3	2	20	9	10	14	
W1	HC	2	1	1	1	1	1	1	
Y	Standard	84	22	12	61	38	22	25	
Y	HC	19	6	4	14	8	4	10	
Y	State Vehicles	1	0	1	1	1	0	1	
Y	Metered	5	2	2	2	5	0	1	
Y	Service	3	3	2	1	0	0	1	
Y	Moped	20	8	9	15	12	0	18	
SKINNER HALL	Service	8	4	5	7	2	5	4	
SKINNER HALL	Courier	6	5	3	2	4	5	6	
SKINNER HALL	HC	6	0	0	0	3	6	0	
SKINNER HALL	State Vehicles	2	0	0	0	0	0	0	
BB	Standard	10	0	2	4	1	0	1	
BB	HC	5	2	0	3	0	1	2	
BB	State Vehicles	13	4	3	3	2	3	6	
BB	Scooter	11	6	0	0	0	0	0	
M	Standard	35	35	12	19	14	13	14	
M	HC	1	0	1	1	1	0	0	
M	Head Football Coach	1	0	0	0	0	0	0	
M	Service	4	2	2	0	2	2	3	
1B	Standard	27	0	4	1	0	0	2	
1B	HC	7	0	3	2	6	4	3	Road closed from 8:00AM - 12:00PM
1B	State Vehicles	1	0	0	0	0	0	0	
LL4	Standard	8	5	5	5	4	2	5	
LL4	State Vehicles	1	0	0	0	1	0	0	
STADIUM DR STREET PARKING	State Vehicles	3	2	2	3	3	3	3	
S7	Standard	9	8	7	9	7	6	7	
S7	HC	3	3	0	3	3	2	3	
S7	Metered	5	5	5	4	3	3	2	
R3	Standard	36	12	9	24	2	9	11	
Q	Standard	67	38	30	41	42	38	41	
Q	HC	5	0	0	4	4	0	0	
Q	State Vehicles	3	2	2	0	0	1	1	
Q	Q1	7	0	4	2	4	3	3	
Q	Metered	4	0	4	1	2	2	1	
MM3	Standard	6	2	1	5	4	3	2	
MM3	HC	1	0	0	1	0	0	0	
MM3	State Vehicles	1	1	1	1	0	0	0	
EPPLEY REC CTR/POOL	N3 HC	2	1	2	1	1	1	1	
EPPLEY REC CTR/POOL	Paystation HC	8	1	1	0	2	1	1	
EPPLEY REC CTR/POOL	Metered	2	2	2	0	0	1	2	
EPPLEY REC CTR/POOL	N3	11	0	2	0	0	0	3	6 Spaces Obstructed
EPPLEY REC CTR/POOL	LL6	3	0	2	0	0	0	1	
EPPLEY REC CTR/POOL	N7	10	0	0	0	0	0	0	
EPPLEY REC CTR/POOL	Paystation	37	25	32	23	24	28	27	
N9	Standard	29	1	8	21	0	0	7	
N9	Moped	8	0	0	8	0	0	7	
N	Standard	11	0	0	0	0	0	5	
N	Metered	8	8	5	1	8	6	6	
N	HC	1	1	0	0	1	1	0	
SS2	Standard	18	8	10	11	4	4	3	2 Spaces Obstructed
2A	Standard	252	36	41	55	40	41	50	
2A	Service	2	1	2	0	0	1	0	
2A	Courier	1	0	0	0	0	0	0	
2A	State Vehicles	3	1	2	0	0	0	0	
2A	Metered	2	2	0	0	0	0	0	
2A	YC	40	19	25	0	3	15	26	
2A	HC	2	1	2	0	2	2	2	
LL5	Metered	14	1	6	6	4	1	2	
LL5	State Vehicles	3	1	1	1	3	0	1	
LL5	Service	1	0	1	1	0	0	1	
EASTON METERS	2B	7	0	0	0	0	0	1	
EASTON METERS	HC	6	5	5	5	5	6	4	
EASTON METERS	LL5	2	0	0	2	0	0	0	
EASTON METERS	Metered	4	4	4	4	2	4	4	
EASTON METERS	Service	4	3	4	4	3	2	4	
DENTON HALL	Metered	5	5	5	1	5	2	4	
SMITH	Service	3	1	3	3	1	1	3	
CTR FOR THE PA	Metered	5	2	4	3	0	0	3	
PRESIDENTS VISITOR PARKING	Standard	61	61	61	61	61	56	61	
PRESIDENTS VISITOR PARKING	HC	3	3	3	3	3	0	3	
PRESIDENTS VISITOR PARKING	Electric/Fuel Efficient	3	0	3	3	3	0	3	
SMITH CTR FOR THE PA	Special Permit	12	10	12	12	12	3	6	
SMITH CTR FOR THE PA	HC	2	1	1	2	1	1	1	
SMITH CTR FOR THE PA	State Vehicles	6	3	3	4	3	4	1	
SMITH CTR FOR THE PA	Service	1	1	1	0	1	0	1	
SMITH CTR FOR THE PA	Courier	3	3	3	3	0	0	0	
GOLF COURSE	Standard	215	171	123	206	12	81	171	
GOLF COURSE	R4	7	5	2	5	2	4	6	
GOLF COURSE	Friends of the UMD	6	5	0	5	0	5	3	3 Spaces Obstructed
GOLF COURSE	Service	1	1	1	0	0	0	0	
GOLF COURSE	HC	4	3	1	4	0	3	4	
LATTER-DAY SAINTS LOT	Standard	38	20	30	34	9	28	30	
LATTER-DAY SAINTS LOT	HC	1	1	0	0	0	1	1	
22B	Standard	7	7	6	7	6	6	6	
22B	HC	6	0	0	0	4	4	4	
22B	LL5	2	2	0	2	0	0	0	
22B	Metered	4	2	4	4	0	0	0	
22B	Service	4	0	4	3	0	0	0	
22C	Standard	104	38	38	35	42	45	44	
22C	Resident Service	2	0	2	2	2	1	2	
22C	Service	1	0	1	1	1	1	1	
22C	Zipcar	1	0	0	0	1	0	1	

24D	Visitor	30	25	27	27	27	25	26	
5825	Standard	565	389	177	264	371	188	339	14 Spaces Obstructed
5825	HC	22	19	18	17	18	15	16	
5825	Electric Vehicle	4	4	1	3	4	4	4	
V	Paystation	126	92	77	92	87	80	102	
V	HC	6	6	5	6	6	5	6	
V	State Vehicles	14	3	3	4	3	2	3	
V	Police	9	8	8	9	7	9	2	
V	Electric Vehicle	2	0	0	1	0	0	0	
TV	Standard	71	50	36	43	46	34	56	
TV	3 HR Parking	9	0	0	0	0	0	0	
TV	HC	2	1	2	2	1	1	2	
FIRE AND RESCUE INSTITUE PARKING	Standard	147	115	118	139	111	113	141	
FIRE AND RESCUE INSTITUE PARKING	HC	4	4	4	4	5	4	4	
FIRE AND RESCUE INSTITUE PARKING	State Vehicles	1	1	1	1	1	1	1	
FIRE AND RESCUE INSTITUE PARKING	Visitor	3	1	3	Gate Closed	3	2	3	
FIRE AND RESCUE INSTITUE PARKING	Courier	1	1	1	Gate Closed	1	1	1	
FIRE AND RESCUE INSTITUE PARKING	Rescue	1	1	1	1	1	1	1	
C1	Admin Standard	10	0	0	0	3	5	6	1 Space Obstructed
C1	Admin HC	4	4	0	0	4	0	0	
C1	5 Min Visitor	6	5	6	6	4	5	6	
C1	Paystation	52	41	42	51	46	28	49	
C1	C1	165	78	36	58	68	33	82	
C1	HC	5	5	4	5	4	0	5	
S9	Standard	7	0	4	1	2	2	0	
C2	Standard	85	0	2	34	0	0	37	
C2	HC	3	3	0	3	2	1	3	
C2	Paystation	14	9	1	8	4	1	12	
LL2	Standard	4	4	3	2	4	2	4	
LL2	Metered	1	1	1	1	1	1	1	
LEES BUILDING	Standard	1	0	0	0	0	0	0	
LEES BUILDING	State Vehicles	2	1	2	2	1	2	1	
LEES BUILDING	Courier	1	1	1	0	1	1	1	
LEES BUILDING	HC	2	1	1	2	0	0	0	
LEES BUILDING	Service	1	1	1	0	1	1	1	
L	Standard	115	46	25	33	40	24	47	
L	HC	10	4	4	4	2	2	5	
L	Special Permit	3	3	2	3	2	2	3	
L	Service	3	1	0	1	0	0	1	
QQ	Standard	20	2	7	12	6	3	11	
QQ	President	1	1	1	1	1	0	0	
QQ	HC	1	1	1	1	1	1	1	
CHAPEL (FRONT)	Metered	14	2	2	6	4	4	11	
ANNAPOLIS HALL LOT	LL1	2	2	1	0	0	0	1	
ANNAPOLIS HALL LOT	Metered	4	4	3	4	4	0	4	
ANNAPOLIS HALL LOT	State Vehicles	7	4	6	5	6	1	3	
ANNAPOLIS HALL LOT	HC	3	2	2	2	2	1	1	
ANNAPOLIS HALL LOT	Courier	1	1	0	0	0	1	0	
ANNAPOLIS HALL LOT	Service	2	1	1	0	2	1	1	
15	Standard	99	12	23	29	8	7	20	
15	N6	8	6	5	4	5	7	8	
15	HC	6	5	5	6	4	5	5	
15	Service	3	2	3	2	2	1	3	
K2	Standard	116	27	20	74	21	24	76	3 Spaces Obstructed
K2	HC	3	3	2	3	2	2	2	
K2	WeWork Parking	23	7	6	8	0	2	10	
HOTEL GARAGE	Standard	673	553	587	616	598	581	546	
HOTEL GARAGE	Compact	127	114	93	105	112	105	108	
HOTEL GARAGE	Electric Vehicle	6	5	6	6	6	6	6	
HOTEL GARAGE	HC	18	10	15	16	15	16	17	
HOTEL SURFACE PARKING	Standard	510	377	381	405	279	309	415	
HOTEL SURFACE PARKING	Metered	19	2	14	13	12	9	2	
HOTEL SURFACE PARKING	HC	5	5	4	5	4	0	1	
LEONARDTOWN	State Vehicles	34	14	11	1	12	5	0	1 Space Obstructed
LEONARDTOWN	HC	1	0	1	0	1	1	1	
ROSSBOROUGH LANE	Service	4	0	0	0	1	0	0	
N5	Standard	15	2	2	10	1	5	10	
17C	Standard	43	2	1	27	1	2	20	
17D	Standard	40	0	3	29	8	6	31	
17D	Metered	3	3	2	3	3	3	3	
17B	Standard	27	2	1	3	2	1	4	
17B	HC	1	0	1	0	0	1	0	
17A	Standard	50	4	7	6	2	1	5	
17A	HC	2	2	2	2	2	2	2	
17A	Paystation	33	15	18	18	16	18	16	
16F	Standard	61	1	8	7	2	4	10	
16F	Service	3	1	1	1	1	1	1	
16F	Moped	10	8	0	0	0	0	0	
16F	HC	2	2	1	1	1	2	2	
16B	7	109	48	45	65	49	54	61	3 Spaces Obstructed
16B	K1	66	0	0	0	0	0	0	
16B	J2	25	0	0	0	0	0	0	
16B	Metered	9	0	0	0	0	0	0	
16B	HC	7	0	0	1	1	0	0	
K5	Standard	14	4	3	1	8	6	0	
F	Standard	29	6	4	18	0	2	14	
F	Police	18	0	1	8	4	4	6	
F	Fenced In	10	0	0	0	0	0	0	
16A	Standard	144	30	37	33	26	24	40	
16A	N8	4	1	2	2	2	2	3	
16A	HC	4	4	4	4	4	4	4	
JAVAZEN HEADQUARTERS PARKING	Standard	25	6	7	10	12	3	9	
JAVAZEN HEADQUARTERS PARKING	HC	2	2	2	2	2	1	1	
JAVAZEN HEADQUARTERS PARKING	Loading Dock	2	1	1	1	1	1	1	
JAVAZEN HEADQUARTERS PARKING	4a	13	12	12	12	12	12	11	

F: DOTS 2018 Parking Survey

Tuesday, August 28, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG
1100	0	198	95	72	166	0	0	0	150	166
					531					

RDG meters

Lot #	B	PH1	Z
1100	41	31	15

Available Student Day Spaces 847
Available Fac/Staff Spaces 87

Total Available Spaces 934

Wednesday, August 29, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG
1100	3	74	34	17	160	0	0	0	162	187
					288					

RDG meters
125

Lot #	B	PH1	Z
1100	51	40	6

Available Student Day Spaces 637
Available Fac/Staff Spaces 97

Total Available Spaces 734

Thursday, August 30, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG
1100	6	45	21	56	161	55	84	15	140	210
					289					

RDG meters
75

Lot #	B	PH1	Z
1100	163	32	44

Available Student Day Spaces 793
Available Fac/Staff Spaces 239

Total Available Spaces 1032

Friday, August 31, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG
1100	52	420	260	76	155	128	267	147	175	315
					963					

RDG meters
156

Lot #	B	PH1	Z

Available Student Day Spaces 1995

1100	224	57	58

Available Fac/Staff Spaces 339

Total Available Spaces 2334

Monday, September 3, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG
1100										
					0					

RDG meters

Lot #	B	PH1	Z
1100			

LABOR DAY
SCHOOL CLOSED

Available Student Day Spaces 0
Available Fac/Staff Spaces 0

Total Available Spaces 0

Tuesday, September 4, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG
1100	9	28	10	47	135	23	44	13	113	166
					229					

RDG meters
171

Lot #	B	PH1	Z
1100	56	19	33

Available Student Day Spaces 588
Available Fac/Staff Spaces 108

Total Available Spaces 696

Wednesday, September 5, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG
1100	11	30	19	53	163	32	15	19	125	159
					276					

RDG meters
123

Lot #	B	PH1	Z
1100	33	27	37

Available Student Day Spaces 626
Available Fac/Staff Spaces 97

Total Available Spaces 723

Thursday, September 6, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG
1100	5	22	9	26	120	43	65	8	130	145
					182					

RDG meters
136

Lot #	B	PH1	Z
1100	42	21	15

Available Student Day Spaces 573
Available Fac/Staff Spaces 78

Total Available Spaces 651

Friday, September 7, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG
1100	40	195	165	71	160	123	258	184	263	311
					631					

RDG meters
131

Lot #	B	PH1	Z
1100	199	50	88

Available Student Day Spaces 1770
Available Fac/Staff Spaces 337

Total Available Spaces 2107

Monday, September 10, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG
1100	2	23	14	56	129	37	54	11	128	189
					224					

RDG meters
152

Lot #	B	PH1	Z
1100	48	25	29

Available Student Day Spaces 643
Available Fac/Staff Spaces 102

Total Available Spaces 745

Tuesday, September 11, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG
1100	14	26	11	39	147	66	92	21	117	198
					237					

RDG meters
29

Lot #	B	PH1	Z
1100	78	23	32

Available Student Day Spaces 731
Available Fac/Staff Spaces 133

Total Available Spaces 864

Wednesday, September 12, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG
1100	0	3	0	40	90	73	46	38	91	98
					133					

RDG meters
212

Lot #	B	PH1	Z
1100	48	29	44

Available Student Day Spaces 479
Available Fac/Staff Spaces 121

Total Available Spaces 600

Thursday, September 13, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG
1100										
					0					

RDG meters

Lot #	B	PH1	Z
1100			

Available Student Day Spaces 0
Available Fac/Staff Spaces 0

Total Available Spaces 0

Friday, September 14, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG
1100										
					0					

RDG meters

Lot #	B	PH1	Z
1100			

Available Student Day Spaces 0
Available Fac/Staff Spaces 0

No Surveys performed Football Prep

Total Available Spaces 0

Monday, September 17, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG

RDG meters

1100	30	43	28	51	98	82	19	34	106	221	149
					250						

Lot #	B	PH1	Z
1100	40	26	63

Available Student Day Spaces 712
Available Fac/Staff Spaces 129

Total Available Spaces 841

Tuesday, September 18, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG	RDG meters
1100											
					0						

Lot #	B	PH1	Z
1100			

Available Student Day Spaces 0
Available Fac/Staff Spaces 0

No Surveys performed Gossett Memorial

Total Available Spaces 0

Wednesday, September 19, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG	RDG meters
1100	33	41	38	66	110	61	35	43	94	207	47
					288						

Lot #	B	PH1	Z
1100	104	28	70

Available Student Day Spaces 728
Available Fac/Staff Spaces 202

Total Available Spaces 930

Thursday, September 20, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG	RDG meters
1100											
					0						

Lot #	B	PH1	Z
1100			

Available Student Day Spaces 0
Available Fac/Staff Spaces 0

Total Available Spaces 0

Friday, September 21, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG
1100										
					0					

RDG meters

Lot #	B	PH1	Z
1100			

Available Student Day Spaces 0
Available Fac/Staff Spaces 0

No Surveys performed Football Prep

Total Available Spaces 0

Monday, September 24, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG
1100										
					0					

RDG meters

Lot #	B	PH1	Z
1100			

Available Student Day Spaces 0
Available Fac/Staff Spaces 0

No Surveys performed Conaway Memorial

Total Available Spaces 0

Tuesday, September 25, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG
1100	5	32	29	43	137	67	71	26	123	221
					246					

RDG meters

Lot #	B	PH1	Z	JJ
1100	80	25	56	28

Available Student Day Spaces 754
Available Fac/Staff Spaces 161

Total Available Spaces 915

Wednesday, September 26, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG
1100	40	76	33	47	131	60	25	24	123	232

RDG meters
192

327

Lot #	B	PH1	Z	JJ
1100				

Available Student Day Spaces 791
Available Fac/Staff Spaces 0

Total Available Spaces 791

Thursday, September 27, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG
1100	2	12	13	45	127					214
					199					

RDG meters
188

Lot #	B	PH1	Z	JJ
1100	101	35	35	55

Available Student Day Spaces 413
Available Fac/Staff Spaces 171

Total Available Spaces 584

Friday, September 28, 2018

Lot #	1b	1c	1d	1e	1f	4b	6	9b	11b	SDG
1100	38	380	261	53	182	171	211	137	267	219
					914					

RDG meters
226

Lot #	B	PH1	Z	JJ
1100	165	34	56	88

Available Student Day Spaces 1919
Available Fac/Staff Spaces 255

Total Available Spaces 2174

G: Existing and Forecasted Population and Parking Demand

Year	Parking Supply (Spaces)						Person-Demand						SOV Mode Share (%)					
	Total	Service Reduction	Buffer	Net	Occupied	Available	Campus Population					Visitor	UG Students	G Students	Faculty	Staff	Visitor	Total
		10%			81%		UG Students	G Students	Faculty	Staff	Total		26.52%	40.19%	63.78%	79.60%	74.29%	
2010	18874	1887	750	16237	15307	3567	26922	10719	4246	8906	50793	750	7140	4308	2708	7089	557	21802
2011	19000	1900	750	16350	15409	3591	26826	10805	4389	9062	51082	750	7115	4342	2799	7213	557	22026
2012	19406	1941	750	16715	15739	3667	26538	10710	4509	9174	50931	750	7039	4304	2876	7302	557	22078
2013	16330	1633	750	13947	13244	3086	26658	10614	4533	9151	50956	750	7070	4265	2891	7284	557	22067
2014	18168	1817	750	15601	14735	3433	27056	10554	4587	9376	51573	750	7176	4241	2926	7463	557	22363
2015	18874	1887	750	16237	15307	3567	27443	10697	4630	9161	51931	750	7279	4299	2953	7292	557	22380
2016	18682	1868	750	16064	15151	3531	28472	10611	4742	9330	53155	750	7552	4264	3024	7427	557	22824
2017	18330	1833	750	15747	14866	3464	28477	10597	4787	9554	53415	750	7553	4259	3053	7605	557	23027
2018	17712	1771	750	15191	14365	3347	28482	10583	4826	9665	53556	750	7554	4253	3078	7693	557	23135
2019	17621	1762	750	15109	14291	3330	28487	10569	4865	9776	53697	750	7555	4247	3103	7782	557	23244
2020	17334	1733	750	14851	14058	3276	28492	10555	4904	9887	53838	737.78	7557	4242	3128	7870	548	23345
2021	17348	1735	750	14863	14070	3278	28497	10541	4943	9998	53979	738.38	7558	4236	3153	7958	549	23454
2022	17290	1729	750	14811	14023	3267	28502	10527	4982	10109	54120	735.91	7559	4230	3177	8047	547	23560
2023	17181	1718	750	14713	13934	3247	28507	10513	5021	10220	54261	731.27	7561	4225	3202	8135	543	23666
2024	16979	1698	750	14531			28512	10499	5060	10331	54402	722.67	7562	4219	3227	8223	537	23768
2025	16777	1678	750	14349			28517	10485	5099	10442	54543	714.08	7563	4214	3252	8312	530	23871
2026	16575	1658	750	14167			28525	10470	5142	10555	54692	705.48	7566	4208	3279	8402	524	23979
2027	16373	1637	750	13986			28638	10448	5192	10655	54933	696.88	7596	4199	3311	8481	518	24105
2028	16053	1605	750	13698			28751	10426	5242	10755	55174	683.26	7626	4190	3343	8561	508	24228
2029	15851	1585	750	13516			28864	10404	5292	10855	55415	674.66	7655	4181	3375	8640	501	24352
2030	15649	1565	750	13334			28977	10382	5342	10955	55656	666.07	7685	4172	3407	8720	495	24479
2031	15447	1545	750	13152			29090	10360	5392	11055	55897	657.47	7715	4163	3439	8800	488	24605
2032	15245	1525	750	12970			29203	10338	5442	11155	56138	648.87	7745	4155	3471	8879	482	24732
2033	15043	1504	750	12789			29316	10316	5492	11255	56379	640.27	7775	4146	3503	8959	476	24859
2034	14841	1484	750	12607			29429	10294	5542	11355	56620	631.68	7805	4137	3535	9038	469	24984
2035	14639	1464	750	12425			29542	10272	5592	11455	56861	623.08	7835	4128	3566	9118	463	25110
2036	14437	1444	750	12243			29655	10250	5642	11555	57102	614.48	7865	4119	3598	9198	456	25236
2037	14235	1424	750	12061			29768	10228	5692	11655	57343	605.88	7895	4110	3630	9277	450	25362
2038	14033	1403	750	11880			29881	10206	5742	11755	57584	597.28	7925	4101	3662	9357	444	25489
2039	13831	1383	750	11698			29994	10184	5792	11855	57825	588.69	7955	4093	3694	9436	437	25615
2040	13629	1363	750	11516			30107	10162	5842	11955	58066	580.09	7985	4084	3726	9516	431	25742
2041	13427	1343	750	11334			30220	10140	5892	12055	58307	571.49	8015	4075	3758	9596	425	25869
2042	13225	1323	750	11152			30333	10118	5942	12155	58548	562.89	8045	4066	3790	9675	418	25994
2043	13023	1302	750	10971			30446	10096	5992	12255	58789	554.3	8075	4057	3822	9755	412	26121
2044	12821	1282	750	10789			30559	10074	6042	12355	59030	545.7	8105	4048	3853	9834	405	26245
2045	12619	1262	750	10607			30672	10052	6092	12455	59271	537.1	8135	4040	3885	9914	399	26373
2046	12417	1242	750	10425			30785	10030	6142	12555	59512	528.5	8165	4031	3917	9994	393	26500
2047	12215	1222	750	10243			30898	10008	6192	12655	59753	519.91	8195	4022	3949	10073	386	26625
2048	12013	1201	750	10062			31011	9986	6242	12755	59994	511.31	8225	4013	3981	10153	380	26752
2049	11811	1181	750	9880			31124	9964	6292	12855	60235	502.71	8255	4004	4013	10232	373	26877
2050	11609	1161	750	9698			31237	9942	6342	12955	60476	494.11	8285	3995	4045	10312	367	27004

Legend

Published Record
Calculation - Interpolation or Otherwise
Estimate
Current Year

Parking Demand						Other Demand Changes		
Gross UG/G Demand	Gross F/S Demand	Total Demand	Purple Line UG/G	Purple Line F/S	Net Demand	New Research Building	Net Demand	Net Demand
47%	75%			4%		0.71	No Purple	
5381	7348	13286	0	0	13286	0	13286	13286
5385	7509	13451	0	0	13451	0	13451	13451
5331	7634	13522	0	0	13522	0	13522	13522
5327	7631	13515	0	0	13515	0	13515	13515
5366	7792	13715	0	0	13715	0	13715	13715
5442	7684	13683	0	0	13683	0	13683	13683
5554	7838	13949	0	0	13949	0	13949	13949
5552	7994	14103	0	0	14103	0	14103	14103
5549	8078	14184	0	0	14184	0	14184	14184
5547	8164	14268	0	0	14268	0	14268	14268
5546	8249	14343	0	0	14343	0	14343	14343
5543	8333	14425	0	0	14425	0	14425	14425
5541	8418	14506	-400	-100	14006	0	14506	14006
5539	8503	14585	-723	-149	13713	0	14585	13713
5537	8588	14662	-1046	-198	13418	108	14770	13526
5535	8673	14738	-1369	-247	13122	216	14954	13338
5534	8761	14819	-1692	-296	12831	324	15143	13155
5544	8844	14906	-2015	-345	12546	426	15332	12972
5554	8928	14990	-2338	-394	12258	421	15411	12679
5563	9011	15075	-2661	-443	11971	415	15490	12386
5573	9095	15163	-2982	-489	11692	409	15572	12101
5583	9179	15250	-2982	-489	11779	409	15659	12188
5593	9263	15338	-2982	-489	11867	409	15747	12276
5603	9347	15426	-2982	-489	11955	409	15835	12364
5613	9430	15512	-2982	-489	12041	409	15921	12450
5623	9513	15599	-2982	-489	12128	409	16008	12537
5632	9597	15685	-2982	-489	12214	409	16094	12623
5642	9680	15772	-2982	-489	12301	409	16181	12710
5652	9764	15860	-2982	-489	12389	409	16269	12798
5663	9848	15948	-2982	-489	12477	409	16357	12886
5672	9932	16035	-2982	-489	12564	409	16444	12973
5682	10016	16123	-2982	-489	12652	409	16532	13061
5692	10099	16209	-2982	-489	12738	409	16618	13147
5702	10183	16297	-2982	-489	12826	409	16706	13235
5712	10265	16382	-2982	-489	12911	409	16791	13320
5722	10349	16470	-2982	-489	12999	409	16879	13408
5732	10433	16558	-2982	-489	13087	409	16967	13496
5742	10517	16645	-2982	-489	13174	409	17054	13583
5752	10601	16733	-2982	-489	13262	409	17142	13671
5762	10684	16819	-2982	-489	13348	409	17228	13757
5772	10768	16907	-2982	-489	13436	409	17316	13845

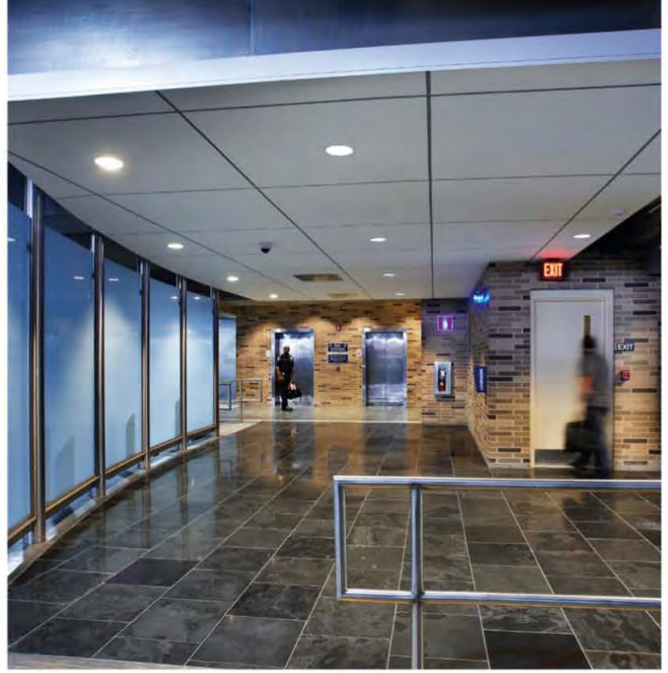
Legend

Published Record
Calculation - Interpolation or Otherwise
Estimate
Current Year

H: Parking and Access Management Best Practices Toolbox

Strategy

Restoration

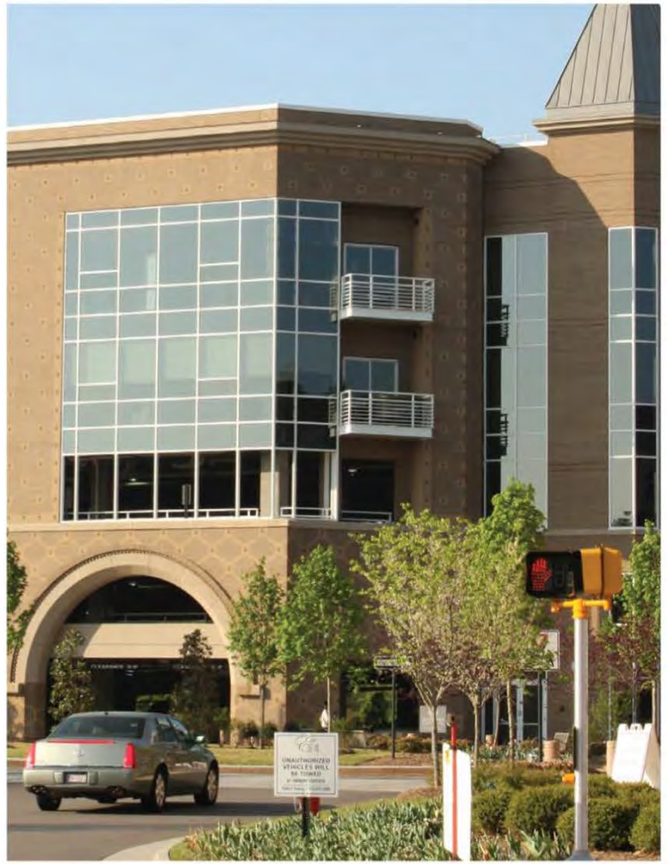


Operations

Technology

Design

Success

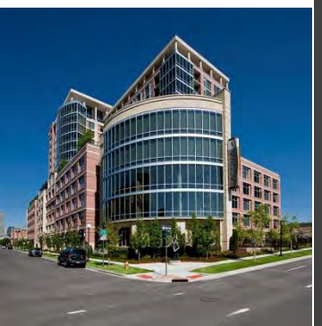


PARKING | The Next Level

PARKING | The Next Level

PARKING MANAGEMENT & DESIGN - **Best Practices**

Kimley»Horn



Introduction/Overview

This collection of parking management and design “best practices” has been compiled over a number of years and continues to evolve as the parking industry evolves.

Our goals in the development and organization of this document were to provide a comprehensive categorization of parking planning, management and design areas to make finding specific best practices easier. As is often the case when trying to categorize a wide range of items there instances where one item might legitimately be placed in multiple categories.

As this collection has grown, we have expanded our thinking on exactly what to include. For example, in the category of “Sustainable Parking Design & Management Strategies” we chose to include some concepts that speak more to potential future applications. While technically not “best practices”, they do illustrate new ideas and approaches that can inspire creative thinking.

We know of no parking/transportation program anywhere that has adopted all of these concepts and management strategies. It is our hope that this tool will provide the University with a wealth of ideas to stimulate program development.

Kimley»Horn

PARKING | The Next Level

PARKING MANAGEMENT & DESIGN - **Best Practices**

Kimley»Horn

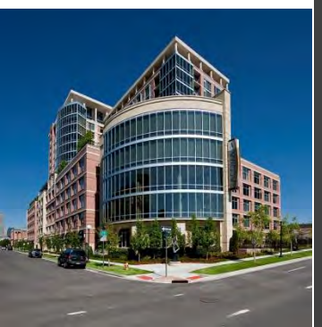


Table of Contents

Chapters:

PARKING | The Next Level

PARKING MANAGEMENT & DESIGN - **Best Practices**

Kimley»Horn

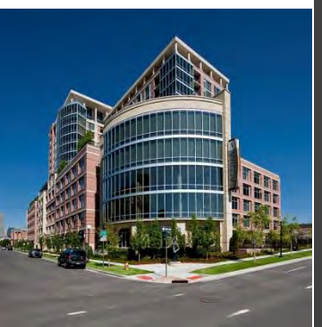


Table of Contents

Chapters:

PARKING | The Next Level

PARKING MANAGEMENT & DESIGN - **Best Practices**

Kimley»Horn

Ch.
1

A Comprehensive Approach to Program Development

Guiding Principles

Creating a comprehensive set of "guiding principles" is the first step in creating a strategic parking plan for your organization.

ex.

- Guiding Principles form the strategic framework of a program
- Within a parking strategic plan, specific action items are organized by the larger "guiding principle categories".
- In this way, by working the action plan, you will remain true to the vision, mission and core values of the strategic plan which was developed with significant stakeholder involvement.

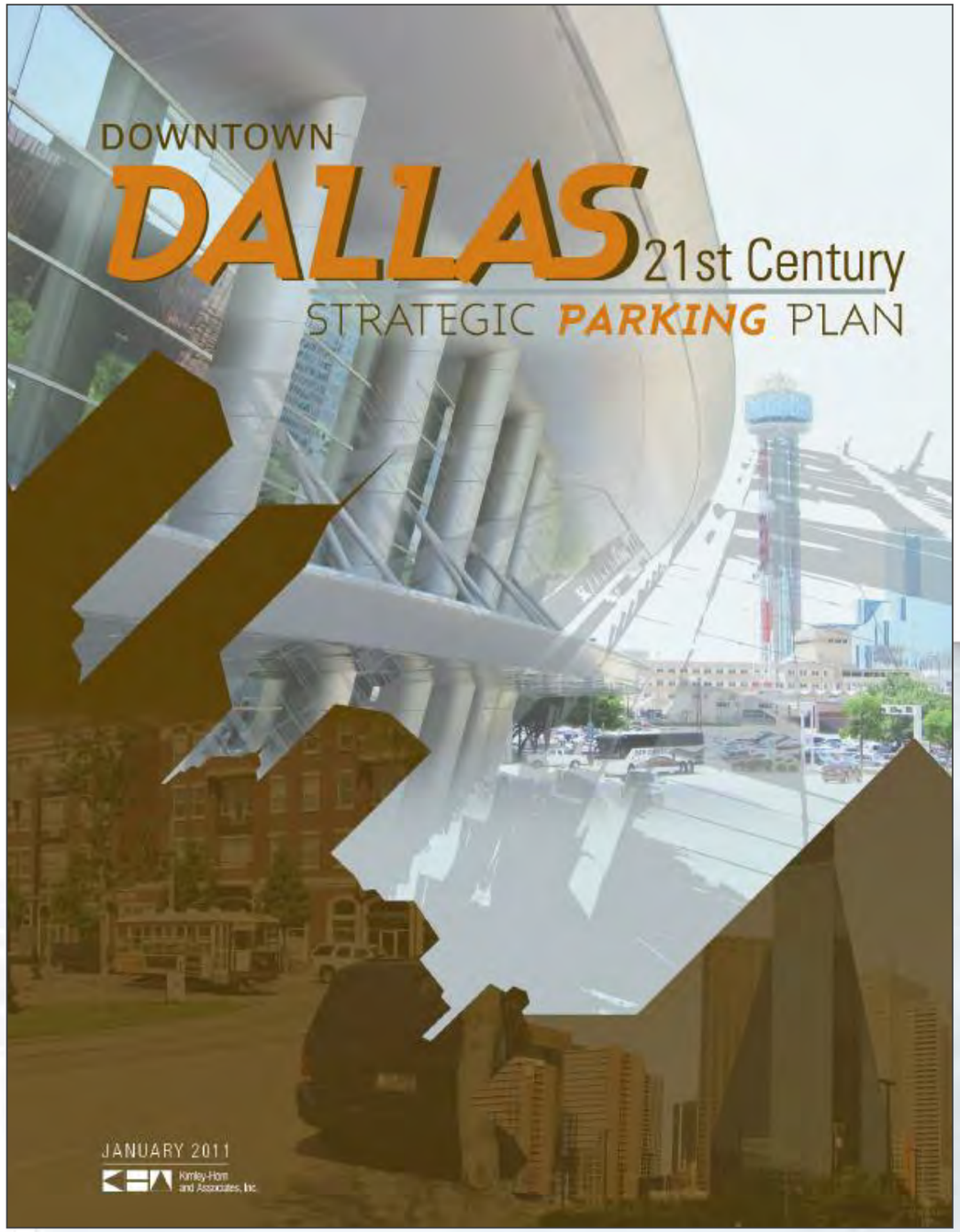
Parking Strategic Plans

A characteristic of “Best in Class” parking programs is that they have developed a *Parking Strategic Plan* to define the program’s vision, mission and work plan.

One key to success is the degree to which programs actually “work the plan”.

ex.

- The strategic plan helps set program priorities
- Builds consensus on program direction
- Defines funding priorities
- Informs staffing development
- Connects the program of work with related community interests
- Provides a roadmap for future program development

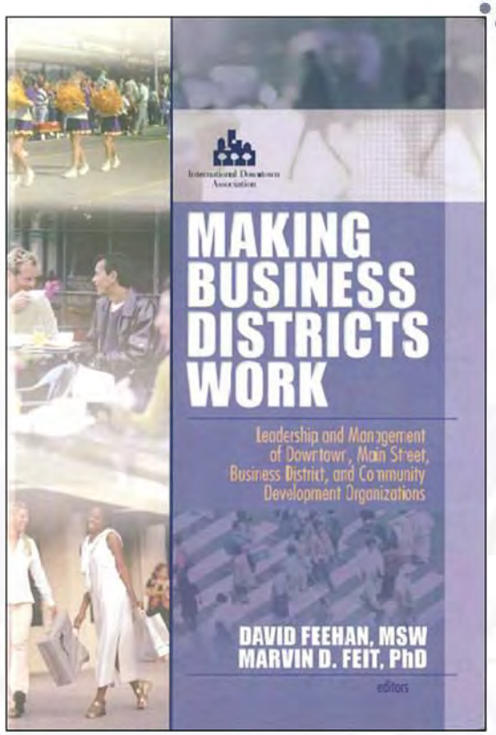


Kimley»Horn

20 Characteristics of Effective Parking Programs

The parking chapter of the book *"Making Business Districts Work"* reviews what the author considers to be the "20 Characteristics of Best-in-Class Parking Programs". Taken as a whole these characteristics form the foundation for a comprehensive parking management program.

ex.



- Clear Vision and Mission
- Parking Philosophy & Guiding Principles
- Strong Planning
- Community Involvement
- Organization
- Staff Development
- Safety, Security and Risk Mgmt.
- Communications
- Consolidated Parking Programs
- Financial Planning
- Effective Parking Management
- Operational Efficiency
- Facilities Maintenance & Asset Protection
- Use of Technology
- Parking System Marketing
- Customer Service Programs
- Special Events Parking
- Effective Enforcement
- Parking & Trans. Demand Mgmt.
- Awareness of Competitive Environment

PARKING | The Next Level

PARKING MANAGEMENT & DESIGN - **Best Practices**

Kimley»Horn

Ch.
2

Program Organization

Vertical Integration

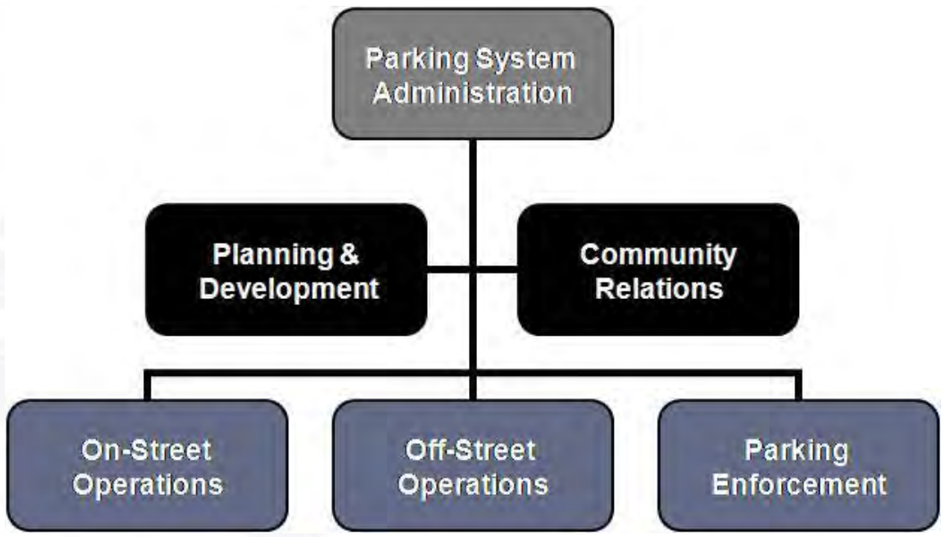
The single most important element of a parking program's organizational structure is the principle of "vertical integration".

- The most successful parking program organizational models include:
  - Parking Authorities
  - Vertically Integrated City Departments
  - Business Improvement Districts
  - Parking Management Districts
  - The Professional Services Model
- At a minimum the following three areas are essential for a vertically integrated parking program:
  - Off-Street Management
  - On-Street Management
  - Parking Enforcement

ex.

- Beyond the three primary functional areas (on-street, off-street and enforcement), the other recommended primary areas include: administration, planning/development and community relations.

  Other key areas might include: contract administration, finance/audit and special projects, depending on the program.

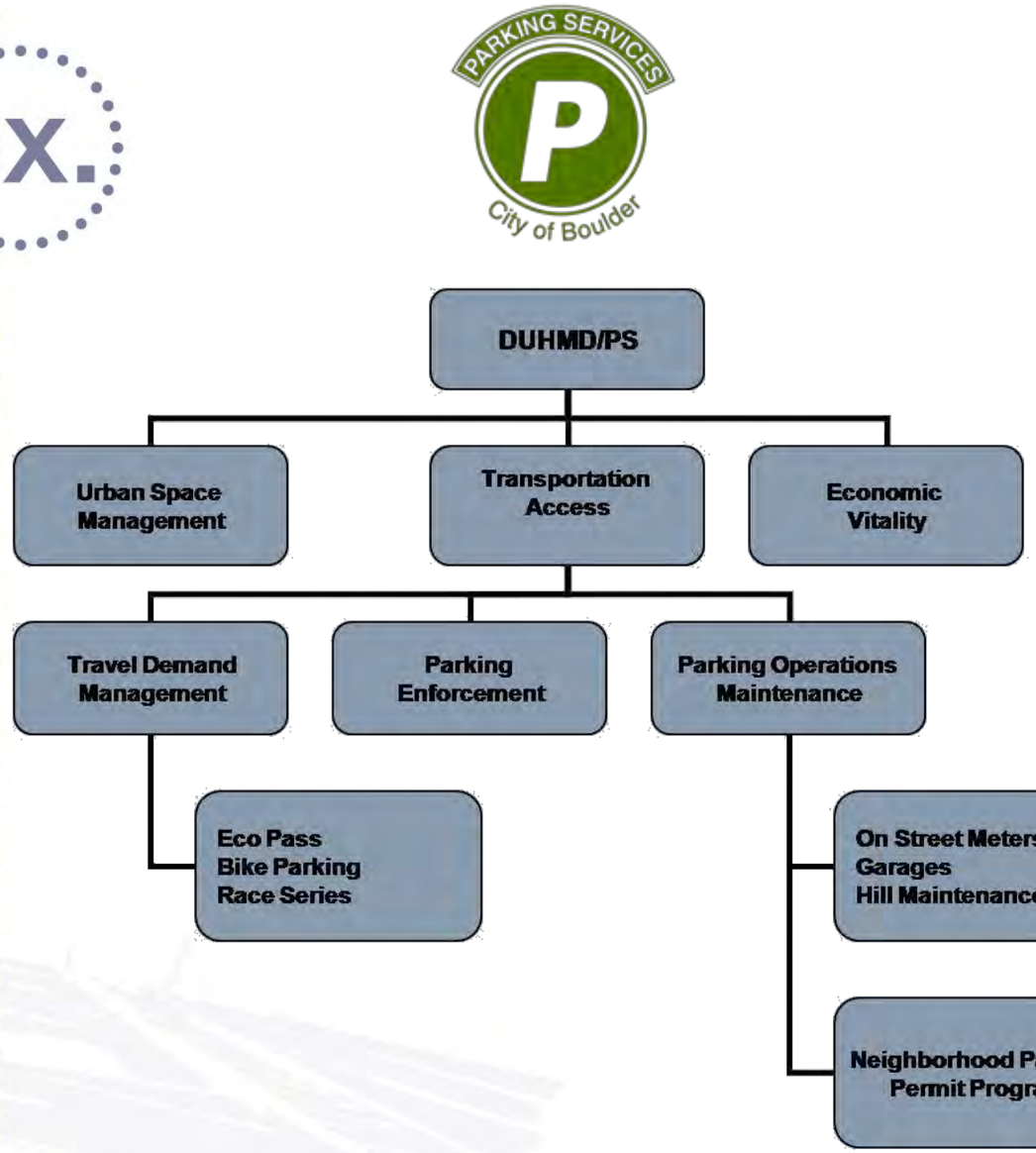


Non-Traditional Organizational Models

The City of Boulder has a unique combination of integrated municipal services within the Downtown and University Hill Management Division & Parking Services (DUHMD/PS).

» Beyond the basic parking program integration of off-street management, on-street management and parking enforcement, this program has a broader organizational mandate including urban space management, transportation and economic vitality.

ex.



"Dual Mission Philosophy"

Some of the most effective and progressive parking programs in operation today are those being managed by Business Improvement Districts, Downtown Development Authorities, Urban Renewal Agencies, etc.

- One of characteristics that helps make these organizations so successful is what we refer to as the "Dual Mission Philosophy".
- The primary goal of the agency is to create a revitalized downtown. Because of this, parking is managed as a tool to support this primary goal.
- The result is that different decisions are made relative to parking than those made in traditional city parking departments.

ex.

Examples of high quality parking programs that fit into this category include:

- The City of Boulder, Boulder, CO
- The Capital City Development Corporation – Boise, ID
- The Ann Arbor Downtown Development Authority – Ann Arbor, MI
- The Anchorage Community Development Authority – Anchorage, AK
- Downtown Tempe Community, Inc. – Tempe, AZ
- The Cedar Rapids Downtown District – Cedar Rapids, IA
- Charlotte CENTER CITY Partners, - Charlotte, NC
- Missoula Parking Commission – Missoula, MT

Organizational Development Pyramid

The organizational development pyramid succinctly defines the major organizational issues that any program should consider.

- **The primary questions to be answered include:**
  - Where are we going?
  - Why are we here?
  - What do we believe in?
  - What do we need to accomplish?
  - Who does what?
  - How do we get things done?
  - How do we work together as a team?

ex.

PARKING | The Next Level

PARKING MANAGEMENT & DESIGN - **Best Practices**

Kimley»Horn

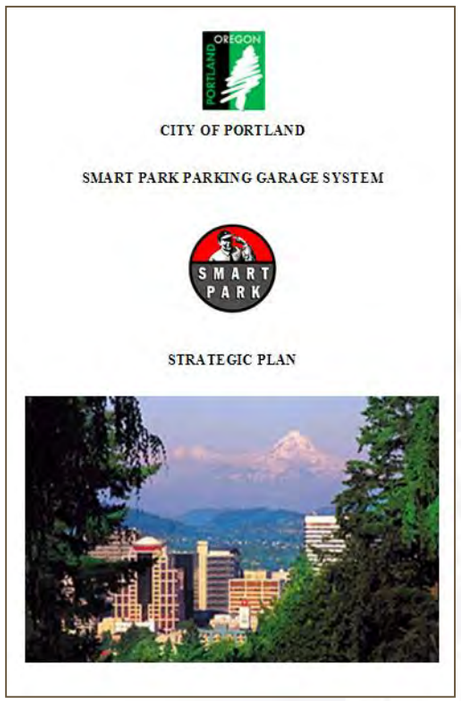
Ch.

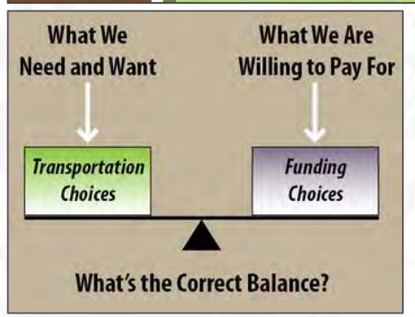
3

Parking Planning

Alignment with Community Transportation and Strategic Plans

"Best in Class" programs typically have developed parking specific strategic or community access strategic plans that are aligned with larger community transportation planning initiatives.





ex.

» Strategic plan action items include:

- Exploration of alternative management methodologies to enhance customer service
- Evaluation of new parking technologies
- Forming of partnerships with community organizations
- Generating facilities development plans
- Evaluating the impact of related transportation resources
- Undertaking survey research to identify customers perceptions regarding parking availability and pricing

Guiding Principles

Development of a set of parking system "Guiding Principles" is a good tool for setting and communicating program goals and objectives to both staff and community stakeholders.

» "Guiding Principles" are not intended to replace policies and procedures, rather, they define the goals and objectives that ultimately define the character of the parking department.

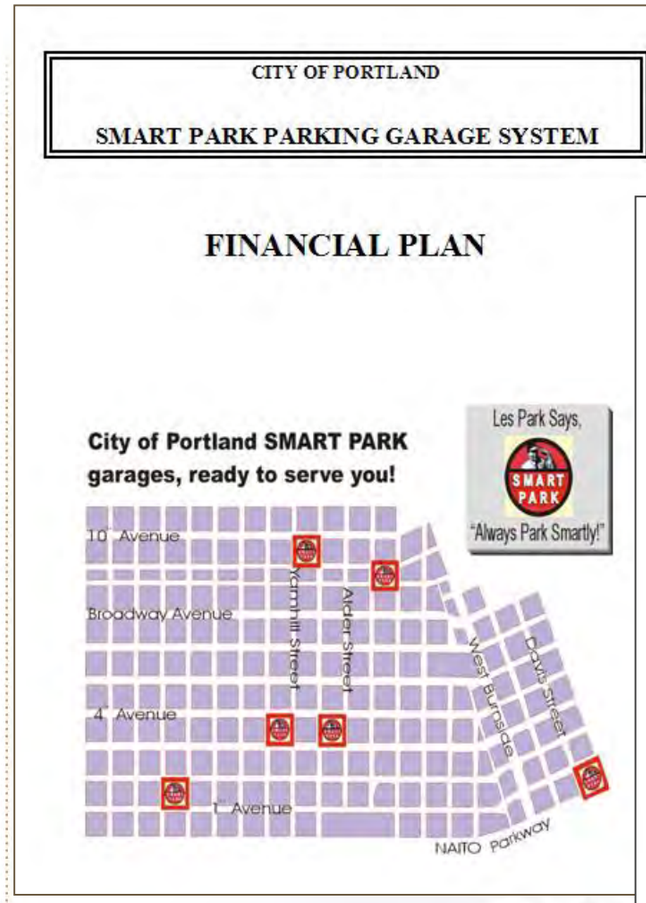
ex.

» Guiding Principles typically cover:

- Mission Statement / Statement of Purpose
- Operations/Funding Strategies
- Community Relationships
- Responsibility for Parking Operations
- Rate Setting Guidelines
- Options for Allocating/Procuring Parking
- Inclusion of Parking in Strategic and Master Planning Processes
- Procedures for Managing Losses of Parking Supply (both temporary and long-term)
- Definition and Communication of Parking Rules and Regulations
- Enforcing and Adjudicating Parking Rules and Regulations
- Defining Parking Facility Maintenance Responsibilities
- Special Event Parking
- Budgeting and Planning Cycles

Financial Plans

"Best in Class" programs typically have developed parking specific financial plans.


CITY OF PORTLAND

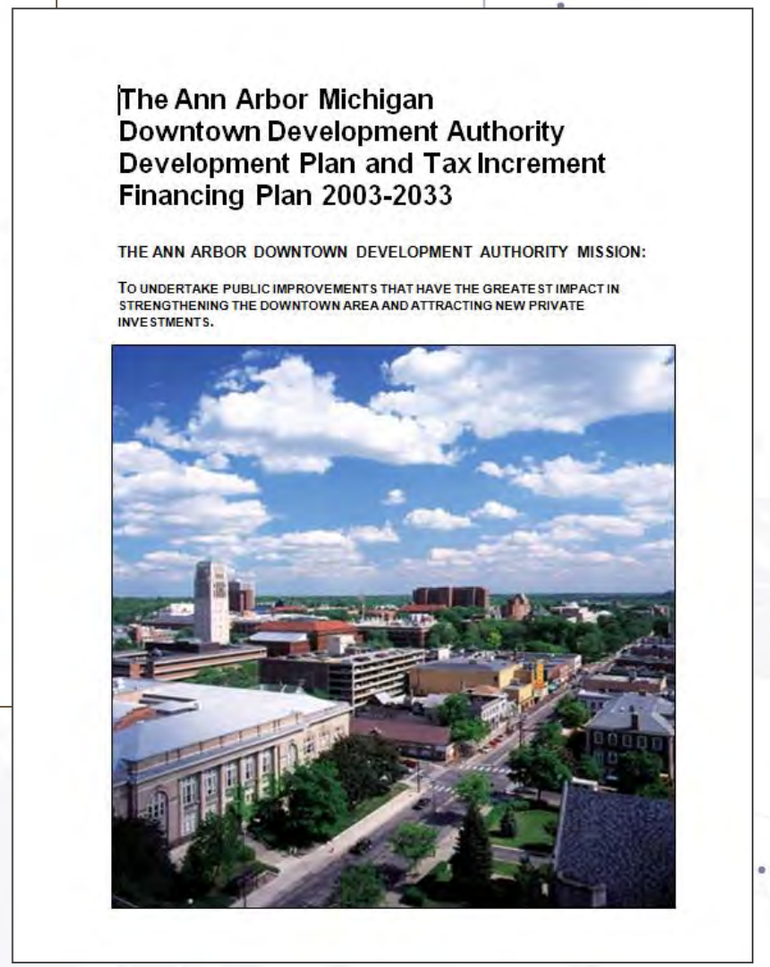
SMART PARK PARKING GARAGE SYSTEM

FINANCIAL PLAN

City of Portland SMART PARK garages, ready to serve you!

Les Park Says, SMART PARK "Always Park Smartly!"

10th Avenue
Broadway Avenue
4th Avenue
1st Avenue
Kearnhill Street
Alder Street
West Burnside
Davis Street
NAITO Parkway


The Ann Arbor Michigan
Downtown Development Authority
Development Plan and Tax Increment
Financing Plan 2003-2033

THE ANN ARBOR DOWNTOWN DEVELOPMENT AUTHORITY MISSION:

TO UNDERTAKE PUBLIC IMPROVEMENTS THAT HAVE THE GREATEST IMPACT IN STRENGTHENING THE DOWNTOWN AREA AND ATTRACTING NEW PRIVATE INVESTMENTS.

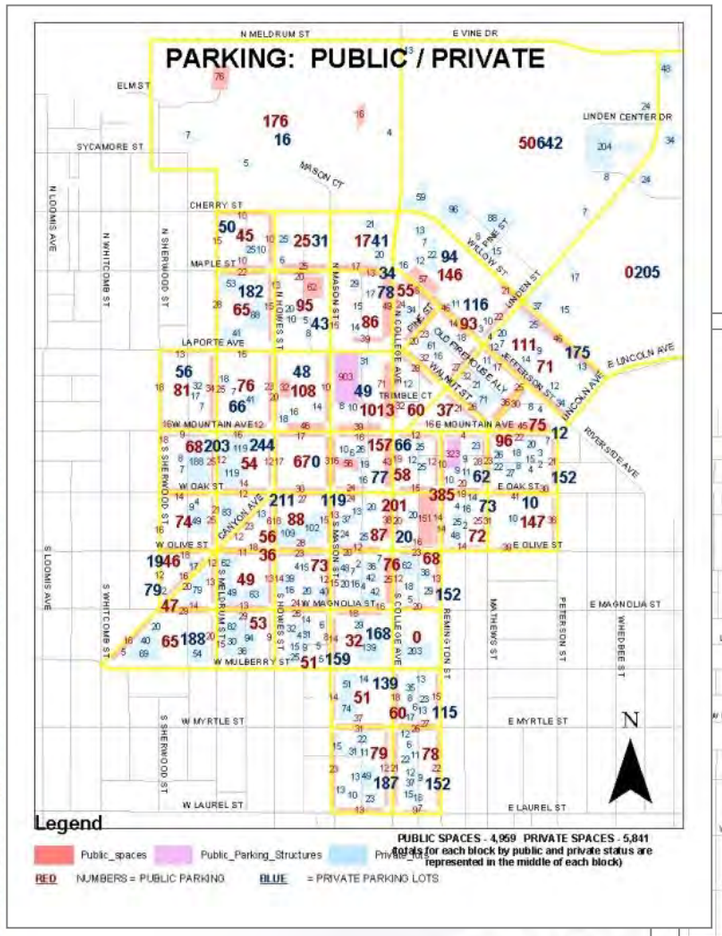
ex.

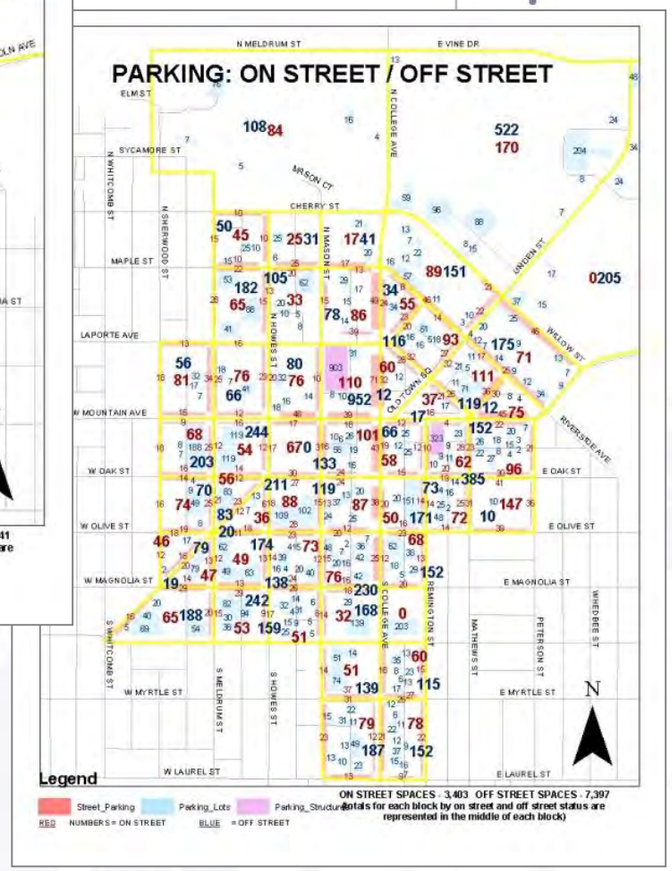
» Sample Financial Plan Table of Contents

- Introduction
- Background
- Planning and Policy Framework
- Operational Objectives
- Fund Balance and Reserve Policy
- Policies Regarding Uses of Parking Revenues
- Debt Policy
- Rates Policies
- Annual Updates

Parking Inventories

A basic element of effective parking program management is maintaining an up-to-date parking inventory.





ex.

- Parking inventories should be kept up to date on an on-going basis.
- Supply additions and losses should be tracked along with the dates spaces come into or out of service.
- It is extremely useful to also track land-uses and square footages.
- Parking supply should be subdivided by type of spaces.
  - On-Street vs. Off-Street
  - Public vs. Private
  - Surface lot vs. Structured

Supply/Demand Analysis

Periodic assessments of parking supply/demand are critical to effective parking system planning.

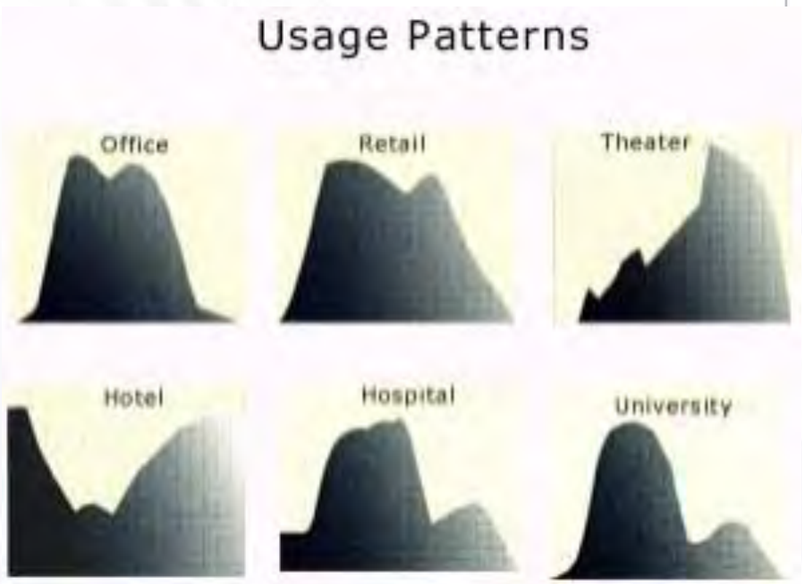
- » Documenting current parking adequacy, typically on a zoned basis, is the first task in this process.
- » This is followed by analyzing potential changes in parking supply conditions and future development projects.
- » Projections of future parking demand and adequacy are typically developed based on proposed land-use changes or by analyzing specific development initiatives.

ex.

Shared Parking Model

Shared parking can have a significant impact on mixed-use development parking requirements. Combining certain land uses results in a demand for parking spaces that is less than the demand generated by separate, freestanding developments of similar size and character.

Having a community adopted shared parking model as part of the local parking requirements is a recommended best practice.



ex.

- Shared parking is defined as parking space that can be used to serve two or more individual land uses, without conflict or encroachment
- The opportunity to implement shared parking is the result of two conditions:
  - Variations in the peak accumulation of parked vehicles as a result of different activity patterns of adjacent or nearby land uses (by hour, by day, by season).
  - Relationships among land use activities that result in people's attraction to two or more land uses on a single auto trip to a given area or development.

Kimley»Horn

On-Street Occupancy

Documenting on-street parking occupancy is another effective tool to help you better understand and manage your parking resources.

- Routinely tracking on-street parking occupancy and documenting the results graphically provides valuable management data.
- Often there is adequate parking supply despite a wide-spread perception that the parking supply is inadequate.
- Documenting the true occupancy rates are the first step to effectively resolving parking problems (real or perceived).

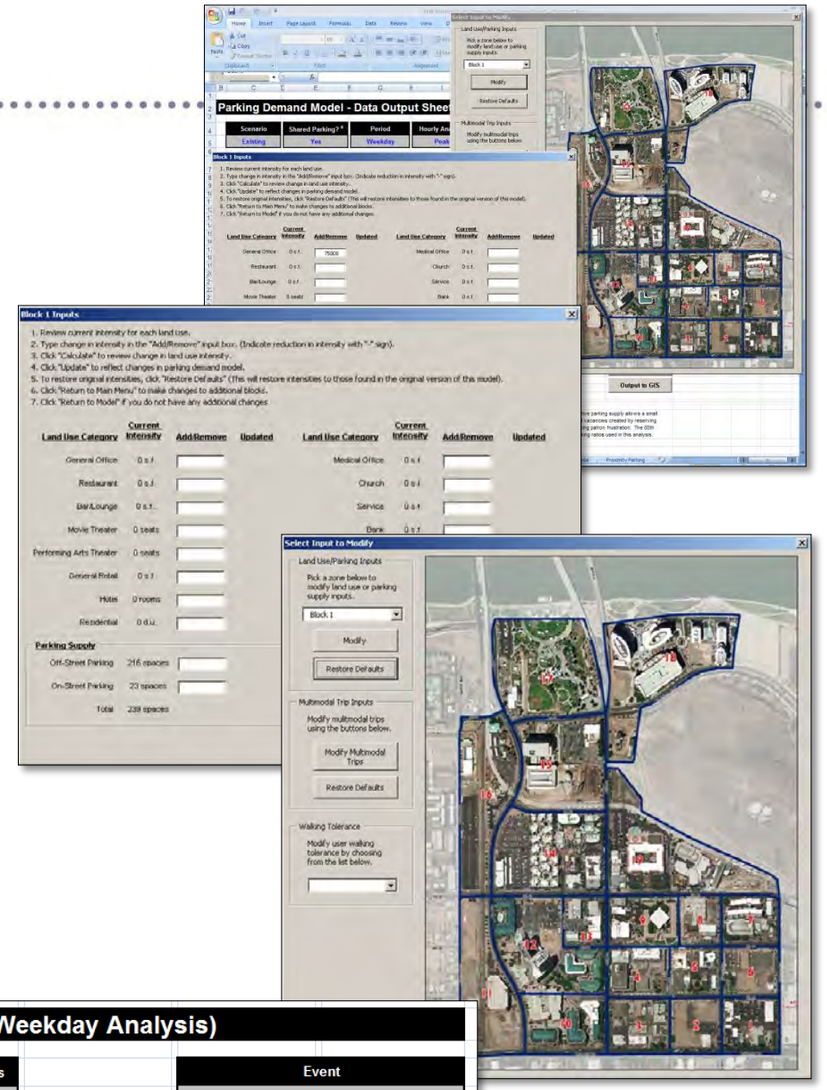
ex.

Parking Demand Model

Kimley-Horn has developed a model to help our clients keep parking inventory, utilization, land-use and parking adequacy data up to date.

- This dynamic toll is linked to Arc/GIS systems to provide an even more effective tool for local governments and institutions.

ex.



Parking Demand Model - Data Output Sheet (Weekday Analysis)

Scenario	Shared Parking? [A]	Period	Hourly Analysis		Event
Existing	Yes	Weekday	Peak		Panther & Bobcat Games

Zone	Peak Parking Demand [B]	Parking Supply [C]	Parking Supply Surplus [D]	Available Proximity Parking [E]	Adjusted Parking Supply [F]	Net Parking Surplus/Deficit [G]
Zone A	224	614	390	0	224	0
Zone B	3,348	2,185	-1,163	409	2,594	-754
Zone C	1,791	1,447	-344	103	1,550	-242
Zone D	86	291	205	0	93	7
Zone E	16,351	1,539	-14,812	82	1,621	-14,730
Zone F	1,130	806	-324	0	806	-324
Zone G	239	235	-4	4	239	0
Zone H	2,023	1,046	-977	60	1,106	-917
Zone I	5,008	1,709	-3,299	755	2,464	-2,544
Zone J	347	531	184	0	355	8
Zone K	419	681	262	0	475	56
Zone L	96	546	450	0	96	0
Zone M	54	48	-6	6	54	0
Totals	31,116	11,678	-19,438	1,419	11,678	-19,438

Projected Number of Parking Spaces Needed: 19,400

Peak Period: *7:00 PM*
Scenario: *Existing*
Event: *Football and basketball games occurring concurrently*

Modify Inputs
Output to GIS

Notes:

Zoning and Parking Requirements

Zoning is the means by which cities and other local governmental agencies ensure that development projects meet the community's standards. It has been termed "a preventative" approach for achieving planned and orderly development."

Summary Table of Uses and Space Requirements

Use	Parking Spaces Required
Single Family Dwelling Unit	2/ Dwelling Unit
Multi-Family Dwelling Unit	
Rental	1.65/ Dwelling Unit
Owned	1.85/ Dwelling Unit
Accessory Dwelling Unit	1/ Dwelling Unit
Sleeping Rooms	1/ Unit or Room plus 2 for owners/managers
Commercial Lodgings	1.25/ Sleeping Room or unit plus 10/1,000 sq ft GLA restaurant lounge plus 30/per 1000 sq ft GLA meeting rooms/banquet plus or, where more than 50 sq ft of meeting banquet per guest room, 20/1,000 sq ft GLA
Elderly Housing	0.5/ Dwelling Unit
Group, Convalescent and Nursing Home	0.33/ Resident
Day Care Center	1 space per employee plus 1.2 spaces per person licensed capacity enrollment, plus drop-off spaces equal to one for each eight enrollees permitted
Hospital/Medical Center	0.4/ Employee plus 1 space/ 3 beds plus 1 space/ 5 average daily outpatient treatments plus 1 space for each 4 members of medical staff. (Medical centers and teaching hospitals add 1 space for each student, full-time faculty/staff)
Retail Service	
General Retail	3.3/1,000 sq ft of GFA
Convenience Retail	4.3/1,000 sq ft of GFA
Service Retail	4/1,000 sq ft of GFA
Hard Goods Retail	2.5/1,000 sq ft GFA Interior sales space plus 1.5/1,000 sq ft of interior storage and exterior display/ storage areas
Shopping Center	4/ 1,000 sq ft GLA for centers with up to 400,000 sq ft GLA; scaled for centers with 400,000 to 600,000 sq ft; 4.5/1,000 sq ft of GLA if over 600,000
Personal Care Services	2/ Treatment station but not less than 4/1,000 sq ft of GFA
Coin Operated Laundries	1 space/ 2 washer and dryer machines
Other Retail/Service Uses	As determined by the Zoning Administrator
Temporary Retail	3.3/1,000 sq ft of GFA
Motor Vehicle Sales and Services	2.5/1,000 sq ft of GFA Interior sales space plus 1.5/1,000 sq ft of external display (does not include stock areas closed to the public) plus 3/ service bay
Motor Vehicle Laundries	1 space per each 2 peak shift employees plus queue space for vehicle count equal to one and one- half times the maximum hourly capacity of the facility
Food and Beverage	
Fine Dining and Eating and Drinking	20/1,000 sq ft GLA
Family Restaurant	15/1,000 sq ft GLA
Fast Food	15/1,000 sq ft GLA
Office and Business Services	
General Business Offices	3.8/1,000 sq ft of GFA for GFA up to 25,000 sq ft; scaled for GFA 25,000 to 100,000 sq ft; 3.4 for GFA of 100,000 sq ft; scaled for GFA between 100,000 and 500,000 sq ft; 2.8/1,000 sq ft GFA for GFA over 500,000 sq ft
Consumer Service Offices	4.5/1,000 sq ft of GFA for GFA up to 25,000 sq ft; 4.0/1,000 sq ft GLA for GFA over 25,000 sq ft
Data Processing/ Telemarketing/Operations Offices	7/1,000 sq ft of GFA for GFA up to 25,000 sq ft; 6/1,000 sq ft GFA for GFA over 25,000 sq ft
Medical Offices (not part of hospital campus)	4.5/1,000 sq ft GLA
Medical Offices (on hospital	4/1,000 sq ft GLA

ex.

- With respect to parking, zoning standards typically lay out formulas for determining how many parking spaces must be provided for specific types of land uses.
- Design standards are often included. The layout of parking, particularly the size of parking spaces and aisles, is frequently covered.
- There will always be variations in demand within a community, so that a single rigid formula may not adequately cover all situations for each land use category.
- Reviewing zoning requirements on a regular basis is recommended.
- New concepts such as "Form-Based Codes" are rapidly gaining in acceptance.

Form Based Codes

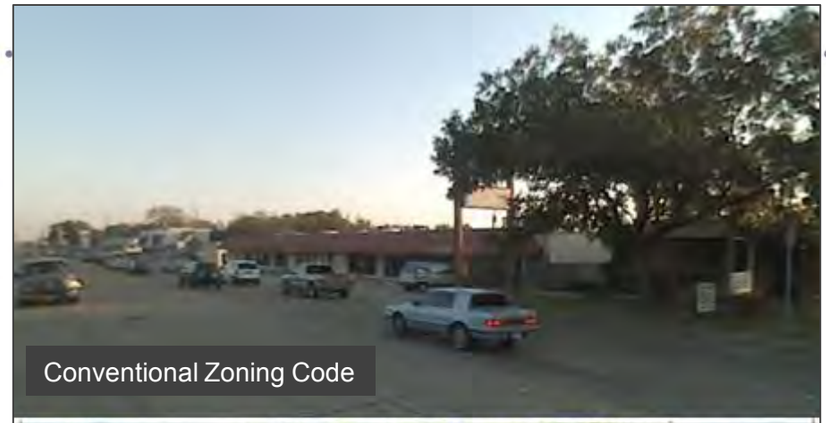
A form-based code is one that is based primarily on “form” - urban form, including the relationship of buildings to each other, to streets and to open space. This contrasted to codes that are based primarily on land use.

» A Form-Based Code is a development code that provides the developer / applicant greater flexibility in permitted land uses in exchange for more stringent regulations controlling urban form.

» These types of codes support mixed-use, pedestrian-friendly and mixed housing development more effectively than conventional codes.

» Form-Based Codes are becoming increasingly attractive to municipalities that want greater control over how buildings look and feel.

ex.



A BRIEF COMPARISON OF CONVENTIONAL CODES AND FORM-BASED CODES	
URBAN FORM GENERATING CHARACTERISTICS	
CONVENTIONAL CODES	FORM-BASED CODES
• Include extensive lists of permitted, prohibited and conditional uses by zone. Many land uses in conventional codes lists are outdated and do not reflect the nature of contemporary employment models or dwelling types • Often disallow a mix of uses • Prohibit adaptability of buildings to other uses over time • On zoning maps, land use designations typically begin and end at the center of the street or Right of Way	• Consider the building “walls” that frame the Right of Way (often referred to as the “public realm”) as one of the primary determinants of form • Regulating plan zone designations typically transition at the back of the lot • The same or similar development standards typically apply to both sides of the street • Land uses allow a much broader range of uses within a zone or subarea; also allow a greater mix of uses • Many uses are allowed if they meet performance standards

Parking Requirements for Transit Oriented Developments

The rise in popularity and success of "Transit Oriented Developments" or TODs is creating a need to reassess and redefine zoning and parking requirements for these districts.

» Specific development plans for TODs and "Transit Station Areas" has led to the development of specific station area typologies to support transit friendly development.

Planning for Transit-Friendly Development at the 43rd Street El Station

ex.

Client:
Jones Lang LaSalle and Chicago Transit Authority

Location:
Chicago, IL

Services:
Transportation and urban planning, and public involvement

Chicago Transit Authority Station Area Typology Study

Kimley-Horn led the urban planning element of the initiative by the Chicago Transit Authority (CTA) to create a typology or hierarchy for station areas around each of the 144 CTA stations. The objective is to establish a set of guidelines by which planning and design of transit friendly design (TFD) projects can occur in these station areas and to identify incentives to future development projects through zoning, funding, and public private partnerships.

Kimley-Horn gathered data related to station area characteristics and led workshop meetings of the advisory committee to reach a consensus as to the definition and application of each of seven typologies.

Seven Typologies
- (DC) Downtown core
- (MC) Major activity center
- (LC) Local activity center
- (DN) Dense urban neighborhood
- (UN) Urban neighborhood
- (SD) Service Employment District
- (MD) Manufacturing Employment District

Various one-on-one meetings with elected officials and more formal stakeholders' meetings and open house formats also were conducted. Conceptual design guidelines and recommendations have been developed and a final report was prepared in "magazine" workbook format. The final document entitled *Transit Friendly Development Guide, Station Typology* will be used by the city, CTA, elected officials, and developers to encourage appropriate development around stations.

Kimley-Horn and Associates, Inc.

Program Criteria Documents

Program Criteria Documents are a tool to help ensure that institutional goals, objectives and standards are incorporated during the early phases of project planning and development.

ex.

» Program Criteria Document benefits:

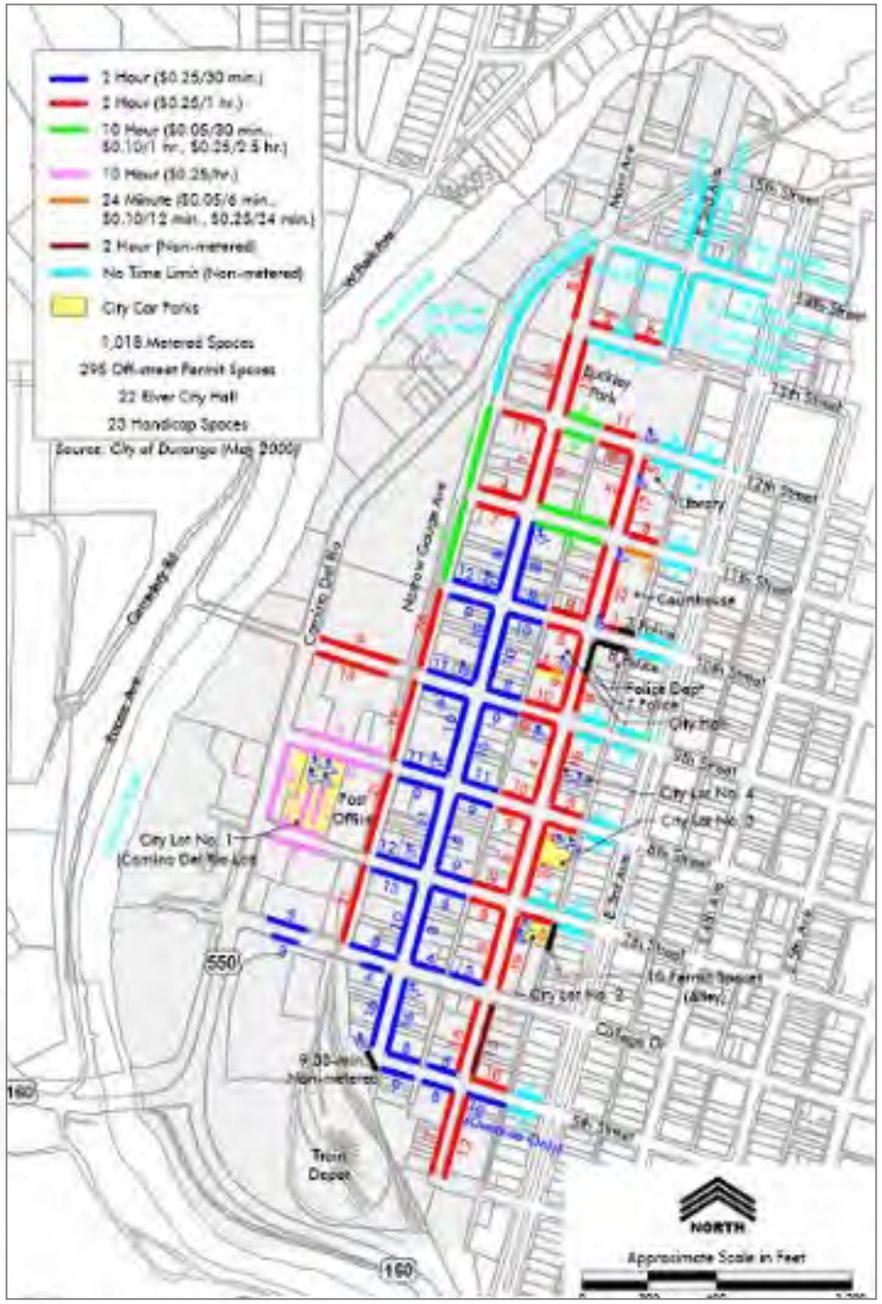
- Development of a more comprehensive understanding of the project impacts and scope.
- Build or strengthen project momentum and acceptance.
- Promote parking-specific areas of concern that are often overlooked without direct and early involvement by parking professionals, such as:
  - designing for operational flexibility
  - planning for alternative payment technologies
  - designing to maximize passive security, user comfort, etc.

Time-Limit Maps

On-street parking time-limits should be mapped and changes tracked over time.

- Mapping on-street time-limits is an important tool for staff education, and communicating with the public.
- It is a fundamental tool for documenting resource usage, facilitates the analysis of trends and is an effective planning tool.
- Tracking changes over time creates a record of management strategies that have been used in the past.

ex.

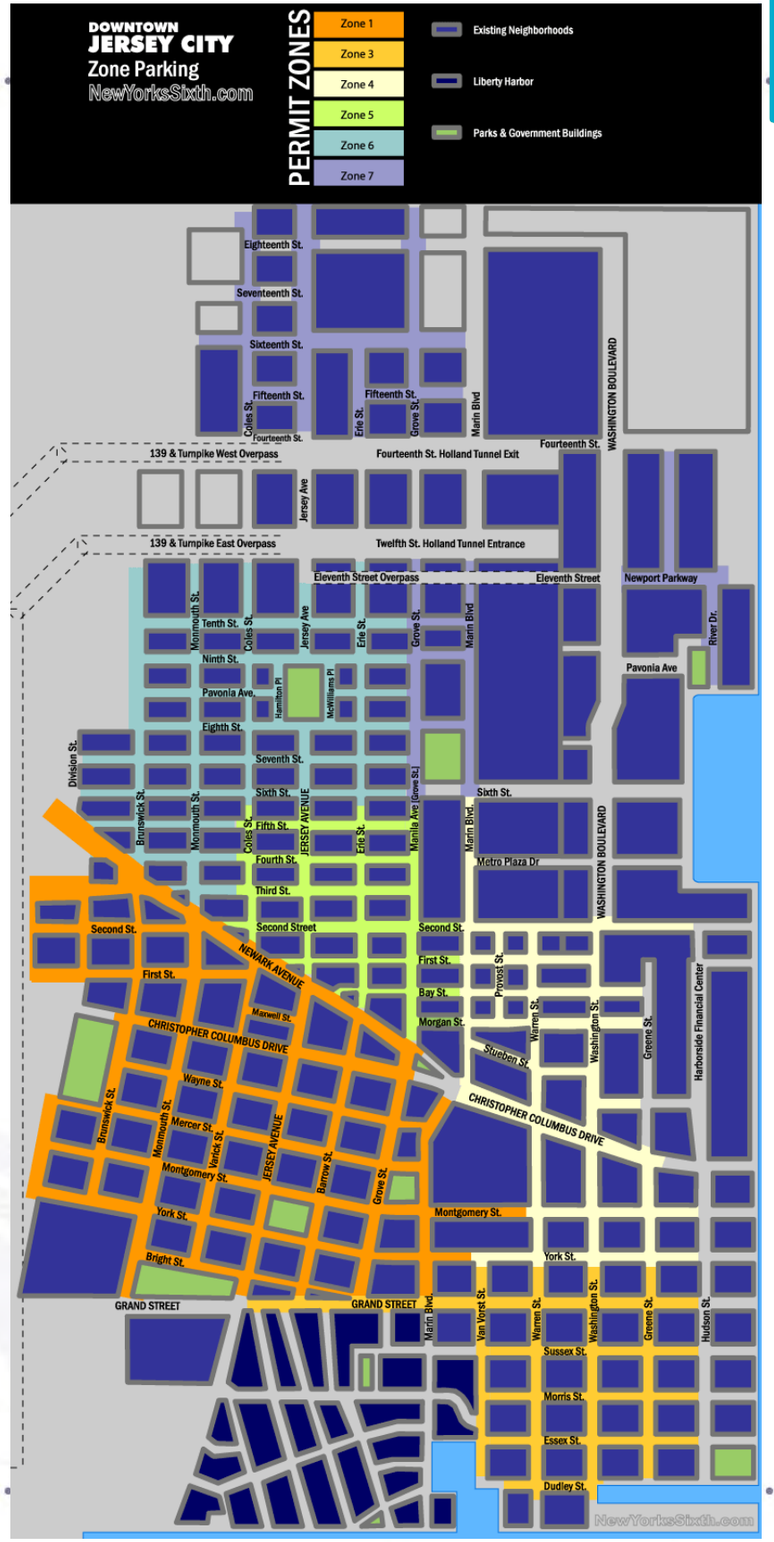


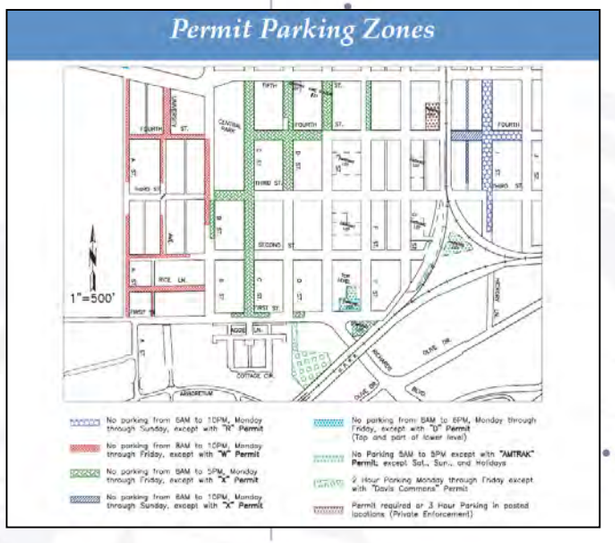
Mapping Parking Permit Zones

Mapping parking permit zones provides an important tool to effectively communicate the permit zone rules and regulations as well as locations.

- This practical tool helps you better educate City Council members other planning officials and citizens at large.
- It also provides a means of documenting changes to permit zones over time.
- It is also an important tool for training new parking enforcement officers.

ex.





Kimley»Horn

Parking Rate Assessment Strategies

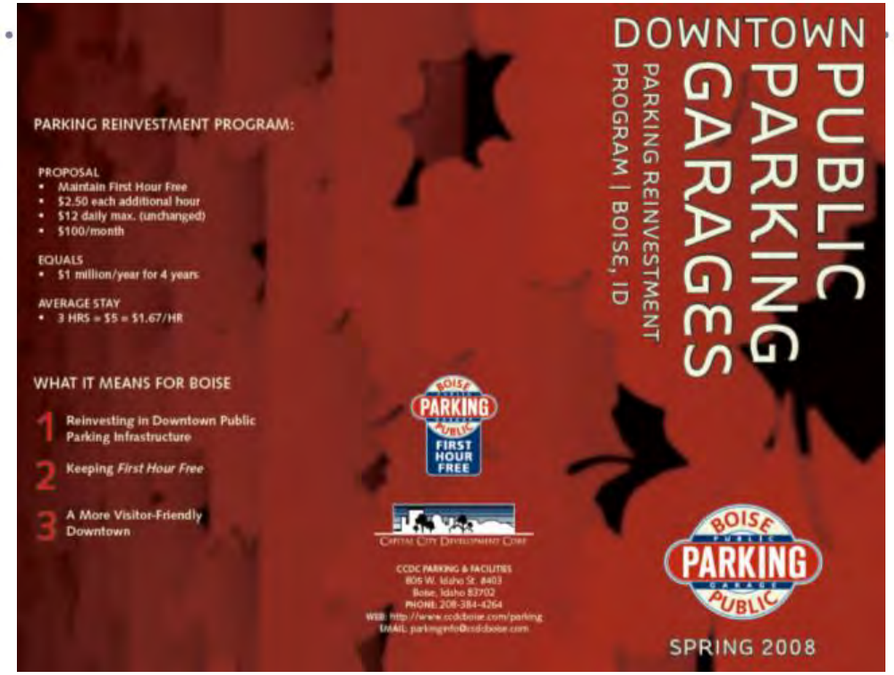
Assessing parking rates is something every parking program must do from time to time. A successful parking rate assessment strategy has two key elements:

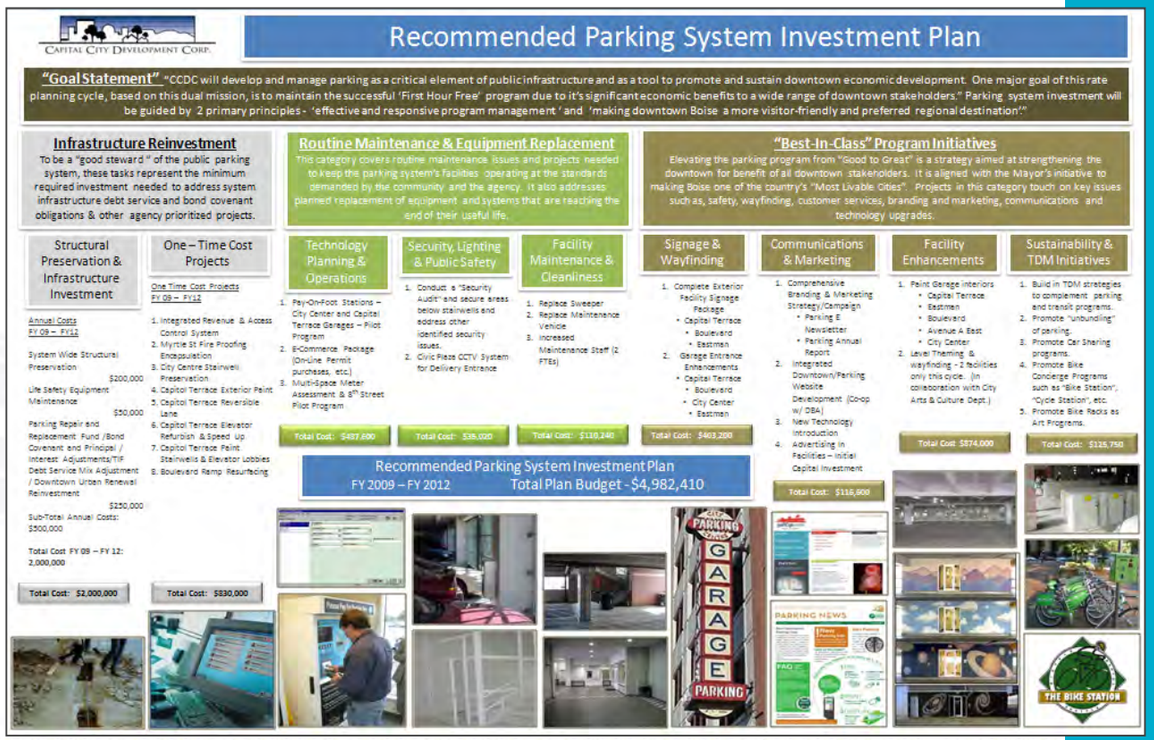
- Defining the type and impact of rate increase options &
- Defining a program for how new revenues will be invested.

» Our recommended process includes the development of a parking rate modeling tool that can be used to project parking revenues by any incremental increase in transient, monthly and special event rates.

» The process also includes the development of "parking investment plan" which is essentially the program's work plan for the defined planning horizon.

ex.





Kimley»Horn

Retail Supportive Parking Strategies

Revitalizing retail in a downtown setting is one of the most difficult elements of downtown revitalization to get right. Convenient, plentiful and easily accessible parking is especially critical to the success of retail in a downtown area.

» What is often overlooked or underestimated in retail revitalization projects is a comprehensive "retail parking strategy".

» In many cases this will involve significant investment in new parking infrastructure or at least a restructuring or reallocation of existing parking resources.

» Once the parking supply issues have been addressed, a wide range of parking management strategies should also be considered.

ex.

We recommend a three pronged approach to developing a retail parking strategy:

» **On-street Parking** – As the most conveniently located parking assets (and therefore the most valuable), effective management of on-street parking to promote turnover is critical.

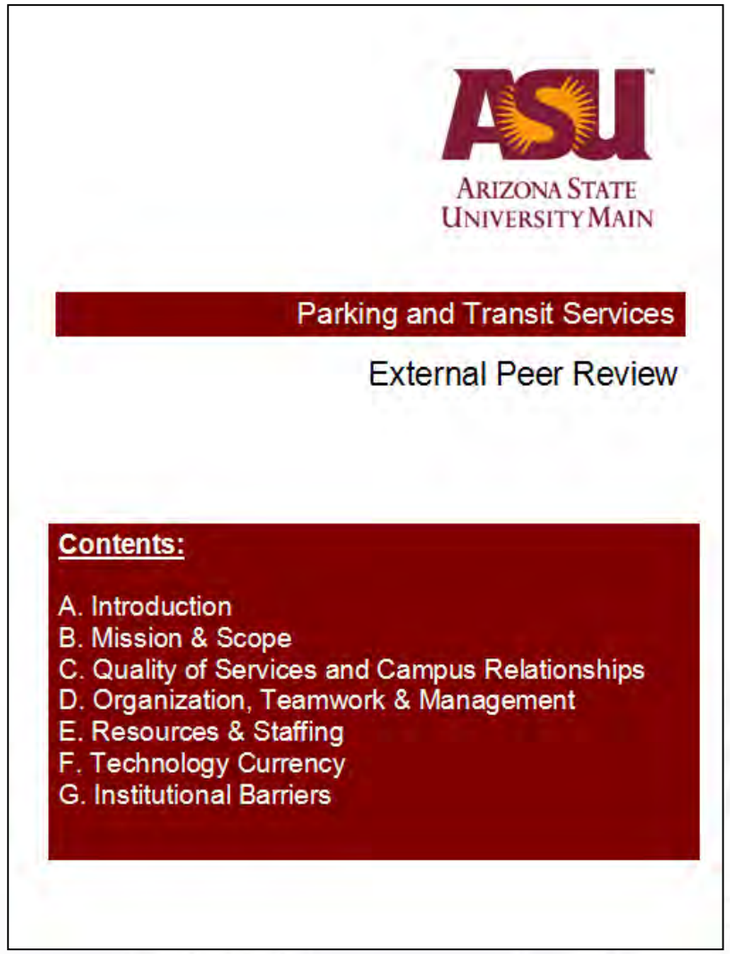
» **Off-street Parking** – In a downtown environment the primary issues related to retail parking are to provide large, easy-to-find reservoirs of parking within close proximity to the retail cores or corridors.

» **Overall Parking Management** - From a management and operations perspective, there are many effective strategies that downtown parking programs can employ to better support retail and the larger community's strategic goals.

Kimley»Horn

Operational Peer Reviews

This is a low cost initiative that can be set up through local, regional or national parking associations.


ASU
ARIZONA STATE UNIVERSITY MAIN

Parking and Transit Services

External Peer Review

Contents:

A. Introduction
B. Mission & Scope
C. Quality of Services and Campus Relationships
D. Organization, Teamwork & Management
E. Resources & Staffing
F. Technology Currency
G. Institutional Barriers

ex.

- The scope of peer reviews vary, but are generally focused on operational elements and might include maintenance practices, staffing and staff training, the use of technology, customer services practices, etc.
- Peer reviews are often reciprocated.
- The ASU External Peer Review brought in four other university parking system administrators from across the country and generated a very professional and objective system assessment.

Kimley»Horn

Ch.
4

Integrated Access Management Strategies

What is "Integrated Access Management"?

"Integrated Access Management" is a term that refers to a more holistic approach to community or institutional planning relative to parking and transportation.

- Within the parking arena, this concept strives to promote a broader view of program scope and participation.
- It fights the tendency to place parking in a "silo", divorced from the larger transportation equation.
- The primary intent of this approach is to get communities to focus on "access" incorporating the full range of parking, transportation and demand management strategies to improve not only access, but to also enhance and promote walkable urban environments.

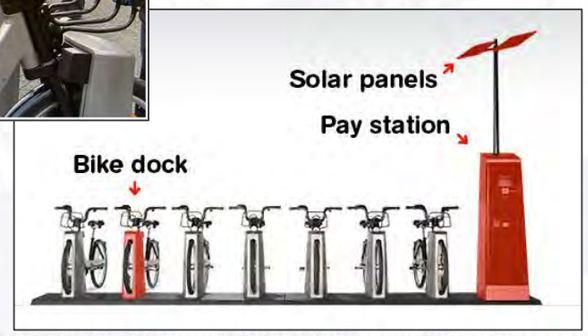
ex.

Community Bike Rental Programs

Located at key locations in the central business district, the bikes provide a new way of discovering and moving around the city.

» The bike stations are modular and the bikes are ergonomic and light-weight in a distinct design.

» Bikes are parked at docking points which use a proprietary locking system to ensure that each bike is securely stored.



ex.

» https://www.capitalbikeshare.com/

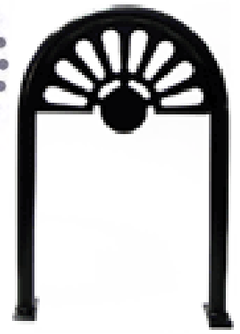
capital bikeshare

Bike Parking & Lockers

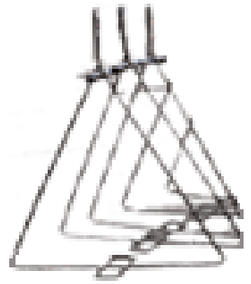
One more way for parking programs to support Transportation Demand Management (TDM) is through the provision of bike lockers in and around parking facilities. This is also a means of securing LEED credits in support of parking program sustainability goals.

- Bicycles chained haphazardly to railings, posts or lamp columns can be dangerous and inconvenient to pedestrians, particularly visually impaired people.
- Proper bicycle parking can reduce this risk, as well as removing unsightly clutter.

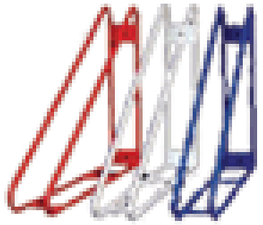
ex.



Vintage Bike Racks



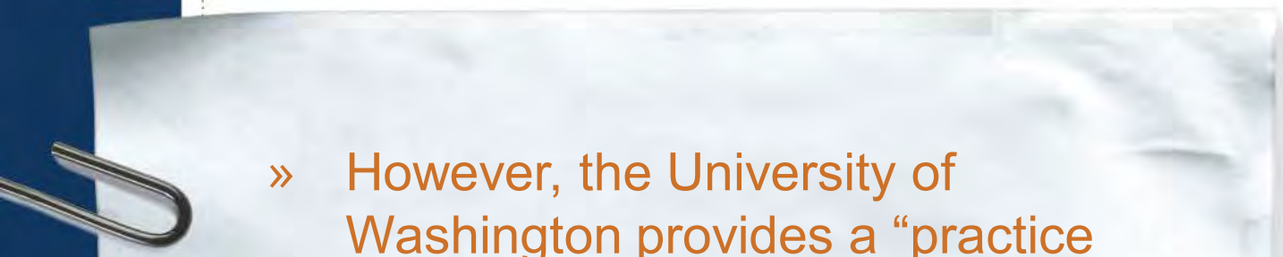
Portable Bike Racks



Wall Mounted Racks

Bike Racks on Busses – Practice Makes Perfect

For those advanced parking systems that are part of the larger transportation solution, providing access to transportation options through the parking office is not uncommon.



» However, the University of Washington provides a “practice station” for those wishing to learn how to put their bike in the “on-bus bike racks”.

ex.

» This little extra effort is one of the many things that sets the UW program apart.

Be an Engaged Partner in Other Community Transportation Initiatives

As part of the commitment to a broader approach to community access strategies, the parking program should become an interested and engaged partner in other community transportation initiatives.

» Getting involved in the Dallas Bike Plan is a good example of this type of recommended strategy.

ex.

2011 DALLAS BIKE PLAN Newsletter November/December 2010

Newsletter November/December 2010

2011 DALLAS BIKE PLAN

INTEREST IN BIKE PLAN STILL STRONG AT SECOND PUBLIC MEETING

On Thursday, September 23, over 200 people participated in the second 2011 Dallas Bike Plan Public Meeting at City Hall. Council members Angela Hunt (District 14) and Sheffield Kadane (District 9) provided the welcome and words of support for the Plan. Peter Lagerwey provided an overview of the draft Bikeway System network recommendations, including over 550 miles of on-street facilities. After the presentation, participants were invited to review and comment on these recommendations laid out on maps showing the proposed network segments as well as the facility type for each. Other public feedback gained through separate stations dealt with project prioritization criteria and marketing and promotion ideas for the Plan's *Implementation Strategy*. Information on the Plan's vision, goals and objectives as well as educational materials were also available.

Review and comment on the draft bikeway recommendations at public feedback stations included a map of Dallas divided into four quadrants, a map of downtown Dallas, and maps of the Trinity Corridor. Other stations provided information on plan goals and objectives, education for bicyclists and motorists, project prioritization criteria and marketing and promotion.

"A paper product is not an end in itself. The only reason we're doing this project is so it can be implemented." - Pete Lagerwey

deemed to be practical and possible
- Difficult intersections within the anticipated bicycle network were analyzed
- Connectivity gaps were addressed, and
- Projects to be identified in the Plan's *Implementation Strategy*.

SURVEY PROVIDES OPPORTUNITY FOR CITY-WIDE INPUT

A web-based, bilingual survey was made available on the project website (dallasbikeplan.org) from May 18 to July 11, which elicited over 1,400 responses. The survey results will help the project team describe existing conditions, opportunities and constraints, and develop project and policy recommendations in the Plan. The most frequently cited needs were for:
- Education for all travelers through on-road signage and other techniques to instruct users how to share the road
- More bike lanes on major streets and shared lane markings on wide outside or curb lanes
- Stronger bike connections to transit
- Additional parking
- More off-street facilities and on-street connections between them

Nearly all respondents were ages 21 to 65; 42% of these between 46 to 65 years old. 30% of respondents were women.

Existing Bike Behavior: Percentage of Bike Trips by Purpose (based on survey)

FIELD WORK

Three two-person teams conducted a feasibility analysis of over 550 miles of Dallas streets over a two-week period during the Summer of 2010. Taking into account observed and recorded traffic volumes and existing roadway (curb-to-curb) widths, the field work teams identified 517 miles of roadway that could include context-appropriate bicycle facilities. Facility recommendations were identified for all areas and a variety of roadways within the City in order to serve transportation and recreational needs. As a result, the recommended network establishes inter-connected routes on a variety of street types, including arterials, collectors and local streets.

According to this analysis, there are many scenarios where the opportunity exists to install bicycle lanes or cycle tracks by re-allocating roadway space via a technique called a "road diet" (see graphic example right).

DRAFT BIKEWAY SYSTEM FACILITY RECOMMENDATIONS

Bikeway Type	Miles	Percentage
Bike lanes	157	27%
Shared lane markings	185	31%
Climbing lanes (bike lane on uphill side only)	3	0.5%
Paved shoulder	24	4%
Cycle track/buffered bike lane	90	15%
Multi-purpose path/wide sidewalks	58	10%
Further study needed	66	11%
TOTAL MILES	583	

STAY INFORMED ON THE BIKE PLAN WEBSITE

The 2011 Dallas Bike Plan website (www.dallasbikeplan.org) serves as a one-stop source providing input on the Plan, getting info on Bike Plan and Dallas area bicycling activities, as well as downloading or viewing draft Bike Plan products. The website also provides news and information on the project schedule, and educational materials. Other links include information on the Safe Routes to School Program and the Complete Streets Initiative.

NEXT PUBLIC MEETING - THURSDAY, JANUARY 20, 2011
Dallas City Hall Flag Room (6E North)

Review the revised network recommendation maps based on comments from the September Public Meeting and a full draft of the 2011 Dallas Bike Plan. Visit our web site at www.dallasbikeplan.org for more details on the agenda as the time gets near.

2011 DALLAS BIKE PLAN

2011 Dallas Bike Plan
4140 Commerce Street
Suite 101
Dallas, Texas 75226

Bike Parking As Public Art!

Bike racks have become a favorite medium for creating practical and engaging community public art.

ex.

Integrate Intermodal Options

Installing bike lockers is just one example of incorporating multi-modal options into parking structures and contributing to a more balanced parking and transportation program.

ex.

- Other more aggressive strategies include integrating bus or shuttle transfer stations into parking garages.
- Creation of express park and ride lots, etc.

Transit Visualization System

TransLōc
Transit Visualization Systems

See What We've Done

- Auburn University *Tiger Transit*
- Emory University *Emory Shuttles*
- Harvard University *Harvard Shuttle*
- MASCO - Boston, MA *LMA Shuttle*
- Microsoft Silicon Valley *Shuttle Connect*
- NC State University *The Wolfline*
- Princeton University *TigerTransit* (new)
- University of Alabama *CrimsonRide*
- University of Florida *Regional Transit System*
- University of Maryland, BC *UMBC Transit*
- Yale University *Yale Transit*

The TransLoc Transit Visualization System shows buses moving in real-time live on the internet, making it easier for riders to use transit.

ex.

- North Carolina State University in Raleigh, NC was the first transit system in NC to broadcast its bus locations live over the internet.
- Since then, many other transit systems have added the TransLoc Transit Visualization System.
- You can view the live, interactive system at: http://live.transloc.com

PARKING | The Next Level

PARKING MANAGEMENT & DESIGN - **Best Practices**

Kimley»Horn

Ch. 5

Effective Communications & Community Engagement

Strategic Communications

A Strategic Communications Plan has the power to transform an organization:

- Both in terms of your credibility and status in your community
- And in terms of the way you work together as a team to achieve your mission and vision

The Communications Plan Pyramid

- ✧ Assess your communications infrastructure
- ✧ Establish your goals
- ✧ Who is your target?
- ✧ Who is your audience?
- ✧ How to frame your issues?
- ✧ What is your message?

ex.

Parking Information Clearinghouse

An important role your organization can play is to become THE parking information clearinghouse for your community.

- If you become the “go to source” for all parking info, you will not be providing a needed service, but you will enhance your program’s value and reputation in the community.
- (You may actually learn as much as you inform!)
- Developing a web-based program is one effective way of serving multiple goals in this type of endeavor.

ex.

Keep In Touch... Parking E-Newsletters

Even if you don't have your own parking "E-Newsletter (and why not?), see if you can tag a message onto other appropriate E-venues.

ex.

DOWNTOWN Boulder

DOWNTOWN UPDATE

Hit the Bricks!

Downtown Boulder Business Improvement District — August 8, 2005

What's Cooking on the East End

Join us at our monthly Downtown Community Exchange and check out Coburn Development's newest projects.

When: Thursday, August 11, 2005; 5:30-7pm
Cost: FREE
Where Coburn Development--1811 Pearl Street (upstairs)
What Else: Great door prizes, updates on Downtown Boulder
RSVP: to Downtown Boulder info@dbi.org --303-449-3774 by August 9th--to ensure plenty of refreshments

Don't Miss These Events in Downtown Boulder!

August 5th-7th--Sidewalk Sales in Downtown Boulder. Take advantage of fabulous savings.

August 10th--Farmer's Market--4-8pm on 13th Street between Arapahoe and Canyon

August 13th & 14th--Asian Festival

January 10, 2011

Downtown Operations

The mission of the Downtown Operations Department is to provide centralized services for activities related to maintaining the core of San Antonio in an exemplary condition and support downtown facilities, programs and events that highlight the city's unique qualities as a business center and tourist destination.

Need assistance? Contact us with comments or questions at downtown@sanantonio.gov

400 N. St. Mary's, #100
San Antonio, TX 78205
www.sanantonio.gov/dtops

Hours:
Monday-Friday
7:45 a.m. -4:30 p.m.

Phone:
210-207-3677

HemisFair Park Area Master Plan
Public Workshop

You are invited to attend a public workshop to re-imagine HemisFair Park and provide input and ideas for a recently initiated master planning process.

Public Workshop
January 12, 2011
Open House - 5:30 to 6:30 pm
Workshop - 6:30 to 8:30 pm
Sunset Station Depot 1
1174 E. Commerce

- » Promote parking validations.
- » Links to parking info/websites.
- » Promote merchants that participate in validation programs.
- » Promote parking availability.
- » Promote alternative transportation options.

Parking Meets Social Media

Get the word out! Stay in Touch!

- Develop your own communities of users
- Advertise directly
- Celebrate accomplishments
- Highlight staff
- Offer Facebook only coupons
- Get program feedback
- Solicit testimonials
- Provide event notifications
- Broadcast construction updates

Follow us on: twitter

Find us on Facebook

ex.

Parking Meets Mobile Apps

Connecting with a world on the move!

- Availability
- Rates
- Services
- Proximity to key destinations

ex.

Mobile Parking Apps

Mobile Parking Apps will help you find the cheapest parking rates anywhere in Chicago, San Francisco, San Diego, Seattle, LA, and New York. More cities are coming soon... Avoid overpaying for parking by comparing rates from neighborhood garages. Ability to search by an address.

Features:

* Search over 300+ Parking Garages to find the best rates (by hour, daily, weekend, monthly)

* Map showing all Meters, Zones, Rates, and Paybox locations

* List showing all the Early Bird Specials in the city

* Search for local parking spots for rent and sale

*Save yourself a parking ticket with the built in parking timer.

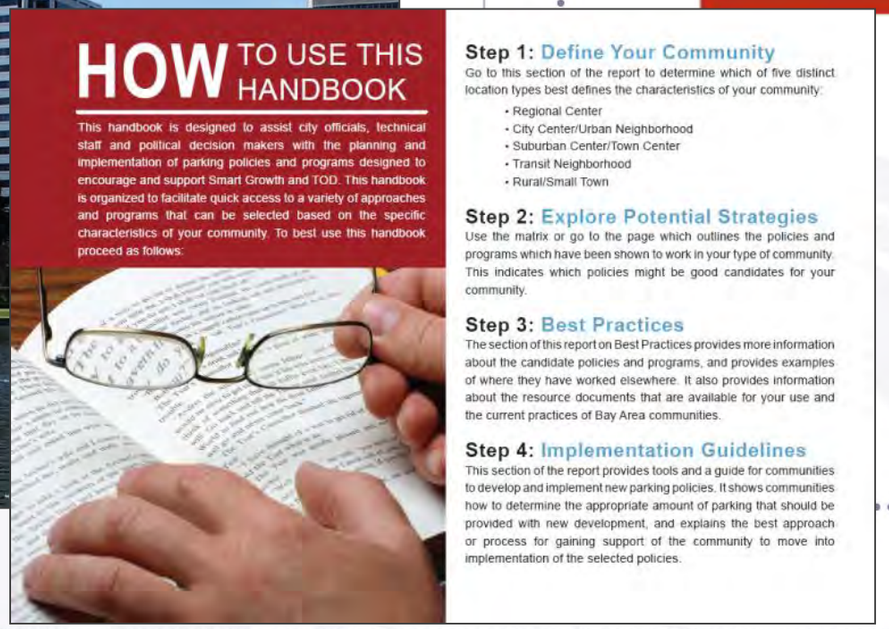
*Remember where you parked with turn by turn directions back to your car. Ability to leave voice memo

* Real-Time updates, Reservations, public transportation schedule

Developing Smart Parking & Development Educational Tools

Being a leader in the development of planning and development toolkits can improve the image and reputation of your organization (as well as advancing your planning goals)!

ex.



Kimley»Horn

Enter the Blogosphere!

- Do you really want to know what people think? (Are you sure???)
- Have a couple hundred opinions you'd like to share?
- Want to get YOUR version of things expressed?

Then Blogging may be just your thing!

» To start your own blog visit:

http://parkingpress.com/

» Other parking blogs:

Parking Blogs

Grush Hour

MoBlog

Parking By Design

ParkingCarma

ParkWhiz Blog

PT's Parking Blog

Airport Parking Connection

About

Subscribe

Subscribe to ParkingPlanet
Want to get an e-mail each time I post a new entry here? I'll notify you with my spam-free e-mail list. To sign up just send me an e-mail with the word *parkingplanet* in the subject and I'll add you to the list.

Older Essays

Name Dropping

The Cargo Container of the Parking Business

Personalized Parking

CPA Award!

Innovation in Parking

ex.

Parking Blogs
Just another weblog

Parking Planet
The world's first technology and parking blog.

Parking Blogs

Grush Hour
MoBlog
Parking By Design
ParkingCarma
ParkWhiz Blog
PT's Parking Blog
Airport Parking Connection

Online Parking Games (Flash)

Park My Big Rig
Park the Pope
Parallel Park
Parking: Battle of the Sexes
Parking Perfection
Yellow Out

ParkingPlanet Visitors

July 03, 2009

Stop the Internet... I want to get off!

Didja notice that I haven't posted anything in a while? Yeah, I noticed too.

That doesn't mean I haven't been busy. I've been writing a regular technology column for the National Parking Association's magazine (called Parking in case you didn't know). So that's kept me blogging in printed format... sorry, no online link available for these articles.

And speaking of meat space, I've written a few articles for the IPI's magazine as well, including one called "Parking In the Cloud" which was spawned from a letter to the editor, related to another article I wrote earlier this year. That should be published sometime soon, but I'm not sure when, and I don't know if it will be online either.

So you might ask, "Hey Blake, what exactly ***have*** you done online lately?"

And I'd have to say "Online? Not much. I'm trying to get off the Internet."

"Get off the Internet? Are you crazy? The Internet gives you freedom!"

However in my attempts to get off the Internet I seem to become more entangled all the time.

Take, for example, my awesome rap video. Yes, I made a video. It wasn't supposed to go onto the web but somebody posted it there anyway. The idea was that some parking software company was running a little campaign about how you got started in your parking career (because none of us actually chose parking as a career - instead parking picked us). But I digress...

Kimley»Horn

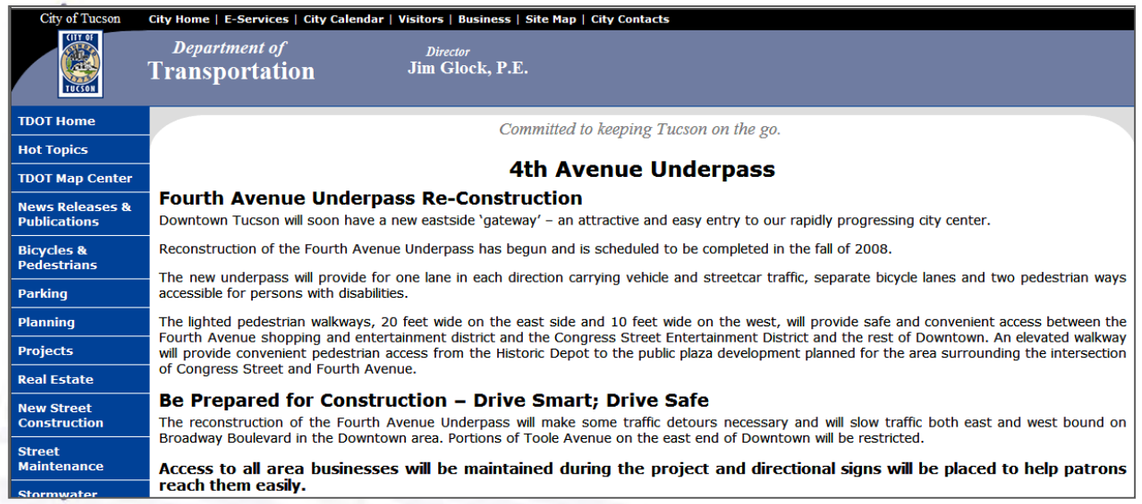
Customer Alerts - Parking E-Notifications

The evolution of technology, especially in the area of mobile devices is transforming our customer service options.

Now we can send out customer notifications in real-time through a variety of channels.

ex.

- Reduces parking patron frustration
- Improves the image of the downtown or institution
- Can be very useful in snow closings, or to alert a campus community of on-going construction activities.



Kimley»Horn

"Fast Facts" – Program Summary

What is your program really all about? How do inform your stakeholders of your mission, key program goals, funding sources, key staff, staff roles, organizational structure, policy positions, budget highlights, accomplishments, etc.

The "Fast Facts" mini brochure covers all these topics and more in a succinct and meaningful way.

ex.

» Using a creative 3.5" x 17" double-sided layout, this info packed mini-brochure is filled with valuable information and manages to capture the scope, mission and accomplishments of the organization in a positive way.

Specific section headers include:

- Cover – Fiscal 2007 Edition
- Founded/Mission/# Focus Areas/Slogan
- Strategic Goals
- Redevelopment Districts – Central/River Myrtle/Westside/Total
- Urban Renewal Districts
- Whose Job Is It?
- Budget
- Top 10 Cost Issues FY07
- Top 10 Policy Positions
- FY 07 Budget highlights
- Selected Boise Rankings

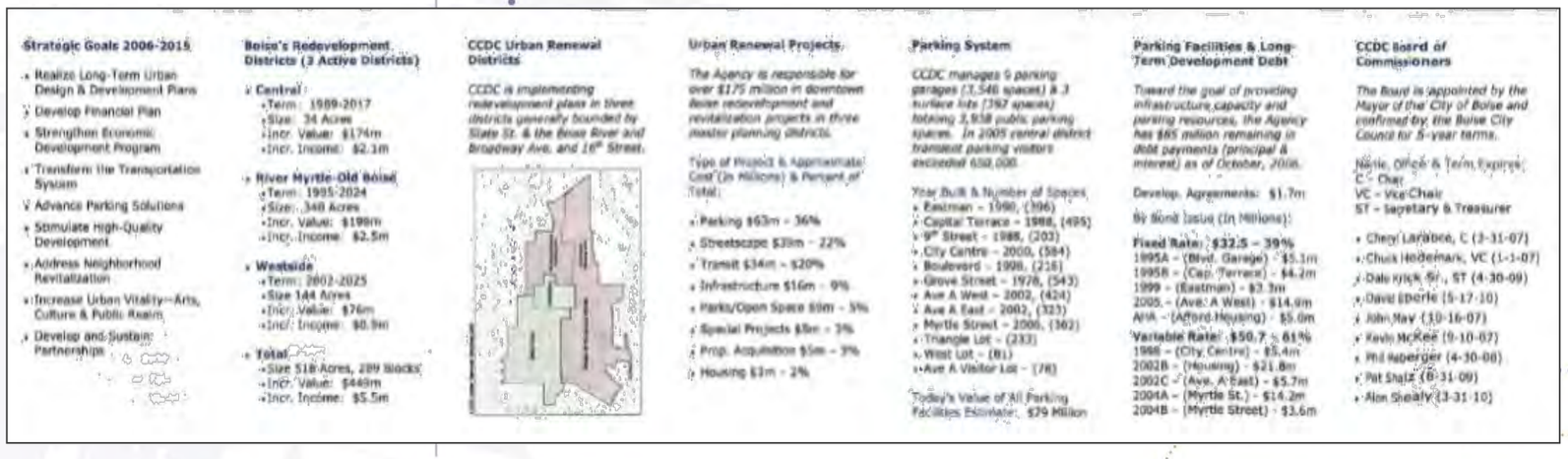
Capital City Development Corp

Capital City Development Corporation '*Fast Facts*'

A fast guide to key information and activities regarding Boise's redevelopment agency.

Fiscal 2007 Edition

- **Founded** by Boise City in 1965 as the Boise Redevelopment Agency (BRA)
- **Mission:** Capital City Development Corporation is a public development agency serving as a catalyst for quality private development through urban design, economic development, and infrastructure investment activities with a goal of creating vitality in Boise's downtown.
- **3 Focus Areas:**
  - Master Planning & Urban Design
  - Economic Development
  - Parking System & Public Spaces
- **Slogan:** *Creating Vitality in Boise's Downtown*



Strategic Goals 2006-2015

- Realize Long-Term Urban Design & Development Plans
- Develop Financial Plan
- Strengthen Economic Development Program
- Transform the Transportation System
- Advance Parking Solutions
- Stimulate High-Quality Development
- Address Neighborhood Revitalization
- Increase Urban Vitality—Arts, Culture & Public Realm
- Develop and Sustain Partnerships

Boise's Redevelopment Districts (3 Active Districts)

- **Central**
  - Term: 1989-2017
  - Size: 34 Acres
  - Incr. Value: $174m
  - Incr. Income: $2.1m
- **River Myrtle-Old Boise**
  - Term: 1995-2024
  - Size: 348 Acres
  - Incr. Value: $199m
  - Incr. Income: $2.5m
- **Westside**
  - Term: 2002-2025
  - Size 144 Acres
  - Incr. Value: $76m
  - Incr. Income: $0.9m
- **Total**
  - Size 518 Acres, 289 Blocks
  - Incr. Value: $449m
  - Incr. Income: $5.5m

CCDC Urban Renewal Districts

CCDC is implementing redevelopment plans in three districts generally bounded by State St. & the Boise River and Broadway Ave. and 16th Street.

Urban Renewal Projects

The Agency is responsible for over $175 million in downtown Boise redevelopment and revitalization projects in three master planning districts.

Type of Project & Approximate Cost (in Millions) & Percent of Total:

- Parking $63m – 36%
- Streetscape $39m – 22%
- Transit $34m – 20%
- Infrastructure $16m – 9%
- Parks/Open Space $9m – 5%
- Special Projects $8m – 5%
- Prop. Acquisition $5m – 3%
- Housing $3m – 2%

Parking System

CCDC manages 9 parking garages (7,546 spaces) & 3 surface lots (367 spaces) totaling 7,958 public parking spaces. In 2005 central district transient parking visitors exceeded 650,000.

Year Built & Number of Spaces

- Eastman – 1980, (396)
- Capital Terrace – 1988, (495)
- 9th Street – 1988, (203)
- City Centre – 2000, (584)
- Boulevard – 1998, (218)
- Grove Street – 1978, (543)
- Ave A West – 2002, (424)
- Ave A East – 2002, (323)
- Myrtle Street – 2000, (362)
- Triangle Lot – (233)
- West Lot – (81)
- Ave A Visitor Lot – (78)

Today's Value of All Parking Facilities Estimate: $79 Million

Parking Facilities & Long-Term Development Debt

Toward the goal of providing infrastructure capacity and parking resources, the Agency has $65 million remaining in debt payments (principal & interest) as of October, 2006.

Develop. Agreements: $1.7m

By Bond Issue (in Millions):

Fixed Rate: $32.5 – 39%

1995A – (Blvd. Garage) - $5.1m
1995B – (Cap. Terrace) - $4.2m
1999 – (Eastman) - $2.3m
2005 – (Ave. A West) - $14.0m
AHA – (Afford.Housing) - $5.0m

Variable Rate: $50.7 – 61%

1998 – (City Centre) - $5.4m
2002B – (Housing) - $21.8m
2002C – (Ave. A East) - $5.7m
2004A – (Myrtle St.) - $14.2m
2004B – (Myrtle Street) - $3.6m

CCDC Board of Commissioners

The Board is appointed by the Mayor of the City of Boise and confirmed by the Boise City Council for 5-year terms.

Name, Office & Term Expires:
C – Chair
VC – Vice Chair
ST – Secretary & Treasurer

- Cheryl Larabee, C (3-31-07)
- Chuck Hedemark, VC (1-1-07)
- Dale Kirk, Sr., ST (4-30-09)
- David Eberle (5-17-10)
- John May (10-16-07)
- Kevin McKee (9-10-07)
- Phil Hoperger (4-30-08)
- Pat Shatz (6-31-09)
- Alan Shealy (3-31-10)

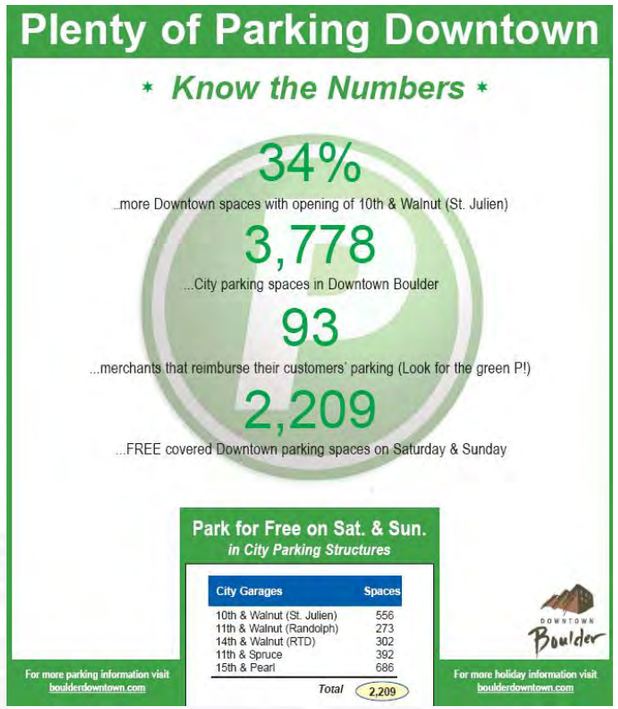
Kimley»Horn

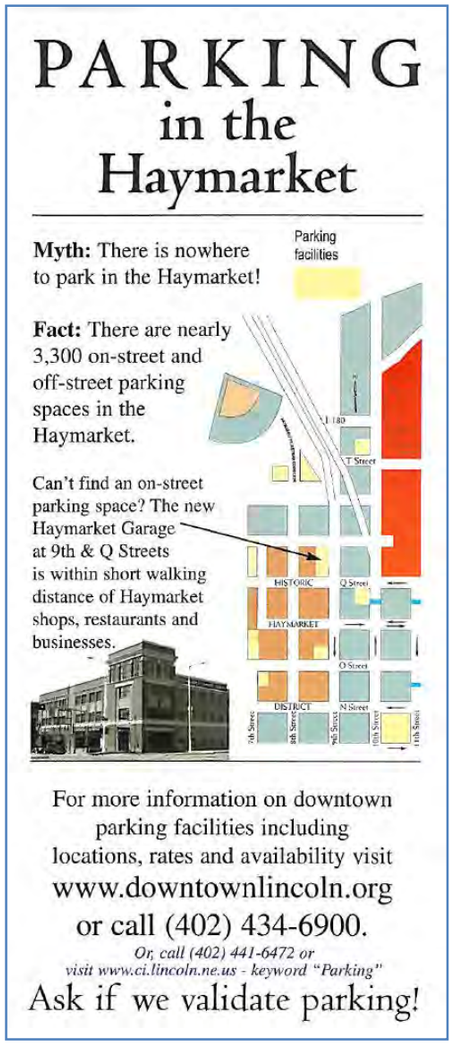
Know the Numbers – "Combating Misperception"

More often than not, parking problems are more perceived than real. The Boulder & Lincoln parking programs addressed this issue through a "Know the Numbers" campaign.

- » 34% more downtown spaces with the opening of 10th & Walnut garage.
- » 3,778 City parking spaces in Downtown Boulder.
- » 93 merchants that reimburse customer's parking.
- » 2,209 Free covered downtown parking spaces on Saturday & Sunday.

ex.





Kimley»Horn

Multi-Language Signage

Increasingly, dual or multi-language signage is becoming more important.

Electronic signage can be useful in providing flexibility.

Pictograms or universal symbologies are becoming the norm.

ex.

Parking News & FAQs
In Related Communications Resources

Tapping into other community communication resources is a great way to educate the community on new parking programs and to promote parking program contributions

DOWNTOWN Boulder **Update**

▸BoulderDowntown.com
▸Forward to a friend
▸Buy a Gift Certificate!
▸Downtown RSS

IN THIS ISSUE: ▼NEWS YOU CAN USE ▼ NEW MEMBERS & OPENINGS ▼ SPOTLIGHT ON ...

NEWS YOU CAN USE

To skip to a specific news item, use the links below! To read them all, just scroll on down.

- Last Day for Spring Green Orders
- Steps for Literacy
- Bolder Boulder Volunteers Needed
- KidLinks Entry Form Now Available
- Hop 2 Chautauqua Kickoff Party
- Bauman College Cooking Demos
- Parking Pay Station Q & A
- Website Tips and Tricks
- **Spotlight On**:Tulip Fairy & Elf Parade

Last Day for Spring Green Orders
It's time again for Downtown Boulder's Spring Green, which means free flowers (Petunias) for businesses in the Downtown Boulder BID. The deadline for putting in your orders is **May 9th,** so **Click Here** to register online, call our office at 303-449-3774 or fax back the Spring Green order form to 303-449-1582. Flowers will be delivered between May 20th and May 23rd.

Picture of the Week

WHAT'S HAPPENING
May 8th - May 25th

This Weekend's Weather

Fri 70/38

ex.

Parking Paystation Q & A

Q: What do I do with my old meter key?

A: Parking Services is working diligently to implement a prepay card to replace the meter keys. The City intends to trade balances on the keys to these new cards.

If you have a specific question you would like answered send an email to parking@dbi.org.

Parking Paystation Q & A
Now that the solar powered pay stations are up and running there are a few questions that people have. This section addresses these questions.

Q: Can I take my time with me?

A: Yes! Once you have your printed receipt displayed on your dashboard, you may move your vehicle to another metered spot until your original time is up.

If you have a specific question you would like answered send an email to parking@dbi.org.

Parking Paystation Q & A
Now that the solar powered pay stations are up and running there are a few questions that people have. This section addresses these questions.

Q: What are the enforced hours?

A: Pay stations are enforced -Monday through Saturday 9am to 7pm. Pay stations are FREE on Sunday and on city holidays. Please go to www.boulderparking.com to verify the holidays the city observes.

If you have a specific question you would like answered send an email to parking@dbi.org.

Stakeholder Forums and Workshops

Park Smart

A Forum to Raise the Bar on Good Parking Policy

Parking has been a hot topic in the news over the last year. Reading the headlines and blogs you'd think there were just two points of view: those who think free parking Downtown is an inalienable right, and those who want to force everyone out of their cars onto transit or bicycles. We think it's time to elevate the discussion about parking in Seattle and assess what we can learn from other cities to better manage the parking we have so that it supports a healthy, vibrant urban core. We've assembled a terrific panel that includes policy makers, national experts, transportation officials and a UW researcher to lead an informed discussion about the best approaches t

ber Tom Rasmussen, chair of Seattle's
ncas.

Featured Panelists:

L. Dennis Burns, CAPP, Kimley-Horn and Associates, Inc.
Dennis Burns is a senior practice builder and regional vice president for Kimley-Horn and Associates, Inc. Burns is a certified administrator of pubilc parking and has nearly 30 years of parking operations, management and consulting experience. His focus in recent years includes parking and transportation strategic planning, 'smart parking' system development and urban space management concepts. In 2010, Mr. Burns was the recipient of International Parking Institute's "Parking Professional of the Year," and was a featured speaker at the first-ever Green Gov Symposium in Washington, DC.

Rick Williams, BPM Development Company
Rick Williams is a transportation demand management expert from Portland, OR with more than 20 years of experience. From 1989-1994, he managed Portland's 3,500-stall Smart Park system and its 208-block downtown business improvement district. In 1995, Mr. Williams helped establish the Lloyd Transportation Management Association, and currently works both as its executive director and as an independent transportation management consultant for clients throughout North America.

Joining the panel will be **Seattle City Councilmember Tim Burgess**, sponsor of variable price parking legislation, and **Daniel J. Evans School of Public Affairs Senior Lecturer Daniel Carlson**, who specializes in community and economic development, and transportation and land use in metropolitan areas. **Seattle Department of Transportation Parking Operations and Traffic Permits Manager Mike Estey** will also discuss the City's new on-street parking policy.

Combine community education and stakeholder input into a community workshop!

This is also a great opportunity for collaborating with other community partners.

Presented By:

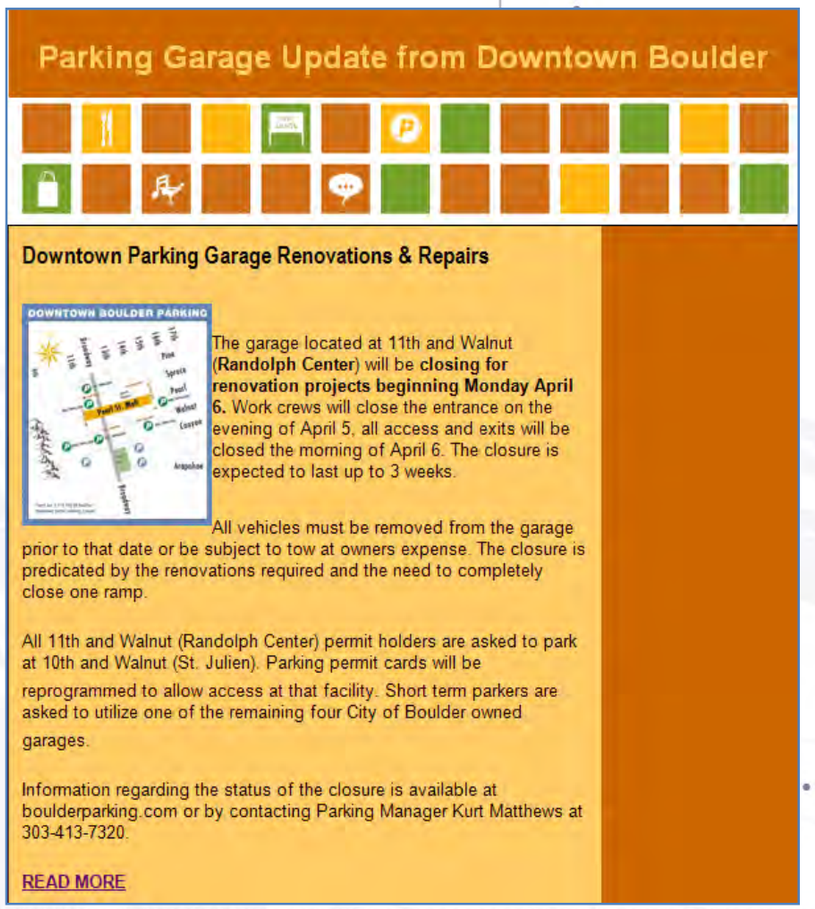
Downtown Seattle Association
BOMA Seattle King County
City of Seattle
Commute Seattle
Great City
Seattle Hotel Association
Transportation Choices Coalition

Kimley»Horn

Keeping Your Customers Informed During Renovations / Repairs

Keeping customers informed, especially during significant garage repair and renovation projects, is important.

Developing a flexible format for information sharing on a regular basis is a preferred approach.



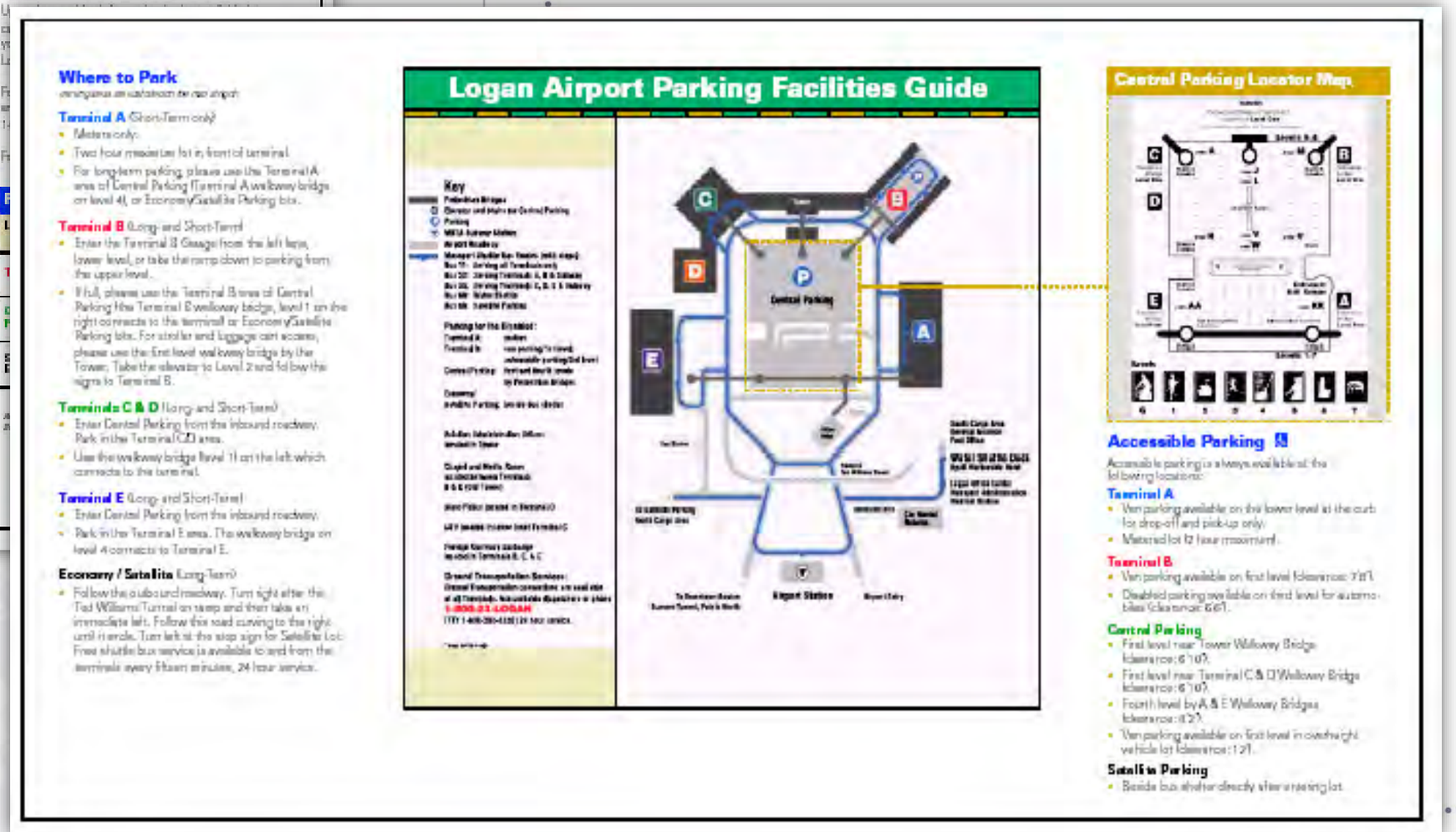
ex.

» Key Elements for a Garage Repair Update include:

- Names & locations of affected facilities
- Dates & times of impacts
- Duration & nature of impacts
- Alternative locations during construction/repair work
  - Provide different instructions for employees / contract parkers & visitors/short-term parkers if appropriate
- Where to go to get additional information

Kimley»Horn

Where Did We Park?



PARKING | The Next Level

PARKING MANAGEMENT & DESIGN - **Best Practices**

Kimley»Horn

Ch.

6

Parking Branding & Marketing "Comes of Age"

Branding and Marketing

Developing a parking system “Brand” is one trademark of “Best in Class” parking programs.

Ultimately, a positive patron experience should be your brand.

ex.

- The brand is more than just a logo.
- The brand should promote the image you want people to have of the system.
- It should be something you can say, such as “Easy Park” or “Park Smart”
- It should reinforce the positive aspects of the system – “Free and Easy Parking”, “Visit Downtown and Parking Is On Us”, etc.
- Use consistent signage and other branding tools to “tie the system together”.

SMART PARK

ParkiT™

EasyPark VANCOUVER

Branded Programs

Branding all aspects of your program into unified whole makes your program look and feel more professional.

ex.

» The EasyPark program from Vancouver is a great example of this approach.

Parking Offices as a Retail Storefront?

As the parking industry matures, our interface with our customers is evolving.

Most parking offices had a distinctly "back office" feel to them in the past.

But some programs are beginning to change everything!

» The examples to the right are:

A. The Winnipeg Parking Authority

B. The Calgary Parking Authority

ex.

A.

B.

Map It!

Having an effective and easy to read parking map is basic asset for effectively communicating with customers.

ex.

- There are many examples of quality parking maps available.
- These maps from Downtown San Jose and New Haven Conn. have detailed information about parking facilities, downtown destinations, transit alternatives etc.
- The maps can also distinguish between public and private parking facilities and provide a useful orientation to the one-way streets.

Kimley»Horn

The 30' Rule for Garage Entry Points

First impressions mean a lot and you never get a second chance to make one! So, what you see within the first 30' of a facility entrance sets the tone.

Make sure the first 30' creates a positive experience!

ex.

"Where would you rather park?" or

- Typical issues at facility entrances include:
  - Too much or poor quality signage
  - Signage and equipment in poor condition
  - Inadequate lighting
  - Dirty walls and curbs
  - Trash and debris

Parking Receipt & Merchant Coupon!

Multi-space meters in “Pay & Display Mode” can print a 2-part receipt ticket. One part is displayed in the vehicle and the second part can be used as a merchant coupon or to receive a parking validation.

» This innovation is a good one for municipalities and merchants concerned about implementing paid parking.

ex.

Integrated Access and Downtown Marketing

Downtown Long Beach Associates (always at the cutting edge!) have integrated Parking, Transportation and Downtown Management in their new "Ride-Park-Play" web page.

ex.

» The Innovative site features an interactive parking and route planning map as well as special links to:

- Downtown Long Beach Transportation
- Downtown Dining
- Downtown Shopping
- Downtown Attractions
- Downtown Calendar of Events

Distinctive & Consistent Parking Signage

Fort Wayne, IN

» Once you have created a high standard of service in your facilities, you want your patrons to associate that level of excellence with YOUR SYSTEM – consistent and distinctive signage helps tie it all together.

ex.

Portland, OR

Boulder, CO

Boise, ID

Vancouver, BC

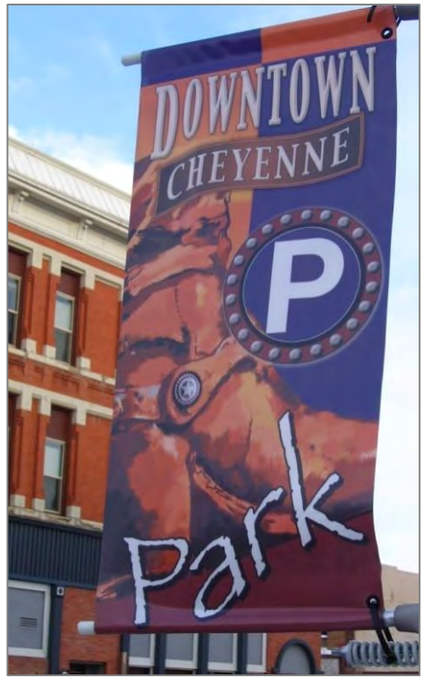
Kimley»Horn

Collaborative Promotions

Marketing dollars can go further when parking programs collaborate and co-market with other downtown organizations.

» Examples include: adding parking system info to downtown maps & brochures, banners, wayfinding kiosks, print ads, etc.

ex.



Kimley»Horn

Program Marketing

Parking marketing programs that promote not only services, but their staff can be very effective. Happy and satisfied employees provide better service. Companies that provide high quality work environments provide better employees and thus better service.

ex.

- This message is not lost of Fortune 500 companies, nor on the parking industry customer service leaders.
- American Valet, based in Phoenix, AZ, has built their reputation on a strong commitment to both employee satisfaction/recognition and exemplary customer service.

Promote Local Attractions on Meter Heads

If you still have traditional single space meters, why not make the most of them?

Advertise local attractions on the meter heads.

ex.

- Downtown Denver advertises for the Denver Zoo, the Museum of Nature and Science, the Denver Art Museum and the Denver Botanical Garden.
- Free on-street parking on Sundays is also promoted.

Attention Grabbers

OK, now really, who wouldn't want to park in the "Rockstar Parking Lot"?

- "Cityplace" is located in downtown Winnipeg near the new MTA Center which hosts a variety of events including hockey, concerts, etc.
- "Rockstar Parking" is a creative, attention getting marketing strategy for their closest surface parking lot.

ex.

Bollard Sleeves

Question: What is at the entrance to almost every parking area?

Answer: Bollards!

Why not turn these ubiquitous elements into an opportunity for advertising or facility promotion?

ex.

» Eliminating unsightly rusted bollards used to require regular maintenance and even then was often unsuccessful.

» Bollard sleeves are an inexpensive and easy solution to the problem of rusted bollards. Low-density polyethylene thermoplastic sleeves slide over existing guard posts for quick and easy installation.

» A new product (pictured above) includes solar powered lights.

PARKING | The Next Level

PARKING MANAGEMENT & DESIGN - **Best Practices**

Kimley»Horn

Ch.

7

Celebrating Accomplishments

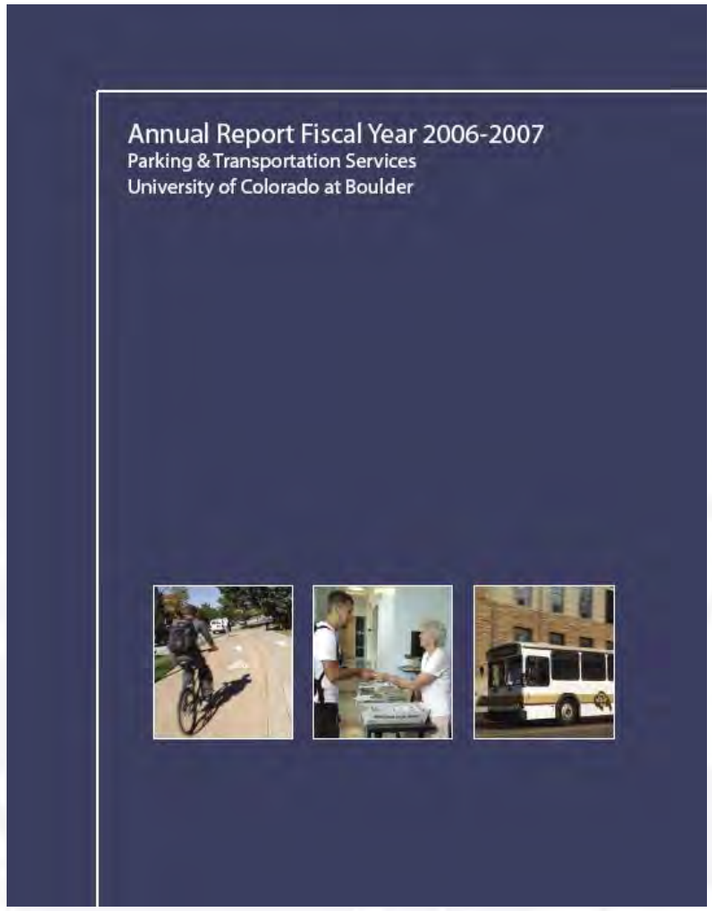
Annual Parking Reports

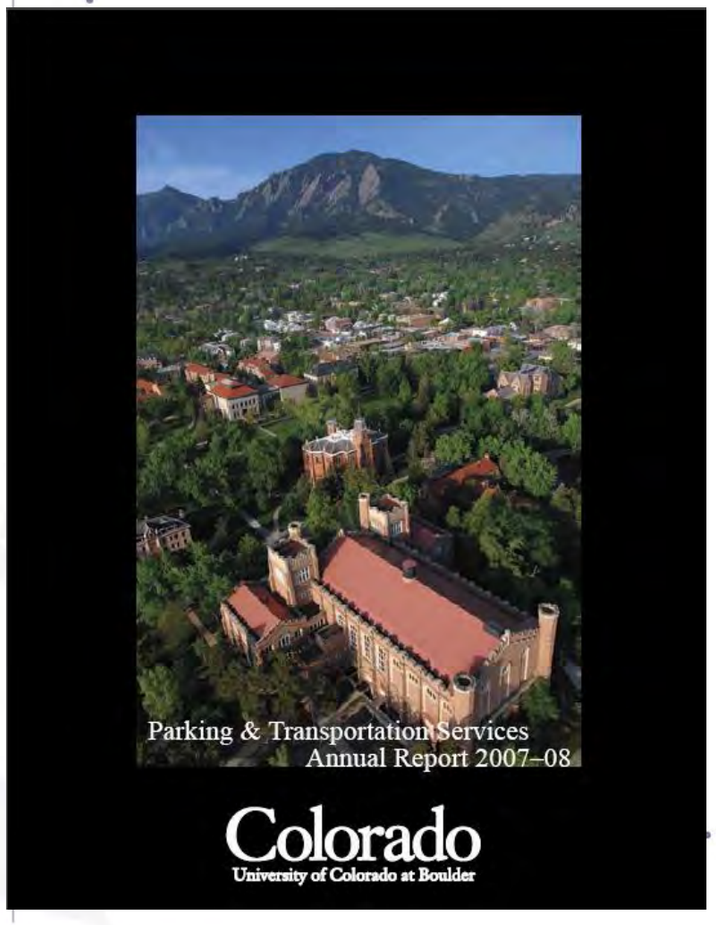
Developing an Annual Parking Report is an effective tool for communicating with both internal and external customer groups.

ex.

» Annual Parking Report Benefits:

- Identifies key departmental issues and challenges
- Promotes departmental achievements
- Documents the "state of parking"
- Builds confidence in the department
- Creates a historical record





Celebrating Program Accomplishments

The University of Washington created the piece below as part of a “strategic communications initiative”. They were facing great financial pressure and had an urgent need to raise parking rates to be able to pay for dramatic fare increases from the local transit agency.

The summary of program successes and accomplishments helped garner needed administrative support for an unpopular, but essential rate increase.

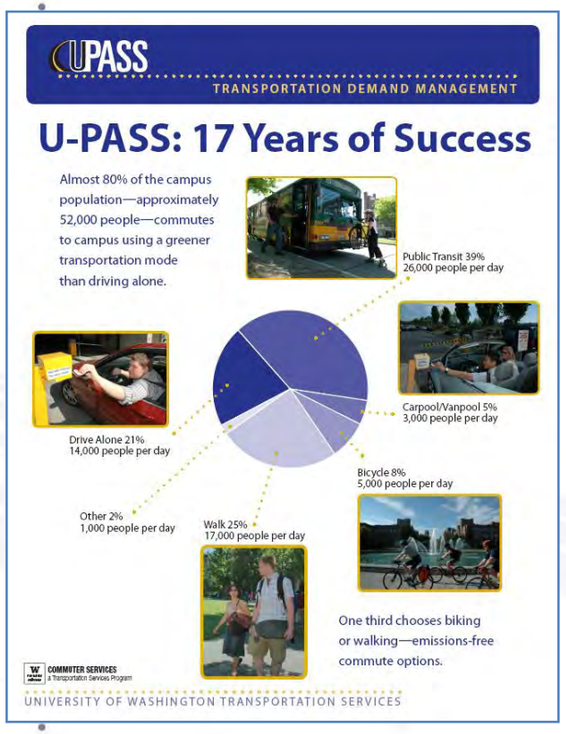
“U-PASS: 17 Years of Success - Almost 80% of the campus population -approximately 52,000 people - commutes to campus using a greener transportation mode than driving alone. One third chooses biking or walking - emissions-free commute options.”

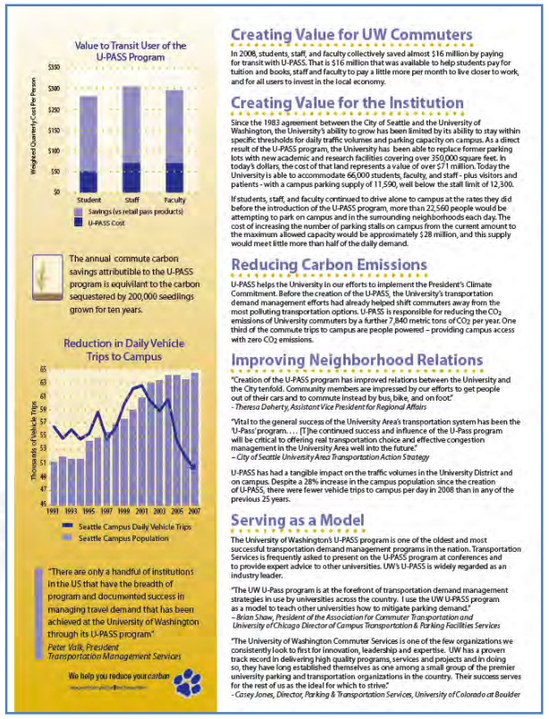
ex.

» **U-PASS: 17 Years of Success**

- Creating Value for UW Commuters
- Creating Value for the Institution
- Reducing Carbon Emissions
- Improving Neighborhood Relations
- Serving as a Model

» A component of a larger “Strategic Communications Plan”





COMMUTER SERVICES
a Transportation Services Program

UNIVERSITY OF WASHINGTON TRANSPORTATION SERVICES

Kimley»Horn

New Facility Openings

Make Your New Facility Grand Opening An Event!

Few parking program activities are PR opportunities of this magnitude. Make the most of it!

- HOLLYWOOD -Parking at the Seminole Hard Rock Hotel & Casino in Hollywood is about to become a bit easier after the "smashing" grand opening of its brand new Winner's Way Parking Garage.
- In celebration of Wednesday's grand opening, the Seminole Hard Rock set the record for the "World's Largest Guitar Smash,".
- The 9-story "Winner's Way" garage provides an additional 2,400 covered parking spaces. It has 14 elevators, six escalators, a 351-foot-tall pedestrian bridge, a 164-foot-tall Casino bridge, and a car count system, all in a brightly lit environment.

ex.

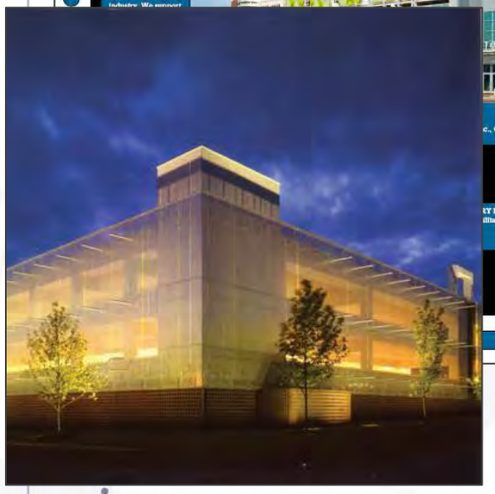
"Parking Is A Winner At Seminole Hard Rock Hotel & Casino!"

Awards and Recognition

Been recognized for your program excellence?

Well, don't keep it a secret!

- » **Issue Press Releases**
- » **Put out Banners**
- » **Develop a Presentation**
- » **Hold a Press Conference**
- » **Write an Article**



IPI INTERNATIONAL PARKING INSTITUTE ADVANCING THE PARKING PROFESSION

The International Parking Institute Announces Winners of 2010 Awards of Excellence Competition

Award of Excellence: University of Colorado, Boulder - Sustainability, Parking & Transportation, Boulder, Colo
University of Colorado at Boulder, Parking and Transportation Services

Project Team:

- University of Colorado, Boulder, Parking & Transportation Services, Boulder, Colo
- University of Colorado, Boulder, Environmental Center , Boulder, Colo

The University of Colorado, Boulder, is frequently recognized as one of the nation's greenest, in large part due to its Parking and Transportation Services. Despite a growing number of commuters, the campus continues to reduce its carbon impact through better use of scarce parking resources. Its Ecopass program provides free public transportation for employees, freeing over 1,000 parking spaces. The addition of more than 1,300 bike parking spaces in the past two years means that bike parking and vehicle parking spaces have reached parity. Two existing garages were renovated to reduce energy consumption; a third garage under construction will include electric vehicle charging stations.

Worst Parking Awards?

Looking for a little attention?

People love to talk and complain about parking.

Tap into our natural fascination with parking by creating your own local awards program!
(Something tells me there is no shortage of potential entries!)

Maybe the:

"Worst Parking Award" or
"Most Creative Parking Award".

ex. » You might even celebrate diversity with a "Multi-Cultural Parking Award" – (Here's my entry!")

Conference Presentations

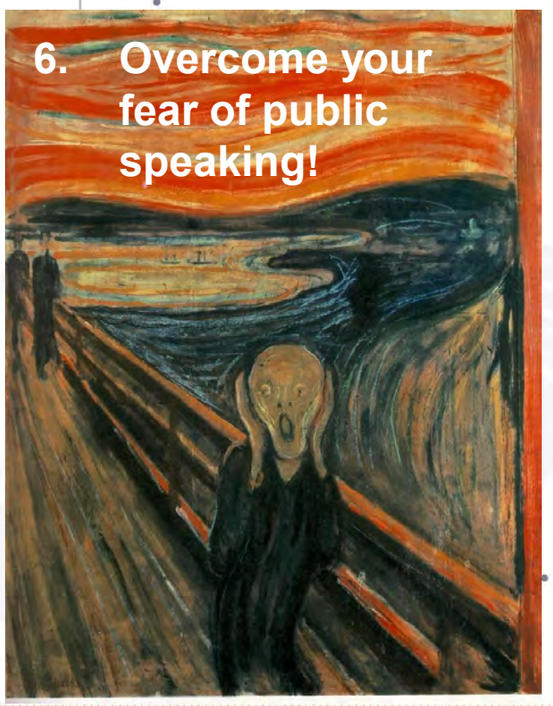
Giving back…

Share your successes and innovative ideas with your peers and in the process enhance your reputation and the prestige of your program and institution.

» **The 6 Benefits of Conference Presenting**

1. Recognition as an expert
2. Time away from the office
3. Acknowledgement of your accomplishments
4. Collaboration with your peers
5. Hone your communications skills and……

ex.



Media Relations/ Media Kit

One benefit of doing an Annual Parking Report is that it can be a great start on developing your parking program “media kit”.

Parking Media Kits might include:

- System/Facility fact sheets
- Statistical Info
- Comparative Info
- Photos
- Video Footage
  - Facilities, staff doing their jobs, etc.
- Bios of Key Staff

Develop the Media Kit “before a crisis”

- On your time table

ex.

Media Relations Tips:

- Make friends with local Media
- Keep your message simple
- Provide resources – visuals, photos, plans, stats
- If hosting a press event – keep presentation short
- No more than 5 minutes
- Then open it up for questions
- Have a written “press release”
- Have a copy available for reporters

Anniversaries

Don’t Forget Your Anniversary!

Program anniversaries are a natural opportunity to reflect back on your progress and celebrate your accomplishments!

» **3 Ideas for your celebration:**

1. Offer “free parking for a year” to one lucky person
2. Have a water balloon accuracy dropping contest from the roof of the garage
3. Bake a cake in the shape of parking deck!

ex.

Happy 75th Anniversary Parking Meter !

PARKING | The Next Level

PARKING MANAGEMENT & DESIGN - **Best Practices**

Kimley»Horn

Ch. 8

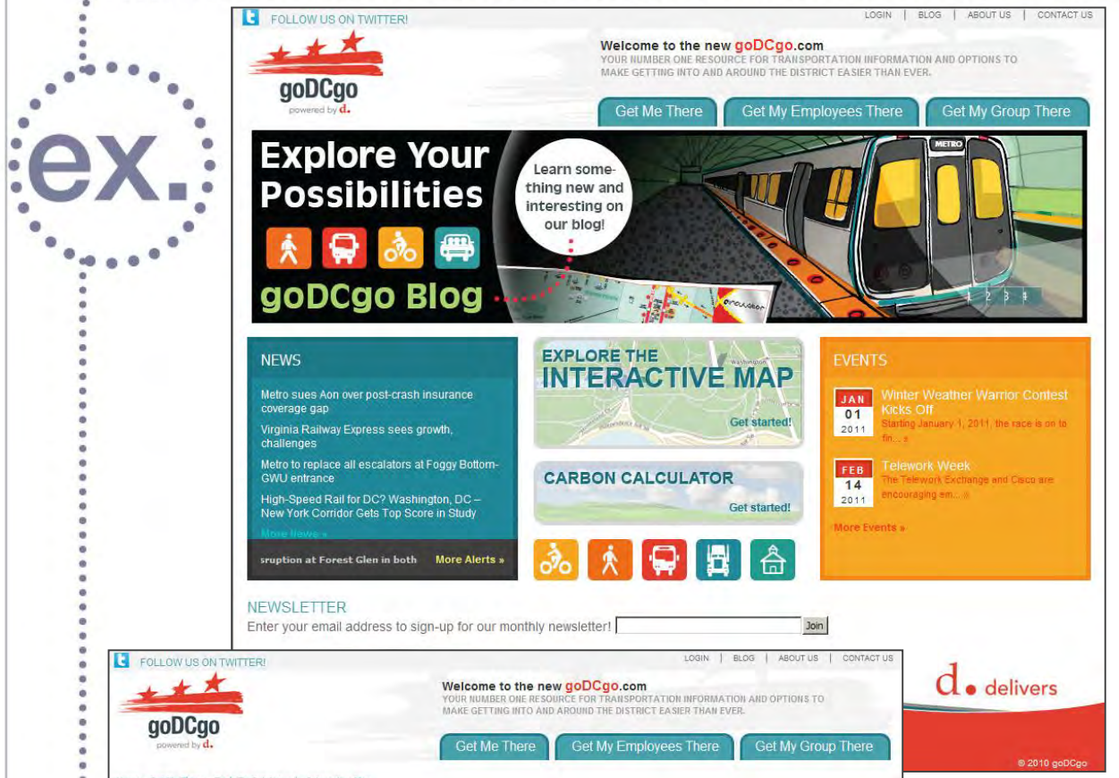
The Virtual Environment

The Virtual Environment

Let's face it, the internet has changed everything! (and mostly for the good!)

This has forced us to come to terms with the fact that we have a new "virtual environment" that needs to be carefully designed, managed and maintained.

- Our "Web Presence" says a lot about our organization
- It is often the first point of contact with our programs
- It can be an incredibly valuable tool for information dissemination, but it must be kept current
- Parking is typically not "front and center" on institutional home pages. How easy is it to find your program information?
- One of favorite sites from a transportation perspective the "go DC go.com" site



Flash Based Mapping Programs

Flash based mapping programs provide the ability to map out walking routes from parking locations on campus to specific destinations and could also be translated to walking times.

ex.

» Visit www.wisc.edu to see an example of this technology application.

- Click on the “Campus Map”
  - Ruler feature.

Recommended Website Elements

Website development has come a long way!

We now have a wide variety of tools and other webpage elements to choice from.

Some parking specialty items include:

- Carbon reduction calculators
- Parking facility construction cost estimator
- Ask the consultants

Some other favorites to consider include:

» News & Events

» Maps

» Events Calendars

» Construction Updates

» Did You Know?

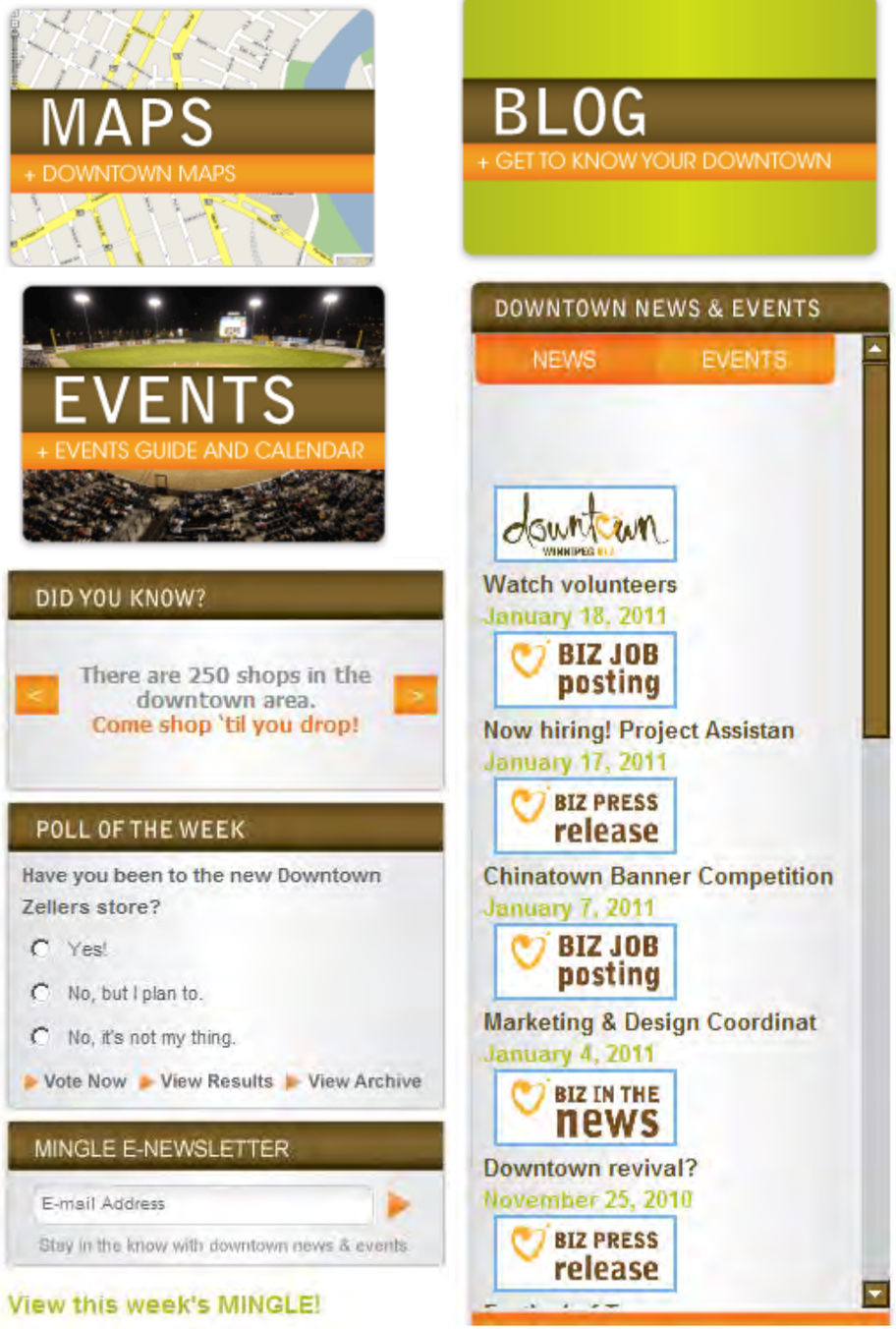
» Weekly Polls

» Program FAQs

» Links to other sites/resources

» Job postings

ex.



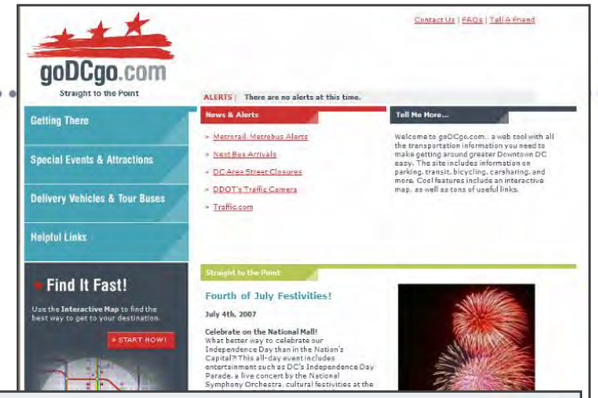
Kimley»Horn

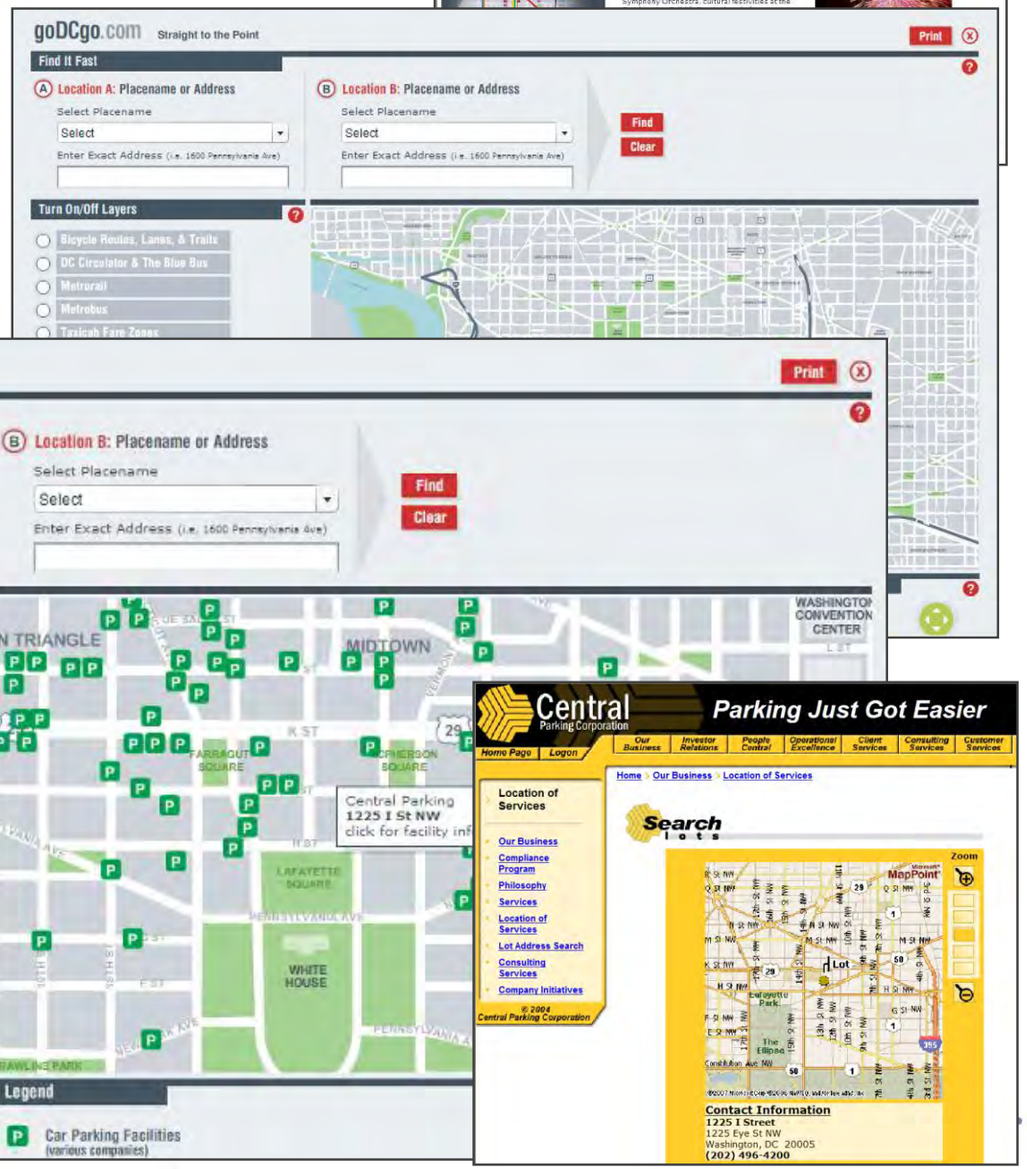
Best Parking Website Features – Interactive Maps

On the “Go DC Go.com” interactive web-site map, by turning on the parking “layer” you can not only identify the location of various parking facilities, but also drill down to very detailed information about facility management, services offered, hours of operation, rates, etc.

» At the most detailed level, the data is just a link and detailed info is managed by the site owner, such as **Central Parking** in this example.

ex.





Kimley»Horn

Best Parking Website Features – Parking Locators

Interactive web-site maps that allow you to turn on “layers” to relate various features is a very valuable parking and downtown web-site feature.

Examples of specialty transportation related layers include:

- Parking
- Bike Share Stations
- Transit Stops
- Circulator Stops and Routes
- Car Share Locations

Some other “layers could include:

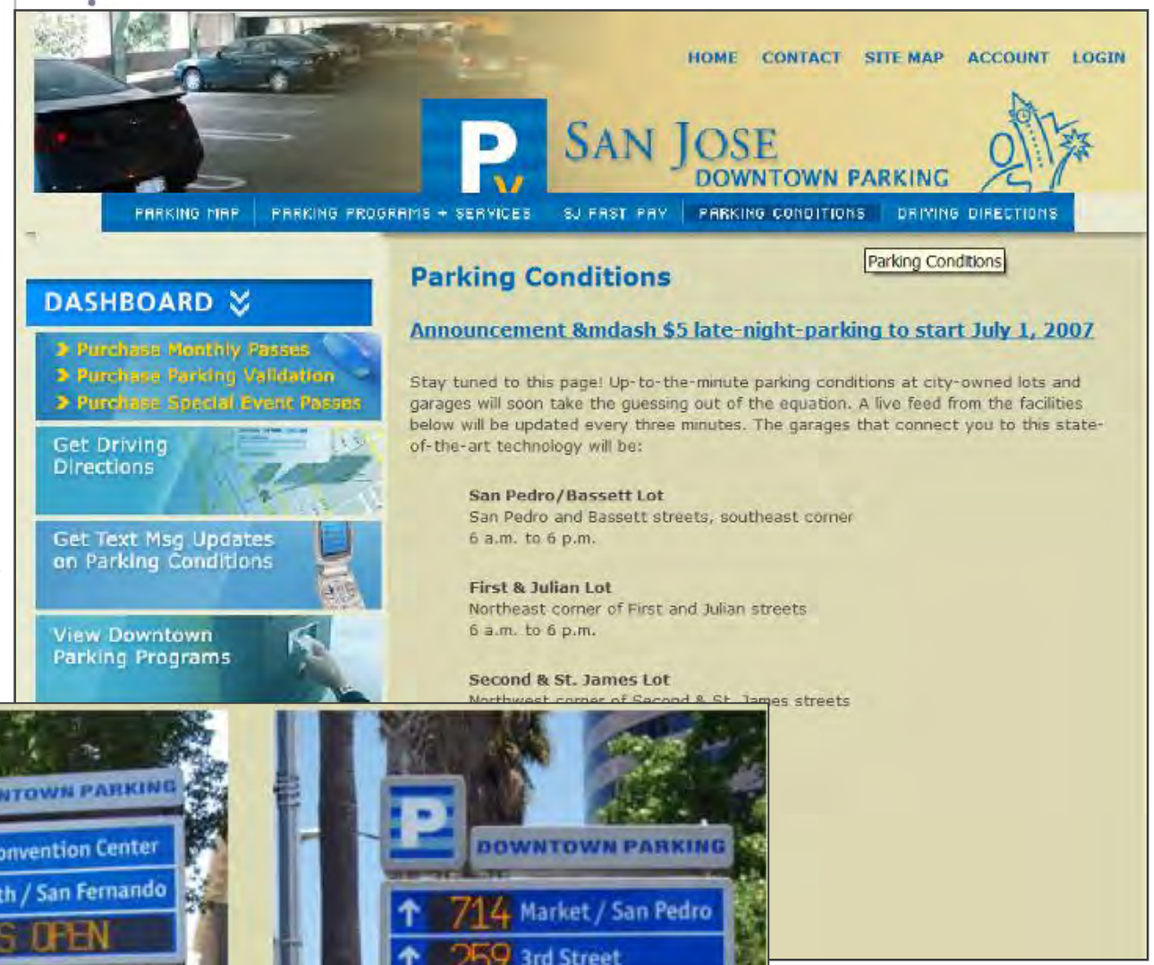
» Attractions
» Major Buildings
» ATMs
» Restaurants
» Retail
» Government Facilities
» Art Galleries
» Coffee Shops

Kimley»Horn

Best Parking Website Features – Parking Conditions Updates

The San Jose parking website offers a page that keeps customers informed of "current conditions" related to city operated parking facilities".

» You can even sign up to get "parking condition updates" sent directly to your cell phone via text message.



» San Jose is also on the leading edge with parking guidance signage systems with real-time information.

Market Street

Santa Clara Street

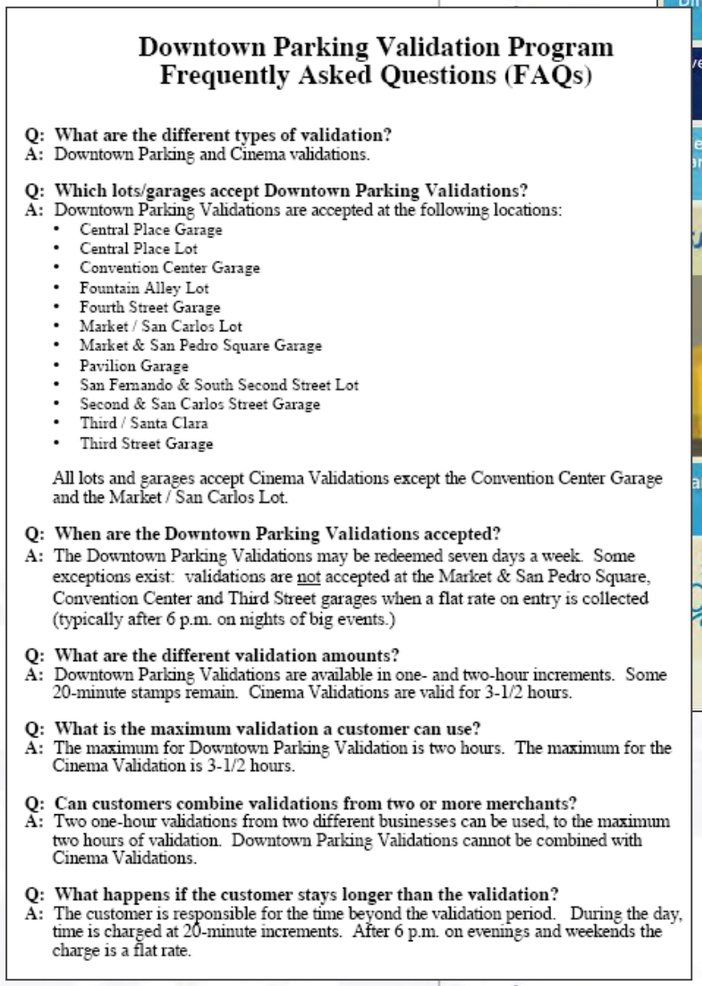
Kimley»Horn

Best Parking Website Features – FAQs

Many websites recognize that there are a variety of "commonly asked questions".

An FAQ (Frequently Asked Questions) section can be a helpful addition to many customers and reduce the number of phone calls your office staff has to answer.

ex.



Downtown Parking Validation Program
Frequently Asked Questions (FAQs)

Q: What are the different types of validation?
A: Downtown Parking and Cinema validations.

Q: Which lots/garages accept Downtown Parking Validations?
A: Downtown Parking Validations are accepted at the following locations:

- Central Place Garage
- Central Place Lot
- Convention Center Garage
- Fountain Alley Lot
- Fourth Street Garage
- Market / San Carlos Lot
- Market & San Pedro Square Garage
- Pavilion Garage
- San Fernando & South Second Street Lot
- Second & San Carlos Street Garage
- Third / Santa Clara
- Third Street Garage

All lots and garages accept Cinema Validations except the Convention Center Garage and the Market / San Carlos Lot.

Q: When are the Downtown Parking Validations accepted?
A: The Downtown Parking Validations may be redeemed seven days a week. Some exceptions exist: validations are not accepted at the Market & San Pedro Square, Convention Center and Third Street garages when a flat rate on entry is collected (typically after 6 p.m. on nights of big events.)

Q: What are the different validation amounts?
A: Downtown Parking Validations are available in one- and two-hour increments. Some 20-minute stamps remain. Cinema Validations are valid for 3-1/2 hours.

Q: What is the maximum validation a customer can use?
A: The maximum for Downtown Parking Validation is two hours. The maximum for the Cinema Validation is 3-1/2 hours.

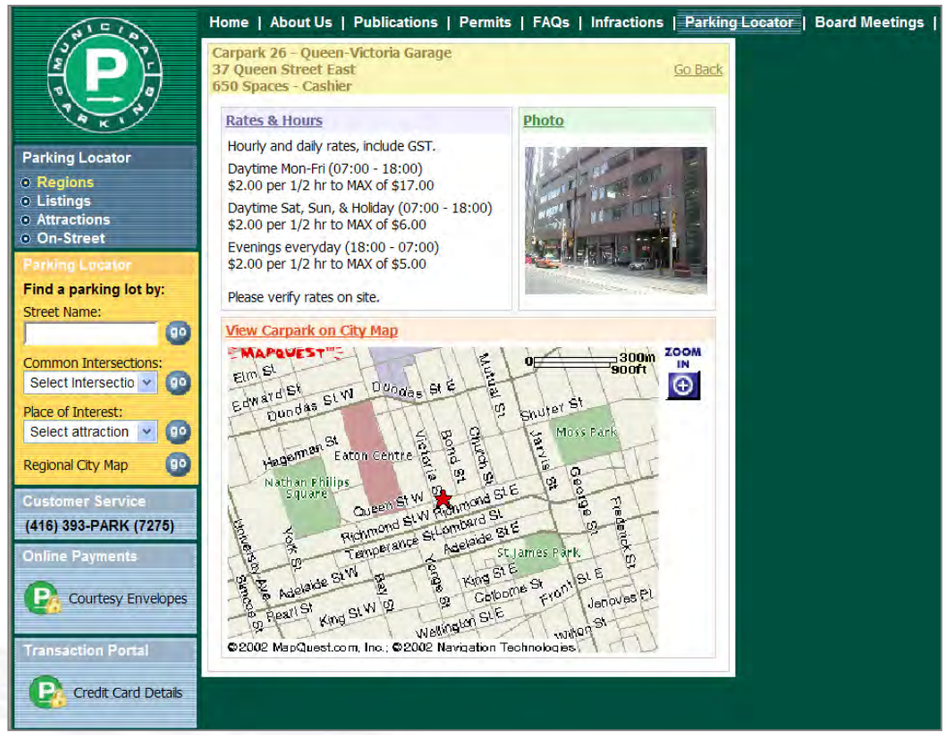
Q: Can customers combine validations from two or more merchants?
A: Two one-hour validations from two different businesses can be used, to the maximum two hours of validation. Downtown Parking Validations cannot be combined with Cinema Validations.

Q: What happens if the customer stays longer than the validation?
A: The customer is responsible for the time beyond the validation period. During the day, time is charged at 20-minute increments. After 6 p.m. on evenings and weekends the charge is a flat rate.

Web-based Parking Locators

Searchable Parking Locator Map features on websites allow customers to zoom in on their areas of interest and get detailed parking location, contact info, maps, cost and sometimes parking availability information.

ex.



» Visit www.greenP.com to see an example of this website feature.

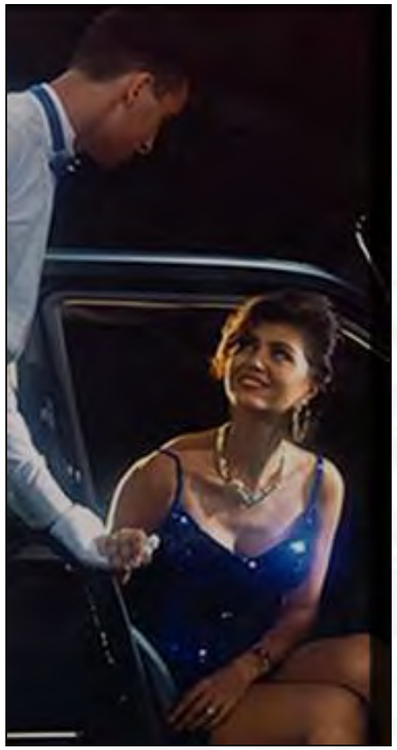
Kimley»Horn

Ch. 9

Improving Customer Service

Quality Customer Service Programs

"Best in Class" parking programs have well defined customer service programs that typically include vehicle lock out assistance, dead battery assistance and vehicle location assistance at a minimum.



ex.

» Other key customer service areas include:

- Focus on employee training and hiring practices.
- Develop friendly, attentive, outgoing knowledgeable attendants.
- Increase personal contact between parking system manager, stake holders & customers.
- Institute performance measurements and utilize for company and employee incentives.
- Develop customer friendly payment options.

Quality Customer Service Programs Begin with Training

Excellent customer service is never an accident. It is a result of a defined prioritization by management, a dedication to making guests feel special and an investment in training.

ex.

IPI INTERNATIONAL PARKING INSTITUTE ADVANCING THE PARKING PROFESSION

MEETINGS & EVENTS | MEMBERSHIP SERVICES | PUBLICATIONS | PROFESSIONAL DEVELOPMENT

HOME PAGE > PROFESSIONAL DEVELOPMENT > ON-SITE TRAINING PROGRAMS

On-Site Training Programs

Employees are an organization's most valuable asset. An investment in staff training and education brings a high rate of return in job performance and satisfaction.

For more information, contact Lauri Chudoba at chudoba@parking.org or 540.371.7535.

Customer Service Training

Conflict Resolution Training

Customer Service Amenities –

A Requirement for Canadian Parking Association Certification

CPA ACS
Canadian Parking Association
Association canadienne du stationnement

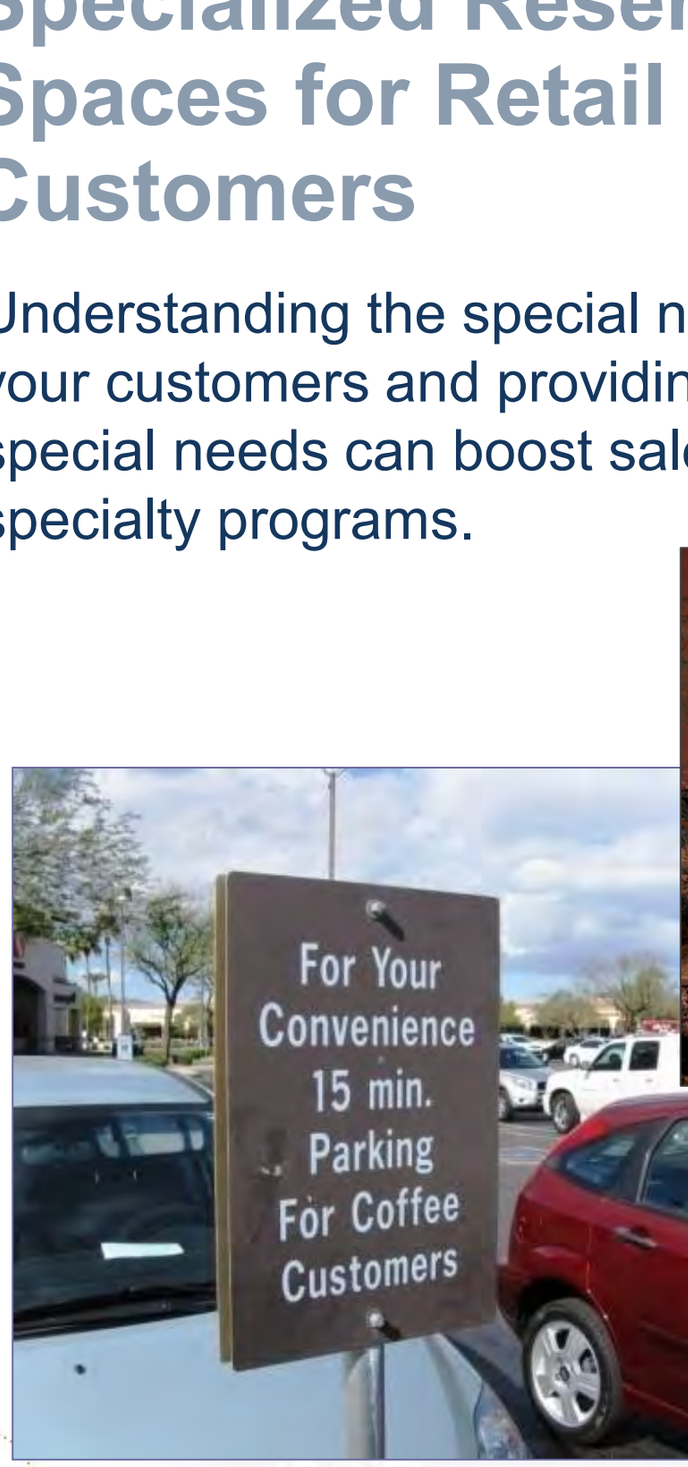
ex.

Customer amenities provided by the Winnipeg Parking Authority.

Kimley»Horn

Specialized Reserve Spaces for Retail Customers

Understanding the special needs of your customers and providing for their special needs can boost sales of specialty programs.



ex.

» Examples include:

- Short-term spaces for quick turn-over customers such as “Coffee Customers”
- Quick and convenient “run–in / run-out” spaces for pre-prepared meal customers.
- Close-in, convenient spaces (generally next to accessible spaces) reserved for “Expectant Mothers”.

Lincoln's "Shopper Zones"

Reserving the most convenient off-street parking spaces for retail customers, Lincoln's new "Shopper Zones", takes this best practice to a new level!

ex.

Parking Orientation Tools

Many facilities place “You parked on Level ___” cards at the elevator lobbies for patrons to take with them.

Hot Tips!
Pocket Pointers

Pick up a meal to take on the plane, since many airlines do not include food.

Purchase a unique Arizona gift to give to associates, family and friends when you reach your destination.

Protect carry-on bags. Never leave baggage unattended or carry anything on board the aircraft for a stranger. Report any unattended packages or baggage to airport personnel.

Passengers with tickets only and those accompanying children or persons with disabilities will be allowed past the security checkpoint.

Place any knives, scissors or sharp objects in your checked baggage only.

Please check as much baggage as possible. One carry-on plus one personal item are permitted beyond the checkpoints.

Packages and gifts should be unwrapped to get through security.

Purple-shirted Navigator volunteers are available throughout the terminals to answer your questions.

Phoenix Sky Harbor International Airport
www.phxskyharbor.com

Remember where you parked:
(Write it here!)

CAN'T FIND YOUR CAR? If you forgot where your car is parked, call ACE Parking at (602)273-4545, pick up a white paging phone or find the nearest information booth inside the terminal and the agent will call for you. ACE will also assist with jumpstarts, locked keys and flat tires.

Contact us!
Parking Info: (602) 273-4545, 4546 or 4547
Airport Info: (602)273-3300
Radio: 1610 AM

3400 Sky Harbor Blvd, Phoenix, AZ 85034
www.phxskyharbor.com

Special accommodations/alternate format materials (large print, braille, audio tape or diskette) are available upon request. Call 602-683-3654. ADA/TTY 1-800-781-1010.

April 2002

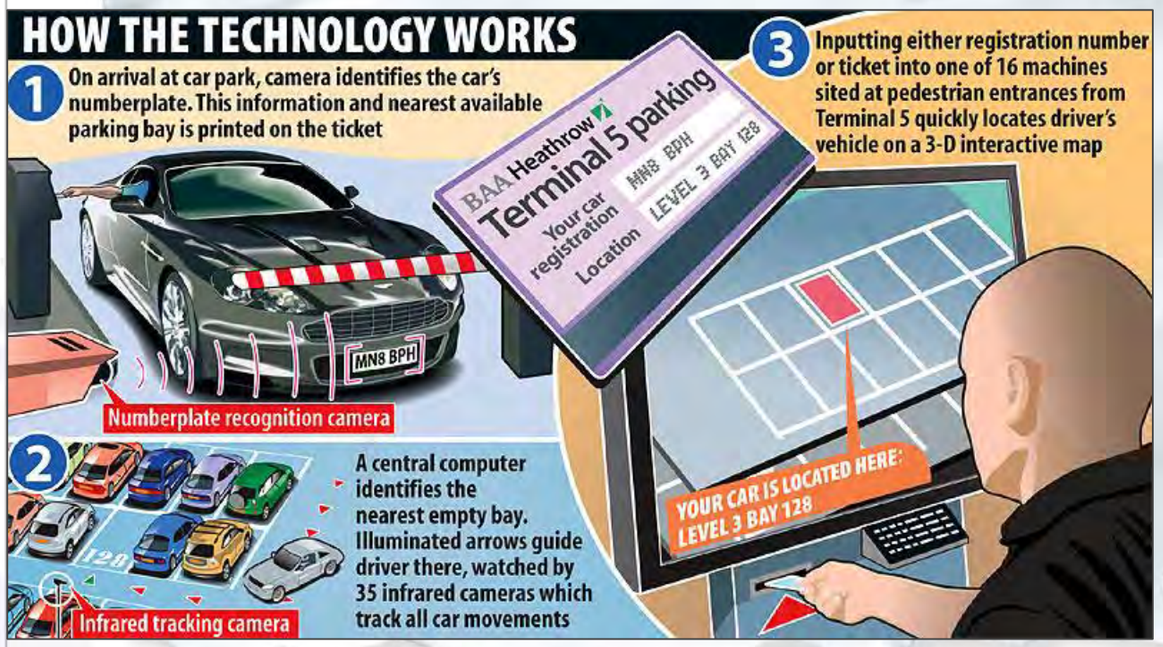
Phoenix Sky Harbor
INTERNATIONAL AIRPORT

Parking Pocket Pal

» Other systems have developed “Parking Pocket Pal” mini-brochures to provide orientation and parking services information to customers.

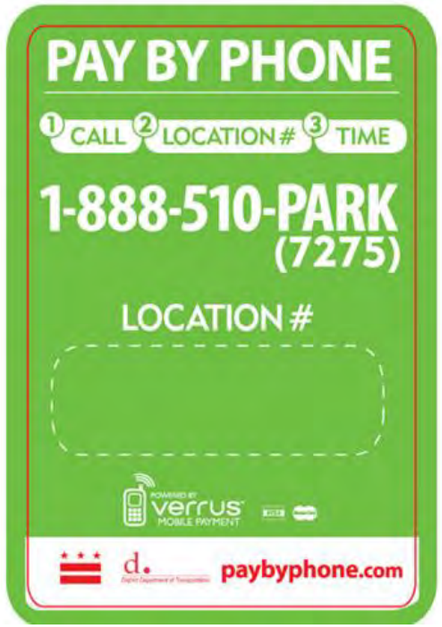
ex.

» London’s Heathrow Airport uses LPR technology to make finding your car even easier!



Enhanced Payment Options

One area that we can use to improve customer service in the parking world is to make “paying for parking” as easy and painless as possible. Because, let’s face it, nobody LIKES to pay for parking. But if is difficult to pay, that just makes it worse!



ex.

If accepting credit or debit card payments, be sure your systems are PCI certified!

Improved payment options include:

- Cash/Coin
- Credit/Debit Card Acceptance
- Community Cards (Debit)
- Cash-Key
- Pay-By-Cell Phone
- Pay-Pal (On-Line)
- Toll Tags
- “Sky Meter”

PARKING | The Next Level

PARKING MANAGEMENT & DESIGN - **Best Practices**

Kimley»Horn

Ch.
10

Customer & Community Education

"Coffee with the Parking Guy"

The Winnipeg Downtown BIZ sponsored "Coffee with the Parking Guy"!

As a service to it's membership the BIZ would host monthly meetings connecting retailers, restaurateurs and other downtown business owners at a local coffee shop to the Winnipeg Parking Authority's chief administrator (& IPI's Parking Professional of the Year in 2010!).

ex.

- This simple, but effective outreach strategy worked well in Winnipeg because of their smart and savvy parking administrator.
- Discussion were lively and sometimes a little intense. People can get passionate over parking.
- But in the end, it was a valuable learning experience and the educational benefits went in both directions.

Mr. David Hill, CAPP
IPI's 2010 "Parking Professional of the Year"

How To Park in Any City, USA

Having a succinct and accessible document that informs your customers “How to Park” is just good basic management.

DOWNTOWN CHAPEL HILL PARKING

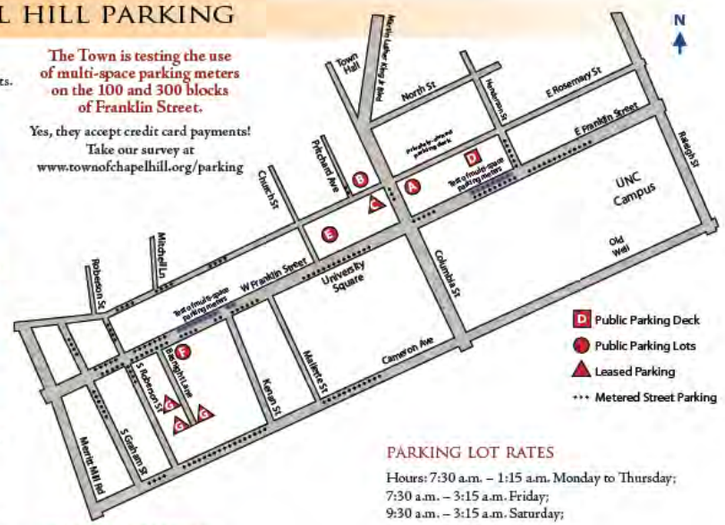
PUBLIC PARKING LOTS

There are 675 off-street parking spaces in Town-managed lots.

- Rosemary/Columbia Parking Lot (Formerly Lot 2) (A)
  100 E. Rosemary St.
- West Rosemary Parking Lot (Formerly Lot 4) (B)
  104 W. Rosemary St.
- 127 W. Rosemary Lot (C)
  127 W. Rosemary (leased parking only)
- Wallace Deck at Rosemary (D)
  150 E. Rosemary St.
- Rosemary/Church Street Parking Lot (Formerly Lot 5) (E)
  108 Church St. & 141 W. Rosemary St.
  (will close in Fall 2010 for construction of 140 West)
- West Franklin Parking Lot (Formerly Lot 3) (F)
  415 W. Franklin St.
- West Franklin/Basnight Parking Lot (G)
  113/114 N. Basnight Lane (new)

The Town is testing the use of multi-space parking meters on the 100 and 300 blocks of Franklin Street.

Yes, they accept credit card payments!
Take our survey at
www.townofchapelhill.org/parking



LEASED PARKING

The Town leases parking spaces for $85/month. For more information, call (919) 968-2758.

FREE PARKING

After 8 p.m. Saturday, parking is free at the West Franklin Lot (415 W. Franklin St.) and Rosemary/Church Street Lot (141 W. Rosemary St.)

Also, you are not required to pay for parking meters after 6 p.m. Monday through Saturday. All parking lots and meters are free all day Sunday.

Meters are not enforced on the following Town holidays: Martin Luther King Holiday, Good Friday, Memorial Day, Fourth of July, Labor Day, Thanksgiving, Christmas and New Year's Day. Parking in all metered municipal lots is also free on these holidays; the Rosemary/Columbia Lot and the Wallace Deck are open for paid parking on Martin Luther King Jr. Day and Good Friday.

ON-STREET PARKING

There are more than 250 on-street metered parking spaces within Chapel Hill. Most spaces are in the central business district and charge 25 cents for 15 minutes with a 2-hour limit. Meters accept quarters and dimes only.

- Meters are enforced 8 a.m. to 6 p.m. Monday through Saturday. Metered parking is FREE after 6 p.m. daily and all day Sunday.
- Meters in the Cameron Avenue zone have a 4-hour time limit.
- Fines for Expired Meter, Beyond Time Limits, or Outside Marked Lines in metered zones are $15.

PARKING LOT RATES

Hours: 7:30 a.m. – 1:15 a.m. Monday to Thursday;
7:30 a.m. – 3:15 a.m. Friday;
9:30 a.m. – 3:15 a.m. Saturday;

Wallace Deck – 150 E. Rosemary St.
Rates: $.50/half hour for 0-4 hours;
$1/hour for 4-17 hours

Rosemary/Columbia Parking Lot – 100 E. Rosemary St.
Rates: $.65/half hour for 0-4 hours;
$1.30/hour for 4-6 hours;
$1.80/hour for 6 hours or more

Weekend evening fee: $5 after 8 p.m. Friday – Saturday (Includes Thursdays during UNC academic term).

Limited discounts to senior citizens and people with disabilities are available.

Time Limit: 24 hours

PARKING TICKETS

COURTESY TICKETS

Under our courtesy ticket system, first-time parking offenders who receive tickets for on-street metered parking violations may have their tickets waived. The goal of the courtesy ticket program is to ensure that the downtown is friendly to our visitors and business customers.

PARKING FINES

- Expired meter $15
- Parking over marked lines $15
- Parking in a handicap zone $200
- Parking within 15 feet of fire hydrant $100
- Parking within fire lane $100
- Other violations $50

Late Fees: $10 for 21 days after issuance and an additional $10 for each subsequent 14-day period, up to $20.

PAYING YOUR TICKET

Enclose the citation with a personal check, money order or cashier's check (do not send cash). Make checks payable to Town of Chapel Hill. Mail to Town of Chapel Hill Parking Services, 150 E. Rosemary St., Chapel Hill, NC 27514. Payments are accepted from 8:30 a.m. to 5 p.m. Monday to Friday at the Parking Services office, or by phone at (919) 932-2912. Payments may also be deposited in the Town's drop-box locations at Chapel Hill Town Hall, 405 Martin Luther King Jr. Blvd., or the Police Department, 838 Martin Luther King Jr. Blvd.

IF YOU LOSE YOUR TICKET

Paying your ticket is still your responsibility. Visit Parking Services in person or phone (919) 932-2912. license plate number or the name of her available.

TICKET

mit an Appeals Form within 21 days of are available from Chapel Hill Parking at www.townofchapelhill.org/parking.

TOWED OR IMMOBILIZED?

IMMOBILIZED VEHICLES

Vehicles illegally parked within the Town that have four or more outstanding parking citations are subject to having an immobilization device (commonly referred to as a "boot") attached to their vehicle.

REMOVING THE IMMOBILIZATION DEVICE

In order to have the device removed, please come to the parking office at 150 E. Rosemary St. between 8:30 a.m. and 4:30 p.m. Monday through Friday to settle the account and pay the $55 booting fee. Vehicles not claimed prior to 4:30 p.m. are subject to towing.

TOWED VEHICLES

It is rare for the Town of Chapel Hill to tow vehicles, but towing will be enforced when:

- Vehicles are parked in hazardous locations
- Vehicles are parked for more than 24 hours in a Town owned lot
- Vehicles have been booted and have not been released before 4:30 p.m.
- Vehicles have been booted on two or more occasions and owners have failed to settle their account.

RETRIEVING YOUR VEHICLE

Towed vehicles may be reclaimed from the vehicle impoundment area upon payment of the towing fee. In order to have your vehicle released, please go to the Chapel Hill Police Department, 828 Martin Luther King Jr. Blvd. Payment of the towing fee does not remove responsibility for the ticket that caused the tow or any outstanding, unpaid or overdue parking tickets.

PUBLISHED IN AUGUST 2010 BY:
Town of Chapel Hill
Communications & Public Affairs
(919) 968-2743 or
publicaffairs@townofchapelhill.org
Printed on recycled paper.
Please recycle with white paper.

PARKING DOWNTOWN

The Parking Services office is located in the Wallace Parking Deck.
Open 8:30 a.m. - 5 p.m. Monday to Friday, except holidays.

150 E. Rosemary St.
Chapel Hill, NC 27514

Information: (919) 968-2758
Residential Permits & Citations:
(919) 932-2912
Fax: (919) 932-2926
E-mail: parking@townofchapelhill.org
Web: www.townofchapelhill.org/parking

Typical contents might include information on:

- » Office Location/Contact Info
- » Parking locations
- » Rates
- » On-Street Parking
- » Enforcement/Adjudication
- » Towed/Immobilized Vehicles

Howdy Pardner!

The “real problem” from a parking management perspective re: on-street parking is repeat offenders trying to take up what should be a short-term space for their longer term needs.

If this is true, why not make the penalty for occasional or first-time violators less harsh to mitigate the inherent negativity of parking enforcement.

ex.

- Why not take it one step further and let the first parking citation be an educational opportunity?
- That’s what they did in Cheyenne, WY with their innovative “Howdy Pardner!”program.
- This is one strategy to better align parking policy with the goals of creating a vital downtown.

Cheyenne Frontier Days

» Using creative marketing Cheyenne crafted a parking citation envelope to be an educational piece that led off with the phrase “Howdy Pardner”.

» Message #1: Welcome and Thanks for Shopping Downtown!

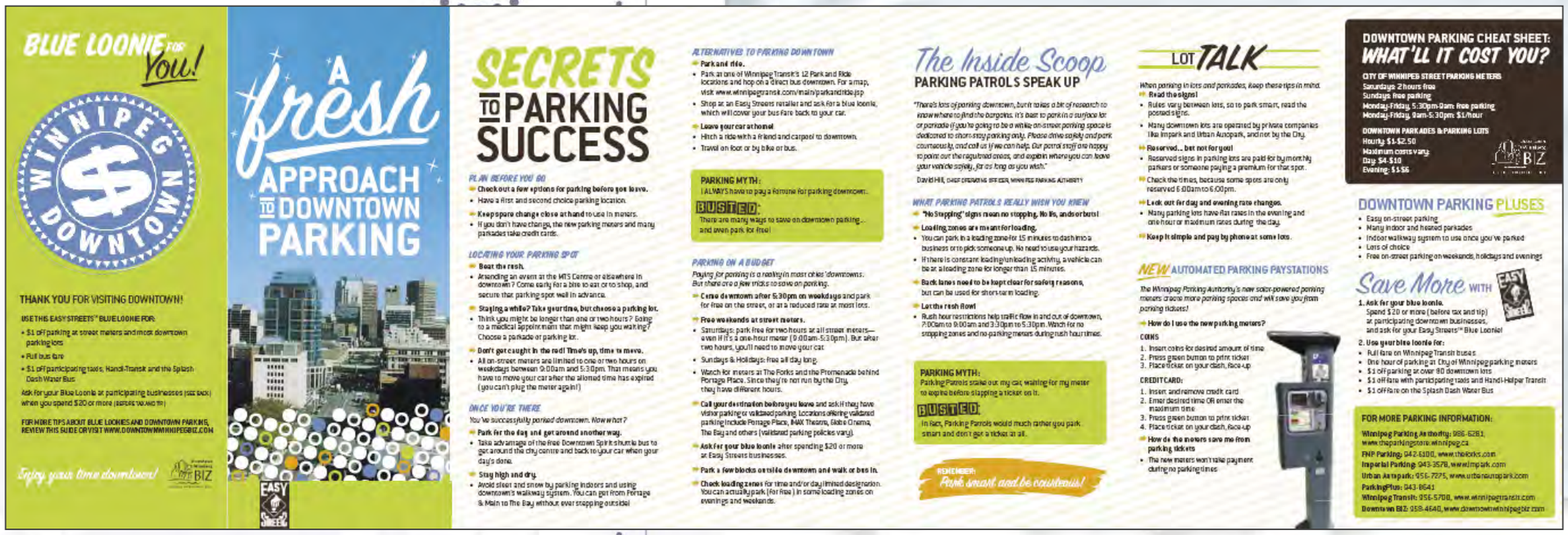
» Message # 2: Need more than 2 hrs.? Here are some longer term parking options and other tips on how to parking legally in Downtown Cheyenne.

Secrets to Parking Success!

The collaborative effort between the Downtown Winnipeg Business Improvement Zone (BIZ) and the Winnipeg Parking Authority is aimed at helping you get around downtown easily by car, bike, bus and on foot.

» Getting around downtown and parking is easy with 32,000 parking spots, the free Downtown Spirit shuttle bus, 2 kilometres of indoor walkways, dozens of bus stops, and many bike racks.

ex.



BLUE LOONIE FOR You!

WINNIPEG $ DOWNTOWN

THANK YOU FOR VISITING DOWNTOWN!

USE THIS EASY STREETS™ BLUE LOONIE FOR:

- $1 off parking at street meters and most downtown parking lots
- Full bus fare
- $1 off participating taxis, Handi-Transit and the Splash Dash Water Bus

Ask for your Blue Loonie at participating businesses (see back) when you spend $20 or more (before taxes).

FOR MORE TIPS ABOUT BLUE LOONIES AND DOWNTOWN PARKING, REVIEW THIS SIDE OR VISIT WWW.DOWNTOWNWINNIPEGBIZ.COM

Enjoy your time downtown!

A fresh APPROACH TO DOWNTOWN PARKING

EASY STREETS

SECRETS TO PARKING SUCCESS

PLAN BEFORE YOU GO

- Check out a few options for parking before you leave.
- Have a first and second choice parking location.
- Keep spare change close at hand to use in meters.
- If you don't have change, the new parking meters and many parkades take credit cards.

LOCATING YOUR PARKING SPOT

- Beat the rush.
- Attending an event at the MTS Centre or elsewhere in downtown? Come early for a bite to eat or to shop, and secure that parking spot well in advance.
- Staying a while? Take your time, but choose a parking lot.
- Think you might be longer than one or two hours? Going to a medical appointment that might keep you waiting? Choose a parkade or parking lot.
- Don't get caught in the red! Time's up, time to move.
- All on-street meters are limited to one or two hours on weekdays between 9:00am and 5:30pm. That means you have to move your car after the allotted time has expired (you can't plug the meter again!)

ONCE YOU'RE THERE

You've successfully parked downtown. Now what?

- Park for the day and get around another way.
- Take advantage of the free Downtown Spirit shuttle bus to get around the city centre and back to your car when your day's done.
- Stay high and dry.
- Avoid sleet and snow by parking indoors and using downtown's walkway system. You can get from Portage & Main to The Bay without ever stepping outside!

ALTERNATIVES TO PARKING DOWNTOWN

- Park and ride.
- Park at one of Winnipeg Transit's 12 Park and Ride locations and hop on a Direct bus downtown. For a map, visit www.winnipegtransit.com/main/parkandride.jsp
- Shop at an Easy Streets retailer and ask for a blue loonie, which will cover your bus fare back to your car.
- Leave your car at home!
- Hitch a ride with a friend and carpool to downtown.
- Travel on foot or by bike or bus.

PARKING MYTH:
I ALWAYS have to pay a Fortune for parking downtown.

BUSTED!
There are many ways to save on downtown parking... and even park for free!

PARKING ON A BUDGET

Paying for parking is a reality in most cities' downtowns. But there are a few tricks to save on parking.

- Come downtown after 5:30pm on weekdays and park for free on the street, or at a reduced rate at most lots.
- Free weekends at street meters.
- Saturdays: park free for two hours at all street meters—even if it's a one-hour meter (9:00am-5:30pm). But after two hours, you'll need to move your car.
- Sundays & Holidays: free all day long.
- Watch for meters at The Forks and the Promenade behind Portage Place. Since they're not run by the City, they have different hours.
- Call your destination before you leave and ask if they have visitor parking or validated parking. Locations offering validated parking include Portage Place, IMAX Theatre, Globe Cinema, The Bay and others (validated parking policies vary).
- Ask for your blue loonie after spending $20 or more at Easy Streets businesses.
- Park a few blocks or ride downtown and walk or bus in.
- Check loading zones for time and/or day limited designation. You can actually park (for free) in some loading zones on evenings and weekends.

The Inside Scoop
PARKING PATROLS SPEAK UP

"There's lots of parking downtown, but it takes a bit of research to know where to find the bargains. It's best to park in a surface lot or parkade if you're going to be awhile; on-street parking space is dedicated to short-stay parking only. Please drive safely and park courteously, and call us if we can help. Our patrol staff are happy to point out the regulated areas, and explain where you can leave your vehicle safely, for as long as you wish."

David Hill, chief operating officer, Winnipeg Parking Authority

WHAT PARKING PATROLS REALLY WISH YOU KNEW

- "No Stopping" signs mean no stopping. No ifs, ands or buts!
- Loading zones are meant for loading.
- You can park in a loading zone for 15 minutes to dash into a business or to pick someone up. No need to use your hazards.
- If there is constant loading/unloading activity, a vehicle can be at a loading zone for longer than 15 minutes.
- Back lanes need to be kept clear for safety reasons, but can be used for short-term loading.
- Let the rush flow!
- Rush hour restrictions help traffic flow in and out of downtown, 7:00am to 9:00am and 3:30pm to 5:30pm. Watch for no stopping zones and no parking meters during rush hour times.

PARKING MYTH:
Parking Patrols scaled out my car, waiting for my meter to expire before slapping a ticket on it.

BUSTED!
In fact, Parking Patrols would much rather you park smart and don't get a ticket at all.

REMEMBER:
Park smart and be courteous!

LOT TALK

When parking in lots and parkades, keep these tips in mind.

- Read the signs!
- Rules vary between lots, so to park smart, read the posted signs.
- Many downtown lots are operated by private companies like Impark and Urban Aeropark, and not by the City.
- Reserved... but not for you!
- Reserved signs in parking lots are paid for by monthly parkers or someone paying a premium for that spot.
- Check the times, because some spots are only reserved 6:00am to 6:00pm.
- Look out for day and evening rate changes.
- Many parking lots have flat rates in the evening and one hour or maximum rates during the day.
- Keep it simple and pay by phone at some lots.

NEW AUTOMATED PARKING PAYSTATIONS

The Winnipeg Parking Authority's new solar-powered parking meters create more parking spaces and will save you from parking tickets!

- How do I use the new parking meters?

COINS

1. Insert coins for desired amount of time
2. Press green button to print ticket
3. Place ticket on your dash, face up

CREDIT CARD:

1. Insert and remove credit card
2. Enter desired time OR enter the maximum time
3. Press green button to print ticket
4. Place ticket on your dash, face up

- How do the meters save me from parking tickets?
- The new meters won't take payment during no parking times.

DOWNTOWN PARKING CHEAT SHEET:
WHAT'LL IT COST YOU?

CITY OF WINNIPEG STREET PARKING METERS
Saturdays: 2 hours free
Sundays: free parking
Monday-Friday, 5:30pm-9am: free parking
Monday-Friday, 9am-5:30pm: $1/hour

DOWNTOWN PARKADES & PARKING LOTS
Hourly: $1-$2.50
Maximum costs vary.
Day: $4-$10
Evening: $1-$6

DOWNTOWN PARKING PLUSES

- Easy on-street parking
- Many indoor and heated parkades
- Indoor walkway system to use once you've parked
- Lots of choice
- Free on-street parking on weekends, holidays and evenings

Save More WITH EASY STREETS

1. Ask for your blue loonie.
   Spend $20 or more (before tax and tip) at participating downtown businesses, and ask for your Easy Streets™ Blue Loonie!
2. Use your blue loonie for:
   - Full fare on Winnipeg Transit buses
   - One hour of parking at City of Winnipeg parking meters
   - $1 off parking at over 80 downtown lots
   - $1 off fare with participating taxis and Handi-Helper Transit
   - $1 off fare on the Splash Dash Water Bus

FOR MORE PARKING INFORMATION:
Winnipeg Parking Authority: 986-6281, www.theparkingstore.winnipeg.ca
FNP Parking: 942-6300, www.theforks.com
Imperial Parking: 943-3578, www.impark.com
Urban Aeropark: 956-7275, www.urbanaeropark.com
ParkingPlus: 943-8641
Winnipeg Transit: 986-5700, www.winnipegtransit.com
Downtown BIZ: 958-4640, www.downtownwinnipegbiz.com

Trends in Parking & Transportation

Taking a page from our Downtown Management professional's play book, tracking trends and program performance is a good way to keep our customers educated and aware.

ex.

» Trends to track might include:
  - » Community demographics
  - » Changes in land-use
  - » Parking supply & utilization
  - » Parking rates
  - » Community Investment/New Development
  - » Economic data
  - » Program financial performance
  - » Parking services, accomplishments and community reinvestment

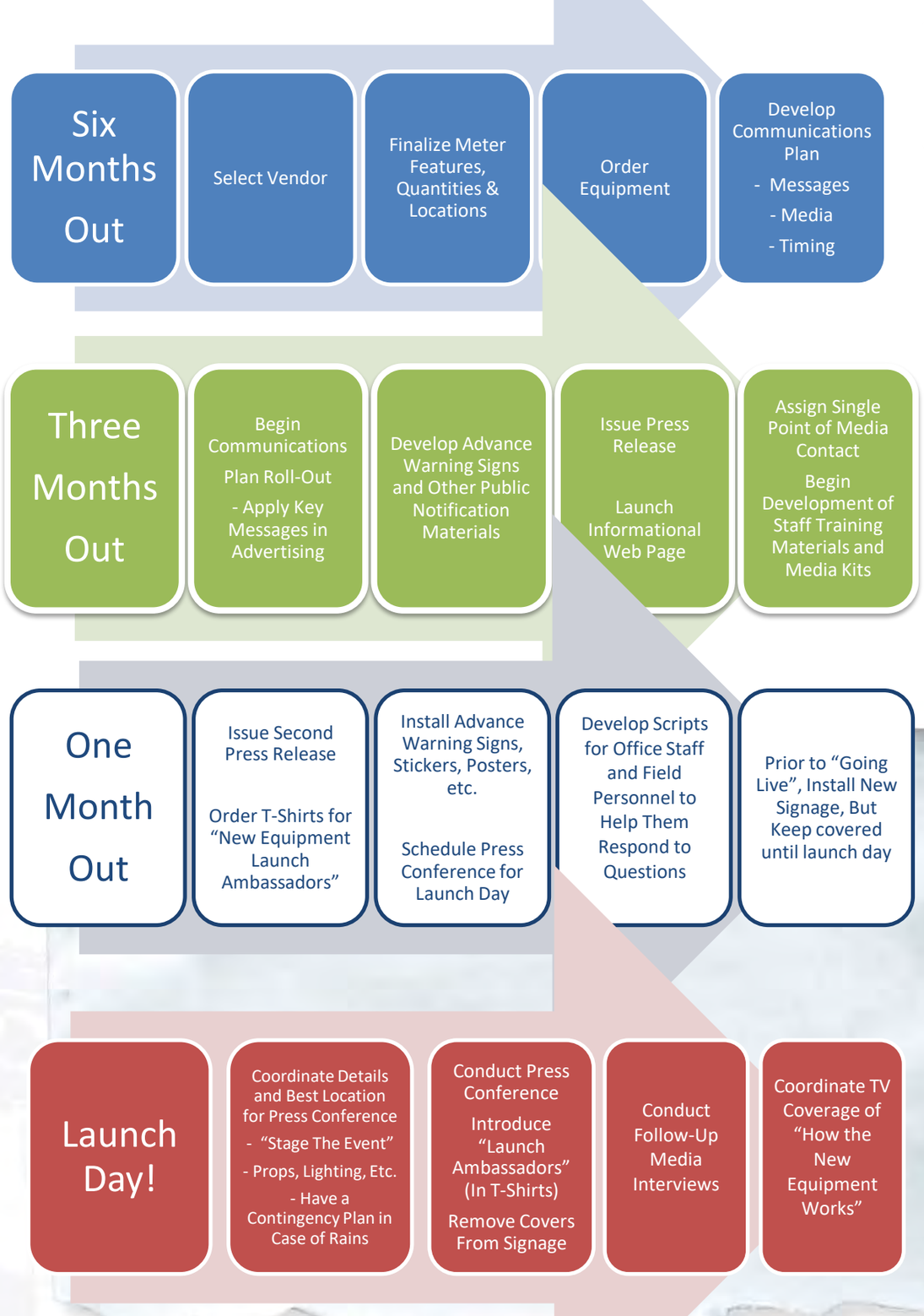
New Technology Introduction –

On-Street Meter Upgrades

Once the decision has been made to upgrade the on-street meter system (or any other parking technology that the public will have direct interface with) it is important to develop a detailed implementation timeline including a public relations strategy.

ex.

- A typical implementation timeline would start early and would be structured with major milestone dates and specific action items.
- A sample implementation timeline is provided to the right:



Ch.
11

On-Street Parking Management Strategies

On-Street Parking - Policy Basics

There are a few basic principles related to on-street parking that most parking consultants, urban planners and downtown management professionals agree on. These include:

- On-street parking is a valuable, limited resource due to its convenience and proximity to businesses, therefore the primary management objective to promote space turnover for the benefit of the local merchants and the public.
- If you are going to have paid parking, charge for the on-street spaces first to promote turnover.
- If you have both on-street and off-street paid parking, the on-street rates should be higher than the off-street.
- Set on-street parking rates to a achieve a 15% vacancy per block face.
- Adopt the philosophy that parking should be " Friendly, not free"

ex.

» The application of parking management "rules and regulations" mandates a need for an enforcement function.

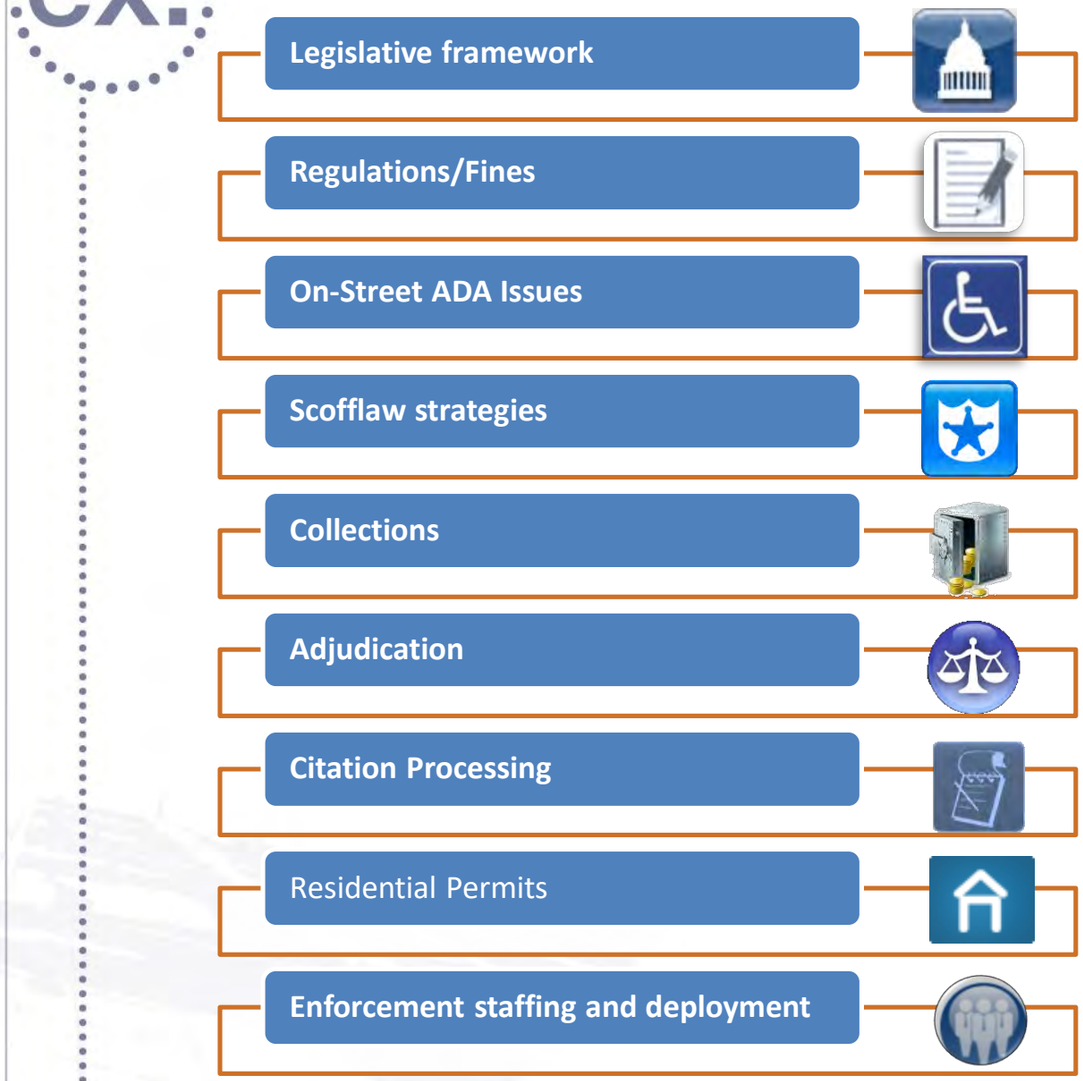
» The primary goals of an enforcement program should be:

- Have a well-defined set of policies and procedures
- Promote general (not absolute) compliance
- Be consistent, but "unpredictable" in enforcement routes and times.
- Leverage new technology to improve efficiency, effectiveness and productivity.

Primary Program Components

The following are a listing of major components of an effective on-street parking program:

- » Legislative framework
- » Regulations/Fines
- » On-Street ADA Issues
- » Enforcement staffing and deployment
- » Citation Processing
- » Adjudication
- » Collections
- » Scofflaw strategies
- » Residential Permits

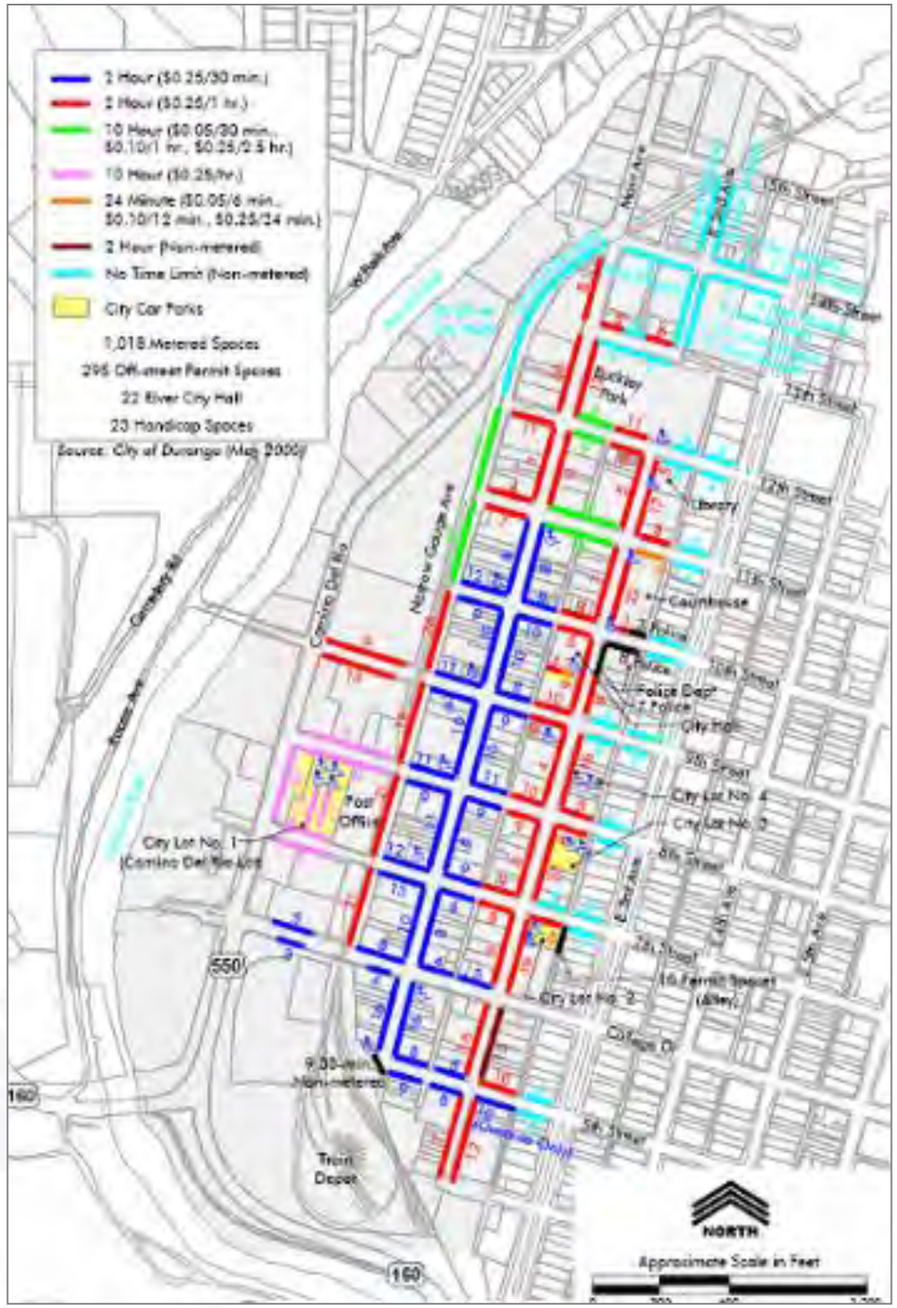


Mapping On-Street Parking Time Limits

On-Street parking time-limits should be mapped and changes tracked over time.

- » Mapping on-street time-limits is an important tool for staff education, and communicating with the public.
- » It is a fundamental tool for documenting resource usage, facilitates the analysis of trends and is an effective planning tool.
- » Tracking changes over time creates a record of management strategies that have been used in the past.

ex.



Kimley»Horn

Monitor and Document On-Street Parking Utilization

Documenting on-street parking occupancy is another effective tool to understanding and managing your parking resources.

- Routinely tracking on-street parking occupancy and documenting the results graphically provides valuable management data.
- Often there is adequate parking supply despite a wide-spread perception that the parking supply is inadequate.
- Documenting the true occupancy rates are the first step to effectively resolving parking problems (real or perceived) and can be an effective community educational tool.

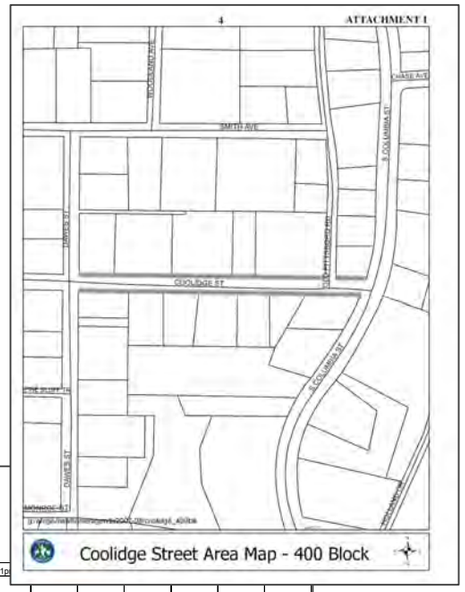
ex.

On-Street Parking Utilization Data Analysis

When designing parking utilization data surveys consider the following:

- What are you really trying to find out?
- Do you need to survey all the spaces or can you use limited area sampling?
  - If sampling, what percent is adequate for statistically valid results?
- How survey many passes are needed?
- How frequently?
- What data do we need to collect?

ex.



City of _____

ON-STREET PARKING TURNOVER

Day and Date

Zone 6

Location	Space #	9am	9:30am	10am	10:30am	11am	11:30am	12pm	12:30pm	1p
5th & Santa Monica-Arizona	1									
5th & Santa Monica-Arizona	2									
5th & Santa Monica-Arizona	3									
5th & Santa Monica-Arizona	4									
5th & Santa Monica-Arizona	5									
5th & Santa Monica-Arizona	6									
5th & Santa Monica-Arizona	7									
5th & Santa Monica-Arizona	8									
5th & Santa Monica-Arizona	9									
5th & Santa Monica-Arizona	10									

City of _____

ON-STREET PARKING OCCUPANCY - SAMPLING

Day and Date

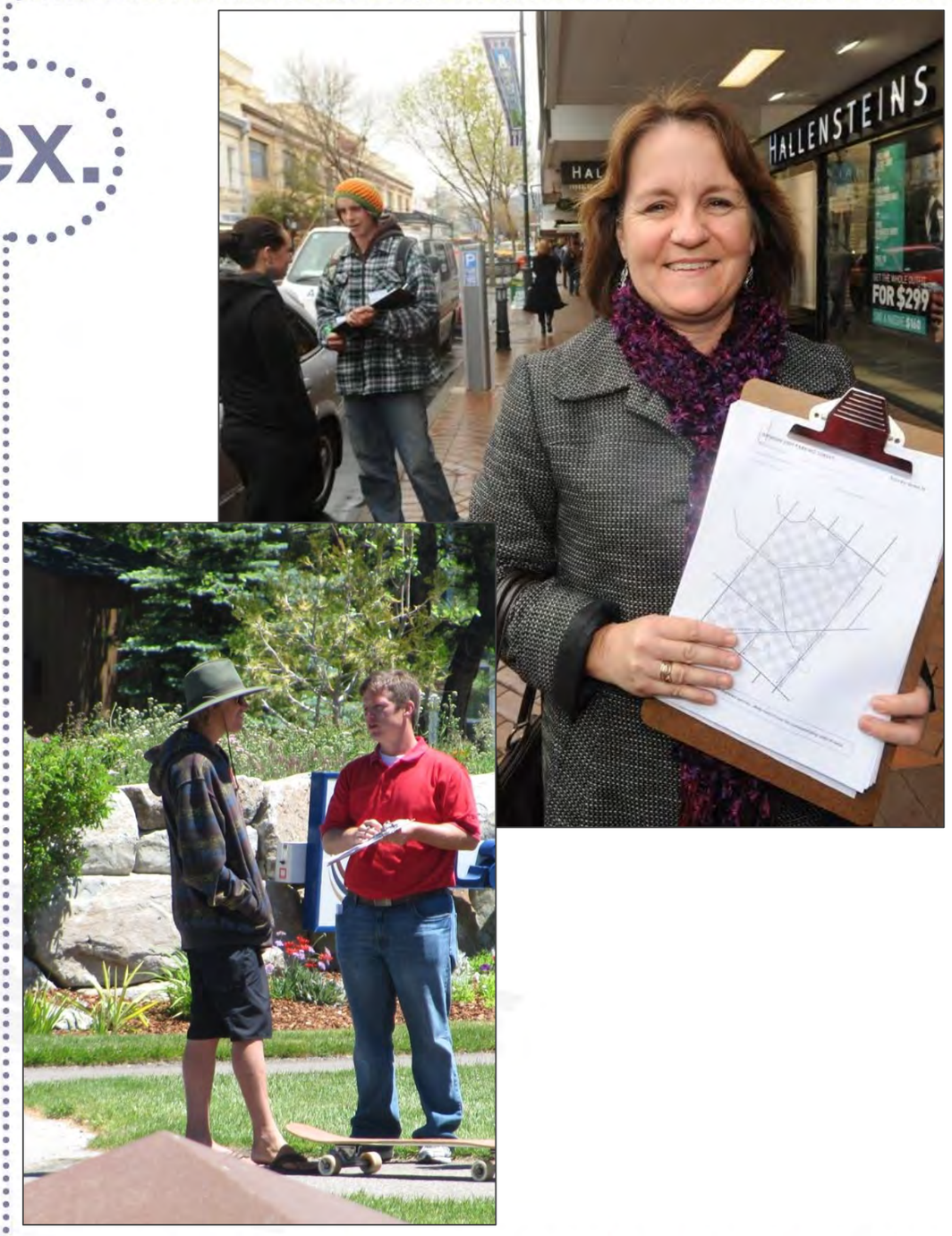
Block #	Spaces	8:00 AM	9:00 AM	10:00 AM	11:00 AM	NOON	1:00 PM	2:00 PM	3:00 PM	4:00 PM
1	6									
2	23									
3	12									
4	9									
5	27									
6	24									
7	65									
8	34									
9	2									
10	31									
11	25									
12	34									
13	56									
14	34									
15	38									
16	44									
17	41									
18	26									
19	23									
20	25									

On-Street Parking Utilization Data Analysis

On-Street Parking Surveys: What data can a parking space yield? (First Pass)

- » Regulation in effect
- » Occupied? (Y/N)
- » Vehicle category
- » Legal status
- » If illegal, ticketed? (Y/N)
- » Residency of occupant (requires full plate - optional)

ex.



On-Street Parking Utilization Data Analysis

What data can a parking space yield? (2nd, 3rd, 4th Pass)

- » Occupied? (Y/N)
- » Occupied by same vehicle?
- » Legal status (including overtime)
- » If illegal, ticketed? (Y/N)
- » Duration of occupancy

ex.

The High Cost of Employee Parking in Short-term Spaces

The following is one approach to quantifying the financial impact of employees taking up on-street spaces.

ex.

Fort Collins, CO Case Study

- There are approximately 8,400 employees in downtown Fort Collins.
- If only 5% of those workers use customer parking spaces, 420 spaces would be unavailable to shoppers.
- If each space turned over four times per day, they would accommodate 1,680 shopper trips.
- If each car carried 1.5 customers, there would be 2,520 customers.
- If a quarter those customers went elsewhere to shop and each customer spent $10.00, the total loss per day would be $6,300.

» Annualized at six shopping days each week, the total loss would amount to nearly $2 million in Downtown revenue.

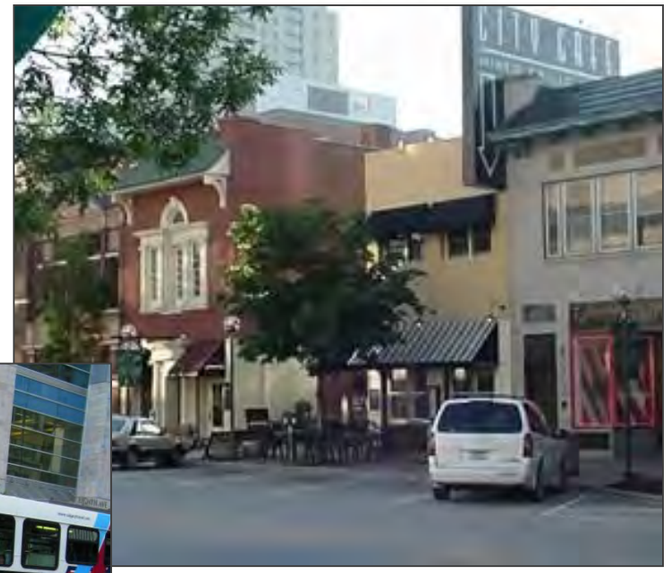
» Obviously this impacts the merchants, but it also impacts the municipality in terms of lost sales tax revenues.

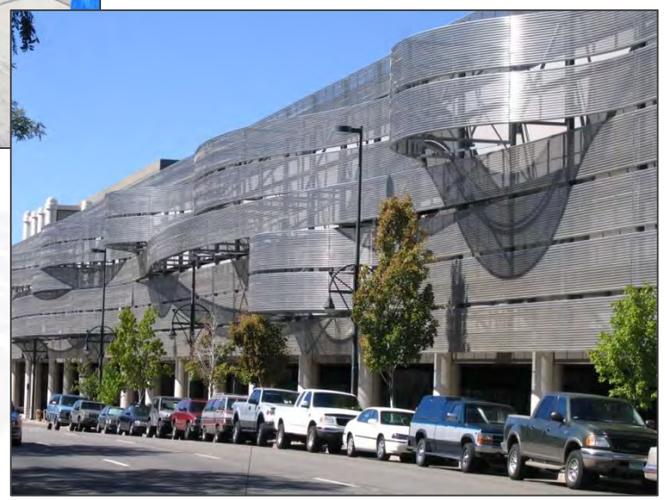
Determining Appropriate Regulations

The following are factors to consider in developing on-street parking regulations and policies:

- Area density
- Area parking mix
- Transportation environment
- Adjacent land uses
- Types of businesses
- Is there a need for:
  - Meters (and what time restrictions and cost)
  - Loading zones
  - Valet zones
  - Permit parking in nearby residential areas

ex.





On-Street Parking Utilization Data Analysis

When analyzing parking utilization data the following are the key metrics to evaluate:

- Occupancy Rate
- Turnover Rate
- Average Duration
- Violation rate
- Capture rate (% ticketed)
- Average time to ticket/unticketed
- Disabled Placard usage
- Impact of non-residents

ex.

Standard Turnover Rate Analysis Output

Parking Space Type	Average Turnover	Average Duration	Number of Time Violations
30-Minute	6.39	43 Mins.	35
1-Hour	5.71	1 hr. 8 Mins.	63
2-Hour	4.17	1 hr. 10 Mins.	59
Disabled	2.00	1 hr. 7 Mins.	NA
Unlimited	3.23	1 hr. 52 Mins.	NA

On-Street Parking Utilization Data Analysis

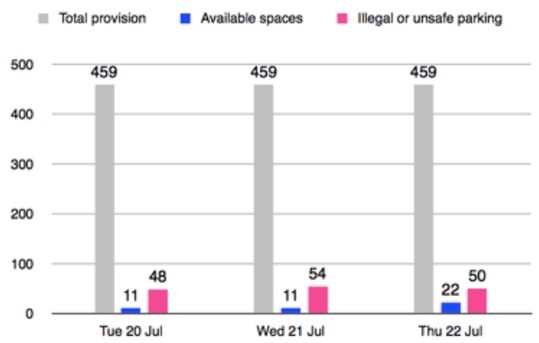
Central Business District - Acceptable Survey Metric Result Ranges

- » Unpaid Legal Meter Occupancy Up to 15%
- » Meter Violations Capture Rate – 33% overall and up to 40% in core areas
- » Duration, or average length of Stay – 67% to 140% of the regulated duration

ex.

Community Parking Survey

Residents in the area have conducted a community parking survey to challenge what is being claimed by the developer. Our own calculations indicate that the transport requirements of the proposed development cannot be met by existing availability in the area.



The parking situation at 10pm on weeknights in July

Existing demand for on-street parking at peak periods, especially in the late evenings and overnight, already leads many drivers to park in unsafe or unsuitable positions such as blocking pavements or on junctions or yellow lines. This factor, which was not taken into account in the survey provided by the developer, illustrates the lack of suitable parking space.

On-Street Parking Utilization Data Analysis

Central Business District - Acceptable Survey Metric Result Ranges

- Total Meter Occupancy –
  - Ideal = 85% average per block face
  - Upper limit: not above 93% to 95%
- Illegal Meter Occupancy – 5- 7%
- Paid Meter Occupancy – 60-85%

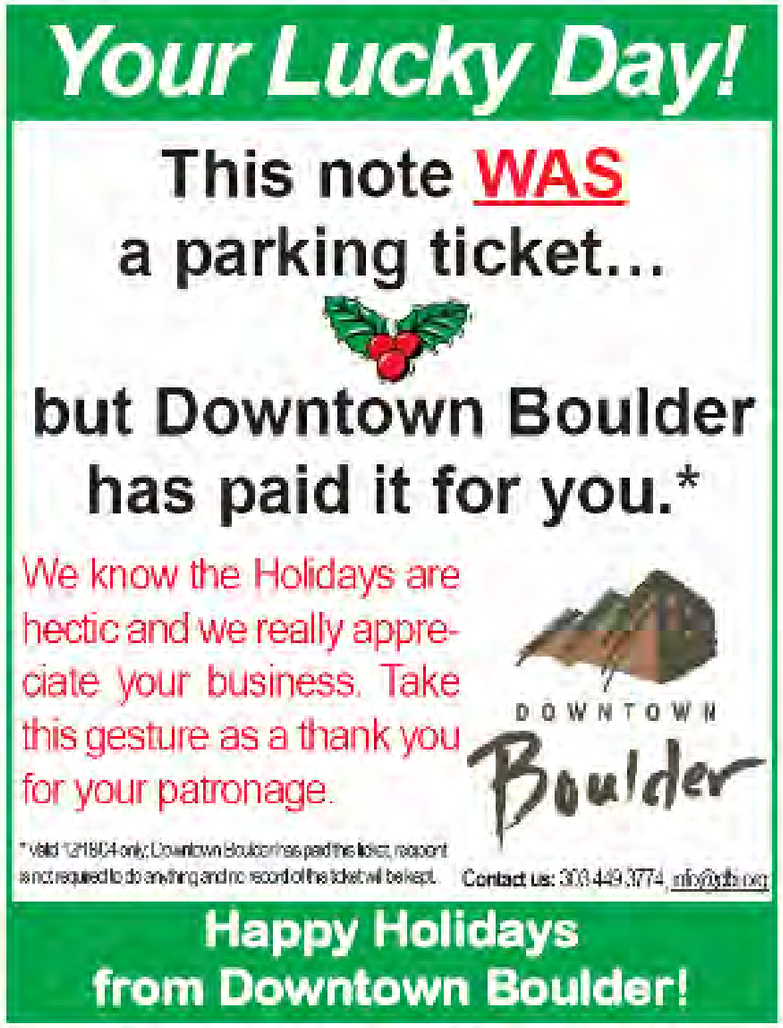
ex.

On-Street Parking Holiday Shopping Program

Holiday parking ticket amnesties and other forgiveness programs are tools to balance the need for parking enforcement with business encouragement through customer appreciation.

- The Downtown Association paid over $6,000 in customer's parking tickets over the Christmas holidays in Boulder last year.
- In other communities, the parking system simply suspends parking enforcement or replaces citations with holiday notices.

ex.



Wireless Hand-held Citation Issuance

The next generation of hand-held devices has allowed parking field personnel to have access real-time information.

ex.

- Examples include: Real-time scofflaw data for enforcement officers – If a vehicle owner has five outstanding citations and the sixth citation should generate vehicle “booting” - the officer in the field needs to know that this is the sixth citation.
- Roving maintenance staff can now be notified in the field via text message of “low tickets”, “ticket jams”, etc. before traffic backs up.

Wireless Hand-held Citation Issuance

The next generation of hand-held devices has allowed parking field personnel to have access real-time information.

- Examples include: Real-time scofflaw data for enforcement officers –

ex.

On-Street Parking Enforcement Program Components

- Legislative framework
- Regulations/Fines
- On-Street ADA Issues
- Enforcement staffing and deployment
- Citation Processing
- Adjudication
- Collections
- Scofflaw strategies

On-Street Parking – Demand-Based Pricing

Best-in-Class parking programs strive to understand the dynamics of parking utilization within a district, neighborhood or even on a block face level.

They invest the time and energy to generate reliable data on which to base policy decisions. This "data-driven" approach benefits everyone from politicians/policy makers to parking management staff and ultimately to customers and residents.

- The goals are to effectively manage a valuable and limited resource to achieve pre-defined goals.
- With more data available than ever before, parking professionals are in a better position to apply basic economic principles (supply/demand) to achieve targeted results.
- This "demand-based pricing" is being used to create better parking availability and reduce congestion during peak demand periods.

ex.

» New wireless technologies hold great promise in making these approaches to even effective and responsive.

» Linking on-street rates to off-street rates and options is the next critical step.

Real Time On-Street Management Information

San Francisco is implementing a federally funded pilot program of new on-street parking management technologies and approaches.

Benefits include:

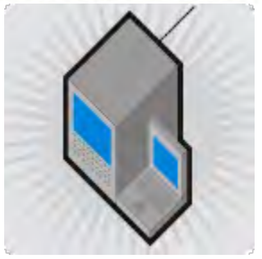
- » Find parking faster
- » Pay more easily
- » Avoid tickets
- » Less circling and fewer double-parked cars give us cleaner air and safer streets for bicyclists and pedestrians
- » With less traffic, public transit and emergency vehicles move more easily

Program Components

ex.

The Sensors

The Meters



Data Feed

Demand Responsive Pricing

SFpark- Overview:

- Using sensors, new meters, and real-time parking data to take the guesswork out of parking in the City.
- Makes parking easier to find and more convenient.
- Benefits will accrue to drivers, Muni riders, bicyclists, pedestrians, visitors, merchants and more.

Pay-By-Cell Phone

No coins to feed the meter? Your time is expiring, but your 3 blocks away? No problem – Pay with your cell phone!

ex.

» How Pay-By Cell Phone Works:

- Once an account is set up, a motorist finds a spot, parks the car, calls a toll-free number and keys in the spot's number.
- If a person is running late, he can remotely buy more parking time with another phone call (assuming it does not exceed the time limit).
- The bill is typically sent to a credit card.
- Customers receive a text message on their phones, warning them five minutes before their time is about to expire.

In-Car Meters

In-Car Meters can be programming for up to twenty time zones with different rates for each zone. They can be used with other systems or as a new "stand alone" system. Controlled parking areas can be increased by adding in-car meters only in fringe areas with no capital investment.

A new version adds time wirelessly via cell phone purchases.

ex.

» User Benefits –

- Convenience
- No need to carry coins or tokens
- System is fair - charging only for the actual time parked
- Motorists receives receipt whenever parking time is purchased
- Replaceable Battery

Meter Time Limit Stickers

If you still have traditional parking meters, the simple addition of meter time limit stickers can greatly improve the user friendliness of your on-street system, especially for the occasional user.

- Some systems use colored meter polls to indicate time limits, however, this assumes the customers are familiar with the color-coding system.
- The meter time limit stickers are more easily understood by first time visitors.

ex.

Kimley»Horn

Public Relations – "Meter Angels"

Sometimes called the "Meter Angels" program, the Business Improvement District in Boulder will add 15 minutes of time to customer's meters and leave the note below on the vehicle's windshield.

ex.

- On one hand local businesses directly benefit from the parking space turn-over that an effective enforcement program helps provide.
- On the other hand no one likes to receive a parking ticket.
- This program aims at taking the edge off by providing a cushion for those who may be running just a little late.
- Even it the patron still receives a ticket, the effort by the BID is still appreciated.

Creating a Friendly "On-Street Personality"

If we think beyond the job of monitoring on-street parking and issuing citations to vehicles that are in violation of the rules, what else comes to mind?

- Many communities, in an attempt to create an enhanced sense of place and to make downtown a more desirable destination, are transforming "parking enforcement officers" into "Downtown Ambassadors".

- This expanded (and more positive role) can be very successful when a focus on creating a friendlier "On-Street Personality" is prioritized.
- This goes beyond the attitude of the ambassadors; it includes streetscape design, retail enhancements, pedestrian amenities, etc.

ex.

Ch.
12

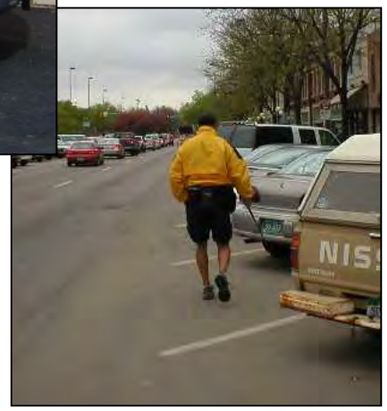
Effective Parking Enforcement Strategies

Enforcement Technology

The use of advanced parking enforcement technology can have a dramatic impact on the effectiveness and efficiency of your parking enforcement program.

ex.

- The use of License Plate Recognition (LPR) systems to automate the enforcement of time-limited areas through the use of efficient “electronic chalking” improves the accuracy and efficiency of enforcement efforts.
- These systems utilize GPS locators and generate real-time scofflaw lists.



On-Line, Real-time Citation Management Systems

The use of advanced parking enforcement citation management systems provide on-line, real-time information to parking enforcement officers on the street.

ex.

- This is critical to effective program implementation.
- It tells the officers which vehicles have previous citations and the status of their accounts.
- If the vehicle is “boot or tow eligible” due to its “scofflaw status”, the officer will know it in real time and be able to take the appropriate action based on departmental policy.

Fine Structures

Parking fine structures should be developed to address the specific problems you are trying solve.

- In the example to the right, the fine structure was modified to be more forgiving to infrequent violators (typically visitors) and more punitive on repeat offenders (typically employees parking in short-term spaces.
- In addition, incentives are built into the fine structure to promote prompt payment and thereby improve the “citation collection ratio”, a key program effectiveness benchmark.

ex.

Overtime violation within 12-month period	Current Amount	Proposed Amount	After 8 days fine increases to:
1st overtime	$10	Warning	N/A
2nd overtime	$20	$10	$20
3rd overtime	$40	$25	$50
4th overtime	N/A	$50	$75
5th overtime	N/A	$75	$100
6th or more…	N/A	$100	$150

On-Line Citation Payment Options

Allowing the payment of non-contested parking citations on-line improves customer service, increases your citation collection ratio (and therefore revenue) and improves collections processing efficiency.

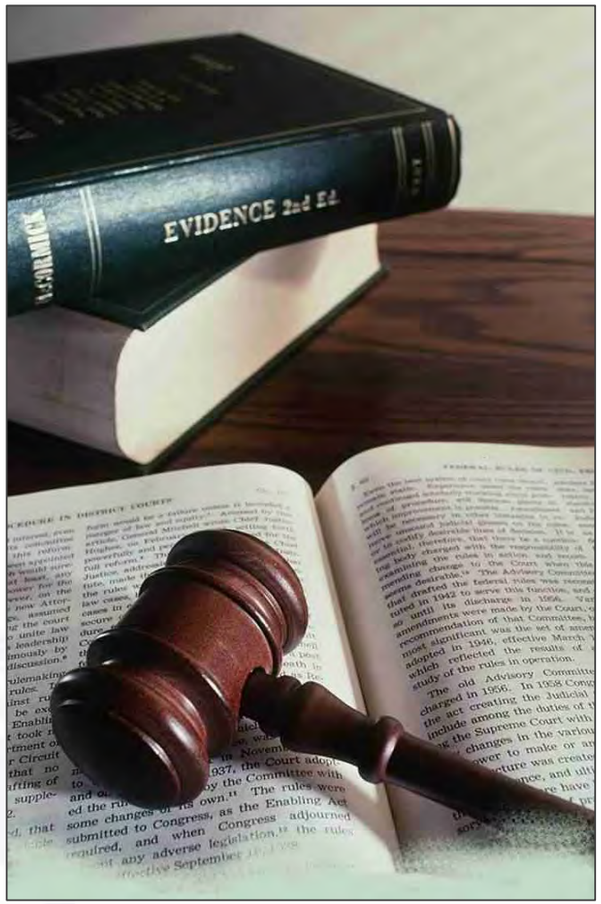
ex.

- Helps meet goals of providing timely, customer oriented services.
- Accepts multiple payment options including credit cards.
- Simple, straightforward processing.

Separation of Duties in Parking Citation Adjudication

Just as the concept of "separation of duties" is a key auditing principle when evaluating program financial accounting, the same concept applies to parking citation adjudication (appeals processes).

ex. » The agency/department that issues parking citations should not be the same entity that reviews and processes contested citations.



PARKING | The Next Level

PARKING MANAGEMENT & DESIGN - **Best Practices**

Kimley»Horn

Ch.
13

Effective Facility Maintenance Practices

Hinged Light Poles

Many times parking systems know they have a few lights out, but it is expensive to bring in a bucket truck to change just one light, so they live with the liability until we have more than one light to replace better justifying the expense.

ex.

- Hinged light poles make it possible for two men to change out light bulbs without the expense of a bucket truck.
- This approach reduces liability, improves safety and reduces cost.

Striping Removal

Occasionally, due to operational changes, old parking stripes need to be removed. After trying several removal strategies the use of a 3M product called “Peel Away” proved most effective.

ex.

- Removal of the existing paint was initially attempted using high pressure water treatment alone.
- Chemical removal of the existing striping with MEK (Methyl Ethyl Ketone) proved ineffective and raised environmental/disposal concerns.
- Another option attempted was to try and paint over the stripes attempting to match the color of the concrete.

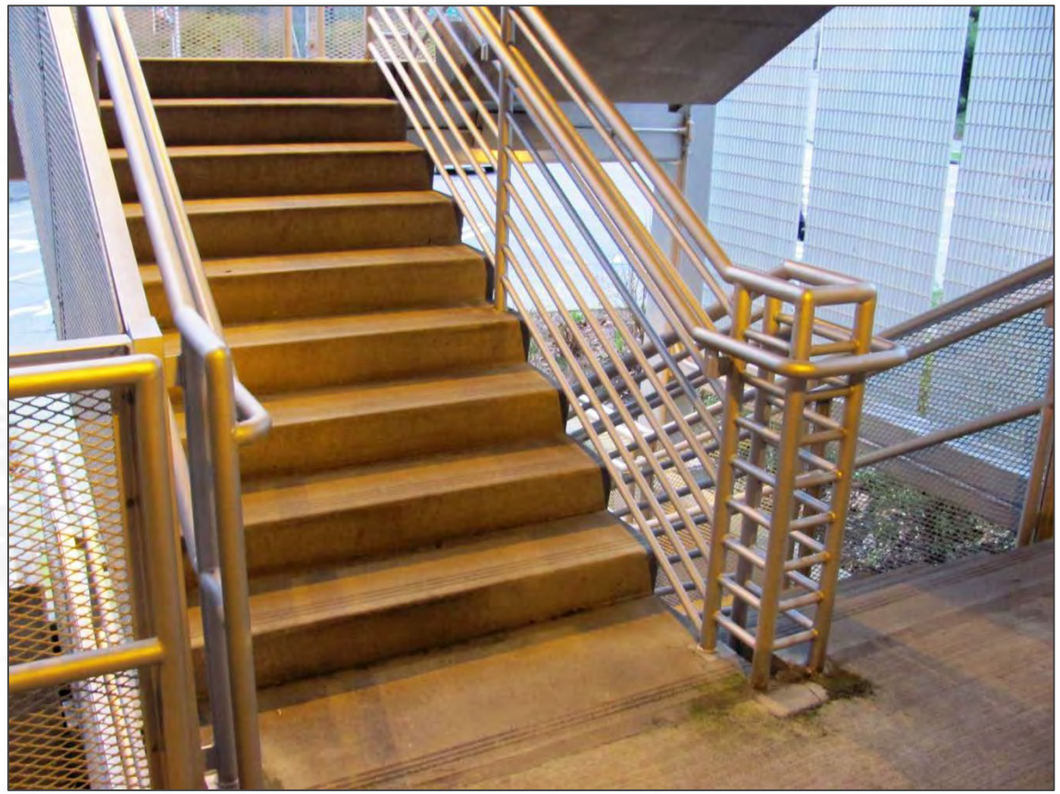
Invest in Maintenance Free Infrastructure

Traditional metal stair railings an other metal parking garage elements eventually rust and need to be painted.

An initial investment in stainless steel or galvanized metal elements can pay big dividends in the long run on maintenance savings and a better looking facility.

ex.

» Elimination of this type of maintenance headache is estimated to save a minimum of 80 maintenance man-hours per year per garage.



Bird Management

Avipel is a nuisance bird repellent.

The cost of Avipel is less expensive than other mechanical options. It also is easier to apply and more economical to the end user.

Endorsed by PITA and the American Human Society

ex.

» The material is applied to surfaces where birds land. The birds will then walk, stand, or roost on the material. As the bird preens it is inevitable that the bird will ingest the anthraquinone (referred to as AQ). This will cause a short-lived gut reaction that lasts for a short time. The bird will then realize that the AQ is noticeable through the UV light spectrum and associate the ill feeling with the UV sight and refrain from going to that area.

AVIPEL™

Environmental Responsibility

Mobile Parking Garage Cleaning Systems are designed for specific types of pressure washing or water jetting activities, designed to provide an affordable, safe method for quick, simple on-site treatment of the wastewater generated to remove contaminants, such as oil, grease, hydraulic fluids, trace metals, PCBs or paints.

ex.

» The basic components of these mobile systems include a pressure washer or water jetting equipment

- Heater (optional)
- Vacuum/Recovery System
- Waste Water Processor

Budget:
$0.05 – $0.12 per square ft.

Fluorescent Lamp Recycling

Spent Fluorescent Lamps Must be Properly Handled and Stored to Limit Mercury Exposure.

ex.

» Energy efficient fluorescent lamps can contribute to a cleaner environment, but they must be managed properly. For most us, fluorescent lamps present the single greatest risk of mercury exposure in the work place. Protect the health and safety of your employees and customers

  » Reduce the soft costs of managing mercury waste

  » Reduce your company's risk and liability

  » Improve your regulatory compliance

Kimley»Horn

Ch.
14

Facility and Equipment Protection Systems

Automated Pay Station Shelters

With the recent rapid growth of automated pay stations, shelter providers have begun developing special products to protect your investment and minimize repair expenses.

ex.

- These shelters are designed to increase equipment longevity by protecting them from rain and snow.
- Features include:
  - Translucent fiberglass roof
  - Tempered safety glass
  - Aluminum kick panels
  - Elevated wall panels to facilitate ventilation and drainage
  - Options to accommodate graphics and signage.

Collision Avoidance Alarms

Collision avoidance alarm systems help prevent costly repairs and injuries caused by collisions between oversized vehicles in parking garages and other facilities.

ex.

» When installed in front of (and slightly below) roll up doors and overhead objects, any contact with the Watchman triggers a 120db siren and flashing red lights, warning forklift drivers and warehouse management before a collision occurs.

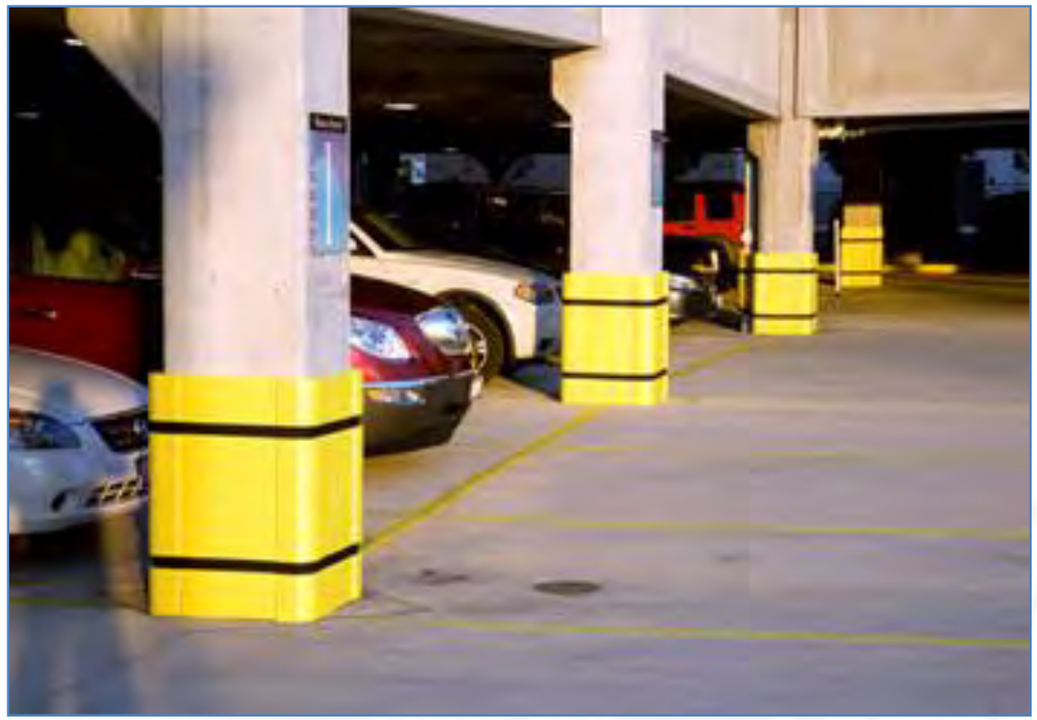
» In addition to overhead doors, the Watchman can be used to protect conveyor systems, canopies, walls, pipes, sprinklers, ducts and other overhead fixtures.

» The patented* Watchman can be purchased for a fraction of the average repair bill for a damaged overhead door, making it practical to equip your entire facility with this unique safety device.

» www.alvarado.com

Column & Vehicle Protection Systems

Products such as “Park Sentry” provide flexible and cost effective options to protect customer vehicles and concrete columns in parking structures.



ex.

- Protect square or rectangular concrete columns in parking garages without adding bulk to the column.
- Park Sentry creates a safe zone around the column, protecting both the column and vehicles from collision damage.
- It is scratch, abrasion and collision-resistant, and can be installed quickly without tools for immediate protection.
- www.sentrypro.com

Flex Posts

Flex post signs spring back to their original position after being hit. No sign, pavement or vehicle damage. No replacement required.

- Signs get hit.
- They bend. They break. They require replacement.
- They cost more than their purchase price.
- Their appearance impacts your professional image.

ex.

www.flexpost.net

Height Clearance

Parking structures have limited height restrictions. “Headache Bars” are the traditional solution. New electronic sensor systems detect over-height vehicles and activate flashing electronic signs to more effectively alert drivers.

- Electronic height detectors utilize an “electric eye” at a predefined height. If the sensor is tripped by an oversized vehicle a flashing over-height warning sign is activated.

ex.

PARKING | The Next Level

PARKING MANAGEMENT & DESIGN - **Best Practices**

Kimley»Horn

Ch.
15

Valet Parking Best Practices

Centralized Downtown Valet Parking Programs

Park your car at any location, pick it up at any number of other locations. This best practice encourages downtown patrons to walk, shop and explore.

Successful programs have several elements in common:

- A consolidated, single-operator parking management agreement.
- The operator is selected via a competitive process.
- A detailed management agreement specifies City approved terms and service criteria.
- Supported by a well-defined Valet Parking Ordinance.
- Has well-defined valet station and signage standards.
- Leverages state-of-the-art valet management technology

ex.

Centralized Downtown Valet Parking Programs

CASE STUDY:

Coral Gables, FL

Miracle Mile Shopping District

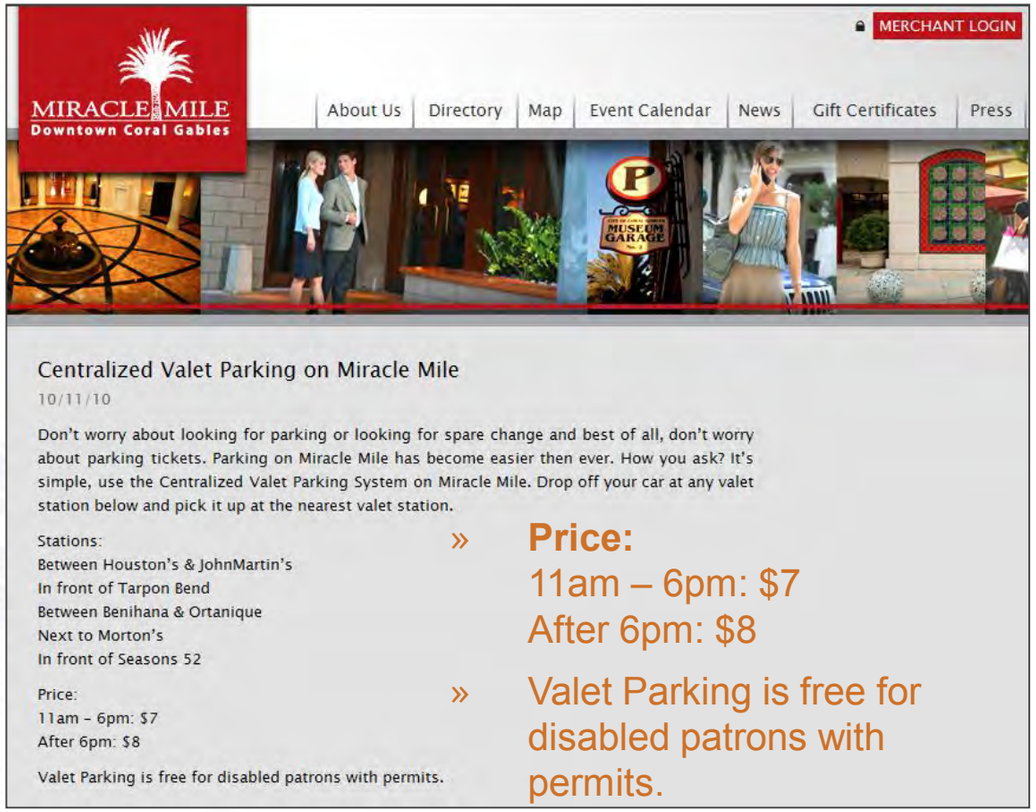
Webpage Introduction:

» Don't worry about looking for parking or looking for spare change and best of all, don't worry about parking tickets.

» Parking on Miracle Mile has become easier then ever. How you ask? It's simple, use the Centralized Valet Parking System on Miracle Mile. Drop off your car at any valet station below and pick it up at the nearest valet station.

ex.

» Valet Stations:
  - » Between Houston's & JohnMartin's
  - » In front of Tarpon Bend
  - » Between Benihana & Ortanique
  - » Next to Morton's
  - » In front of Seasons 52



» **Price:**
11am – 6pm: $7
After 6pm: $8

» Valet Parking is free for disabled patrons with permits.

Kimley»Horn

Valet Express Program

Call ahead service for Valet operations to reduce waiting times for vehicle retrieval.

» Preprinted cards handed out upon arrival with local phone number to call 10-minutes prior to departure.

ex.

Valet Express

Advanced Valet Parking Management Practices

Self-serve Request Kiosks

The most popular casino valet systems are equipped with **high definition digital camera lane technology**, VIP Request kiosks, valet management software and even a mobile PC interface to keep management informed – real time!

- Self-serve Request Kiosks allow departing customer to initiate their vehicle retrieval simply by scanning their bar coded valet parking ticket at the built-in reader.
- Customers may wait inside a climate controlled space in view of the staging area until their vehicle is retrieved

ex.

- A dial-up request module allows visitors to request vehicles by cell phone or text message.

Advanced Valet Parking Management Practices

HDIP Digital Camera Interface

One of the more popular system modules is the HDIP Digital Camera Interface. It provides the comfort of knowing whether or not an alleged damage liability was incurred while the vehicle was in your care.

» No more guess work, irate customers and time consuming case building. Here, a picture is worth a thousand words.

ex.

Advanced Valet Parking Management Practices

HDIP Digital Camera Interface

Wireless Mobile Technology has become another popular tool and can be very effective in the right application.

ex.

» Hardware options range from a compact blue-tooth wireless scanner designed primarily to ‘time-stamp’ newly issued tickets in the lane, to full featured mobile PPT’s with built-in license plate recognition.

Advanced Valet Parking Management Practices

Valet Parking Management iPhone App

The new **iValetParc.net** could be a game-changer. It is a powerful, visually appealing and user-friendly valet parking management application.

ex.

» In addition to its wireless mobility, it also features an intelligent data management solution called ICDataFlow™ and revolutionary new VisualValet™ concept (patent pending).

Ch.
16

Parking Facility Safety & Security

Passive Security Design Features

Investing in “passive security” features pays dividends in the long run.

ex.

- Passive security is defined as any device or technique not requiring a human response, such as lighting, fencing, glass-backed elevators and stairwells, etc.
- Passive security is more cost effective, and if done well, contributes to a patron’s feeling of safety and comfort within a facility.

Parking Safety Escorts

Parking escorts for employees and downtown patrons is a much valued service in many communities.

ex.

- These programs are often done in collaboration with a Business Improvement District, a large downtown employer or with a consortium of downtown restaurants.
- In some cases, off-duty police are engaged to provide this service.

156

Secure Parking Deck Stairwells!

Eliminate potential “hiding places”.

Secure areas below stairwells for safety and to create additional secure storage area.

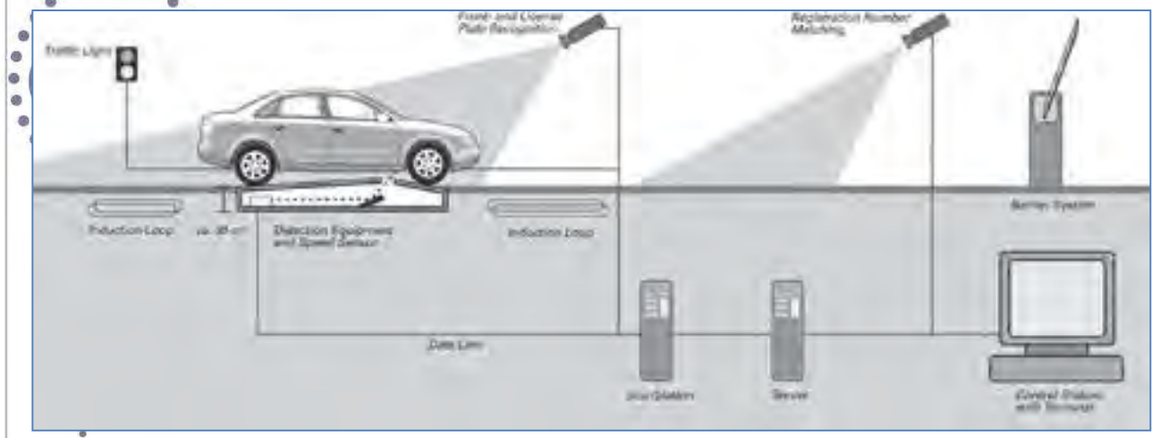
- Wire Mesh Protection Door with automatic closure and lock will limit access to roofs, basements and behind stairwells.
- It eliminates possible hiding areas and improves parking facility security.
- It also creates additional on-site secured storage areas.

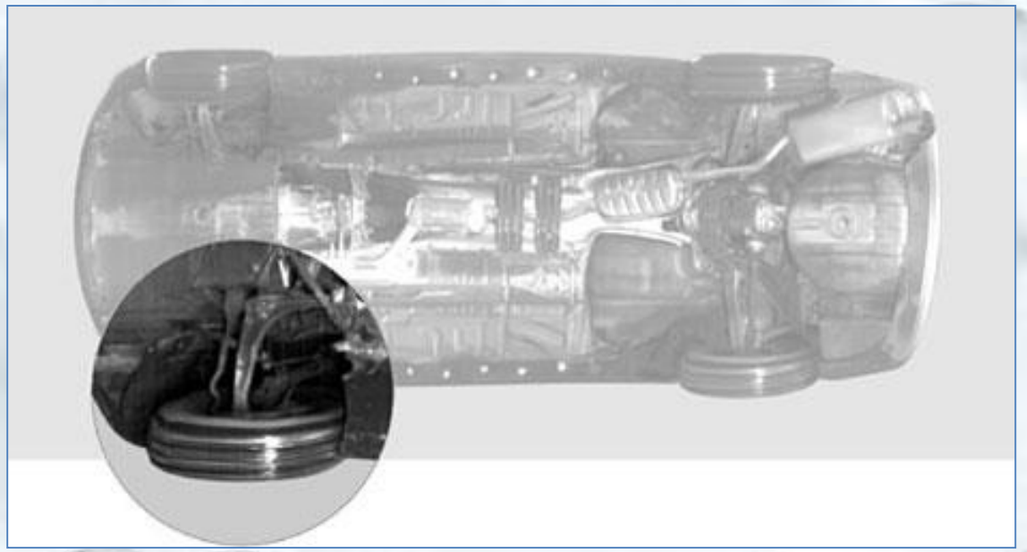
ex.

Under Vehicle Monitoring Systems

In today's ever changing world, Security is on the minds of Industry Professionals.

In response to the security challenges in the parking environment, under vehicle monitoring systems are a new option to consider.





» BENEFITS

- Highly mobile for temporary applications with speeds up to 35 mph
- High resolution imagery with tremendous "zoom" capabilities
- Automated license plate capture with underside vehicle "matching"
- Extensive statistical analysis on collected vehicle data.

158

Kimley»Horn

Ch.
17

Risk Reduction and Liability Limitation

Parking Lot Safety Products

1 in 5 accidents occur in parking lots!

» One way to defend against this is to provide devices help to enforce safer driving behavior, ensuring pedestrians and drivers are protected from the dangers often found in these areas.

» By using recycled materials, we can contribute to our program sustainability goals and enhance the longevity of these products.

ex.

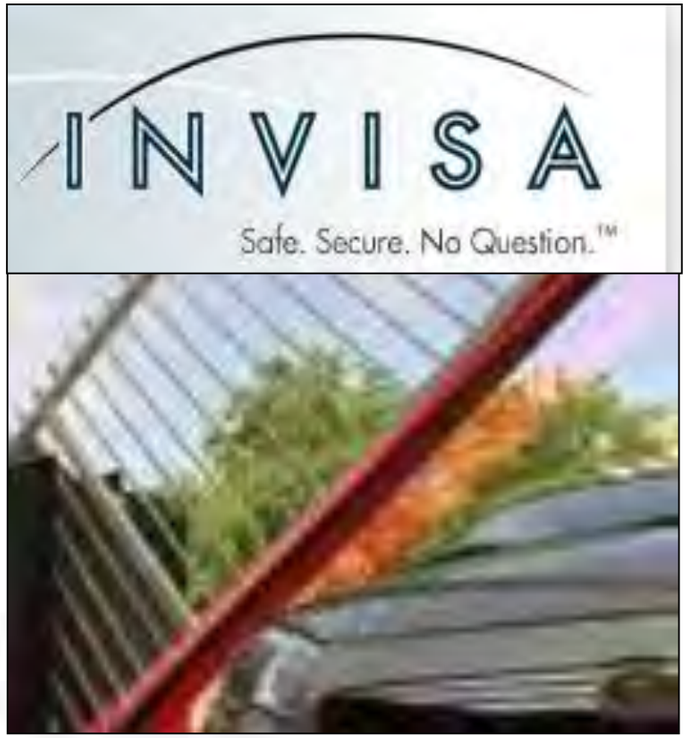
» PARK –IT CAR STOPS

- Year Installed: 1998
- Year Photo Was Taken: August 2008
- Installation Location: Owensboro, KY
  - This is a photo of the Park-It Car Stops installed at a beauty salon in Owensboro, KY in 1998. Used to help guide vehicles when pulling into a parking stall, this installation was done on asphalt using rebar spikes and is 11 years old!

Smart Gates

"Smart Gate Technology" incorporates non-contact safety sensors for parking barrier gates.

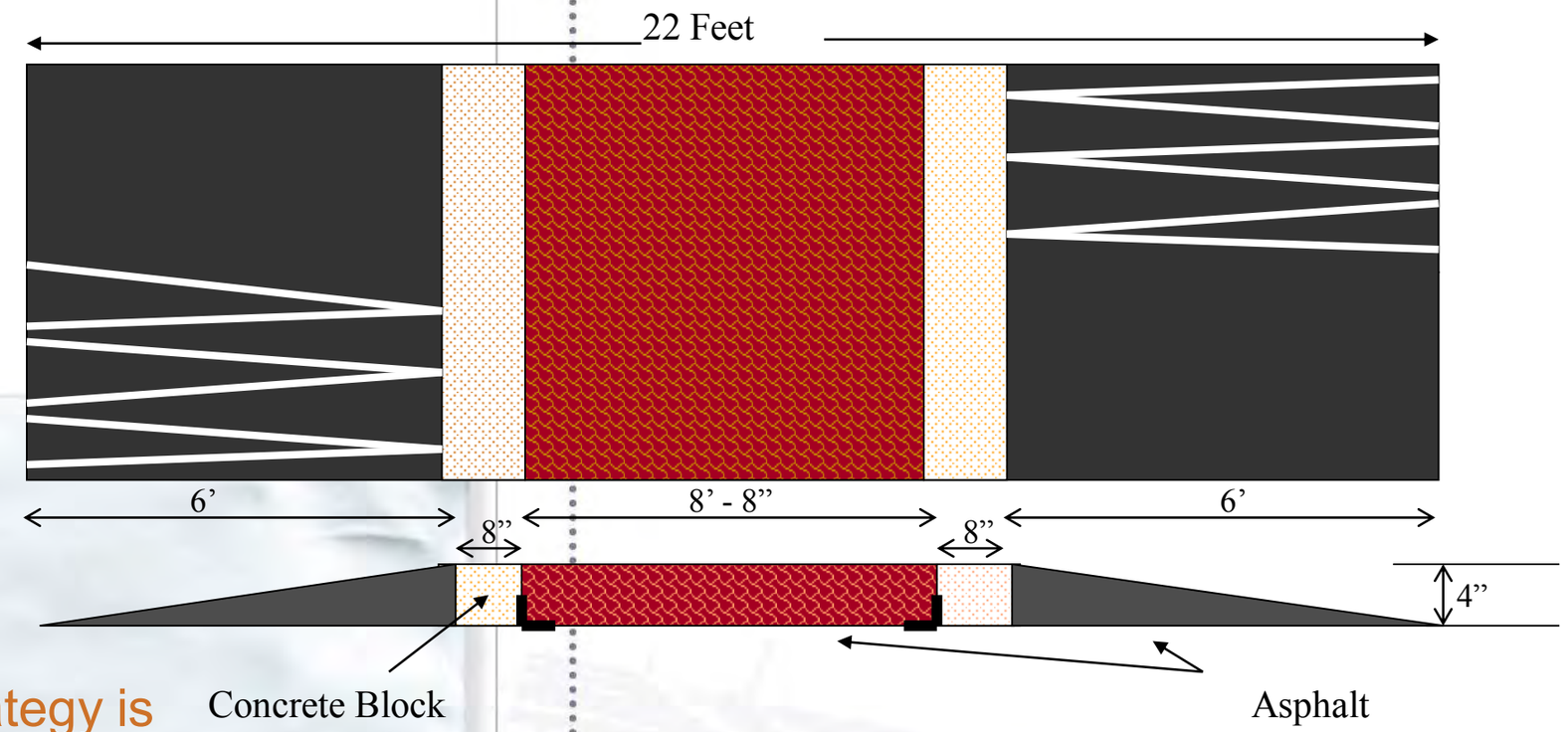
ex.



- This technology places protection in front of moving doors or gates by providing a non-contact safety field that moves with and precedes a gate arm or door to sense potential contact before it happens and prevent it.
- This technology can reduce damage claims due to alleged gate malfunctions.

Traffic Calming (Raised Crosswalk/Speedhump)

Raised crosswalks or “speedhumps” can enhance pedestrian safety in pedestrian/vehicular conflict areas.



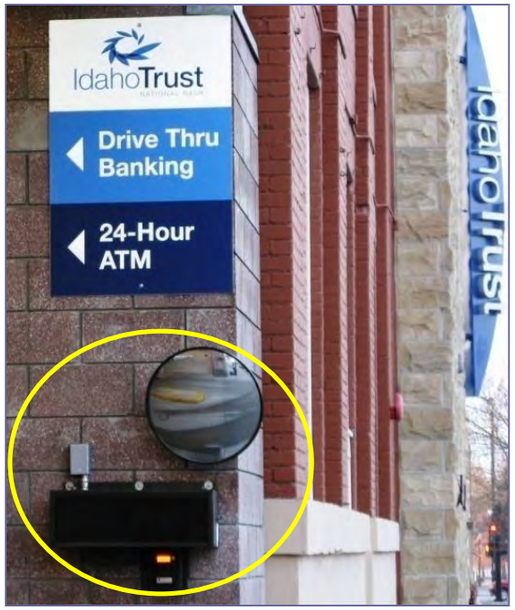
- This traffic calming strategy is primarily used in residential areas.
- One key to a successful “speedhump” is a large enough “table” for a full-size vehicle to fit on to reduce excessive vehicle bouncing.

Pedestrian Safety Options

Flashing Signs with audible signals activated by exit lane loop detectors alert pedestrians on the sidewalks approaching parking garage portals of on-coming vehicular traffic.

» Other pedestrian safety elements include signage and convex mirrors.

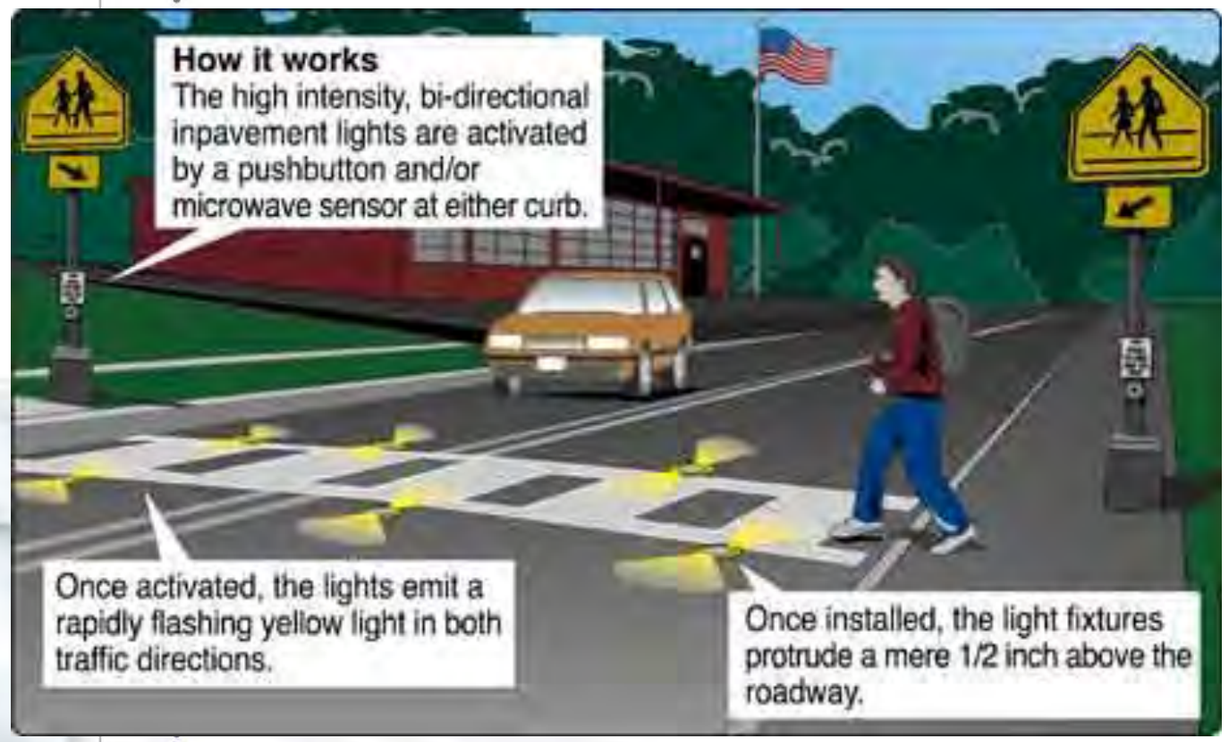
ex.



Pedestrian Safety

Lighted crosswalks activated by push button or microwave sensor enhances pedestrian safety.

ex.



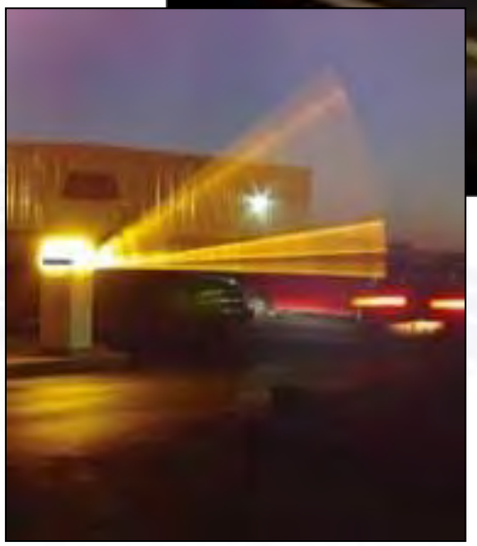
164

Illuminated Gate Arms

Designed to provide exceptional visibility, particularly between dusk and dawn.

» Illuminated gate arms are a new feature, which offers safety advantages especially in areas with high pedestrian activity.

ex.



Hi Def Digital Camera Modules

The idea of documenting the physical condition of a vehicle in order to ascertain the origin of damage liability has become a valet industry best practice.

» However, the use of new High Definition IP Digital Camera Modules has taken this standard to the next level.

» In this case, a picture really is worth a thousand words!

ex.

FEATURES & BENEFITS

50% - 80% Claims Reduction

Pre-Existing Damage Assessment

Positive Valet Driver Identification

Missing Key Prevention

Instant Picture Recall

Search By Date/Time/Make/Plate/Name

Complete Case Report Generator

Indefinite Vehicle Data Storage

License Plate Recognition

Vehicle History File

Visual History File

Visual Screen Tools (Move, Capture, Zoom)

High Zoom Capabilities Without Pixelation

Mpeg Vehicle Scan Option

STS service tracking systems.net

PARKING | The Next Level

PARKING MANAGEMENT & DESIGN - **Best Practices**

Kimley»Horn

Ch.
18

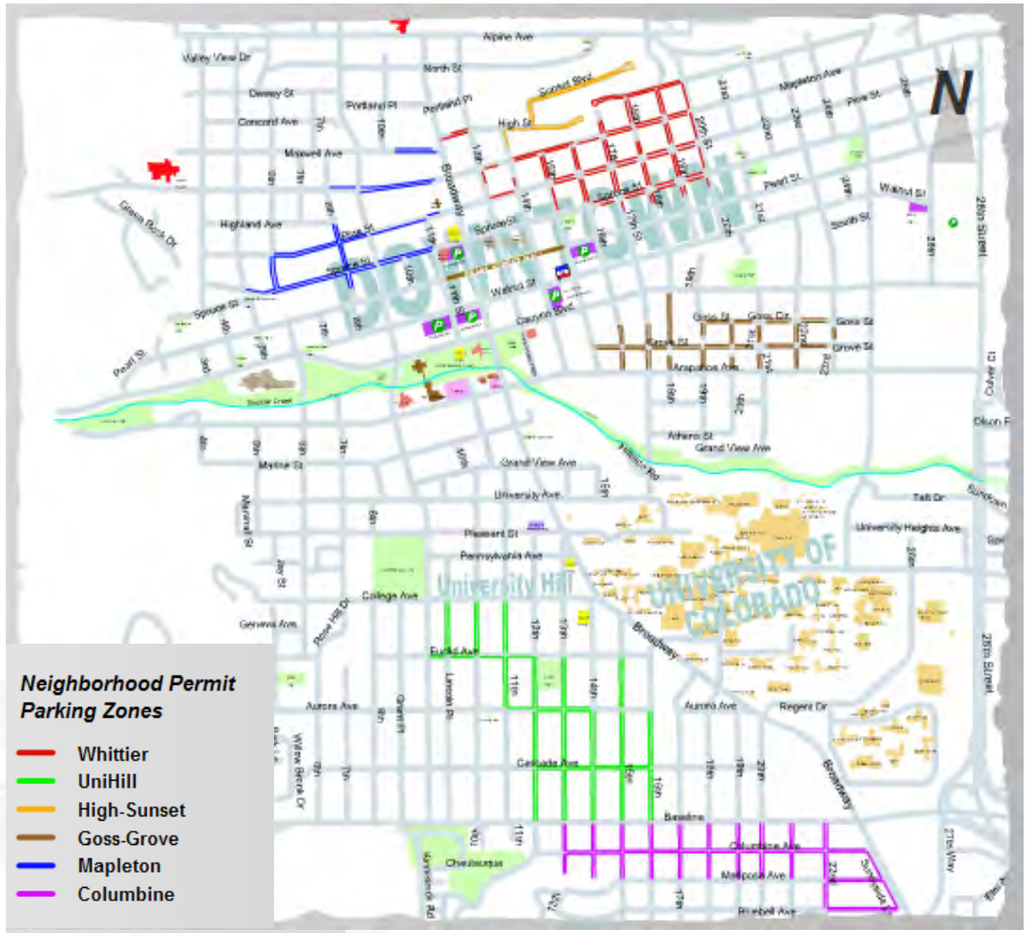
Residential Parking Permit Programs

Neighborhood Parking Permit Programs

A Neighborhood Permit Parking zone is a residential area where on street parking is restricted. NPP programs are developed as a tool to balance the needs of all who park on our streets, including residents, visitors and commuters.

- To be considered for an NPP zone, neighborhood residents assess their parking needs by working with the City to determine the feasibility of a potential parking permit zone.
- After at least 25 neighbors have applied by petition, the City initiates a multi-step process for development and approval of a new zone.

ex.



Boulder, CO

Kimley»Horn

Ch.
19

Staff Development and Training

Library of Parking Reference Materials

Create a library of parking reference materials for staff training and development.

Recommended Parking Planning and Management Resource Library

The following is a basic bibliography of good parking planning, general management and marketing texts that can increase your staff's knowledge:

Parking Planning

i. Parking 101, A Parking Primer – International Parking Institute Fredericksburg, VA, 2002

ii. Parking 102, Parking Management ~ The Next Level – International Parking Institute Fredericksburg, VA, 2004

iii. Parking 103, Parking Management - Planning, Design & Operations – International Parking Institute Fredericksburg, VA, 2004

iv. Parking - Robert A. Weant and Herbert S. Levinson, Copyright - Eno Foundation for Transportation, Washington, DC, 19

v. Parking Structures, Planning Design, Chrest, Mary S. Smith, Sam Bhuyan, 2001

vi. The Dimensions of Parking - Various National Parking Association, Fourth

vii. Parking Generation – Institute of Tra Washington, DC, 1987

viii. The Parking Handbook for Small Co Institute of Transportation Engineers,

ix. Shared Parking Second Edition – Stu Institute. Mary S. Smith. Washington.

x Lighting for Parking Facilities – Illumi Publ. No. RP-20-98, 2nd Edition, New

xi. Recommended Guidelines for Parki Parking Association, Publication No.

xii. Implementing Effective Travel Dema of Transportation Engineers, ITE Publ

Kimley-Horn and Associates, Inc.

xiii. Architectural Graphic Standards – American Institute of Architects, ISBN: 0471382876, Wiley, John & Sons, Incorporated, Illustrated, 2000

xiv. The High Cost of Free Parking – Donald Shoup, American Planning Association, Planners Press, Chicago, ISBN: 1-884829-98-8, 2005

General Management

xv. The Portable MBA – Eliza G.C. Collins, Mary Anne Devanna, John Wiley & Sons, New York, NY, 1990, ISBN: 0-471-61997-3

xvi. Good to Great – Jim Collins, Harper Business, New York, NY, ISBN: 0-06-662099-6, 2001

xvii. The Five Dysfunctions of a Team – Patrick Lencioni, Jossey-Bass, San Francisco, ISBN: 0-7879-6075-6, 2002

xviii. QBQ – "The Question Behind the Question" and Flipping the Switch – John G. Miller, The Penguin Group, New York, NY, ISBN: 0-399-15295-4

xix. The 4-Dimensional Manager – Jukie Straw, Berrett-Koehler Publishers, Inc., San Francisco, ISBN: 1-57675-135-X

Downtown Management

xx. Making Business Districts Work – David Feehan, MSW, Marvin D. Feit, PhD, The Haworth Press, Inc., Birmingham, NY, ISBN 0-7890-2390-3

Economic Development

xxi. Economic Development in Local Government – Roger L. Kemp, McFarland and Company Publishers, Jefferson, NC, 1995, ISBN: 0-7864-0095-1

Marketing

xxii. Guerrilla Marketing – Jay Conrad Levinson, Houghton Mifflin, Company, Boston, 1993, ISBN: 0-395-64496-8

xxiii. Waiting for Your Cat to Bark – "Persuading Customers When They Ignore Marketing" – Bryan & Jeffrey Eisenberg, Nelson Business, Nashville, TN, ISBN: 0-7852-1897-1

Kimley-Horn and Associates, Inc.

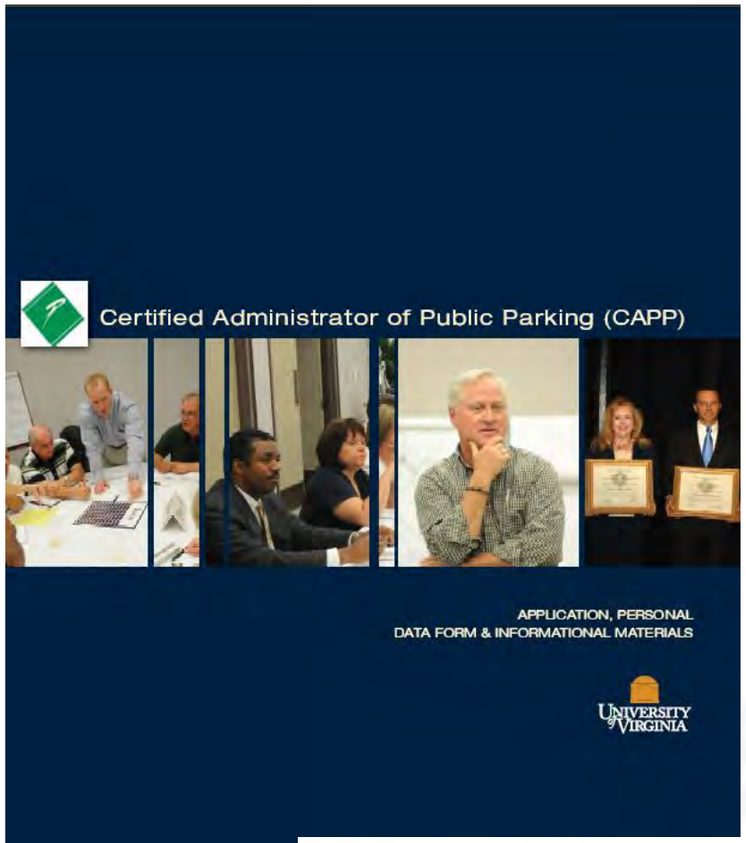
2 | Page

ex.

- Slowly the parking industry is beginning to build up a good selection of text books in a variety of areas.
- Both the IPI and the NPA have some excellent publications on parking design, maintenance and management.
- Other groups such as the Urban Land Institute, the American Planning Association, the Eno Foundation, the International Downtown Association and the Transportation Research Board also have a variety of parking and transportation offerings.

Certified Administrator of Public Parking

The Certified Administrator of Public Parking program offered by the International Parking Institute is the most respected certification program in the parking industry.



"The CAPP Program is an outstanding program that is far superior to any other educational program in the industry."
-Greg Stormberg, CAPP, CPP

ex.

» **Why CAPP Certification?**

Parking and transportation services have become a major element affecting the lives and activities of millions of citizens in the United States, Canada and around the world. As an industry, parking now accounts for billions of dollars and more than a million jobs each year, and as a profession, it is now a serious career choice. As such, it demands continuous information and specialized training.

The International Parking Institute, and the University of Virginia, have combined their resources to create a rigorous program of professional training and examination culminating in the awarding of the designation, Certified Administration of Public Parking (CAPP).

PARKING | The Next Level

PARKING MANAGEMENT & DESIGN - **Best Practices**

Kimley»Horn

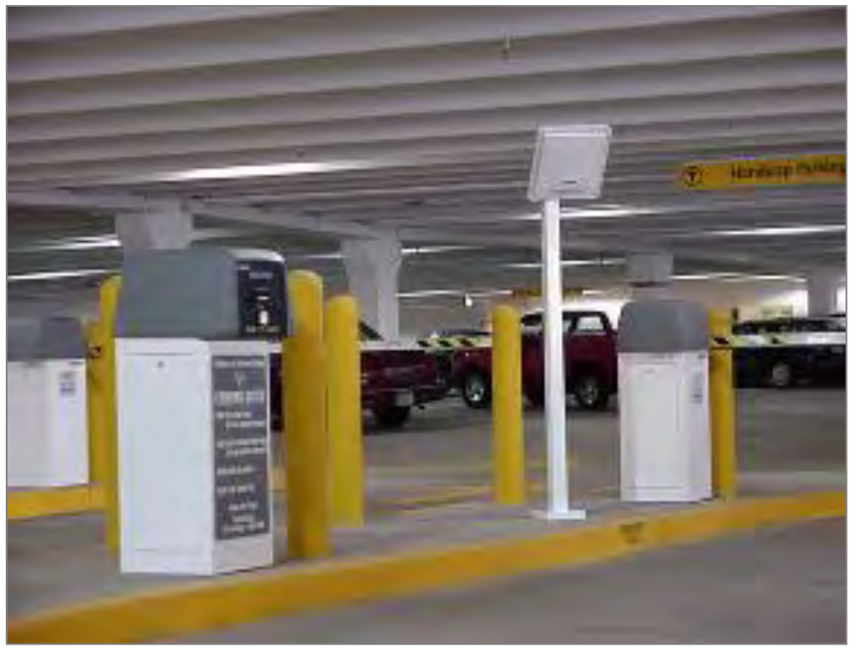
Ch.
20

Parking Access & Revenue Control Systems

Hands Free Access

Automatic Vehicle Identification (AVI) systems provide a more customer friendly system while improving security (no stopping, no rolling down windows and enhances driver safety by keeping their hand on the wheel and eyes on the road.) It also increases vehicle through-put during peak demand periods.

ex.

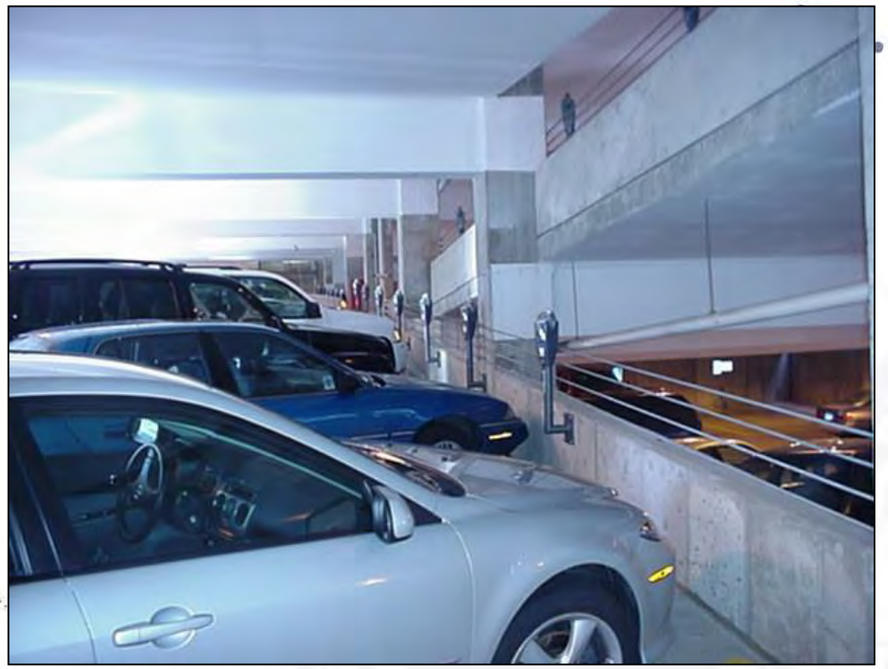


- » Radio signal from reader activates tag
- » Transponder reflects data
- » Reader processes data and
  a. Opens gate if valid
  b. Sends data to host CPU
- » Host processes data, and records transaction

Metered Transient Parking

For situations where there are only a limited number of transient spaces within a facility, controlling/charging for those spaces with meters can be a cost effective alternative to traditional exit cashiering.

ex.

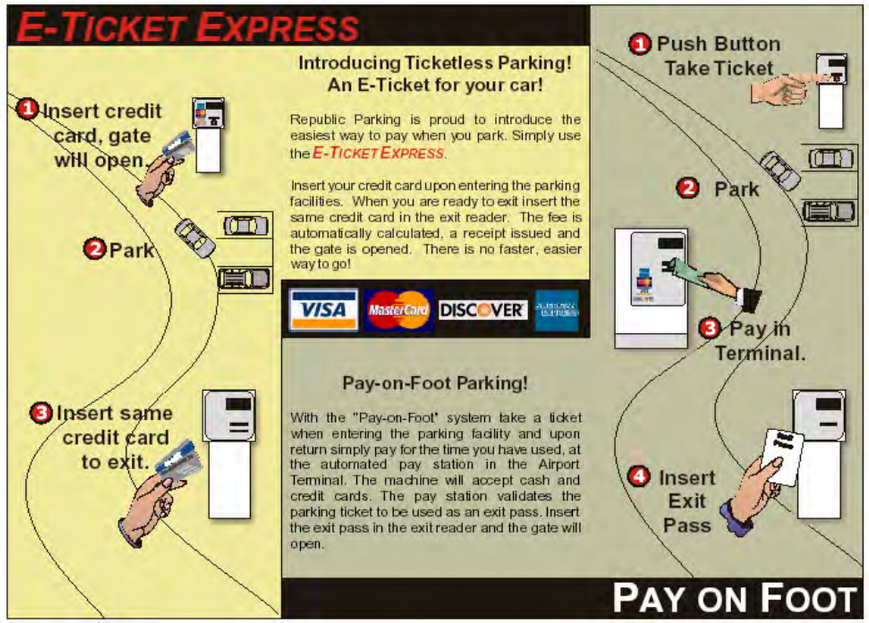


- In the facility to the right there were just over a hundred transient spaces available, the rest were reserved for monthly parkers. The revenue stream from the transient spaces would not have justified two shifts of exit cashiers, plus supervision, fee computers, booths and other capital items.
- Note that there are still staffing costs with this option as the meters need to be enforced.

Ticketless Parking

Ticketless parking provides several advantages to customers and parking systems – This strategy is also known as Credit Card In/Out. It can work in conjunction with other systems, such as pay-on-foot.

ex.



- This operational model offers customers the benefits of quick in and out and easy payment.
- The operational benefits are that it is attendantless, and therefore lowers operating costs and it is cashless, thereby reducing the potential for theft.
- The reduction in operating costs more than makes up for the minimal credit card fees.

PARKING | The Next Level

PARKING MANAGEMENT & DESIGN - **Best Practices**

Kimley»Horn

Ch.
21

Parking Accounting and Auditing

Patron Fee Displays

While not new, patron fee displays remain an important customer service and revenue control feature in a cashiered facility.

It is important in locating the fee display that the cashiers cannot conceal the display, a factor that is often overlooked.

ex.

» BENEFITS

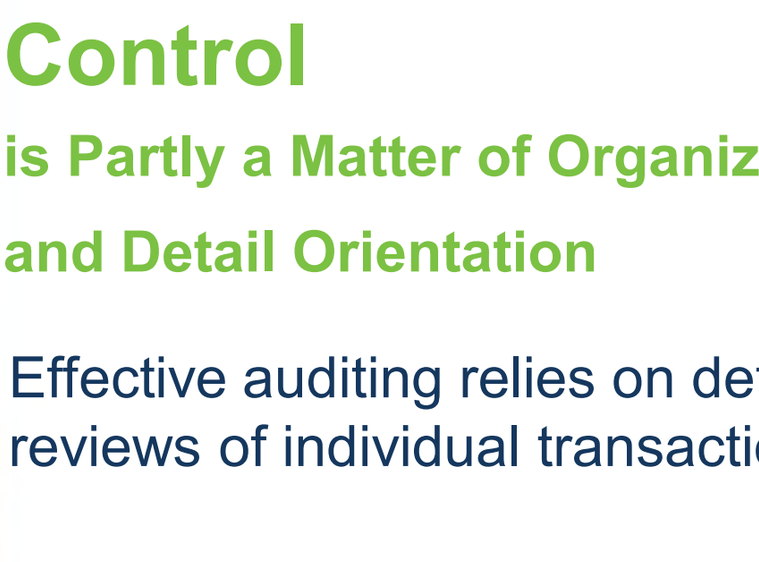
- An important revenue control feature
- Large, easy to read displays
- Custom messaging possible

Successful Revenue Control

is Partly a Matter of Organization and Detail Orientation

Effective auditing relies on detailed reviews of individual transactions.

ex.



- A systems based approach to auditing leads to program success and a culture of accountability.
- Increasingly, these processes are becoming more computerized, relying on programming audits and video license plate audits, etc.

Securing Access Control Equipment

Your parking equipment can be secured with electronic access controls without the need for on-site power. These controls can be installed in virtually any parking equipment, anywhere enhancing system security and providing improved audit capabilities.

ex.


PARK-ASSURE

Electronic access control for your parking equipment without the need for on-site power

Can be installed in virtually any parking equipment, anywhere

Benefits

- Know and control who accesses or tries to access your equipment
- Know how much cash was removed, by who and when
- Easy online management, including reports
- Minimize shrinkage
- Eliminate the problem of lost or stolen keys
- Minimize vandalism of locks
- Compelling ROI- typically 30%+

How It Works

- We replace your mechanical locks and keys with our electronic locks and battery powered keys- the locks are powered by our keys
- We set up a secure online account, just for you
- Using your online account, you establish who can access what equipment when
- Our locks can only be opened by the keys you authorized at the times you authorized
- You can get an email or SMS alert whenever an unauthorized access has been attempted
- You can use your account anytime to see who has accessed what when, change access rights or generate reports

Tel (805) 962.2700 • Fax (805) 962.2712 • www.ez-assure.com • sales@ez-assure.com

- BENEFITS;
  - Know and control who accesses or tries to access your equipment
    - Know how much cash was removed, by who and when
    - Easy online management, including reports
    - Minimize shrinkage
    - Eliminate the problem of lost or stolen keys
    - Minimize vandalism of locks
    - Compelling ROI- typically 30%+

Kimley»Horn

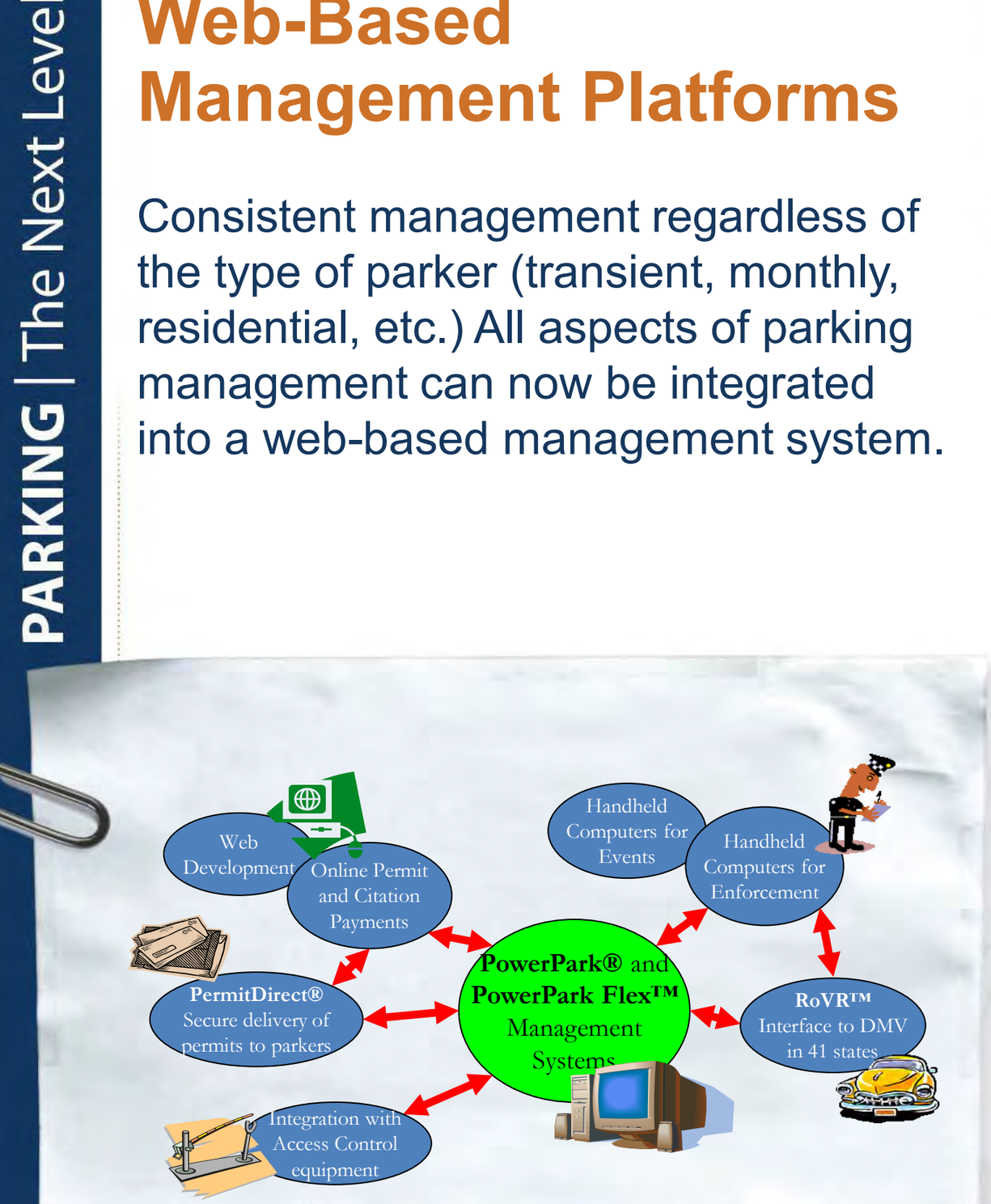
Kimley»Horn

Ch.
22

Leveraging New Technologies

Web-Based Management Platforms

Consistent management regardless of the type of parker (transient, monthly, residential, etc.) All aspects of parking management can now be integrated into a web-based management system.



ex.

» Management information at a glance: vehicles, citations, names, addresses, etc. on a single, clean, easy-to-read page.

» Open architecture allows sales/payment from anywhere.

Video Based Car Counting Systems

At SeaTac international Airport, just after the Daily Parking entrances, drivers see an electronic sign that tells them how many spaces are available on each floor.

Once you get to a floor, a sign will tell you how many spaces are open to the left or right.

Within each floor, more signs will tell you how many spaces are available in each four-row section.

ex.

» BENEFITS

- Reduced customer complaints
- Highly improved count accuracy
- Significant reduction in greenhouse gas emissions
- Extensive statistical analysis on collected vehicle data

Car Counting

Video Based Car Counting Systems

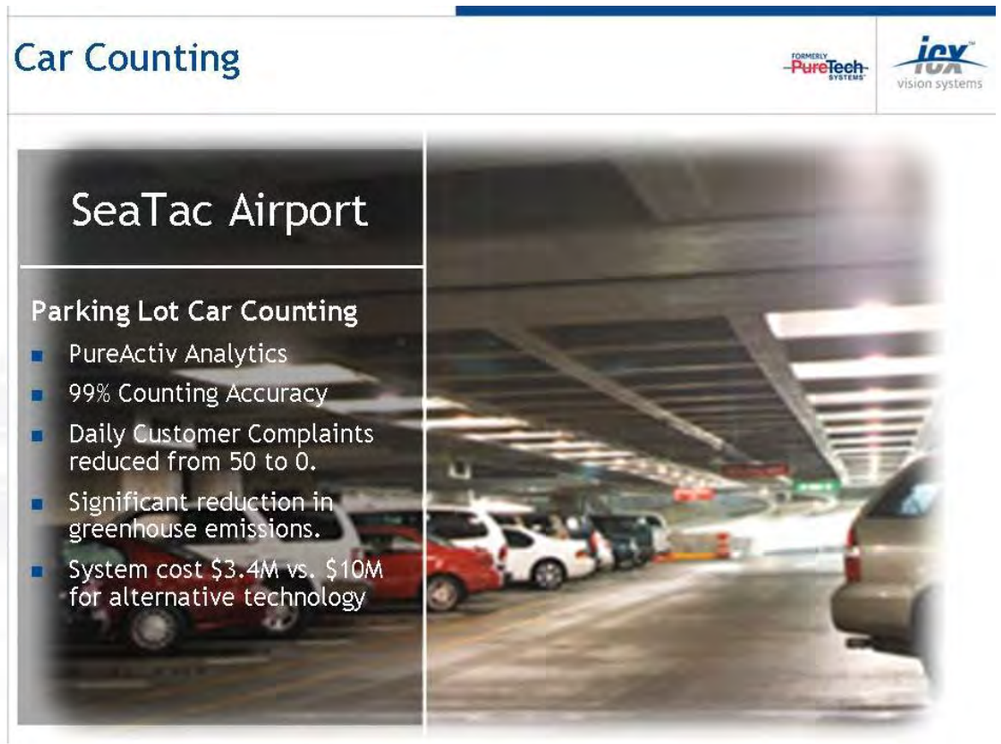
Utilizing video analytics as a vehicle count mechanism provides more data than simple loop detectors or other sensors. This new application has great potential going forward.

- Just after the Daily Parking entrances, drivers see an electronic sign that tells them how many spaces are available on each floor.
- Once you get to a floor, a sign will tell you how many spaces are open to the left or right.
- Finally, once you get an a floor, more signs will tell you how many spaces are available within each four-row section.

ex.

» BENEFITS

- Reduced customer complaints
- Highly improved count accuracy
- Significant reduction in greenhouse gas emissions
- Extensive statistical analysis on collected vehicle data



Parking Management Control Centers

As parking management programs get larger and more complex, communications, security and active systems monitoring becomes more important.

Many of the more sophisticated programs have created central dispatch and systems monitoring “control centers”.

ex.

PARKING | The Next Level

PARKING MANAGEMENT & DESIGN - **Best Practices**

Kimley»Horn

Ch.
23

Signage and Wayfinding

Don’t Forget Your Manners?

Someone once said, “everything we really need to know, we learned in Kindergarten”

» Remember to welcome your guests and to always say “thank you”!

ex.

When It Comes to Signage, Less is Often More!

Contrast the two approaches below:

ex.

PICTOFORM

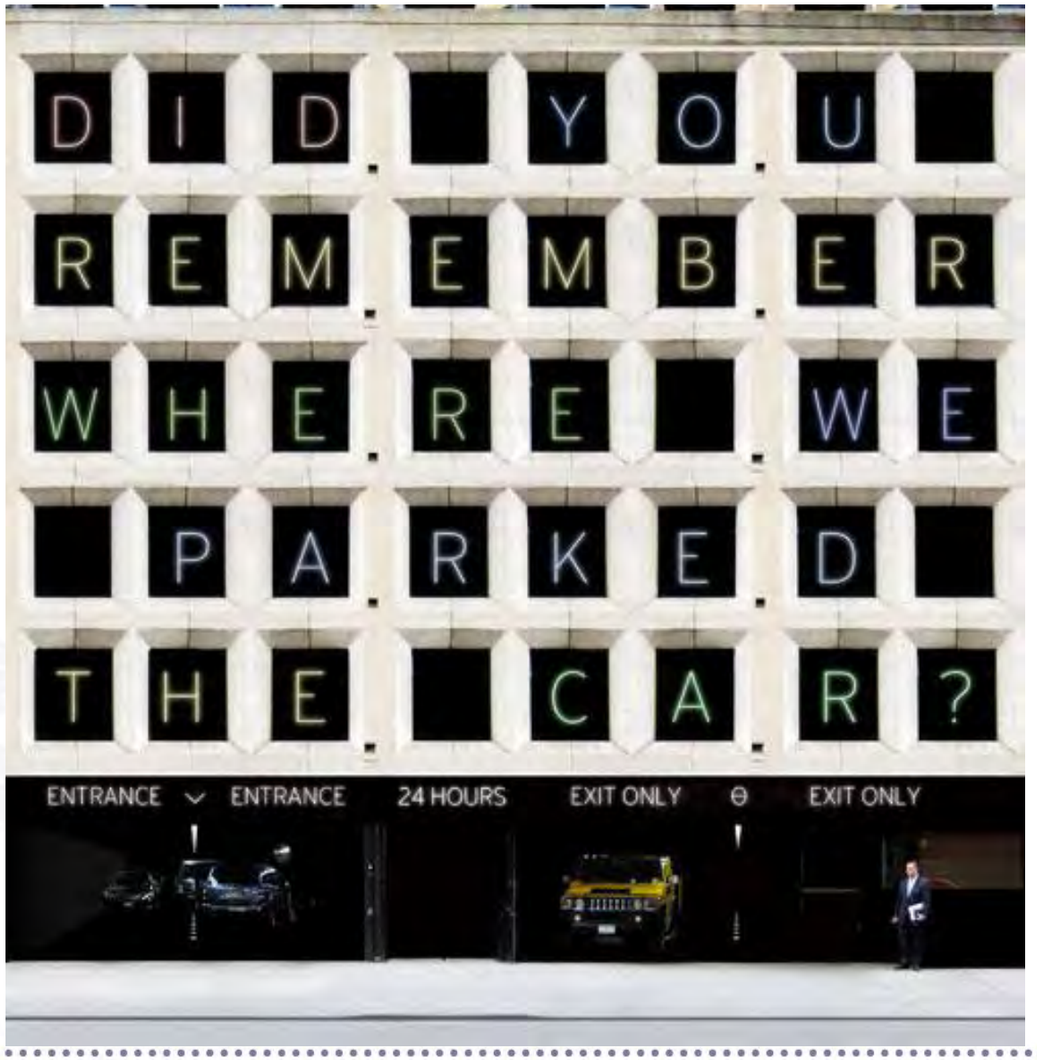
Kimley»Horn

Where Did I Park?

Finding your car in a large parking facility is a common problem.

Signage and wayfinding are important, but for those that don't read signs, here's an App for you!

ex.



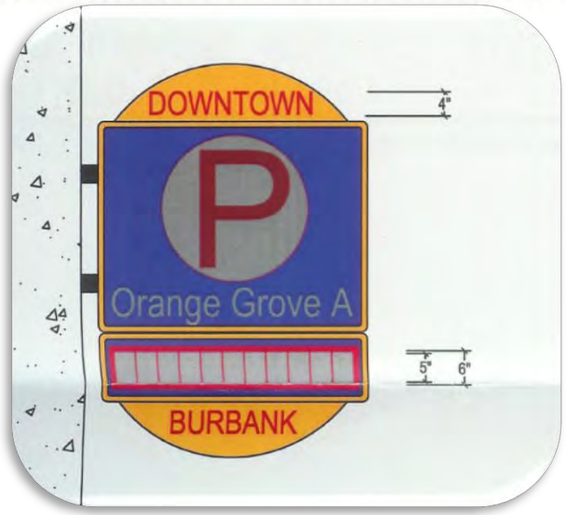
Kimley»Horn

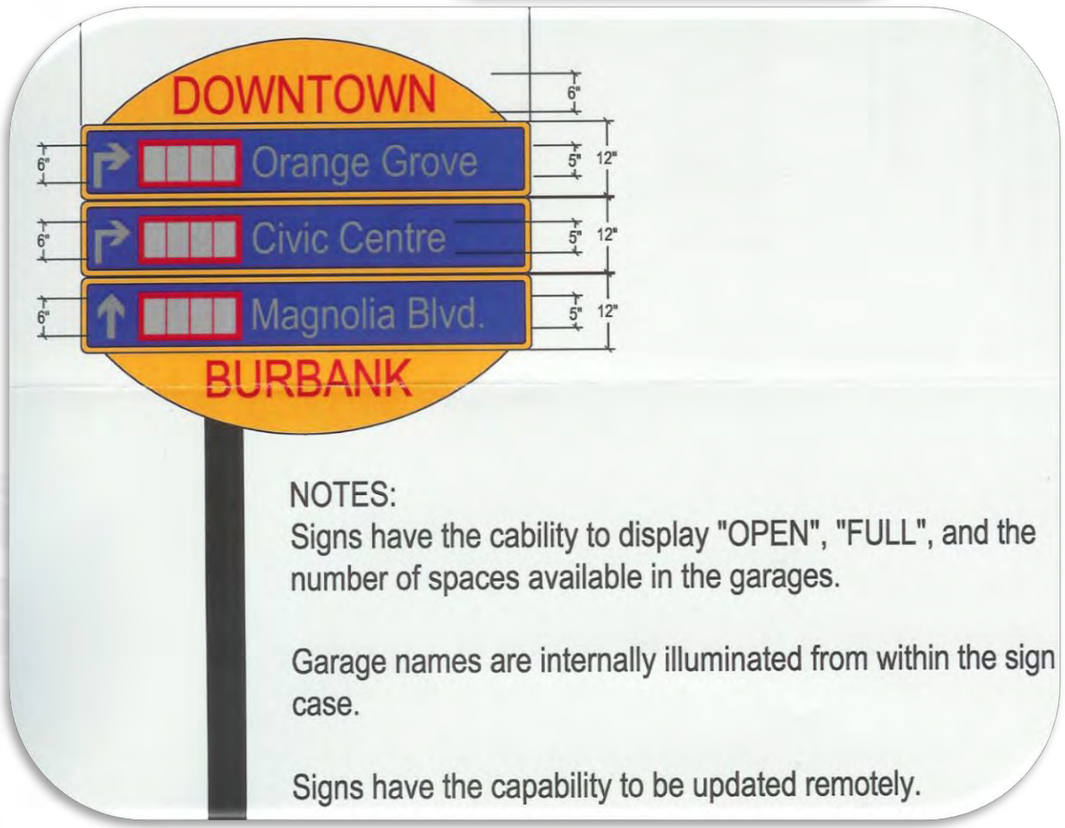
Parking Guidance Systems

The downtown wayfinding and signage program in Burbank, CA are designed to read by motorists. Font sizes are calculated to be read based on driving speeds.

- The variable message signs are internally illuminated for high visibility at nights.
- Burbank chose to only display “open” and “full” messages instead of specific space availability numbers.
- They also have the capability of being updated from remote locations.

ex.



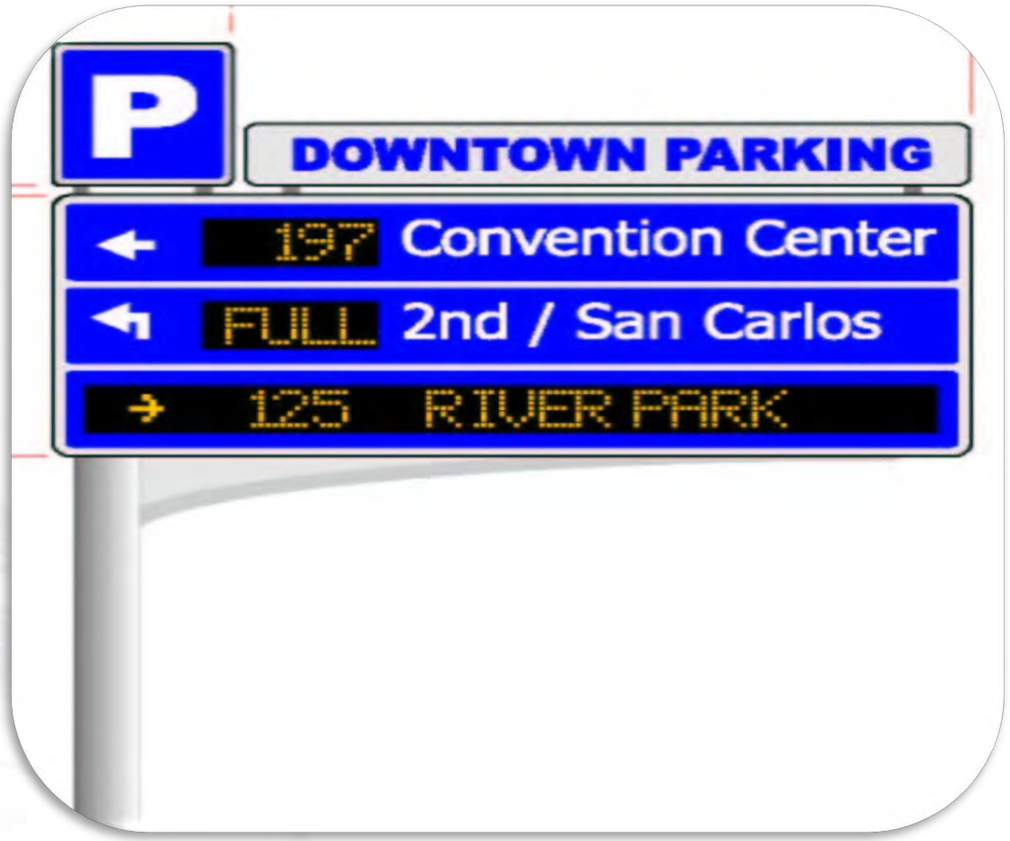


Parking Guidance Systems

The downtown wayfinding and signage program in San Jose uses a combination of static elements with variable message components to display space availability.

» The signs also provide full panel variable message components to accommodate new destinations or special functions that may only occur on an occasional basis.

ex.



Integrating with Downtown Wayfinding

The downtown wayfinding and signage program in Tucson, AZ is organized by downtown districts.

Each district has it own unique icon, colors and graphics.

- Downtown merchants and related agencies were given a “graphics CD” so that they could integrate the wayfinding graphics into their marketing and advertising.
- This approach helps keep the graphic colors, fonts, icons, etc. consistent.

ex.

Integrating with Downtown Wayfinding

The downtown wayfinding and signage program in Fort Wayne, IN is organized by downtown districts and then by major activity centers/destinations.

ex.

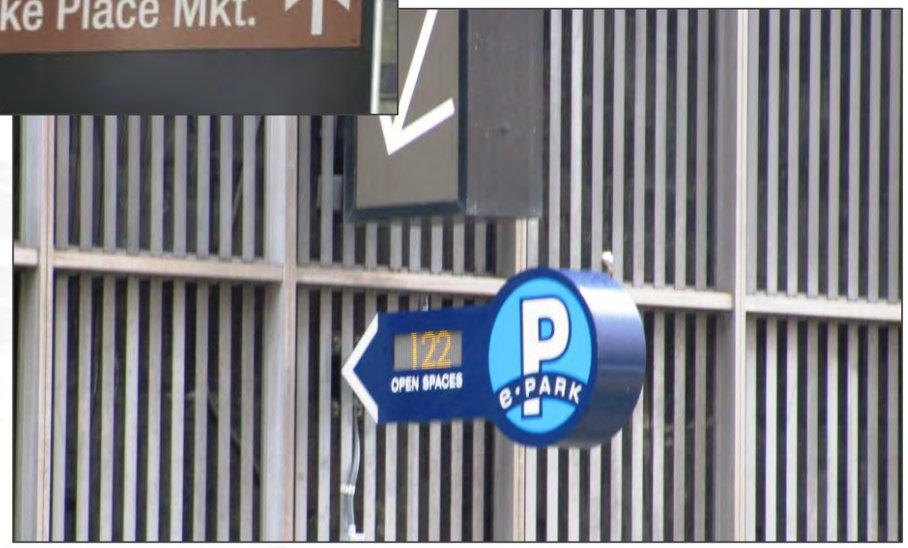
- Parking is addressed by a Green P with directional arrows that can be applied to specific destinations of district identifiers.
- This approach keeps the primary intent of the signage focused on primary destinations and allows for flexibility as parking options are added or change over time.

Parking Spaces Available Signage

Seattle's new "E-Park" program provides wayfinding and space availability information for a combined system of public and private short-term parking options in the downtown area.

The signage is a combination of static and variable message signs.

ex.



Super Graphics

Using “Super Graphics” to indicate garage level, elevator and stair locations, etc. is a fairly common, but very effective best practice.

» Using these graphics to orient parkers to surrounding streets is another recommended practice.

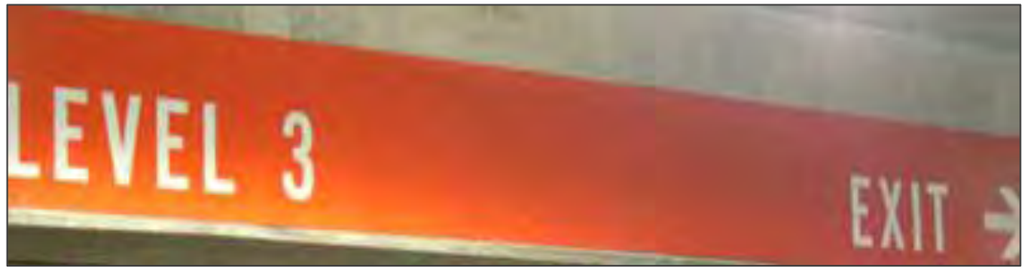
ex.

Color Banding and Consistency

Combining crisp, clean graphics, bright colors and ***"color bands"*** to indicate garage level, elevator and stair locations, is another effective best practice.

- » Color banding can tie sometimes confusing three dimensional environments together graphically.
- » They can more exactly differentiate where on level stops and another begins.
- » They can also "lead" patrons directly to destinations such as elevators.

ex.



Garage Signage Principle # 1: I am parked on_____.

Fundamental parking signage principle # 1 is simple: When you step out of your vehicle in any space, You should be able to look around and be able to identify where you are parked (i.e., Level 4, Row A).

- This applies to parking lots as well as garages.
- The more creative and memorable the signage clues provided, the better.

ex.

2 Dimensional Art – 3-D Effects

Parking garages have many large blank walls.

Consider this your “Canvas” for creating new and dramatic focal points using 2-Dimensional painted images with 3-D impacts.

ex.

Before:

After:

Before:

After:

Kimley»Horn

Effective Use of Symbols and Pictograms

From the basic “Parking P Symbol” to international symbols to the creation of new pictograms to keep up with evolving technologies, graphics symbols have become an important part of how we communicate.

ex.

Reflective Text

The use of reflective lettering materials on internal parking directional signage improves readability, especially in below grade facilities.

ex.

Parking Signage

Can’t get anyone to take your “No Parking” signage seriously?

Try a modest exaggeration.

ex.

» This sign caught my attention? (And no, I didn’t park there.)

Well Designed Parking Signage and Graphics

Good design matters! What more is there to say?

Quality design and graphics speak for themselves and reflect positively on the program that made such a wise investment.

PICTOFORM

ex.

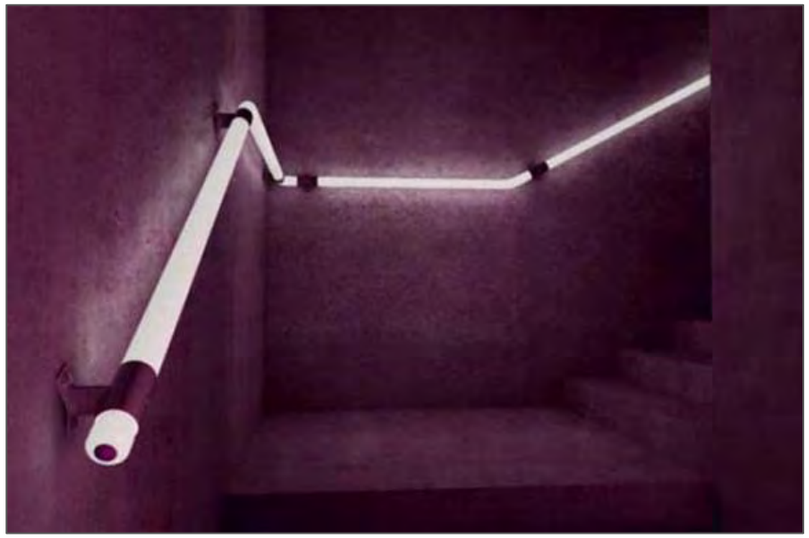
Kimley»Horn

Ch.
24

Enhancing the “Parking Experience”

Unique Touches!

Reminiscent of Luke Stairwalker, I mean Skywalker, here's a futuristic staircase handrail for the Jedi Master in all of us.



ex.

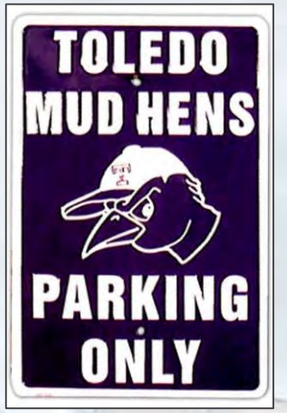
- The super cool LED-lit handrail by Croatia-based Zoran Sunjic is **perfect** for modern homes, restaurants and hot night clubs – even parking garages!
- Multifunctional, the rail lights the way, makes the passage safe, and adds a touch of fantasy.
- You can even color code to match your floors (OK, maybe not.)

Special Touches!

Understanding the needs of your customers and implementing services to meet their special needs is always a winning strategy.

ex.

- Reserving convenient spaces for specialty groups can help promote customer loyalty and appreciation.
- Its all about knowing your clientele!



Green It Up!

Add a planter or two. It's amazing the difference adding plants can make in the look and feel of a parking structure, especially around elevator lobbies and entry/exit plazas.

Green the whole roof if you really want to make an impact!

ex.

- At the Queensway Garage in Long Beach, planters are located at both entrance and exit plazas improving the look and feel of the parking environment. (Top left)
- Attention to little details at a City Parking Garage in Ottawa. (Top)
- If you do add significant landscaping above parking, be sure to hire a parking consultant to engineer it properly!

Add Color

The use of color is a tried and true mechanism for brightening up drab concrete structures and aiding in wayfinding.

ex.

» In this example, the colors are associated with different vertical elements and where they lead.

206

Customer Amenities

Customer amenities in a parking structure can include a variety of offerings including drink machines, water fountains, snack machines, etc.

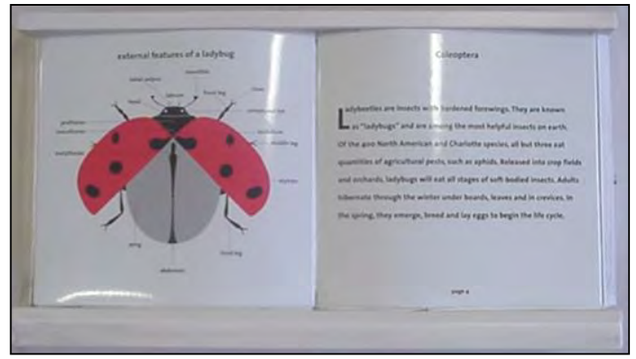
ex.

» It can also include special services such as dry cleaning drop-off, auto washing and detailing services, state vehicle inspection services, loaner “audio books”, etc.

Brighten it Up! Creative Level Theming and Wayfinding

Wayfinding aids such as “level theming” have helped make the parking environment more pleasant and interesting while providing the benefit of helping patrons remember where they parked their car.

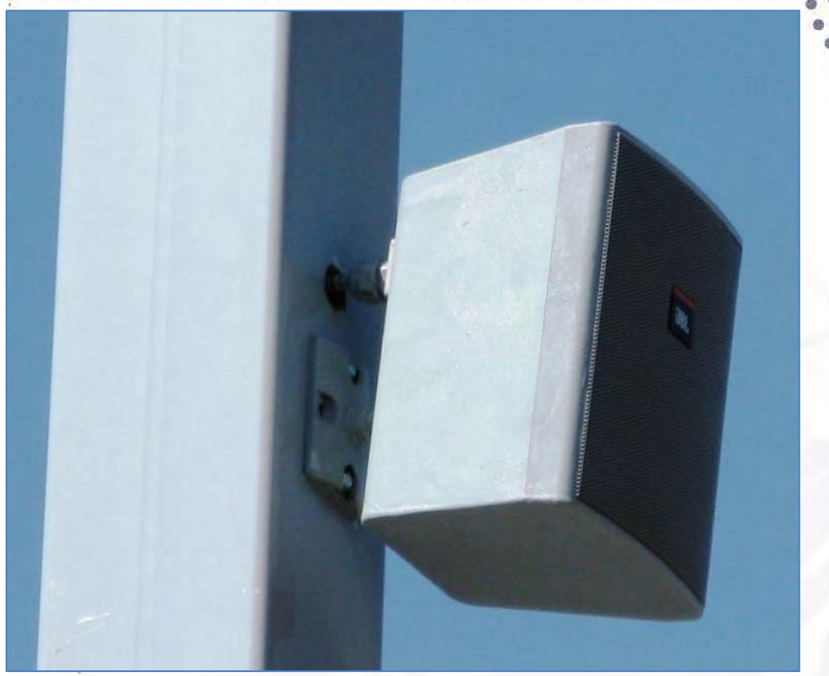
ex.



Music In Your Parking Lots?

Some upscale shopping centers are keeping shoppers dancing all the way into the stores by providing music in the parking lots.

ex.

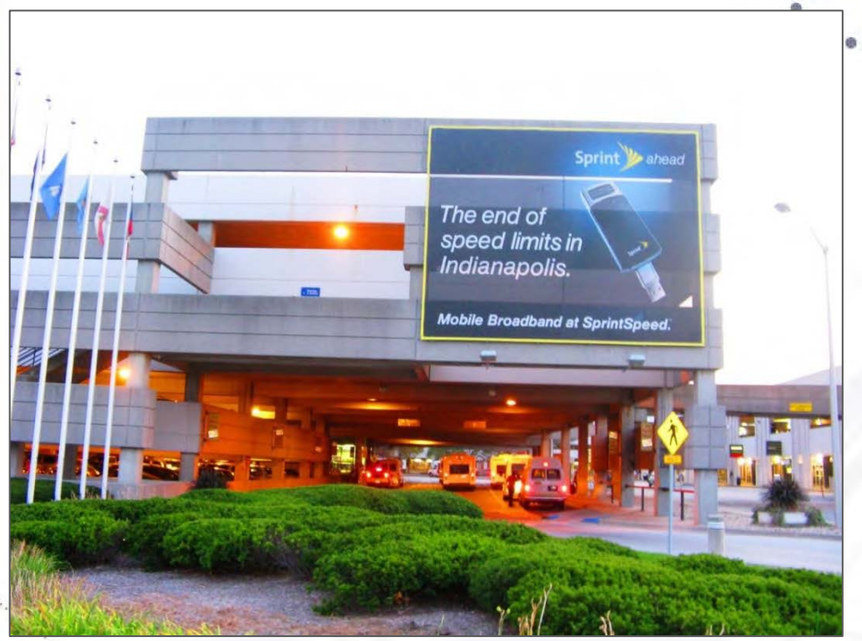


» Mall owners site a desire to “set a certain mood for their shoppers” and to put them in a positive state of mind.

Banners Can Add Color, Communications and Ad Revenues!

Some developers, hospitals and airports are taking advantage of high visibility space and cashing in on advertising potential.

ex.



» How many views per year do you think these locations generate?

Engaging Local Artists

Charlotte, NC (and Bank of America in particular) has been a leader in investing in creative level theming and wayfinding as well as well as engaging local artists.

ex.

7th Street Station Garage, Charlotte, NC

Roadway and Interchange Art

If we can do this for roadways, why not parking garages! Concrete can be a great creative medium.

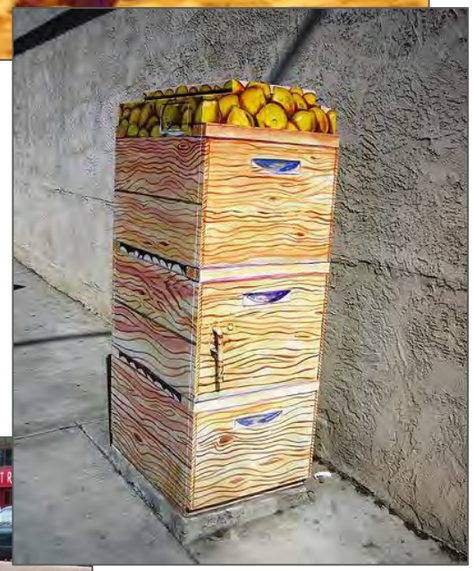
ex.

Art as Urban Utilities Camouflage

The writing's on the wall…or, in this case, the utility box.

Graffiti art replaces gang graffiti and provides "street-art" for passersby.

ex.



» Urban art in the form of buildings is stenciled onto telecommunication power boxes and concrete surfaces throughout the streets of German cities. (Top 2)

» Stacked Lemon crates . (Middle)

» Musician's adorn a utility box in downtown Winnipeg. (Bottom)

Kimley»Horn

Got a Blank Wall? – Add a Mural!

Parking programs can place a greater emphasis on public art. Blank walls can be an opportunity to showcase local artists, add a splash of color and interest and enliven dull parking environments.

ex.

- My favorite wall mural of all time is the girl I met on my first trip to Manhattan. I still think of her when I think of New York City (Left).
- There are too many great examples to show, but here are a few.

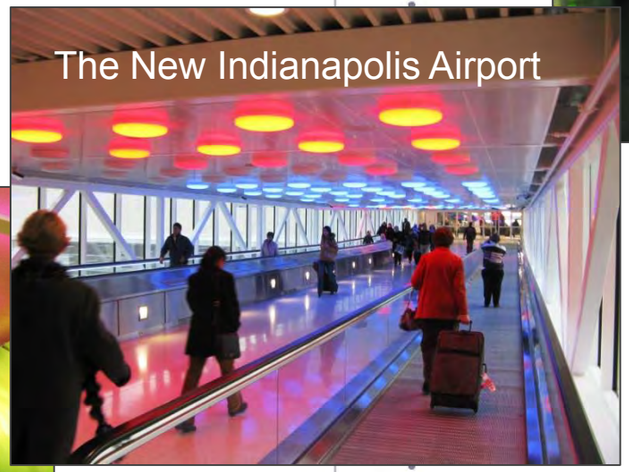
"Jazzed up" Pedestrian Pathways

Sometimes we have long corridors or tunnels connecting parking to it's primary demand generators. Problem?

No, an Opportunity!

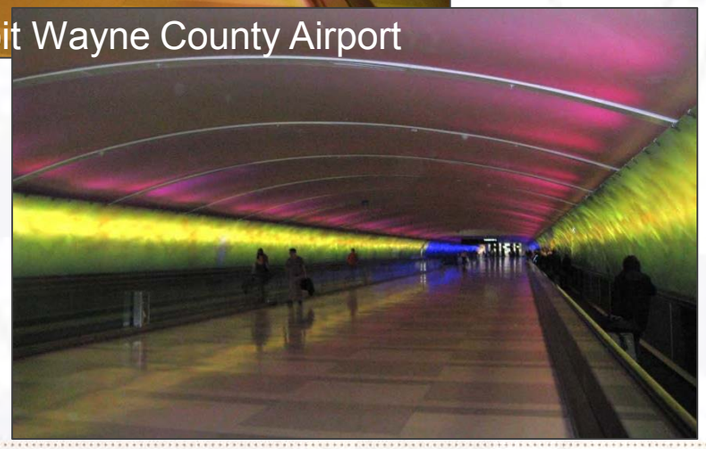
ex.

O'Hare Airport



The New Indianapolis Airport

Detroit Wayne County Airport



- Tunnels and connectors need not be dull or dark.
- These airport examples use dramatic and changing lighting, people movers, art, music or interesting "soundscapes" to create an interesting and positive experience.

Kimley»Horn

Creative Level Theming as a Wayfinding Strategy

In addition to visual clues, some parking structures are also using music to remind patrons where they parked. A different style of music is used on each floor.

ex.

- O'Hare airport in Chicago (Standard Parking) was one of the first to use this wayfinding enhancement strategy.
- The music is reinforced on each floor by dramatic graphics - distinctive to the specific song being played on that floor - displayed in the elevator vestibules and throughout that level's parking bays.

Shade, Protect and Even Generate Power and Increased Revenue

Adding shade structures to surface lots parking or deck rooftop spaces to enhance customer service and increase utilization and parking revenues.

- The initial investment varies based on type of product, but generally runs in the $700 - $1,500 per space range with an average ROI in ranging from 1.5 – 2.8 years.
- Parking shade structures can also have integrated photovoltaic panels to generate solar power.

ex.

Dramatic Lighting – Now that makes a statement!

Lighting can set your facility apart from the background and create dramatic affects.

ex.

» Indirect lighting in parking facilities and be very effective and attractive. (Right – Parking Garage at the Museum of Art in Milwaukee, WI.)

Happy Holidays!

Nobody wants this experience at Christmas! (Especially Santa)

ex.

» Now this is a little more like it!

» And if you're really in the spirit!

PARKING | The Next Level

PARKING MANAGEMENT & DESIGN - **Best Practices**

Kimley»Horn

Ch.
25

Revenue Enhancement Strategies]

Advertise On Your Tickets

Advertising on parking tickets, valet tickets and parking “booms” can effectively eliminate tickets expenses from your operating expense budget, as well as creating an opportunity to market downtown venues and attractions.

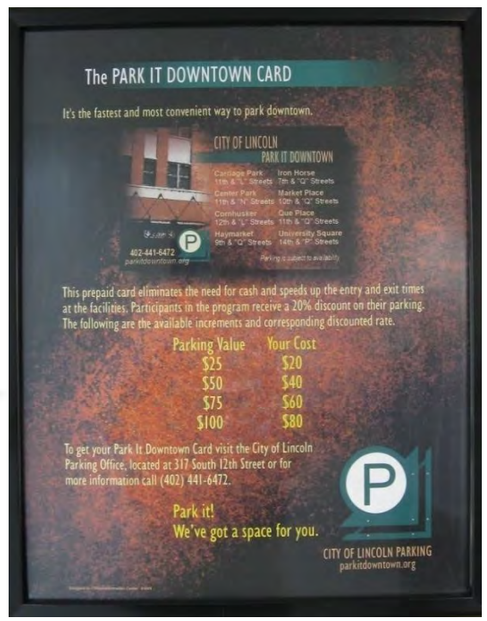
ex.

www.advertickets.com

Advertise In Your Facilities

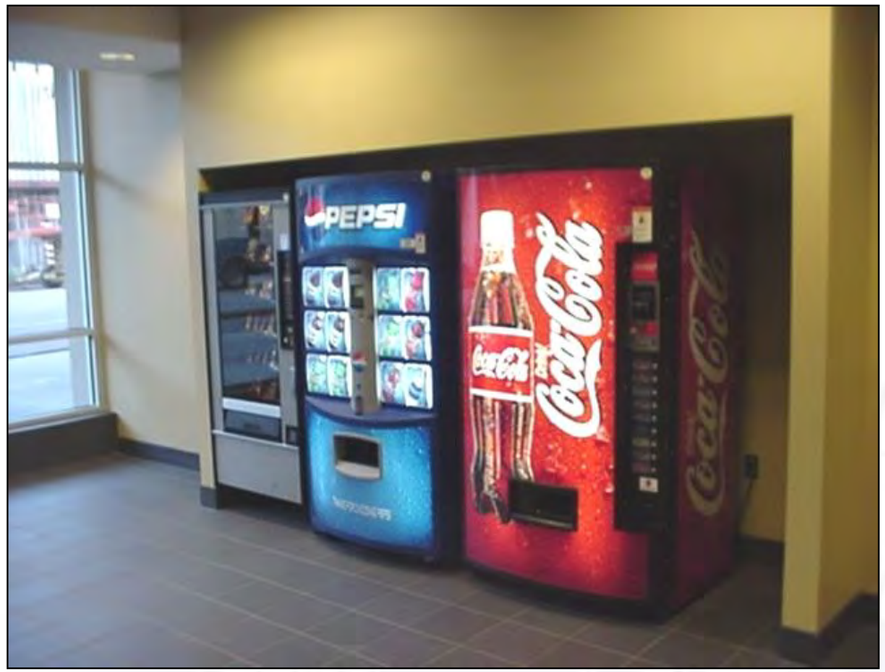
Advertising in elevator lobbies, sky-bridges and other areas with high levels of pedestrian traffic can generate additional parking program revenues. This can also be an effective way to promote parking programs and services.

ex.



Alternative Revenue Sources

There are several sources of alternative revenue available in parking systems, that most systems don't take full advantage of. These options often provide additional value to clients.



ex.

- Examples include advertising, drink and vending machines, ATM machines, etc.
- Another example is the provision of bike lockers, bike tire pumps, etc.

Parking Brokerage Services

Parkingspots.com connects those needing a parking spot with those renting parking spots. The service allows you to find parking close to downtown, the airport, your office, your home or wherever else you need it. Easy, affordable monthly rentals where you want, when you want!

ex.

- Primarily focused on the US and Canadian markets Parkingspots.com is a virtual parking marketplace.
- Locate your ideal parking spot by city, by postal or zip or using Google maps.

Ad Walls

The use of “Ad Walls” is a good example of finding creative alternative revenue sources. It also adds color and interest to typically dull garage environments.

ex.

- This strategy can make use of a variety of surfaces including columns, beams and even gate arms.

Kimley»Horn

Ch.
26

Expense Reduction Strategies

Automated Parking Systems

Labor Expenses

- Parking facility staffing can be the single largest expense item (ranging from 50% to 70%)
- This expense typically includes payroll, taxes, benefits, training, recruitment, etc.
  - ➢ Winnipeg reduced labor by ~25% using pay-in-lane off peak
  - ➢ Texas Medical Center reduced labor by more 35% using pay-on-foot

ex.

Opportunities to reduce labor expenses

- » Use automated parking technologies
- » Review lane activity to ensure efficient coverage
- » Improve employee retention
- » Review market pay rates
- » Consider outsourcing
- » Encourage cross-training
- » Regularly review insurance/benefits costs
- » Improve passive security
  - ▸ Reduce staff needs and reduce liability

New High Efficiency Lighting Products

Recently, there have been significant improvements in the cost, performance, and application of LEDs for a variety of lighting applications.

The energy saving potential of LED lighting, as compared with conventional lighting, ranges from 50 to 90 percent.

ex.

» Additionally, LED lighting technology offers benefits of extended operating lifetime (up to 100,000 operating hours), small sizes to expand fixture design options, and improved optical quality and control.

Energy Conservation

Having separate electrical circuits for parking facility lights on the exterior side of parking bays as well as the roof level can save thousands of dollars per year in energy costs.

ex.

» The photo to the right shows an example of this best practice. The circled lamp is off during the daytime hours while the interior row of lights in the same bay remain on.

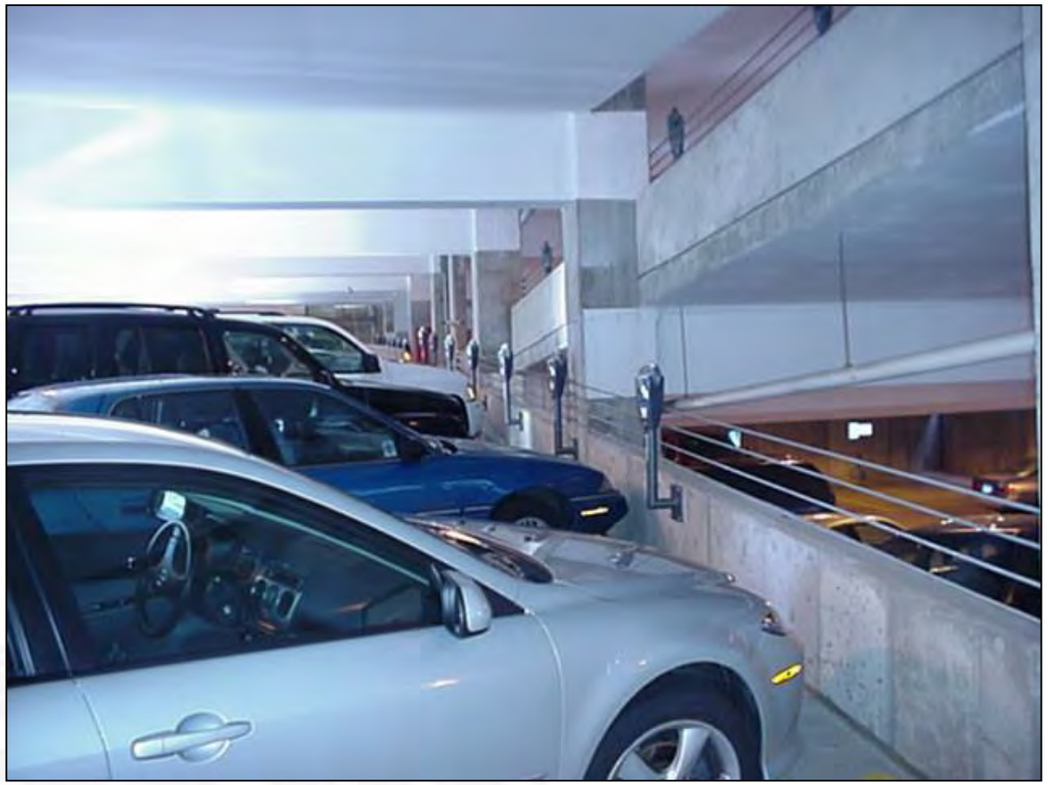
» In this application the exterior row of lights are tied to photo cells in the event light levels are reduced to a certain point such as during a thunder storm.

Limited Transient Customer Volume? Consider Meters.

For situations where there are only a limited number of transient spaces within a facility, controlling or charging for those spaces with meters can be a cost effective alternative to traditional exit cashiering.

- In a facility with less than 100 transient spaces (the rest were reserved for monthly parkers) the revenue stream from the transient spaces would not justify two shifts of exit cashiers, plus supervision, fee computers, booths and other capital items.
- In this case, installing meters was a more cost effective option.
- Note that there are still staffing costs with this option as the meters need to be enforced and the revenue collected.

ex.



Track Warranty Expiration Dates

Review equipment and facility related warranties

- Ensure necessary work is completed before warranties expire.
- Carolinas Medical Center saved $15,000 by scheduling a tour of parking deck expansion joints (with the expansion joint company representative) 6 months prior to warranty expiration.

ex.

- Damaged joints were documented with time/date stamped digital photos in a letter to the company.

Equipment Maintenance Contracts

Consider using equipment maintenance contracts only for more sophisticated equipment (Fee computers, ticket issuing machines, count systems, etc.)

ex.

» For less complex equipment (gates, etc.) train staff in-house and create a separate budget area for “equipment maintenance non-contract” for problems your staff can’t resolve.

» One hospital parking operation saved ~ $5,000 - $8,000 annually using this approach.

The Value of Preventative Maintenance

Don't forget about the value of and long-term savings associated with preventative maintenance...

- Structural
- Mechanical systems
- Electrical systems
- Parking equipment

ex.

- Conduct periodic wash downs to remove chlorides and dirt/debris

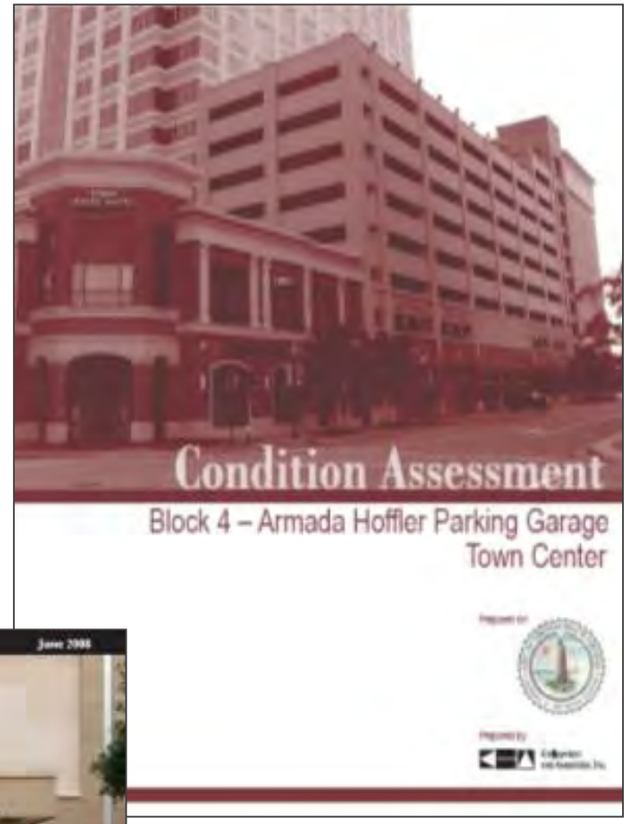
Regular Facility Structural Condition Appraisals

- a Good Long-term Investment

Invest in regular parking facility condition appraisals.

» These relatively inexpensive facility reviews can identify structural problems in advance of major problems that might impact operations (and therefore facility revenue or damage to customer vehicles).

ex.



PARKING | The Next Level

PARKING MANAGEMENT & DESIGN - **Best Practices**

Kimley»Horn

Ch.

27

Special Programs and Promotions

Parking Coupons "Re-imagined"

Chinook Book – the popular green resource guide and coupon book – now has a high-tech sister: *Chinook Book* for iPhone, the world's first mobile coupon book.

For the first time ever, Chinook Book owners can now use their iPhone®, iPod touch® or iPad™ to save thousands of dollars at hundreds of local green businesses in the Seattle metro area.

» These e-coupons can even be used for parking and car share services at the University of Washington.

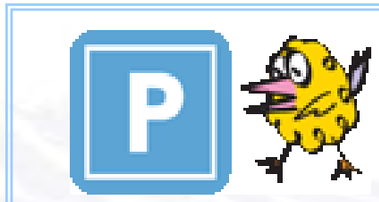
ex.

Available on the App Store

Discounted Parking to Attract Customers

If utilization of facilities is low, or if there is a desire to stimulate downtown activity, there are numerous ways in which parking can contribute to revitalization strategies.

ex.



Early Bird Specials
Discounted Rates If
In before 9:00 AM

Who Deserves A Little Something Extra?

It is a documented fact that women control the purse strings and account for the majority of consumer spending, so this practice can be made on the grounds of sound business philosophy.

» But perhaps more importantly, your own mother would approve of this policy (just ask her).

ex.

A Little Reminder Never Hurts!

Sure, we all know we should lock our car and take our keys, but …

- "I was just running in for a minute".
- "I was just picking up a prescription and was worried about my dad?.
- "I looked and there was no one around…"
- "It seemed like such a safe neighborhood".

» A little reminder might make all the difference.

ex.

First Hour Free Programs

First Hour Free programs are effective alternatives to traditional parking validation programs.

ex.

- In communities where we have assisted in implementing these programs we have seen increases in both revenue and facility utilization as well as positive community support.
- A thorough revenue assessment is recommended before undertaking a first-hour free program.
- Implementation of these programs are often accompanied with other adjustments to back-end parking rates.

On-Line Parking Coupons

Looking for a way to attract new customers, consider the time-tested use of coupons with an on-line spin - printed from a website.

ex.

- Placing coupons on your website or on the websites of related groups can be a positive way to invite new customers to your facilities.
- The coupons can also be used to promote new services.

Sponsorships/Fund Raising

Did you know that a parking lot, parking structure and/or light pole banner program could be a fundraiser for your parking system or downtown?

ex.

- Project Graphics assists municipalities, institutions and various civic organizations in developing or establishing parking structure and/or light pole banner displays as a repetitive source of revenue.
- Reviewing zoning requirements is recommended.
- www.projectgraphics.com

Contact Sylvia Klein
klein@projectgraphics.com
ph: 800-655-7311 x 314

V.I.P. Service Programs

Some parking systems have developed service programs through local vendors to provide "VIP" services for monthly customers.

Examples of VIP services include: Vehicle Washing/Detailing, Oil Changes, Dry Cleaning, etc.

ex.

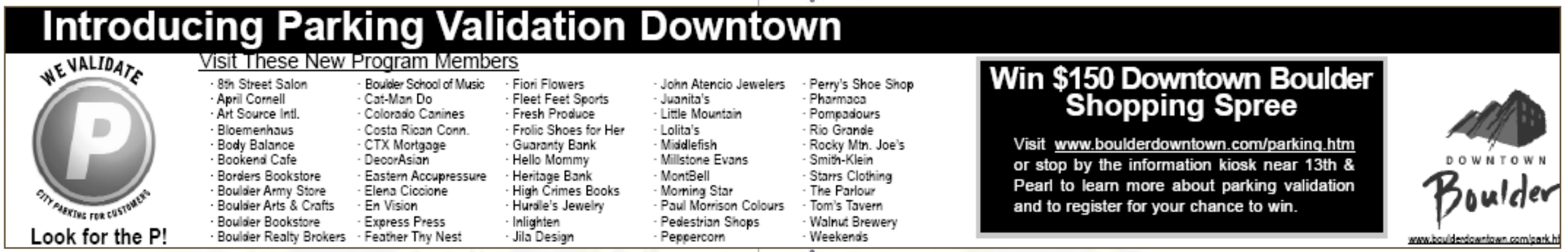
- The Downtown Toledo Parking Authority's VIP program directs customers to a specific area within their facilities and to a VIP Services Kiosk.
- A form is completed for the requested service and the vehicle keys are deposited in a security envelope.
- The requested service is completed while the customer is at work and the vehicle returned to the VIP area by a specified time.

Validation Program Promotions

Many communities have parking validation programs that are only honored by a handful of merchants. Like everything else, these programs need to be promoted to extend their reach and success.

ex.

- The development of validation program promotions supports participating merchants, increases awareness of the program and educates patrons as to program specifics.
- The promotion noted below placed bookmarks on customers windshields and offered a chance to win a $150 Downtown Shopping Spree.

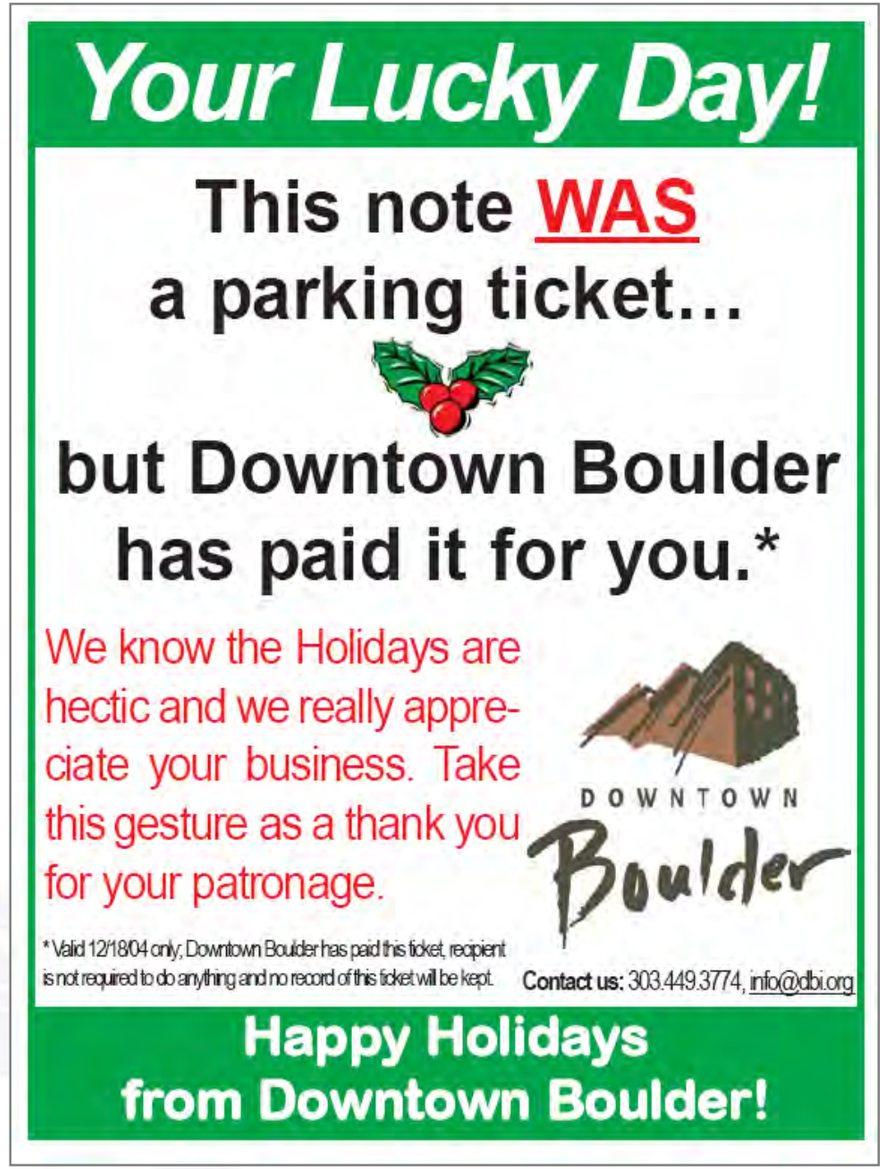


Your Lucky Day!

Holiday parking ticket amnesties and other forgiveness programs are tools to balance the need for parking enforcement with business encouragement through customer appreciation.

- The Downtown Association paid over $6,000 in customer's parking tickets over the Christmas holidays in Boulder.
- In other communities, the parking system simply suspends parking enforcement or replaces citations with holiday notices.

ex.



Family Friendly Parking!

If you are a parent with small children, you will love this idea!

IKEA located and designed a special a special parking area out of the main traffic flow especially for family parking.

- The “Family Friendly Parking” area is near the entrance and also near children’s play area that is just inside the door adjacent to this lot.
- The lot is essentially a cul-de-sac which also helps minimize traffic and eliminates cut-through traffic.

ex.

PARKING | The Next Level

PARKING MANAGEMENT & DESIGN - **Best Practices**

Kimley»Horn

Ch.

28

Sustainable Parking Design & Management Strategies

Demand Responsive Parking Pricing

Why it is Important?

- Circling for parking accounts for approximately 30 percent of city driving.
- Reducing this traffic by helping drivers find parking benefits everyone.
- More parking availability makes streets less congested and safer.
- Meters that accept credit cards reduce frustration and the need for parking citations.
- Public transit riders, bicyclists, pedestrians, business owners, residents and visitors can all expect this application of progressive parking management policy to improve their quality of life in tangible ways.

The Ultimate Goal:
Circle Less, Live Better, Safe the Earth!

ex.

» This approach optimizes the use of existing parking resources in a way that benefits both drivers as well as everyone who spends time in our great urban areas.

Car Sharing meets Fleet Operations

The UCAR car sharing program provides faculty, staff and students instant access to a fleet of vehicles within walking distance from campus offices.

» The UCAR is a conveniently located and economically priced Fleet Services rental vehicle available for hourly rentals. The UCAR program is dedicated to supporting the short term transportation needs of the UW community for education, research, outreach and business.

ex.

» Trip tracking occurs automatically and billing is charged directly to a UW budget number. A copy of the receipt is sent to the reservation contact and department billing contact via email.

Recycled Rubber Products

24 million tires are being recycled per year through the creation of recycled rubber molded products. The great thing about this technology is that it not only helps to recycle and eliminate millions of scrap tires annually; products can be manufactured to fit various industries, some of which include: flooring, mats, playground surfaces, track and field footing, parking lot safety products & landscape mulch (pictured above).

» 100% recycled rubber wheel stops are a durable, reliable, long-lasting alternative to traditional concrete stops. Studies have shown that over a 10-year period, concrete wheel stops could cost six times more than recycled rubber models due to cracking & maintenance issues.

ex.

RUBBERFORM
RECYCLED PRODUCTS, LLC

Green Roofs

Boston's Prudential Center has been transformed in recent decades with the construction of new buildings, shopping arcades, and landscapes.

The most recent addition, the Mandarin Oriental Hotel, includes a public garden built in 2008 on the roof of a 1964 parking garage.

- To reduce loads on the existing structure, the soil rests on lightweight fills that include expanded shale and, in especially sensitive areas, stacked foam insulation panels.

ex.

- The half-acre garden stands in deliberate contrast to the buildings around it. Its native stone walls, reused brick pavement, and lush plantings give shoppers and hotel guests a chance to step outdoors and experience a taste of the New England landscape beyond the city.

Green Roofs (Sort of)

- Don't have the budget for a "true green roof"?
- No ability to support the extra weight?
- No ability to detain water?
- An inhospitable climate?
- No funds for the long-term maintenance of a traditional green roof?

» No Problem! – Schwartz made a plastic fantastic half Japanese Zen, half French Renaissance garden.

http://www.marthaschwartz.com/

ex.

Xeriscape

Xeriscaping is the practice of water conservation through creative landscaping.

ex.

» Benefits of Xeriscaping:

- Low water consumption
- Low maintenance
- Protects water quality
- Increases health and beauty of surroundings
- Decreases pest control needs

Solar Powered Parking Lot

A relatively new addition to our sustainable parking strategies is the introduction of individually powered solar parking lot lights.

ex.

Solar Parking Lot Light (S-SL27), from Greenshine has three solar panels and stronger light power, is a good solution for illumination of large areas.

Greenshine

» Each light pole/fixture is fed by an individual solar panel as pictured above.

The Eco Parking Lot

Bringing environmental technologies and green design practices under one roof is the Eco Parking Lot. The stylish design will incorporate green plantation and storm water remediation technology making it more efficient while maximizing greening potential.

ex.

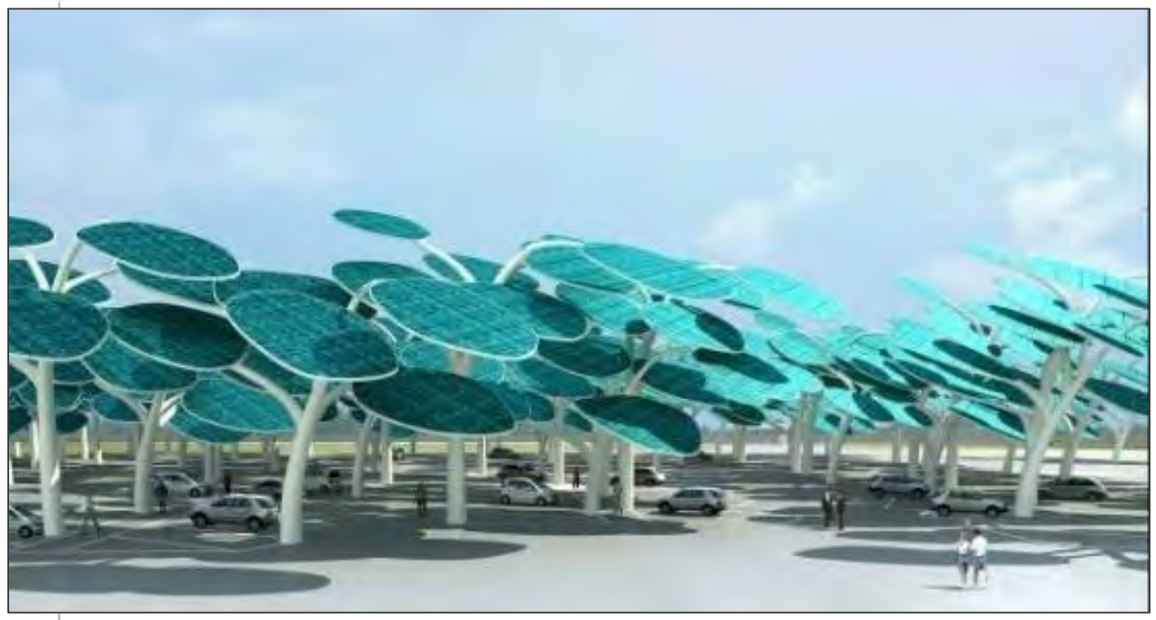
» This visual treat with special student parking will benefit the Community and city of Windsor.

Design: Green Corridor

More info:
www.greendiary.com

The Solar Forest Concept

As the name suggests, this concept brings trees like structures into action. The Solar Forest Concept consists of trees that are made up of photovoltaic leaves, whose sole purpose is to collect solar power.



ex.

- At the “trunk” of each tree is a power outlet that is used to charge up electric vehicles.
- Apart from providing charge, the photovoltaic “leaves” also gives shade to the cars.

Designer: Neville Mars

More info:
www.greendiary.com

The Solar Parking Concept

Offering a dual solution to parking and charging of electric vehicles as well, the design proposes the wireless transmission of charge from the solar canopy to the charging coil embedded in the asphalt and later, to the car battery.

ex.

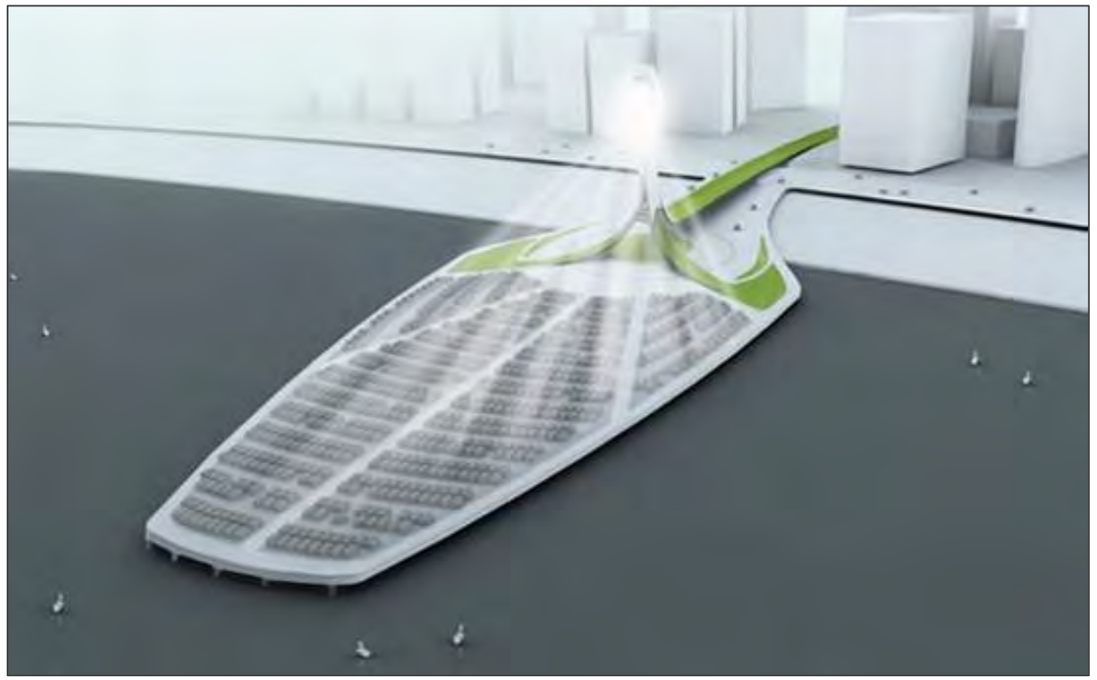
- After sensing an electric car parked, the parking system automatically starts the wireless charging process.
- Once the car's battery is full, the sensors embedded in the asphalt stop the charging process.

Designer: Nejur Andrei

More info:
www.greendiary.com

The Solasis Light Tower:

Here is a concept offshore parking area that generates solar energy to recharge electric cars and add valuable juice to the grid.



ex.

» This proposed renewable energy generating parking lot is equipped with a solar power concentrating tower that uses the windshields and hoods of cars as sun tracking and concentrating mirrors.

Designer: Klaud Wasiak and Yongbang Ho

More info:
www.greendiary.com

90 Degrees Vertical Parking System:

The 90 degrees vertical parking system, one-of-a-kind parking concept parks your car vertically.

ex.

- While you tuck your vehicles into the parking lot, the panels on the flip-side use solar panels to energize electric vehicle batteries.
- Along with power generation, the unique system allows three cars to park vertically where normally a single car is parked.

Designer: Baita Bueno

More info:
www.greendiary.com

Green P Parking System:

The concept is based on the decentralization of parking systems into many smaller spots that can be placed in unused spaces such as under flyovers and bridges.

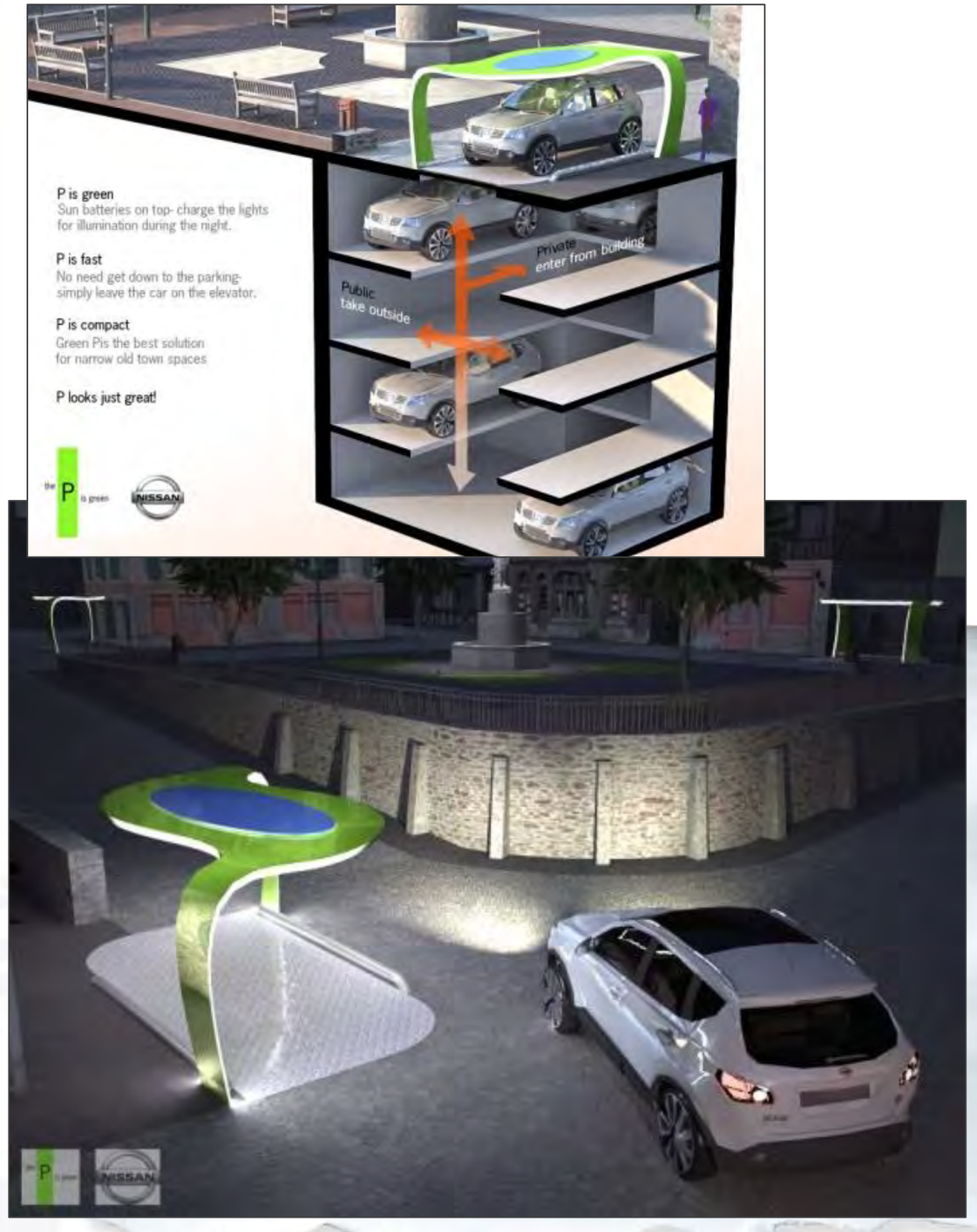
ex.

» The Green P system also includes a lighting system that can replace or supplement ordinary road lights by charging them with solar energy generated by panels installed on the Green P's roof.

Designers: Algis Berziunas and Laima Rimkute

More info:

www.greendiary.com



Energy Efficient Vehicle – Parking Perks

Some municipalities are offering free metered parking to residents whose vehicles get 50 miles per gallon, have low emissions or are powered by an alternative fuel.

ex.

Utah already offers an income tax credit of up to $3,000 for residents who buy clean fuel vehicles and some electric hybrids.

- Salt Lake City joins New Haven, CT; Fresno, CA, Boulder & Manitou Springs, CO and Albuquerque, NM, in the free parking meter program. In the last year, Austin, Texas, also approved a green vehicle incentive that provides $100 in free parking.
- Commuters in Baltimore who use low-emissions vehicles can also buy parking passes at city-owned garages at a discounted rate.

Electric Vehicle Recharging

Electric vehicle charging stations in parking facilities is coming. Also coming is a new concept of "Networked Charging Stations" that provides unique benefits when compared to non-networked charging stations.

ex.

Coulomb Technologies

Fueling the Electric Transportation Industry

» Benefits include:

- A revenue stream to pay for electricity, capital equipment and maintenance
- Ability for drivers to find unoccupied charging stations via web-enabled cell phones
- Notification by SMS or email when charging is complete
- Authenticated access to eliminate energy theft
- Green House Gas savings calculation per driver and per fleet
- Authorized energizing for safety
- Remote monitoring and diagnostics for superior quality of service
- Fleet vehicle management
- Smart Grid load management

Monthly Parking – Unbundled!

Boulder's 20 Day Punch Card is…

- Convenient: Valid in all 5 City of Boulder parking garages.
- Affordable: 20 days of parking for only $200 ($10/day).
- Available: No wait list!

ex.

- Flexible: Only pay for days you drive! Great option for anyone who works in downtown a few days a week, utilizes alternative commuting modes or who is on the wait list for a garage permit.
  - Intent: Options, options, options! Our intent is to offer more options. It was designed for long term parking (parking all day not leaving, maybe 8-10 hours) in our garages for people who do not have a long term permit.
  - Purchase: The purchaser pays $200 and receives a plastic day pass.
  - Usage: The buyer takes a ticket at the entrance gate as a normal short term parker would and upon exit gives the entrance gate ticket and punch card to the booth attendant. The booth attendant punches the card, returns it to the customer and opens the gate for the customer to exit. The booth attendant uses a pre-programmed register key and runs the ticket through.

Hotel Parking Perk for Hybrids

Hotels are beginning to offer parking perks for guests parking hybrids or electric vehicles.

ex.

THE Fairmont BANFF SPRINGS

Parking charges are $ 33 for Valet Parking or $ 25 for Self Parking, prices effective June 1st.

As part of commitment to the environment, the Fairmont Banff Springs is pleased to offer complimentary parking to guests bringing a hybrid or electric vehicle.

» FREE PARKING FOR HYBRID CARS IN NEW YORK CITY

- Your stay in the heart of Times Square and the Broadway theater district will be exciting and relaxing knowing your parking is free. So bring you hybrid to our front door and receive complimentary parking during your stay.

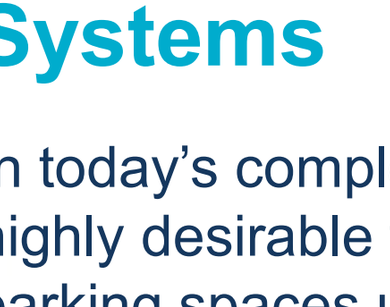
Marriott

Kimley»Horn

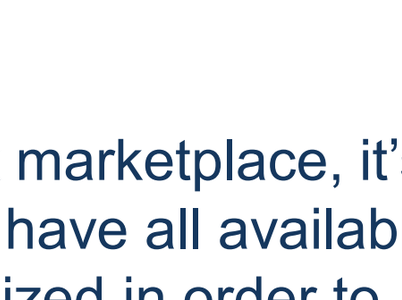
Parking Guidance Systems

In today's complex marketplace, it's highly desirable to have all available parking spaces utilized in order to maximize driver satisfaction, enhance revenues and minimize greenhouse gas emissions.

ex.



Single Space



Level Counting

Facility Counting

Way Finding

» BENEFITS

- **Parking Guidance Systems Provide:**
  - Assured Parking Availability
  - Reduced Pollution and Congestion
  - Advanced Notification to Drivers
  - Control Parking Occupancy by Facility, Level, Zone or Individual Parking Space
  - Economic, Environmental & Customer Friendly

Car Share Programs

Moving downtown?

Don’t need two cars any more?

Can’t afford a car, but need one from time to time?

Car Sharing may be just what the doctor ordered!

ex.

- With Car Sharing you can rent a car for a designated period.
- Pick it up at a designated spot.
- Return it to a designated spot.
- Your access car opens & starts the car.
- Your credit card is billed.
- (No don’t even have to fill it back up!)

Portable Bike Racks

How do you handle seasonal demand peaks for bike parking?

The creative folks at the Winnipeg Parking Authority created this “portable bike rack platform”.

ex.

- The base can be picked up by fork lift.
- The bike rack proper is protected by sturdy, high visibility bollards
- It can accommodate 6 – 8 bikes in a single on-street parking space.

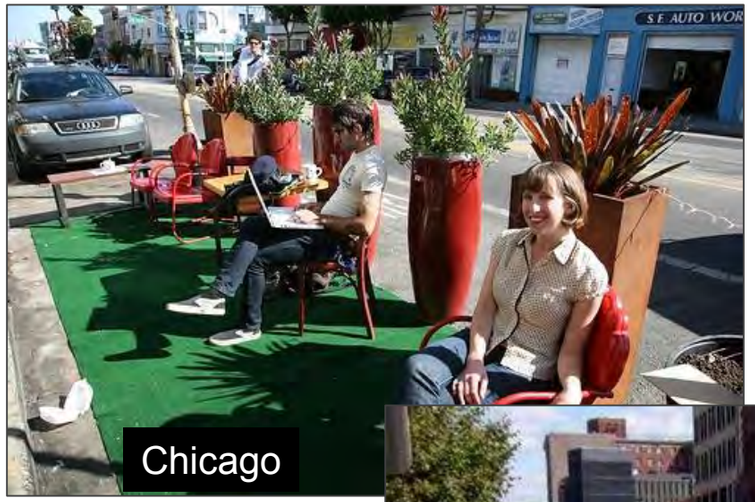
Parking Day is Catching On!

Park[ing] Day is a grassroots movement that is gaining momentum around the country!

Once a year, urban activists around the country convert a public parking space to a “mini park” for the day.

ex.

» Organizers call it “an opportunity for community members to engage passers-by, motorists, members of the press, city leadership and yes, even the authorities, in a rational and respectful dialogue of everything from our city’s parks and public space to the environment and allocation of land to mobility issues and local beautification projects.”


Chicago


Cincinnati


Los Angeles

PARKING | The Next Level

PARKING MANAGEMENT & DESIGN - **Best Practices**

Kimley»Horn

Ch.
29

Parking Facility Design and Construction

LEED Certified Parking

Yes, a parking garage can achieve a LEED Platinum certification! The University of Florida's new Southwest Parking Garage Complex includes a two story building made up of transportation, parking service, public safety offices and retail.

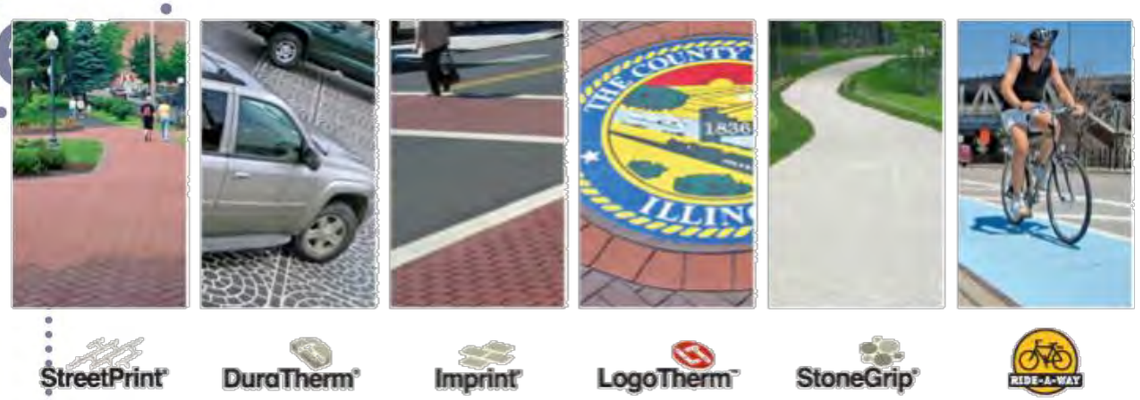
» The University of Florida's (UF) new $20 million Southwest Parking Garage Complex opened in September 2010.

ex.

Designed and built by the architectural firm Pierce, Goodwin, Alexander & Linville, the parking facility, which consists of a six-level, 313,000 square-foot parking garage that can accommodate up to 950 cars, along with an attached 52,000 square foot, two story building. A 12,000 square foot office building for the University is also included.

Decorative Asphalt Treatments

Traditional asphalt is popular for it's practicality, efficiency and low cost, but some find it boring and unattractive. Decorative asphalt has all the benefits, but adds the design potential of more expensive products.



IPC INTEGRATED PAVING CONCEPTS™

http://www.integratedpaving.com/

- The shopping experience doesn't start at the front door, it starts in the parking lots.
- Extend branding into the parking lot.
- Create positive 1st impressions

Eliminate Blind Corners

Improving site lines is one of the most effective means of reducing vehicular accidents in a parking structure.

- The photos to the right shows examples of how a cut out in a sheer wall improves visibility at a blind turn.
- The use of convex mirrors to improve visibility in turns or along pedestrian paths is another good example.

ex.

Entrances – Don't Hide Them!

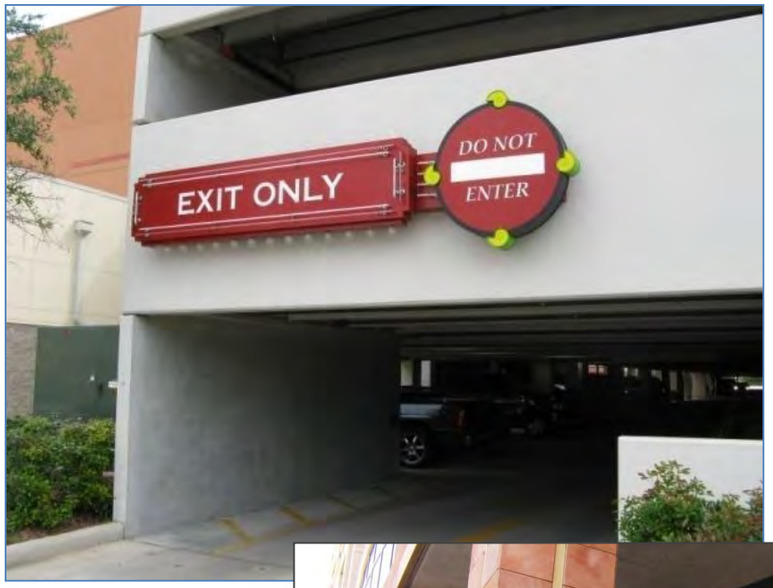
The trend towards wrapping parking structures with retail or office uses is a positive development, however, sometimes parking entrances can become hard to find.

ex.

- This photo shows that while the parking structure may be all but invisible, the entry way can be effectively highlighted.
- The overhead signage is also supplemented with a curb mounted sign perpendicular to traffic flow to further improve visibility and wayfinding.

Illuminated Entry/Exit Signs

Illuminated entry/exit signs are important to ensure that customers know “entrances” from “exits” after dark.



ex.

- Whether illuminated from within or from external sources, this is an important safety and traffic control feature that is sometimes overlooked.
- Lighted entry/exit signs should also include illumination of clearance height information.

Lighten up!

Painting or staining the interior of parking structures is one of the best ways to improve the perception of customer safety and facility cleanliness.

Painting the underside of parking levels as well as vertical elements such as wall and columns increases lighting levels through improved reflectivity.

ex.

- Except from Paint/Stain Specification:
- Provide paint system consisting of two coats of a (white) water-base penetrating stain in accordance with Manufacturers recommendations.
- Approved stain systems are as follows:
  - H & C Concrete Stain AC1W, Glidden
  - W-1, Okon Inc.
  - Canyon Tone Stain “W”, United Coatings
  - Aquastain, Tamms Industries Co.
  - Or Approved Equivalent

Construction Products Division

CANYON TONE STAIN®
PIGMENTED WATER-REPELLENT STAIN
WITH PLIOTEC® TECHNOLOGY

Technical Data & Application Instructions

PRODUCT DESCRIPTION

BASIC USES

PHYSICAL PROPERTIES
TABLE I

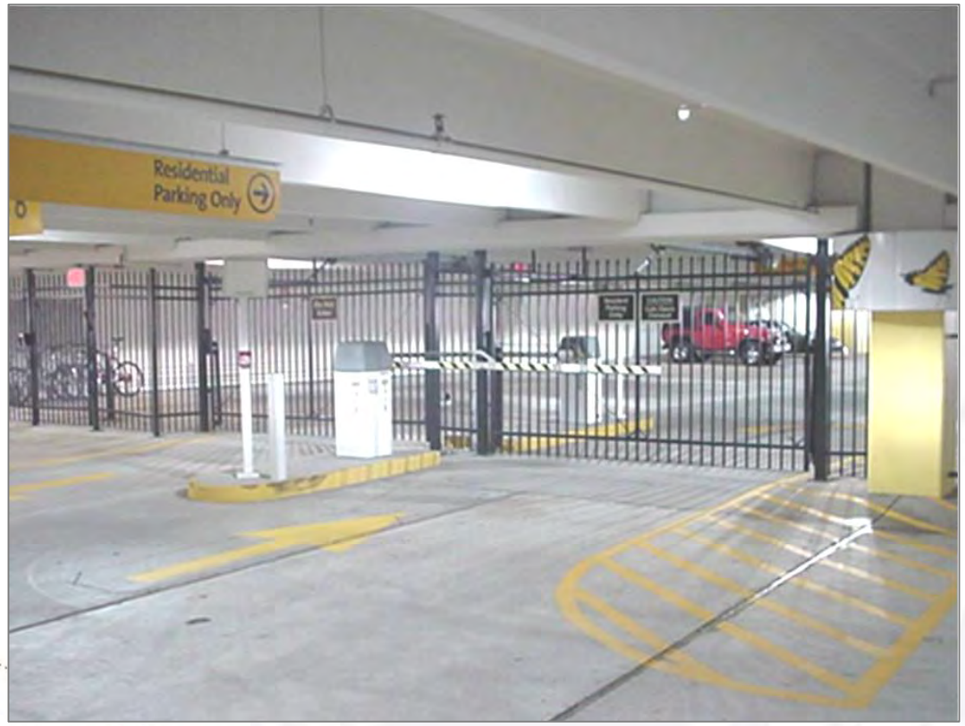
COLORS

WARRANTY

UNITED COATINGS

Nested Parking Areas

With the trend toward more mixed-uses in parking structures, the need to create segregated parking areas within garages is becoming more common. One effective tool in accomplishing this is through the use of “nested parking areas”.



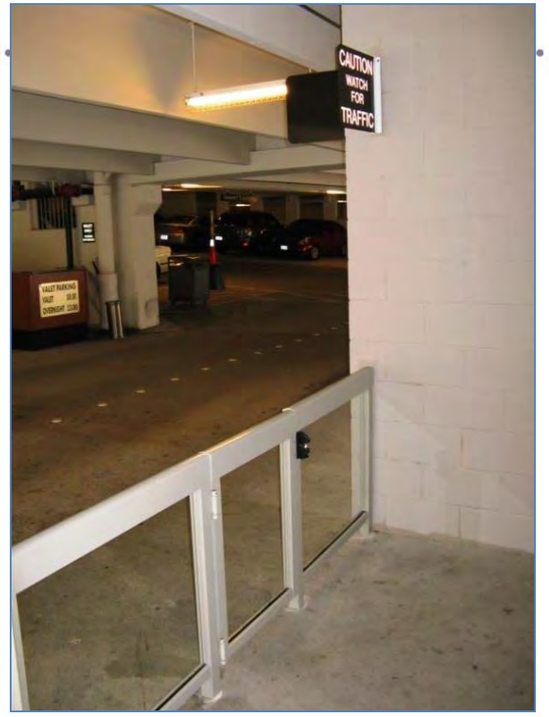
ex.

- The photo to the left shows a “secured and segregated” parking area for condo owners within a larger monthly parking structure used primarily by a large downtown technology center.
- In this case, separate AVI readers were installed and the readers programmed for residents.
- A separate pedestrian access gate and “California Style” swinging gates were installed to meet security requirements.

Parking Structure Pedestrian Safety

Areas that are adjacent to high volume traffic areas or entry/exit areas sometimes need special attention to protect pedestrians.

ex.



» The glass and metal gate system pictured here is one creative and effective option to consider.

Pedestrian Ways

In areas with high level of pedestrian traffic with parking garages, created protected pedestrian ways is a parking structure design best practice.

- » Although this option adds cost, it is an extremely positive customer amenity and an effective safety enhancement.
- » Care must be taken to ensure that ADA design parameters are taken into consideration.
- » A 44” minimum is required if the access aisle is used as a “means of egress”, 36” if not.

ex.

Maximizing Parking Capacity

In some environments there are peak parking demand periods that will require special efforts to accommodate all your customers.

ex.

- At the Hotel Del Coronado, a special parking row behind the standard parking configuration allows them to add an additional 10% capacity to the normal self parking lot.
- During peak demand periods, they will shift to a valet stack operations mode.

Transitional Lighting

Transitional lighting (additional lighting provided at facility entrances) is both practical and an important safety feature in parking structures.

ex.

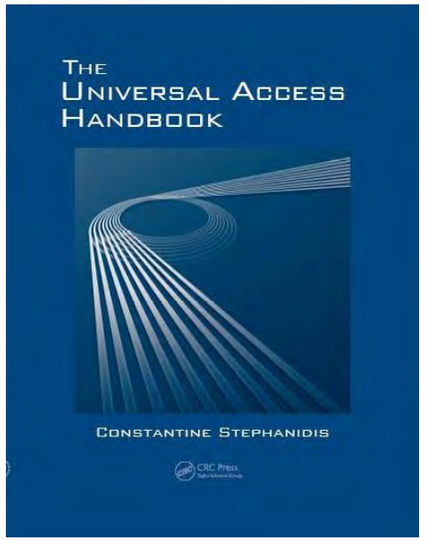
- The Illuminating Engineering Society of North America recommends a minimum of 50 foot candles for transitional lighting at parking facility entrances.
- Transitional lighting helps driver's eyes adjust from bright exterior conditions when entering the relatively dark conditions within a parking deck.

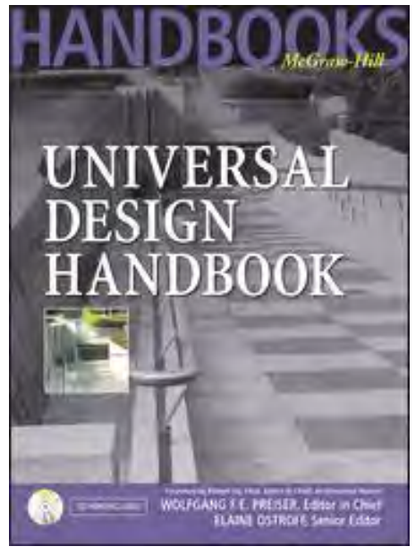
Universal Design

Universal design practices strive to eliminate accessibility issues through the incorporation of barrier free design strategies.

- Hands free parking through AVI systems is a non-traditional example of a universal design application.
- Other examples include, pay-by cell phone for on-street parking, audible cross-walk signals, voice activated elevator cabs, etc.

ex.





Parking Space Availability Signage

Single space monitoring systems with parking guidance signage make parking in large complex parking garages more user friendly.

These systems are being deployed in retail, airport, theme park and university environments.

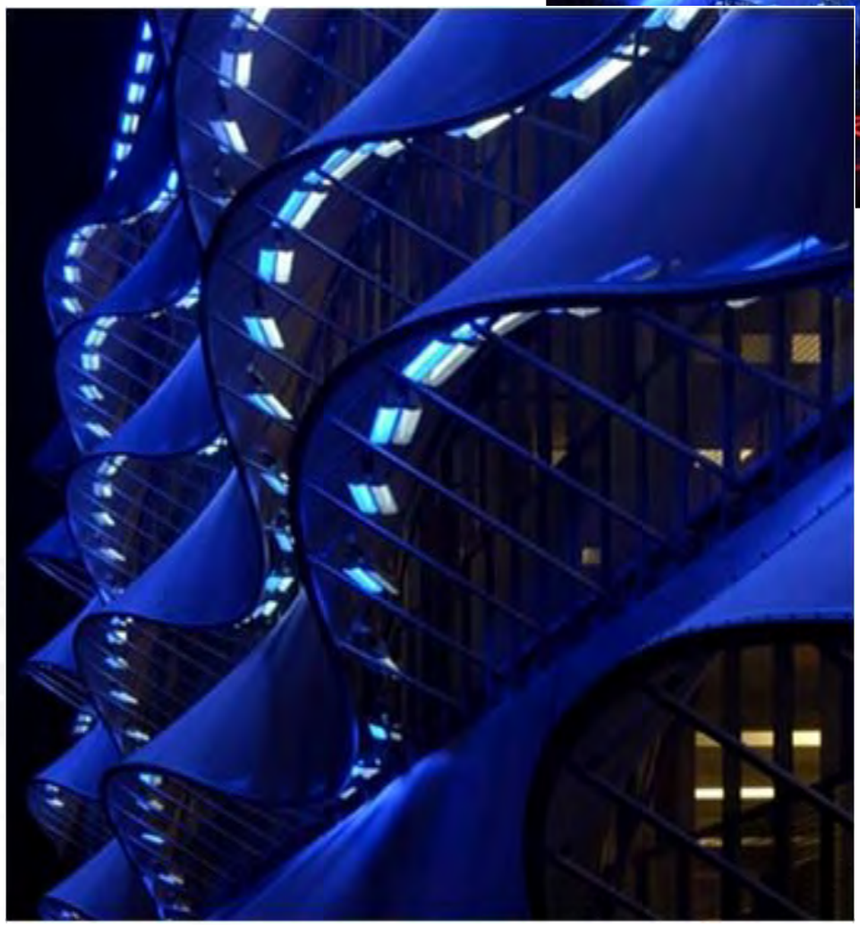
- Baltimore Washington and Seatac International Airports were among the pioneers of this technology.
- Westfield mall at Century City installed an advanced parking guidance system in their large 2000 space below grade garage.

ex.

Creative External Architectural Treatments

To reinvigorate urban environments, some old parking garages are getting some interesting face-lifts!

ex.



Creative External Architectural Treatments

ex.

This award winning design shows just how far some architects will go in adapting their design to nature of the larger project.

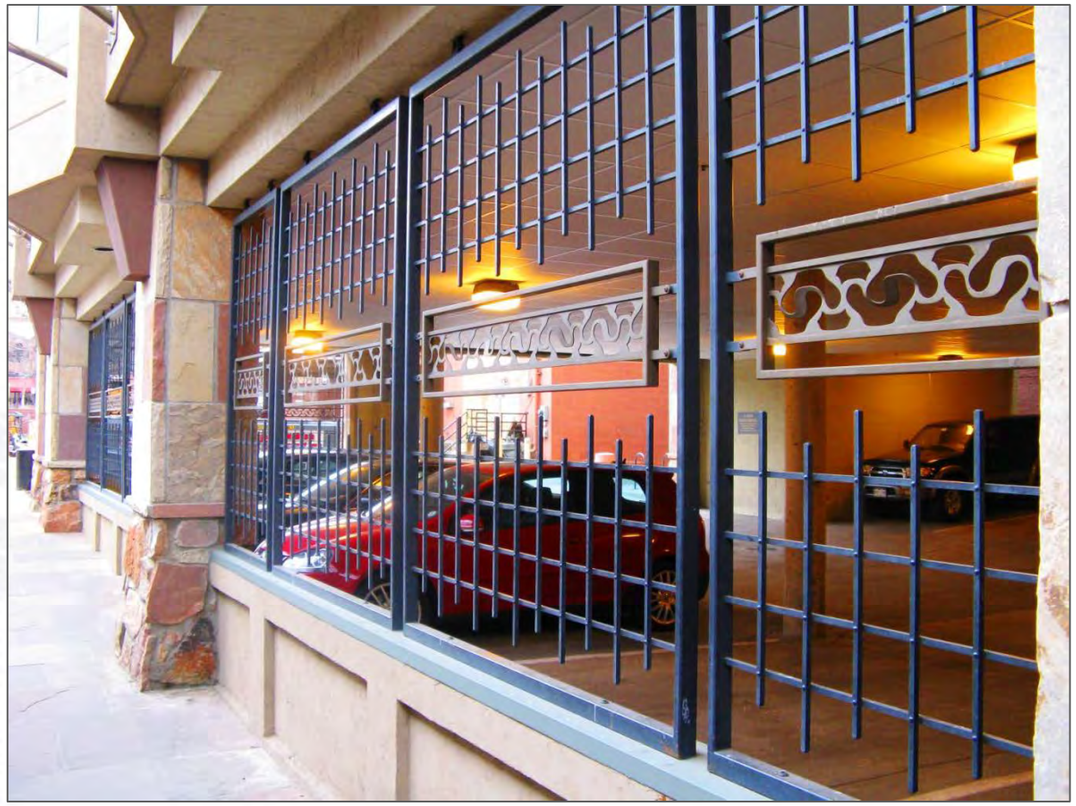
This “Library Parking Garage” in Kansa City won an IPI Award of Excellence”

Securing Ground Level

Restricting the number of access points is a parking facility design security best practice.

This photo shows that the goal of securing the ground floor can be done in an tasteful and attractive manner.

ex.



Alternative Garage "Skin Treatments"

One alternative to traditional pre-cast concrete panels are metal panels.

Potential Advantages Include:

- Greater openness
- Cost savings
- Attractive look

ex.

PARKING | The Next Level

PARKING MANAGEMENT & DESIGN - **Best Practices**

Kimley»Horn

Ch.
30

Specialized Parking Facility Types

Consolidated Rental Car Facilities

Some of the largest, most advanced and well designed parking facilities in the country today are Consolidate Rental Car Facilities supporting major airports.

ex.

- These facilities are multi-modal hubs, many are integrated with light rail or monorail systems.
- These facilities often times show the true potential for parking facilities “interior environment enhancements” as illustrated in the photo below.

Specialized Canopy Structures

While technically not a parking facility, the Helios House in LA is a great example of creative architectural treatments for canopies covering automobile related uses.

ex.

» This structure's visually arresting geometric construct is largely maintenance free non-rusting aluminum alloy.

Intermodal Parking and Transportation Facilities

These facilities are typically hubs for multiple forms of transportation including rail, bus, taxi and parking. By centralizing these services to one location, passengers are able to access their preferred means of transportation more easily. Passenger comfort and safety is also with the construction of an interior lobby and designated pick-up/drop-off areas out of the way of traffic.

ex.

» In addition, businesses located near these facilities are more visible and accessible to customers. This facility will also help make downtown more pedestrian-friendly and increase foot traffic to local businesses.

Airport Parking Garages

While airport parking garages come in many forms, there are some basic design criteria that tend to show up in airport parking facilities due to their basic functional needs.

- Some of these features include”
  - Helical ramps to move large volumes of vehicles in short periods of time.
  - A predominance of flat –floors to better serve customers with luggage.
  - Large facilities requiring good wayfinding.
  - Integration of light wells or other features to break up large facilities and provide orientation.
  - External exit toll plazas
  - Integrated multi-modal transportation elements
  - Advanced access and revenue control systems

ex.

Mixed-Use Facilities

What is a mixed use facility? Simply a building or group of buildings in which you can work, shop and live. The integration of parking either in a “wrapped”, “stacked” or below grade fashion (or some combination) is common.

ex.

» Of course you’ll still want to get away from time to time to visit friends, explore cultural venues and take vacations but for these a rental through a “car sharing” system might make more sense. Proximity to transit and the addition of community bicycle programs is increasing commute options.

Event Parking Facilities

Some parking facilities may be designed primarily for office parking, but with an awareness that they will be used for special events as well.

Event parking requires a another level of planning and design to accommodate the acceptance of up-front payment and peak egress traffic flow.

ex.

» Double-threaded helix circulation systems with separate up-bound and down-bound traffic patterns are common to expedite the high traffic volumes.

Transit Oriented Development Parking Facilities

The "new urban village" concepts designed around a rail/transit stop offers a picture of the emerging preferred urban development land-use type of the near future.

These “transit oriented developments” are characterized by relatively dense development patterns, strong permanent transportation elements that will support a “live/work/learn/play” environment.

ex. » While some parking is generally provided in tends to be less in overall numbers, provided in structures and supported by multiple transport options.

Temporary Parking Structures

There are temporary, modular, one deck car park systems designed to virtually double the capacity of an existing or new surface area, by use of a free-standing deck installed in the short amount of time with minimal site disruption.

Pre-fabricated elements are installed on the surface without traditionally excavated foundations.

The finished structure can be disassembled and 100% re-assembled on another site in different configurations.

In many cases installation can be phased to retain spaces for an ongoing parking operation and its revenue stream.

ex.

» For environments where major design decisions are in flux, or an immediate loss of existing parking needs to be mitigated this temporary modular parking deck option has distinct advantages.

the original modular system to double parking areas

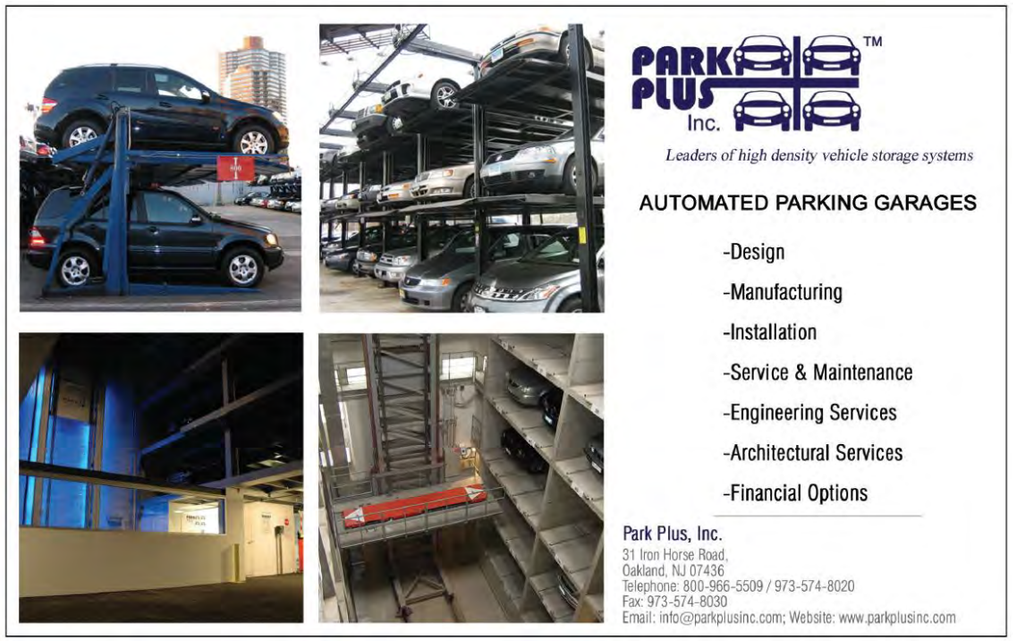
FAST PARK

Ch.
31

Automated Parking Facilities

High Density Vehicle Storage

There are products designed to meet higher-density parking requirements by providing more efficient space utilization through a variety of vehicle storage and retrieval options, from attended systems (valet) to fully automatic systems that require no human intervention.



ex.

» BENEFITS

- Designed or retrofitted in accordance with client specifications
- Cost-effective and can be installed with little to no site preparation; standard garage doors, facade siding and roofs can be used to enclose all systems
- Construction periods and costs are minimized - require no ramps or drive aisles
- Beneficial floor area ratio (FAR) – Systems regarded as one level in many cities

Mechanical Parking Structures – "Tray Systems"

Benefits of Automated Parking

- Automated Parking Saves Space
- Automated Parking systems allow vehicles to be stored without human intervention and allow for much greater vehicle density within a parking facility.
- By consuming roughly half the space of a conventional parking garage, automated parking brings value to real estate development projects in any of the following four ways:
  - » Saves Valuable Air Rights
  - » Reduces Expensive Excavation
  - » Fits More Cars
  - » Conserves Open Space

ex.

Unique Capabilities of the RoboticValet™

- » Robot lifts only the tray - nothing touches the vehicle
- » Rolls on solid concrete decks (new or retrofit)
- » Easy to maintain over long lifecycle
- » Moves underneath vehicles from any side
- » Transports vehicles in any direction
- » Rotates vehicles without a turntable
- » Lifts payloads up to ~7,000 lbs
- » Battery operated

Boomerang Patent Pending PARKING SYSTEMS

Ch.
32

Parking and Economic Development

Develop a Parking Policy Geared to Support Economic Development

Some innovative parking programs that consider themselves as integral partners in overall downtown revitalization efforts have developed their overall parking policy framework to be geared toward support community and economic development.

Tempe, AZ is one such City. To the right is the overall policy framework they adopted.

ex.

Parking/Economic development Principles

- » Consider Parking as One Element of a Larger Transportation System
- » Effective Parking Resource Management
- » Define "Parking Adequacy" within the Transportation Context of Downtown
- » Create a "Proposed Development Parking Assessment Tool"
- » Maintain Shared Parking as a Core Parking Planning Element
- » Integrate Parking Planning Into the Larger "Downtown Business Strategy" Context
- » Long-Term - Build Toward a "Self-Supporting Parking Enterprise Program
- » Define a Specific Targeted "Return on Parking Investment Ratio"

Parking Benefit Districts

The establishment of "parking benefit districts" can serve as a financing tool to support improvements in downtown areas while also addressing traffic congestion and parking constraints.

Within a parking benefit district, public parking spaces (both on and off-street) are charged an hourly rate designed to keep approximately 15 percent of parking spaces vacant..

ex.

Other Key Parking District Attributes

- Funds collected from parking charges are poured directly into improvements that make the district more attractive, such as sidewalks, landscaping, and other amenities or aesthetic improvements.
- New parking meter technologies have improved customer convenience (customers can pay remotely by credit card or cell phone), increased pricing flexibility (rates can be changed in real-time based on location, time of day, day of week, or level of occupancy), reduced streetscape clutter, and reduced operating costs