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Executive Summary
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I. INTRODUCTION AND PROJECT OVERVIEW

This Comprehensive Transportation Plan was developed to assist Washington State University (WSU or University) project future parking needs that will result from expected parking losses due to campus capital program development. It also addresses larger campus transportation and circulation requirements and provides recommendations to support the development of a more robust program of transportation demand management (TDM) strategies. These elements will contribute to the creation of a more pedestrian-friendly campus, identified as a key goal of the WSU 2012 Campus Master Plan Update (2012 Update).

II. 2012 MASTER PLAN UPDATE GOALS

The key goals and primary-action areas of the 2012 Update are summarized below, several of which are directly related to transportation and parking planning priorities:

1. Create a facilities master plan update that supports and enables the University’s strategic goals
2. Plan facilities that position the University to compete with Association of American Universities (AAU) member institutions (This will require a significant increase in the University’s research infrastructure.)
3. Plan for space to accommodate enrollment growth
4. Plan physical arrangements and adjacencies that foster interdisciplinary collaboration
5. Develop an open space network that enhances the University’s sense of place and links with the natural environment of the Palouse region
6. Create an environment that focuses on the pedestrian
7. Create a plan that complements the topography of the campus while mitigating grade-changes for pedestrians
8. Create a plan to develop the land east of Stadium Way
9. Create a plan to address deficient facilities
10. Develop a transportation, access, and parking strategy
11. Create an exemplary, sustainable campus that also teaches about sustainability

The 2012 Update reaffirms the Vision and Mission of the University as restated below.

Vision

Washington State University will be recognized as one of the nation’s leading land-grant research universities.
Mission

WSU is a public research university committed to its land-grant heritage and tradition of service to society. The University’s mission is threefold:

1. To advance knowledge through creative research and scholarship across a wide range of academic disciplines
2. To extend knowledge through innovative educational programs in which emerging scholars are mentored to realize their highest potential and assume roles of leadership, responsibility, and service to society
3. To apply knowledge through local and global engagement that will improve quality of life and enhance the economy of the state, nation, and world

III. PROJECT OVERVIEW

Introduction and Planning Context

The Introduction and Planning Context chapter of this study provides additional background information and details related to the 2012 Update. This chapter also summarizes other key transportation-related planning efforts, including the planned loop road projects envisioned as key infrastructure necessary to support the development of the research campus’ eastward expansion and 2013 Alta Campus Bicycle and Pedestrian Plan, as well as efforts addressing topics such as parking, pedestrian circulation, campus shuttles, and sustainable transportation initiatives.

Current Program Assessment

The Current Program Assessment chapter provides a critical review of the parking and transportation program. This chapter is based on the evaluation of documentation provided by the WSU Transportation Services Department, in-person interviews, on-site campus observations, and comparative analyses with selected peer institutions.

It should be noted that WSU has a well-managed and progressive parking and transportation program. Near the beginning of this project, the Transportation Director began a new position at an East Coast university, which somewhat delayed this project. After a long recruitment process, WSU was fortunate to rehire its former Transportation Director, a well-respected parking professional. In addition to his familiarity with the campus, the director brings a wealth of new ideas and program initiatives from his previous position with another highly-regarded university transportation program.

Program Assessment Framework

Through extensive work with parking and transportation organizations around the country, Kimley-Horn has developed a framework to evaluate program effectiveness, benchmark success, and guide organizational improvement. The framework provides a rational and structured approach to evaluating transportation programs based on best practices in the following areas:
Executive Summary

Mission, vision, and philosophy
Strategic planning
Reporting structure, organization, and human resources and development
Connection with the public, communication, service orientation, and promotion
Enforcement program
Use of technology
Permit allocation system and pricing
Budget

SP+, the largest parking management firm in the country, served as a sub consultant to Kimley-Horn to develop the current program assessment. Mr. Casey Jones, Certified Administrator of Public Parking (CAPP) led SP+’s efforts. Mr. Jones is the former Board Chair of the International Parking Institute and has led several major university parking and transportation programs for institutions including the University of Colorado and Boise State University.

Transportation Peers

The Transportation Peers chapter is organized based on the program assessment framework outlined above and includes a significant comparative analysis based on a specially-selected set of transportation program peer institutions included in Table 1.

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boise State University</td>
<td>Boise, ID</td>
</tr>
<tr>
<td>Oregon State University</td>
<td>Corvallis, OR</td>
</tr>
<tr>
<td>University of Indiana Bloomington</td>
<td>Bloomington, IN</td>
</tr>
<tr>
<td>University of Arizona</td>
<td>Flagstaff, AZ</td>
</tr>
<tr>
<td>Iowa State University</td>
<td>Ames, IA</td>
</tr>
<tr>
<td>Colorado State University*</td>
<td>Fort Collins, CO</td>
</tr>
<tr>
<td>Oklahoma State University*</td>
<td>Stillwater, OK</td>
</tr>
<tr>
<td>University of Tennessee*</td>
<td>Knoxville, TN</td>
</tr>
<tr>
<td>North Carolina State University*</td>
<td>Raleigh, NC</td>
</tr>
</tbody>
</table>

Survey data was collected for all selected peers, the results of which are summarized in this chapter. While conditions are unique at WSU, benchmarking various aspects of the University parking and transportation system against peers is a useful exercise that can reveal potential areas for improvement or confirm that WSU is commensurate with peer organizations. See Appendix A for detailed information and data about the peer organizations included in this analysis.
The Current Program Assessment resulted in several key recommendations regarding internal program reorganization; parking permit program modifications, pricing, technology, and enforcement; and program communication and outreach.

IV. PARKING MANAGEMENT RECOMMENDATIONS SUMMARY

Permit Allocation System
A redesign of WSU’s current permit allocation system may be required as it seems overly complicated, especially for people new to the system. Faculty and staff may have some comfort level with the system based on familiarity, but this may not be the case for students who seem overwhelmed by the complexities of the system. Additionally, WSU may inadvertently be encouraging intra-campus traffic and congestion by allowing so many “park down” options. WSU may need to incorporate more assigned parking features to its existing demand-based system to reduce campus congestion and improve the predictability of parkers finding spaces in their preferred parking locations.

WSU may consider revising the number of secondary lots available for a permit. In this way there would be a primary lot – priced based on demand – and a secondary, overflow lot. Some exceptions could be built into the system for parkers who need additional accommodations but ideally the price would reflect the added convenience offered by the permit.

Technology
Many technologies are available to WSU to improve customer convenience, revenue control and promote operational efficiencies. Chief among these technology options that WSU should pursue include: license plate recognition, parking reservation and pay by phone parking systems and transit vehicle locator systems. It has been noted that some of these improvements are already being implemented or evaluated by staff.

Professional Development
Parking and transportation programs and services are becoming increasingly complex and technology is changing very rapidly making investments in training and staff development more important than ever for the professionals working in the field. Transportation Services has done a good job of providing professional development for its staff but more can be done in the areas of:

- Active transportation
- TDM
- Payment card industry standards
- Incident command system/special event management
- Sustainability for parking and transportation organizations
- Parking technology, data collection and utilization
Human Resources

Overall, Transportation Services has appropriate levels of human resources needed to support the current level of services provided. However, minor organizational adjustments, especially regarding field operations manager, may be in order to address “span of control” related issues. Adjusting the duties of the program assistant’s time to deal more directly with human resource responsibilities may help the field operations manager better deal with operational issues. Transportation Services may wish to consider moving the cashiers and parking checkers to the administrative side of operations based on the fact that all of these positions are essentially customer service positions regardless of whether services are provided in the office or in the field. This would allow the field operations manager to focus primarily on event operations. This study recommends a significant increase in TDM program development. WSU has promoted an internal candidate to the position of TDM manager which is a positive step in advancing alternative transportation programs and services on campus.

Enforcement Program

WSU performs well compared to its peers regarding its enforcement program, but there are areas that need further analysis and consideration. WSU may benefit from a thorough evaluation of the parking guide position to ensure that the job description, training, standard operating procedures and performance measurement system embraces and emphasizes the ambassadorial portion of duties over enforcement responsibilities. A sample parking enforcement handbook and a sample parking enforcement audit procedure have been provided as tools that can be customized to enhance the parking enforcement program.

Customer Engagement

Transportation Services has a good relationship with the community it serves and its various customer groups and further engagement progress can be made through the following efforts:

- Conducting annual customer service survey and develop measurable goals and objectives focused on improving customer satisfaction
- Offering feedback mechanisms offered in a variety of mediums for all programs and services especially new offerings. Customers appreciate being asked their opinion and customer oriented organizations ask for feedback and act on it
- Evaluating enforcement practices to ensure that enforcement activities support customer service goals

Parking Management Best Practices Toolkit

A comprehensive and broad-based parking management best practices toolkit has been provided in the report appendices to provide WSU with an array of best practices to review as means to further enhance parking management practices. Many of these practices are already being employed by the WSU program. These should be recognized and celebrated. Other concepts may need some adaptation to be
successfully integrated into the program. A variety of other practical tools, manuals and resources are also provided in the report appendices that may contribute to parking management program enhancements.

Community Engagement

A critical part of developing a successful parking and transportation plan is clear and concise communication with various user groups coupled with proactive and authentic stakeholder engagement. As part of the WSU Comprehensive Transportation Plan, intentional and targeted outreach to the campus community was designed to provide both WSU staff and the consultant team with valuable insight into real and perceived parking and transportation challenges that students, faculty, and staff face as they travel to and around the Pullman campus.

The Community Engagement chapter outlines the campus community engagement activities conducted as part of the WSU Comprehensive Transportation Plan and provides a Strategic Communications Plan to support the implementation of the plan’s recommendations. This plan explores traditional and non-traditional marketing channels, education/engagement strategies, and communication vehicles specifically identified to keep the community informed and engaged during a time of growth and change on the WSU campus. The Strategic Communications Plan also identifies target audiences for marketing and messaging strategies and positioning statements designed with the ultimate goal of increasing ease-of-use and customer understanding of WSU Transportation Services offerings.

The campus community and internal stakeholders (e.g., Transportation Services staff) were given multiple opportunities and venues to provide feedback throughout the engagement process, including small group meetings, individual interviews, “intercept surveys” conducted at the University Recreation Center (UREC), and online surveys. The main goal of the campus engagement process was to provide community members with the opportunity to share experiences, perceptions, ideas, and concerns related to parking on and moving around the WSU campus.

The Comprehensive Transportation Plan’s main stakeholder engagement site visit occurred from September 16 through 18, 2014. Over 110 unique stakeholders participated in outreach meetings.

Parking Supply/Demand Assessment – Parking Demand Model

A primary task of this study was to update the analysis of the campus’ parking supply and demand. Kimley-Horn provided WSU with a unique parking analysis tool known as Park+. This tool allows WSU to measure how changes in land-use and parking will affect demands on existing and future parking supply on an on-going basis. The following section describes the Park+ modeling application developed for WSU.
Introduction to Park+

The Park+ model is largely modeled after traditional supply and demand evaluations and includes a multi-step process for evaluating parking demand conditions for a development, community, or campus. The multi-step process typically includes gathering data, defining assumptions or characteristics, selecting generation rates, applying reduction factors, creating scenarios, and evaluating results. The Park+ model features a predictive gravity demand modeling algorithm that allocates projected parking demand on adjacent parking facilities based on walking distance, price, and general attractiveness of each facility.

The gravity modeling algorithm used in this model was developed specifically for the applications in Park+. The algorithm uses the range of walking distances, price, and facility types in the model to define localized scores for each facility and land-use pair. These scores are then used to define the percentage of parking demand allocated to each parking facility, up to a user-specified maximum occupancy percentage that reflects the perceived effective capacity conditions within each Park+ community or campus.

Outputs of the Park+ model include parking demand, parking supply, general surplus or deficit, latent (unmet) demand, and traditional parking demand comparisons. The parking demand metric is a summary of the demand generated for the entire study area (or for a selected area therein). The parking supply metric is a summary of the parking capacity for the entire study area (or the selected area). The surplus or deficit metric is simply the difference between the demand and supply metrics for the given area. Latent demand represents the amount of demand that is not met within each localized walking radius defined within the model. While the overall supply and demand may be met within a given scenario, localized deficiencies within specific areas of the model may still occur. The latent demand captures and identifies these areas.

Study Area

The study area included in the WSU Park+ model consists of the main campus bordered on the west and south by East Main Street, Terre View Drive to the east, and NE Terre View to the north. Figure 3.1 provides an aerial view of the study area. The study area includes:

- 4,615 student residences (both on- and off- campus)
- 1,883,355 square feet (SF) of space for student uses (e.g., classroom space, student services, recreational facilities)
- 4,148,378 SW of space for faculty and staff uses (e.g., offices, research spaces, maintenance facilities)
- 9,190 parking spaces available to students, student residents, employees, and visitors (totaling approximately 24,866 individuals in 2014)

Initially, all developments proposed in the 2012 Update were included in the model. However, following discussions with the Campus Planning Department, it was agreed that some of the developments
proposed in the 2012 Update are too speculative for inclusion. As a result, the Campus Planning Department defined a revised set of development projects that are referred to in this report as the University’s 10-Year Plan.

**Park+ Calibration and Scenario Development**

The Park+ calibration process utilizes existing parking demands (including both historic demands and more recent data collected by the project team) to calibrate parking generation rates for each individual land-use within the study area. The result is a more accurate depiction of parking generation rate characteristics in the study area, rather than depending on city/county code or outdated national parking generation rates reported by the Institute of Transportation Engineers (ITE) or the Urban Land Institute (ULI). The calibration process uses parking occupancy data, land-use characteristics, multi-modal characteristics, parking relationships, and area-specific walking tolerances to define the adjusted parking generation rates.

Once the model calibration settings are determined to accurately reflect existing conditions, the Park+ model is able to run projected conditions for the current parking environment, as well as develop and run future scenarios based on a myriad of different conditions. Four scenarios were developed using the WSU Park+ model to reflect development projections identified in the University’s 10-Year Plan; each scenario builds off of the assumptions in the base model and incorporates additional developments into each new scenario. The four scenarios are summarized below:

- Existing land uses and parking demands
- Current projects under construction
- Projects to be completed between years one and five in the 10-Year Plan
- Projects to be completed between years six and 10 in the 10-Year Plan

**Parking Demand Scenario Conclusions**

The following summaries define the modeled conditions for each scenario developed in Park+. The figures on the following pages provide an overview of each of each scenario.

- **Existing Conditions**: The existing conditions scenario included a parking demand of 8,133 spaces versus a supply of 9,190 spaces to yield a surplus of 1,057 spaces. Despite this large surplus, some low levels of localized parking deficiency exist near the center of campus where available parking is located outside of desirable walking tolerances.

- **Current Development**: The results of the current development scenario predict a parking demand of 8,376 spaces, including an increase of 406 spaces attributed to campus expansion. The development projects included in the current development scenario removed 230 spaces from the parking system. By increasing the users’ walking tolerances through bicycle and pedestrian improvements, all parking demand on campus would lessen, although most parking facilities are at capacity with a few instances of localized latent demand. The latent demand is the result of some facilities being located outside of the established walking tolerance or of certain facilities being unavailable to users with the demand due to the permitting structure. To mitigate
parking demands, the university should strongly promote the use of multi-modal transportation alternatives and the implementation of TDM strategies discussed in this report. At this time, it is likely that WSU will need to begin planning for additional parking capacity on campus to meet future parking needs generated by new development in the later phases of the 10-Year Plan. (Reference Figure 1)

**Years One to Five Development:** This scenario analyzed the impacts of projects planned for years one through five in WSU’s 10-Year Plan. The results project an increase in parking demand of 319 spaces, from a demand of 8,376 spaces in the current development scenario to 8,695 spaces under this scenario. The additional demand surpasses available parking supply on campus. At this point, a new 1,200-space parking facility should be constructed to accommodate the demand. Based on an evaluation of the alternatives presented in the 2012 Update, Parking Garage No. 9 adjacent to the Beasley Coliseum is the recommended alternative. The excess supply created by this facility will later accommodate projected parking demands in years six through 10 of the 10-Year Plan. After incorporating the facility into the model, nearly all parking demand is accommodated. The latent demand is reduced to 68 spaces, which is largely inconsequential on a campus of this size. (Reference Error! Reference source not found.)

**Years Six to Ten Development:** The final phase of the 10-Year Plan yields 9,537 spaces of parking demand and 9,782 spaces of supply, including the proposed 1,200-space parking garage. Because no true parking deficiency exists on campus, the construction of additional parking facilities during this phase of development is not recommended. However, the parking system will only have a three percent cushion between supply and demand, which is not ideal. Campus parking demand will be reduced to a more manageable level if the TDM initiatives proposed in this study are implemented as students, student residents, staff, faculty, and visitors utilize alternative methods of transportation to and around campus.

The projects identified in the 10-Year Plan are strongly focused on laboratory and research facilities and are primarily located near the campus center. As these facilities are developed, existing campus parking supply will become strained and no longer able to meet parking demands—particularly because the development sites coincide with the locations where parking supply is already limited.

While existing capacity is able to meet current demands, future parking demands will surpass the threshold during the year one to year five phase. To be able to meet the additional demands during this and future phases, a 1,200-space parking structure should be constructed just east of Beasley Coliseum available for student, faculty, visitor, and student resident use.

**Table 2** provides an overview of the parking demand versus supply in all scenarios analyzed. The figures that follow summarize each of the development scenarios modeled.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Parking Demand (spaces)</th>
<th>Parking Supply (spaces)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Conditions</td>
<td>8,133</td>
<td>9,190</td>
</tr>
<tr>
<td>Current Development</td>
<td>8,367</td>
<td>9,070</td>
</tr>
<tr>
<td>Years One through Five</td>
<td>8,695</td>
<td>10,016</td>
</tr>
<tr>
<td>Years Six through Ten</td>
<td>9,537</td>
<td>9,782</td>
</tr>
</tbody>
</table>
Current Development

Figure 1. Scenario Overview (Current Development Projects)
Supplemental Parking Supply/Demand Analysis

Following an initial review of the Park+ model analysis, Transportation Services staff questioned if the proposed site for the recommended 1,200-space parking garage (Facility No. 9 from the 2012 Update) adjacent to the Beasley Coliseum is the best option. Recent developments in the northwest quadrant of campus have decreased supply and increased parking demand in this area of campus. In addition, the razing of the former “Bookie Site” near NE Colorado Street and NE Thatuna Street created an opportunity to add parking supply in a quadrant of the campus that has several compelling arguments for increasing the parking supply:

- The northwest corner of the site was designated for a major campus gateway signage element. The proposed gateway element could be incorporated into the garage structure.
- The site could be extended into an adjacent surface lot to help reconfigure a problematic intersection at NE Colorado and NE Thatuna Streets.
- Thatuna Street is currently configured as a one-way street traveling north. The 2012 Update suggests that converting this to be a two-way street in the future would be beneficial.
- If the facility were designed to be a combination parking garage and mixed-use building, its location makes it an attractive site for athletic or other office uses. Such a configuration would also provide the opportunity to blend the structure’s design into the existing campus architecture without having the appearance of a parking garage.
- Adding parking in this area would resolve some long-standing issues, such as access to Music Department events and provide the opportunity to create an activity space for students, such as a green roof with an activated-area featuring a coffee shop or other amenities.

Design sketches for this site were developed to illustrate options for this potential garage development site; these sketches are included in this chapter.

Figure 2. Red 2 Parking Lot Conceptual Analysis
Kimley-Horn and the WSU Transportation Department Director have also discussed the current Red 2 parking lot near the indoor practice field on Ferdinand's Lane as a potential garage development site. A rough conceptual analysis of the site estimates that the existing lot footprint could accommodate a four-bay parking structure with approximately 238 spaces per typical level. The first floor would have slightly less spaces to accommodate entry and exit lanes and Americans with Disabilities Act (ADA)-compliant parking.

Following the initial site evaluation above, WSU requested additional site explorations in this general area. The following reflects the additional site options developed based on that request.

As authorized, we have developed preliminary design concepts for parking structures on two sites located on the campus of Washington State University (WSU) in Pullman, WA. The first site (Lot A) is bounded by Ferdinand Lane, North Fairway Road, Stadium Way and North Fairway Lane and currently serves as a surface parking lot. The second site (Lot B) is situated immediately east of the indoor practice facility and fronts Ferdinand Lane and also serves as a surface parking lot. These parking structures would provide permit parking for students, visitors and university staff. WSU’s goal for developing structured parking on these sites to provide an additional 1,000 to 1,200 parking spaces.

**LOT A Parking Structure Concept**

The parking structure footprint in this concept occupies the western portion of the site and maintains a significant portion of the existing surface parking spaces. Refer to enclosed Drawing S101. Key attributes of this concept are summarized as follows:

- **Structure footprint and height:** 361 ft. by 248 ft.; 45.75 ft. to top of parapet.
- **Four parking bays wide with a side-by-side single thread helix ramping system for vehicular circulation.** A single thread helix is a ramp orientation that circulates vertically one floor with each 360 degrees of revolution. This system also provides for level perimeter parking bays resulting in level façade elements.
- **The side-by-side ramping configuration can provide operational flexibility with regards to being able to provide dedicated access and parking for IP employees.**
- **Grade plus four supported levels of parking providing approximately 1,335, 8.5 ft. by 18 ft., 90-degree stalls. Net new spaces gained is 1,140.**
- **Gross building square footage of parking approximately 424,555 square feet**
- **Average design parking efficiency of 318 square feet per stall.**
- **Concept Level Opinion of Probable Project Cost**
Table 3. Lot A Parking Structure Concept

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Note 1: The base construction cost includes an allowance of $300,000 for site demolition, utility relocation/reconfiguration within structure footprint and regrading of remaining portion of existing surface parking area. The parking structure construction cost is based on a $55 per square foot unit cost.

Figure 3. Lot A Parking Garage Concept
LOT B Parking Structure Concept

The parking structure footprint in this concept fronts Ferdinand Lane and occupies the southern portion of the site. Its placement maintains a portion of the existing surface parking spaces adjacent to the indoor practice facility. Refer to enclosed Drawing S102. Key attributes of this concept are summarized as follows:

- Structure footprint and height: 290 ft. by 189 ft.; 56 ft. to top of parapet.
- Three parking bays wide with single-thread thread side-by-side helix ramping system for vehicular circulation. A single thread helix is a ramp orientation that circulates vertically one floor with each 360 degrees of revolution. This system also provides for level perimeter parking bays resulting in level façade elements.
- Grade plus five supported levels of parking providing approximately 1,001, 8.5 ft. by 18 ft., 90-degree stalls. Net new spaces gained is 827.
- Gross building square footage of parking approximately 316,540 square feet
- Average design parking efficiency of 316 square feet per stall.

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Note 2: The base construction cost includes an allowance of $140,000 for site demolition, utility relocation/reconfiguration within structure footprint and regrading of remaining portion of existing surface parking area. The parking structure construction cost is portion of existing surface parking area. The parking structure construction cost is based on a $55 per square foot unit cost.
Transportation Demand Management

Enhancing the functions of WSU’s TDM program will be central to achieving the University’s goals to reduce dependence on single occupant vehicles (SOV), improve overall campus access and mobility, promote sustainable transportation options, and mitigate the cost of future parking infrastructure investments.

Reducing dependence on the automobile has been an increasing priority for comprehensive parking and transportation departments over the past few decades based on the realization that solely focusing on supply-side parking strategies to achieve overall programmatic objectives has both financial and environmental impacts. Either by necessity or forward thinking, universities have been at the forefront of developing effective demand management strategies, thereby demonstrating that this approach can be more cost-effective than providing structured parking and can positively contribute to a campus’ sustainability goals.

As universities continue to grow, TDM is becoming an increasingly critical piece of the transportation puzzle. In further support of TDM initiatives, younger generations, especially the so-called
“millennials,” have shown less interest in obtaining a driver’s license and purchasing vehicles. Instead, these millennials opt to use a new-generation of shared transportation services largely made possible by the proliferation of mobile communications devices and participation in the “sharing economy.”

**Looking Towards the Future**

A new factor that we should begin taking into consideration is the very real and rapidly advancing development of autonomous vehicle (AV) technology. AV technology (also referred to as self-driving vehicles) offers the possibility of fundamentally changing transportation as we currently know it. Equipping cars and light vehicles with this technology will likely reduce crashes, energy consumption, and pollution—all while reducing the costs of congestion.

Careful policymaking will be necessary to maximize the social benefits that this technology will enable while minimizing the disadvantages. Policymakers are only beginning to think about the challenges and opportunities this technology poses. Parking and transportation practitioners would be wise to also begin weighing the potential impacts on our industry. A good place to start is by reading the report entitled, “Autonomous Vehicle Technology - A Guide for Policymakers” published by the RAND Corporation. It is available for download at rand.org/pubs/research_reports/RR443-1.html

Uber's plan for self-driving cars is an interesting example that illustrates the potential impact of this technology. A recent edition of the Mobility Lab e-newsletter (Mobility Lab Express #69 - September 1, 2015) includes an article entitled “Uber's Plan for Self-Driving Cars Bigger than Its Taxi Disruption.” The article discusses how Uber has fundamentally changed the taxi industry. However, its biggest disruption may be yet to come. The report comments,

> The ride-hailing company has invested in autonomous-vehicle research, and its CEO Travis Kalanick has indicated that consumers can expect a driverless Uber fleet by 2030. Uber expects its service to be so inexpensive and ubiquitous as to make car ownership obsolete. Such ambitious plans could make its disruption of the taxi industry look quaint in comparison . . . A study by Columbia University calculates that with a fleet of just 9,000 autonomous cars, Uber could replace every taxicab in New York City—with a passenger wait time of 36 seconds and a cost of $.50 per mile . . . Going further to an economy-wide perspective, Pricewaterhouse-Coopers estimates, as noted by writer and entrepreneur Zack Kanter that ‘autonomous vehicles would reduce the number of vehicles on the road by 99 percent, and the fleet of cars in the U.S. would fall from 245 million to 2.4 million.’

Should Uber’s plans materialize, the impact may not all be positive. Self-driving cars will greatly affect the job market, car manufacturers, dealerships, transit, and the urban lifestyle itself (not mention the parking industry!).

While it may seem far-fetched at this point, it may not be too early to consider the possibilities and potential ramifications of how AVs could impact future campus parking and transportation programs. Now is a good time for campus, community, urban development, and transportation-thought leaders to
think creatively together about the positive and negative aspects of this amazing transformation that may be coming in the next few decades.

It is worth considering if the recommended 1,200-space parking garage should be designed for potential conversion to another use in the long-term if the promise of AV is to be realized in the next 20 years. This type of thinking has some immediate planning impacts that should be evaluated. As one example, although somewhat counter-intuitive, parking structures are designed to support approximately 50 pounds per SF, while an office building has a structural capacity of nearly 120 pounds per SF. If a parking structure is built with the assumption that it may be converted to an office building at some point in the future, then designing it with higher structural capacity and floor-to-floor heights and primarily flat floors supported by a helical ramp for vertical circulation may be an appropriate and forward-thinking strategy.

Integrated University Parking and TDM Programs

The TDM chapter has several key elements including a broad based primer on the concept and evolution of TDM as a discreet discipline and an assessment of WSU’s current limited TDM program, including a review of the 2013 Campus Bicycle and Pedestrian Plan developed by the Alta Planning and Design Group.

Another significant section of this chapter discusses a process evolving on many university campuses at this time: how to best integrate university parking and transportation (including TDM programs) elements into a unified and seamless program that addresses the full range of campus access and mobility management functions. Philosophically, WSU is ahead of many of the university parking and transportation programs we have reviewed. However, if the recommendations of this study are accepted and implemented, a key area of focus and investment will be in the areas of TDM program development. At a minimum the addition of a TDM Coordinator position is recommended. These initiatives will support the WSU’s goals of creating a safer, more pedestrian-oriented campus and campus sustainability goals.

The chapter strongly supports increased investment in transit and other transportation programs, such as the proposed campus shuttle program, to enhance overall campus access and circulation goals and the use of shared-mobility platforms (e.g., car- and bike-sharing programs). Increasing the price of parking permits will also play a key role in providing needed funding resources while disincentivizing SOV usage.

Another important consideration is the creation of a program to establish transportation planning baseline metrics and a process to continually monitor and evaluate new TDM program initiatives for effectiveness and return on investment. This issue is addressed in the “TDM Impact Monitoring” section.

The “Structured Approach to Developing a Sustainable Parking and Transportation Management Program” section outlines a number of strategies aimed at shifting the overall focus of a university
parking and transportation’s organization to the creation and implementation of sustainable transportation policies and business practices. Such strategies are currently being developed by progressive university parking and transportation departments and agencies across the country.

The TDM chapter concludes with a list of program development and enhancement recommendations, followed by an extensive set of TDM reference materials and resources for additional planning and research.

V. SUMMARY

This Comprehensive Transportation Master Plan was specifically developed to advance the evolution of the WSU’s Transportation Services Department’s function on the Pullman campus to fall in alignment with the broad institutional goals identified in the 2012 Update. It also accounts for recent adjustments to the campus master plan based on discussions with campus administration, planning, and transportation department staff.

This plan is both practical and aggressive and provides a variety of new tools and resources to assist and guide Transportation Department staff as they begin the hard work of program implementation. We are confident that the excellent team currently in place has the skills, knowledge, and support needed to turn this plan into a working reality.
Chapter 1: Introduction and Planning Context
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I. INTRODUCTION AND PLANNING CONTEXT

This Comprehensive Transportation Plan is built on the Washington State University (WSU or University) 2012 Campus Master Plan Update (2012 Update). The 2012 Update was a collaborative effort led by the University’s Office of Capital Planning and Development and Hanbury Evans Wright Vlattas + Company.

The campus master planning process was guided by a Steering Committee and a Campus Master Planning Committee composed of University faculty, staff and students. The plan incorporated ideas generated through on-site workshops, stakeholder interviews, planning team meetings, presentations, and reviews with the University’s executive staff and the Board of Regents.

VISION
Washington State University will be recognized as one of the nation’s leading land-grant research universities.

MISSION
Washington State University is a public research university committed to its land-grant heritage and tradition of service to society. Our mission is threefold:

1. To advance knowledge through creative research and scholarship across a wide range of academic disciplines.
2. To extend knowledge through innovative educational programs in which emerging scholars are mentored to realize their highest potential and assume roles of leadership, responsibility, and service to society.
3. To apply knowledge through local and global engagement that will improve quality of life and enhance the economy of the state, nation, and world.

Figure 5. WSU Campus Map
The 2012 Update reaffirms the Vision and Mission of the University as restated above. Toward the fulfillment of these statements, the Strategic Plan targeted four overarching goals:

1. Achieve national and international preeminence in innovation, discovery, and creativity
2. Provide a premier education and transformative experience that prepares students to excel in a global society
3. Lead in relevant local, national, and global outreach and engagement
4. Embrace an environment of diversity, integrity, and transparency

The following summarizes the key goals and primary action areas of the strategic planning effort. Several of these goals were directly related to transportation and parking planning priorities. These goals are highlighted in blue below.

Master Plan Update Goals

1. Create a facilities master plan update that supports and enables the University’s strategic goals
2. Plan for facilities that position the University to compete with Association of American Universities (AAU) member institutions (This will require a significant increase in the University’s research infrastructure.)
3. Plan for space that accommodates enrollment growth
4. Plan physical arrangements and adjacencies that foster interdisciplinary collaboration
5. Develop an open space network that enhances the University’s sense of place and links with the natural environment of the Palouse
6. Create an environment that focuses on the pedestrian
7. Create a plan that compliments the topography of the campus while mitigating grade changes for pedestrians
8. Create a plan for development of the land east of Stadium Way
9. Create a plan that addresses deficient facilities
10. Develop a transportation, access and parking strategy
11. Create an exemplary, sustainable campus that also teaches about sustainability

Master Plan Primary Action Categories

In response to the goals and planning objectives, the master plan update proposed four primary action categories:

- **Develop a Superlative Research Campus:** Create a superlative research campus in the eastern area of campus centered on Grimes Way
» Develop the new campus to accommodate the research space required to achieve the University’s strategic goals
» Relocate existing animal research facilities, greenhouses, and facility operations

▲ Enhance the Campus Sense of Place: Reinforce the existing campus core as the academic nucleus for undergraduate programs
» Systematically address facility deficiencies through renovation and new construction
» Improve the campus’ sense of place by enhancing outdoor spaces as part of a campus-wide network of open space
» Enhance pedestrian and bicycle connections to the downtown
» Address undergraduate student life

▲ Adopt a Pedestrian Focus: Create an interdisciplinary research zone organized around a new signature green space along the east side of Stadium Way and Grimes Way
» Relocate programs such as the College of Engineering and Architecture to this area to facilitate interdisciplinary research and collaboration
» Create a pedestrian mall on Stadium Way between North Fairway Road and Grimes Way to enhance pedestrian connectivity between the graduate and undergraduate campus areas

▲ Promote Leadership in Sustainability
» Implement the above actions in a manner that embraces and teaches about environmental sustainability
» Implement strategies including low-impact site development, best management practices for stormwater, buildings designed to USGBC’s LEED standards, and didactic landscapes
» Adopt a multi-modal approach to transportation
» Implement sustainable operations practices and policies that complement these development strategies

2012 Campus Master Plan Update Recommendations
The 2012 Campus Master Plan Update recommended four goals to address these issues:

▲ Goal 1: Establish a network of formal and informal open spaces
» Preserve historic campus core quadrangles and mature trees
» Use new buildings to create formal quadrangle spaces and courtyards; buildings should shape the space not occupy it
» Take advantage of topography; extend vistas and axes to take advantage of views to the Palouse
**Chapter 1: Introduction and Planning Context**

- Interconnect informal spaces with pedestrian malls

**Goal 2:** Create a signature open space at the corner of Grimes Way & Stadium Way
  - Remove parking at Bustad Hall
  - Reroute Stadium Way along the face of Bustad Hall and link with Grimes Way at Alumni Way
  - Close Grimes Way between Alumni Way and Stadium Way
  - Establish a quadrangle suitable for gatherings and passive recreation

**Goal 3:** Create a pedestrian mall on Stadium Way
  - Close Stadium Way to automobile traffic from North Fairway Drive to Grimes Way
  - Create a transit and pedestrian mall maintaining routes for Pullman Transit (near-term)
  - Reroute transit vehicles to Campus Loop Road (long term)
  - Consider how pedestrian malls can facilitate game day access and tailgating

**Goal 4:** Create a network of pedestrian pathways
  - Redefine Terrell and Library Malls to incorporate additional landscaping, art, seating, and shade
  - Redefine service vehicle access on pedestrian malls; limit times and types of vehicles
  - Convert Wilson Road into an extension of Terrell Mall to the Alumni Center
  - Collaborate with UREC to define running trails around the perimeter of campus
  - Link pedestrians to the arboretum and downtown
  - Standardize pathway materials, signage, and lighting to enhance ease of use and safety

**Campus Master Plan Update: Transportation, Access and Parking Issues**

**Roadways**

The Campus Master Plan Update envisioned the closure of a portion of Stadium Way and the completion of the loop road. The plan also anticipated that Grimes Way would be upgraded as a new entrance to campus. As of October 2015, the closure of a portion of Stadium Way is not likely to occur until an alternative route is in-place. This is generally understood to mean the completion of at least one leg of the campus loop through the east campus. While some progress is being made on the loop road (i.e., diverting land fill from the site next to the Residence Inn on Northeast Fairway Road), completion of the loop road is still projected to be several years away.

Other minor adjustments to campus vehicle circulation were envisioned by the plan. As part of the closure of Stadium Way, for example, Grimes Way was to be realigned near its intersection with Stadium Way so that traffic on southern Stadium Way would continue onto Grimes Way. This would allow the creation of a large civic green to serve as both a gathering space and a focal point at the end of
Grimes Way. Additionally, it was envisioned that Spokane Street would be realigned south of Washington Street. The new alignment would follow the existing Washington Street roadbed, but curve to the south to provide an improved connection to Stadium Way at the existing Nevada Street intersection. No activity on these proposed roadways changes has been noted to date.

Although off-campus roadways were not part of the 2012 Update, it was considered important to evaluate the impacts of campus growth on these roads. While the plan envisioned a reduced reliance on the automobile in the future, an increased number of vehicle trips to and from campus is still anticipated based on growth. As the campus expands to the east, the 2012 Update anticipated that some portions of Airport Road would need to be widened. Much of the extent of local improvements may hinge on the proposed northern and southern bypass roads and selected alignments if one or both are constructed.

**Parking**

Parking provisions were a critical issue in the 2012 Update, as driving will continue to be a primary mode of travel for people coming to and from campus. The illustrative plan anticipates that up to 4,300 spaces could be lost to accommodate new building construction, while anticipated campus growth scenarios suggest a parking demand of roughly 9,600 spaces in 2020 and 13,900 spaces in 2030.

However, these projections were based on campus development projects that have not moved forward as quickly as anticipated. While the plan foresaw the potential for future parking deficits, it was noted that there was an excess of parking spaces when it was authored in 2012. This provided some short-term flexibility for early phases of plan implementation, such as lot closures related to the greening of Stadium Way. It is important to note that through the planning process for the Transportation Plan, many of the 2012 Update’s assumptions were challenged or modified based on timing and/or funding of major campus roadway and building development projects. The Master Plan Update assumed that interim surface lots would be constructed as conditions warranted. Much of the parking in the eastern research district, for example, is assumed to be surface parking at first.

Recent building development projects in the northwest sector of the campus eliminated a significant amount of surface parking and added new demand generators—leading to a focus on providing some replacement parking in this area of campus. New campus development assumptions will be discussed later in this report.

**Transportation Alternatives**

To meet the transportation needs of the growing campus, the 2012 Update highlighted the need to reduce reliance on the single occupant vehicle (SOV). At full build-out, the master plan noted that nearly all of the parking on campus would need to be in structures. This option can be up to 10 times as expensive to build, maintain, and operate as surface spaces. Moreover, if the campus tried to “build its way out” by constructing a large amount of new parking, it would also need to build wider streets to accommodate increased commuter traffic. As a result, the 2012 Update concluded that WSU should
significantly expand its transportation demand management (TDM) program as a means to reduce future parking demand.

**Transportation Demand Management**

The 2012 Update envisioned a staged approach to vehicle accommodation that focused on TDM and the promotion of alternative parking. TDM measures would include enhanced promotion of the Pullman Transit system, as well as measures to support walking and bicycling to campus. The development of rideshare tools to facilitate carpooling and supportive measures such as a guaranteed ride home (GRH) program, were deemed most important. GRH programs guarantee a ride home (or to another location) for unexpected situations, such as when family members become sick or an individual must work unscheduled overtime. All of this supports the need for an experienced TDM Coordinator position.

An entire section of this report is dedicated to TDM initiatives that significantly expands the list of potential transportation alternatives. Another important issue related to promoting transportation alternatives, as well as paying for new surface lot and structured parking, is the cost of parking permits, which will likely provide the greatest incentive to shift one’s chosen mode of transportation and reduce single occupant vehicle use.

The 2012 Update also called for supplementing the parking available on the main campus, including the potential creation of additional park-and-ride lots. The intent of these “park and ride lots” (as described in the 2012 Master Plan update) really refers to remote parking options served by a shuttle program or transit resources. The primary goals are twofold: to provide a less expensive remote parking option for vehicles that are not needed every day as well as minimizing the traffic impacts to the pedestrian campus. There were two such lots in 2012, although both were under-utilized: one was located on Terre View Road at the Chief Joseph Student Apartments and the other was located on Merman Drive adjacent to the Valley Road playfields. As these lots were anticipated to fill over time, the master plan update encouraged the University to look for additional park-and-ride locations adjacent to Pullman Transit routes. It also envisioned the development of a park-and-ride location to capture the large number of WSU commuters who live in Moscow. As parking prices in the core and parking demand simultaneously increase, the creation of more remote surface lots is a potential strategy. These remote lots would primarily serve as resident student vehicle storage lots and provide a low-price parking alternative.

Future TDM participation levels will depend upon the investment in and the success of the University’s TDM programs and related parking program changes. Nonetheless, the 2012 Update envisioned that up to 10 percent of those who could park on-campus will park in remote locations, and another three to five percent will use community park-and-ride lots by 2030. By providing new transportation alternatives, coupled with a reduced parking supply and increased parking rates, it is anticipated that additional commuters will abandon their single occupant vehicles over time. As a result, the 2012 Update anticipated an estimated 20 percent participation rate in TDM programs, including car and vanpooling; car sharing services; and riding the bus, walking, or bicycling to campus. The 2012 Update estimated
that the ratio of main campus parking spaces would decrease from approximately 0.40 parking spaces per person today to approximately 0.33 by the year 2030. This will be a key metric going forward.

Recent trends show that a growing number of “millennials” are neither obtaining driver’s licenses nor purchasing vehicles and are instead opting to use car sharing services. This is a positive trend that the transportation strategy will attempt to leverage going forward. Other recent campus parking and transportation master plans conducted by Kimley-Horn target a parking-to-population ratio of 0.28. This is an aggressive target (representing approximately a 30% reduction in SOV usage over time), however, we believe this target is also achievable at WSU, however, a significant investment in TDM strategies must occur in concert with changes to parking polices and rates to achieve this metric.

**Pullman Transit**

The 2012 Update envisioned that Pullman Transit would continue to play a key role on the campus and anticipated a strong growth in ridership. While the overall parking supply on campus was envisioned to continue to grow, the ratio of parking spaces to population should decrease. Moreover, parking permit costs should be expected to rise to offset the increased cost of structured parking and to provide a greater disincentive to single occupant vehicle use. As a result, an increasing number of students and employees will take the bus to campus. The plan also envisioned a park-and-ride network with lots in Pullman and Moscow. It is likely that primary service for these lots would be by Pullman Transit, although the University or a contractor could provide some of the service.

Given the continued importance of Pullman Transit, the 2012 Update deemed it critical that bus service continues to circulate around the campus. Few changes were envisioned related to Pullman Transit in the short-term. However, if Stadium Way is closed and the new loop roads open, buses will shift away from the pedestrianized core to the loop in the long-term. To allow for a convenient transfer for individuals who prefer not to walk to their final destination, a proposed campus shuttle would intersect off-campus routes in one or more locations. The plan called for transfer points at several of the new parking structures. These stations would become multimodal hubs and include Green Bike stations and other transportation-related functions to address “first- and last-mile” needs.

There is some concern that Pullman Transit may not have the resources needed to meet the increased demand in the future, as well as the specific needs associated with servicing remote parking facilities. Pullman Transit has fleet capacity storage issues and is also expected to serve the larger needs of the City of Pullman. The organization’s limited resources are already stretched and some of WSU’s existing needs are currently unmet—as evidenced by some bus routes leaving riders standing at shelters due to full busses. While Pullman Transit is considering regional transportation strategies such as a Bus Rapid Transit options, federal funding for such projects are subject to intense competition. The Pullman regional market may not be able to demonstrate sufficient need or demand to secure the required funding. The University may need to invest in a supplemental campus transportation system to meet specific student access and mobility needs in the future.
**Shuttles**

According to the campus master plan, another central component of future campus circulation was a proposed shuttle to connect the east to west campuses along Grimes Way. Today, the campus core can be crossed on foot in roughly 15 minutes, a time near the limits of what most individuals consider to be an acceptable travel time for on-campus movement. The campus’ proposed eastward growth would more than double the time that it could take to travel between the research and academic centers of the campus. A primary goal of the envisioned shuttle was to ensure that the campus could be crossed in no more than 15 minutes.

This interconnectivity was considered crucial to the future success of research at the University by allowing continued collaboration among departments, facilitating student participation in research (particularly undergraduates), permitting increased flexibility in academic and resource scheduling, and ensuring that researchers can be fully integrated into the campus. While we agree with this premise, the slower-than-anticipated development of east campus facilities reduces the immediate need for this option. Nonetheless, it remains an important long-term consideration.

**Pedestrian Circulation**

Improved pedestrian circulation was at the core of the 2012 Update. The “pedestrianization” of the campus core recognized the importance of pedestrian travel in campus daily activities. Not only would these changes improve pedestrian safety, they would also reduce travel time for walkers in those places where they currently share space with vehicles. The plan also envisioned the creation of new iconic spaces and buildings that would aid pedestrian navigation by providing reference points, in addition to enhancing the overall campus. The grid-like structure of the plan east of Stadium Way would improve pedestrian circulation by facilitating connectivity.

In areas where vehicles would remain, the plan envisioned narrower, more pedestrian-scale streets and the elimination or reduction of on-street parking. The new research campus would have a neighborhood feel with wide sidewalks along tree-lined streets. Buildings would have small set-backs to promote activation of the street. Grimes Way would become a key east-west link, anchored by a new green and a landmark building at the intersection of Stadium and Grimes ways. While the master plan emphasized more formal paths and walks adjacent to buildings, the pedestrian network would also connect with a series of paths and trails to ensure a continuous connection with the landscape that is so important to many students and employees at WSU.

**Bicycles**

Bicycles are currently not a dominant mode of transportation at WSU, although usage is anticipated to increase. Private bicycle usage was expected to increase in response to parking changes and the growth of academic and research facilities along Grimes Way. The Green Bike program has met great success, and there are plans to continue to add bikes and stations. On one site visit, it was noted that a trend is emerging in which Green Bikes are left at locations near the bottoms of large hills. As a result, bike
racks near hilltops must be regularly “repopulated”—highlighting the topographic issues on campus that must be considered.

The 2012 Update also called for the installation of bike lanes in key locations, particularly where vehicle speeds or volumes were high. It also was considered key to examine locations where grades are sufficiently steep that an uphill bike lane might be warranted (e.g., Nevada Street south of Stadium Way). However, vehicle speeds are sufficiently low on most of the campus so bicycles can share the street.

As additional portions of the campus are closed to vehicles, the 2012 Update highlighted the importance of establishing regulations that indicate where bicycles are allowed and where they are prohibited or must be walked to ensure pedestrian safety. The key is to provide viable bike routes through the campus. The adoption of bicycle-friendly policies was recommended as a key strategy to stimulate bicycle ridership going forward. This includes strategies such as showers in new buildings and the provision of secure and covered bicycle storage, among other policies. Similarly, policies to guide roadway design will be important to ensure that future campus streets and upgrades will accommodate bicycles via bike lanes and/or other design elements.

**Sustainability**

As Washington’s only land grant university, WSU desires to be a leader in sustainability. To maximize such opportunities, the master plan reinforced several strategies that contribute to achieving an environmentally responsible living environment, including:

- Site selection and development that supports efficient land use, effective storm water management, and a pedestrian-focused community with easy access to transit locations, bike paths, and campus connections
- Preservation and re-establishment of natural land features and vegetation
- Building masses that shade exterior spaces, provide opportunities for natural day-lighting for interior spaces, and preserve significant-view corridors
- Landscapes that are comprised of native or drought-resistant plant species
- Dedicated programs and site spaces that support the collection, storage, and removal of recyclable materials
- Project budgets that permit flexibility in material and building system choices on a per-project basis to allow the University to evaluate life-cycle costs, principles of sustainable development, and the social impact of each option
- New facilities that support the responsible use of natural resources in compliance with the USGBC LEED rating system as a point of reference (LEED Silver certification will be the minimum goal for each project; additional opportunities for LEED compliance will be considered in every aspect of the design and every economical attempt will be made to achieve the maximum level of sustainability possible)
Many advances in promoting more sustainable practices and reducing the carbon footprint associated with transportation and parking have been made in recent years. These approaches are explored in the “Sustainable Transportation and Parking Strategies” section of the TDM chapter of this study.

II. TRANSPORTATION PLAN GOALS

The Request for Proposals (RFP) issued for this study outlined several key objectives related to the development of a WSU Comprehensive Transportation Plan. At its core, the plan must project future parking and revenue needs and address transportation and circulation requirements that have resulted from an expected loss of parking due to campus capital development and a desire to create a more pedestrian-friendly campus.

The study area is defined as the WSU Pullman Campus planning area. The plan identifies specific improvements to transportation system infrastructure and programs within this area to achieve a more cohesive and functional system that integrates with existing infrastructure and accommodates future campus growth.

The RFP identified six primary objectives for the WSU Comprehensive Transportation Plan:

1. To serve as a planning, management, and policy document for campus transportation and parking
2. To reduce the travel of automobiles in the core campus with a goal of increasing safety for pedestrians and other forms of active transportation
3. To create an environment that prioritizes the use of active transportation and other mobility options
4. To plan for the development of a future on-campus shuttle system to connect the core campus with the developing research campus, as well as other regional and local transit systems
5. To provide a dynamic parking demand/price model for forecasting revenue and demand for future parking needs based on University growth estimates and planned capital projects, and for accurately pricing the true cost of parking replacement due to displacement by capital projects
6. To incorporate the access needs for maintenance and service vehicles and plan for snow removal and storage in any recommendation

Existing Conditions Overview

Located in Pullman, Washington, WSU is approximately 1,675 acres in size, and borders the City of Pullman (City) on the west side of campus and otherwise is landlocked by agriculture land, a regional airport and State Route 270. The City is a small college town located in eastern Washington at the Washington/Idaho border with a population of approximately 33,000 people, including WSU students. The current student enrollment on the Pullman campus is approximately 19,200 students. It is a goal of the University to increase the student population another nine percent to 21,150 students by 2020. The University employs approximately 5,000 staff and faculty.

Seventeen residence halls are located on the main campus with a capacity to house approximately 5,550 students. A new residential project completed in August 2015, added another 250 beds to the residence
hall inventory. Currently, approximately 16% of students living in residence halls purchase parking permits (approximately 880 spaces of residence hall parking demand).

WSU operates a five-zone parking permit system. Zones are identified by colors, then divided into regions indicated by numbers. Permits are allocated with varying under/oversell rates for each zone based on utilization rates, waiting lists, and consideration for anticipated impacts on the parking system.

At the beginning of this study, the Pullman campus had 165 campus parking lots/areas with the revenue generating space inventory as follows:

- 6,499 zone permits: 528 garage, 986 resident hall priority, 4,985 zone spaces
- 275 hourly garage spaces
- 80 single-space meters

The parking system inventory also contains 1,862 University-owned apartment resident parking spaces, 300 Americans with Disabilities Act (ADA)-compliant spaces, 255 departmental reserved spaces, 371 loading/service spaces, and 116 motorcycle/moped spaces. The University estimates that much of the central campus surface lot and street parking will be displaced by capital projects within the next twenty years.

The University contracts with the City to provide bus transportation service to all students, staff, and faculty. WSU contributes 45% of the City transit system’s operating expenses through student funding and parking system revenues; as a result, all faculty, staff, and students ride fare-free. Additionally, the University provides car-share, ride-share, bike-share, vanpooling, and guaranteed ride home programs to support the University’s TDM program.

WSU uses a legacy forecasting model sufficient for a static, parking-centric system. As the transportation and parking system has become more dynamic, financial and demand forecasting has become more challenging.

A more detailed review of the current WSU transportation services program can be found in the “Current Program Assessment” chapter of this report.
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Chapter 2: Current Program Assessment
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I. **INTRODUCTION**

This parking and transportation program management review is based on the evaluation of documentation provided by WSU, in-person interviews and observations, and comparative analyses with selected peer institutions.

II. **SELECTION OF PEER INSTITUTIONS**

**WSU's Legislative Peers**

For academic reasons, WSU compares itself to the 22 research universities as mandated by the Washington State Legislature. Each institution is a public, land-grant research university with a veterinary medicine program. Three of these institutions are also Global Challenge State (GCS) peers, and 12 are AAU member institutions.

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auburn University</td>
<td>Auburn, AL</td>
</tr>
<tr>
<td>Colorado State University</td>
<td>Fort Collins, CO</td>
</tr>
<tr>
<td>Cornell University</td>
<td>Ithaca, NY</td>
</tr>
<tr>
<td>Iowa State University</td>
<td>Ames, IA</td>
</tr>
<tr>
<td>Kansas State University</td>
<td>Manhattan, KS</td>
</tr>
<tr>
<td>Louisiana State University</td>
<td>Baton Rouge, LA</td>
</tr>
<tr>
<td>Michigan State University</td>
<td>East Lansing, MI</td>
</tr>
<tr>
<td>Mississippi State University</td>
<td>Mississippi State, MS</td>
</tr>
<tr>
<td>North Carolina State University</td>
<td>Raleigh, NC</td>
</tr>
<tr>
<td>Ohio State University</td>
<td>Columbus, OH</td>
</tr>
<tr>
<td>Oklahoma State University</td>
<td>Stillwater, OK</td>
</tr>
<tr>
<td>Purdue University</td>
<td>West Lafayette, IN</td>
</tr>
<tr>
<td>Texas A&amp;M University</td>
<td>College Station, TX</td>
</tr>
<tr>
<td>University of California, Davis</td>
<td>Davis, CA</td>
</tr>
<tr>
<td>University of Florida</td>
<td>Gainesville, FL</td>
</tr>
<tr>
<td>University of Georgia</td>
<td>Athens, GA</td>
</tr>
<tr>
<td>University of Illinois at Urbana-Champaign</td>
<td>Urbana, IL</td>
</tr>
<tr>
<td>University of Minnesota, Twin Cities</td>
<td>Minneapolis, MN</td>
</tr>
<tr>
<td>University of Missouri - Columbia</td>
<td>Columbia, MO</td>
</tr>
<tr>
<td>University of Tennessee</td>
<td>Knoxville, TN</td>
</tr>
<tr>
<td>University of Wisconsin - Madison</td>
<td>Madison, WI</td>
</tr>
<tr>
<td>Virginia Tech</td>
<td>Blacksburg, VA</td>
</tr>
</tbody>
</table>
Transportation Peers

Not all academic peers are appropriate for transportation-related analyses due to differences in campus size, adjacent lands uses, topography, and climate. As a result, a subset of academic peers has been combined with non-academic peers in order to form a transportation-oriented peer group.

Table 6. WSU Transportation Peers

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boise State University</td>
<td>Boise, ID</td>
</tr>
<tr>
<td>Oregon State University</td>
<td>Corvallis, OR</td>
</tr>
<tr>
<td>University of Indiana Bloomington</td>
<td>Bloomington, IN</td>
</tr>
<tr>
<td>University of Arizona</td>
<td>Flagstaff, AZ</td>
</tr>
<tr>
<td>Iowa State University</td>
<td>Ames, IA</td>
</tr>
<tr>
<td>Colorado State University*</td>
<td>Fort Collins, CO</td>
</tr>
<tr>
<td>Oklahoma State University*</td>
<td>Stillwater, OK</td>
</tr>
<tr>
<td>University of Tennessee*</td>
<td>Knoxville, TN</td>
</tr>
<tr>
<td>North Carolina (NC) State University*</td>
<td>Raleigh, NC</td>
</tr>
</tbody>
</table>

Survey data was collected for all selected peers for this study; the results of these surveys are provided in the following sections. While conditions are unique at WSU, benchmarking various aspects of the parking and transportation system against peers is a useful exercise that can reveal potential areas for improvement or confirm that WSU is on par with its peer organizations.

See Appendix A for detailed peer organization information and data.

Program Assessment Framework

Through extensive work with parking and transportation organizations, Kimley-Horn has developed a framework to evaluate program effectiveness, benchmark success, and guide organizational improvement. The framework provides a rational and structured approach to evaluate transportation programs based on best practices regarding:

- Mission, vision, and philosophy
- Strategic planning
- Reporting structure, organization, and human resources and development
- Connection with the public, communication, service orientation, and promotion
- Enforcement program
- Use of technology
- Permit allocation system and pricing
- Budget
III. EXISTING CONDITIONS

Mission, Vision, Philosophy

The mission of the Transportation Services is to get people where they want to be as courteously, safely, and efficiently as possible. They do this by:

- Promoting and providing transportation options
- Maintaining parking infrastructure and the unobstructed flow of traffic
- Managing parking facilities and parking spaces responsively and fairly
- Enforcing parking rules predictably and fairly
- Providing host services to the campus community
- Maintaining a well-trained, sensitive staff
- Maximizing fiscal resources

Strategic Planning

Transportation Services appears well-connected with campus strategic and land-use planning efforts. The 2012 Update, Bicycle and Pedestrian Plan, and WSU Climate Action Plan provide broad guidance for Transportation Services, as campus parking, access, and mobility are extensively incorporated into these guiding documents. As a result, contemporary and high-level strategic direction is available to Transportation Services. As a complementary element to past planning efforts, this Comprehensive Transportation Plan fills the expected gaps left by previous plans and provides further guidance regarding access and mobility on the Pullman campus.

In addition, the collaborative effort between WSU Transportation Services and Facilities Planning to develop, create, and modify the Campus Master Plan assists campus leaders’ understandings of the growing nature of the campus from access management and parking perspectives. The 2012 Update also indicates the critical need for parking structures to support future growth. Consequentially, supporting a capital plan that matches the timing and duration of these assets is imperative.

Another key step that WSU has taken in regards to parking and transportation planning is to invest in the Kimley-Horn Park+ parking modeling system. This system is an analytic tool that allows for the evaluation of various development decisions to more fully understand the true impacts on parking and transportation. It can also be used to understand the impacts of major campus events in terms of parking demand. Park+ effectively analyzes the impacts of TDM strategies on parking demand and demonstrates the impacts of alternative forms of transportation by factoring in walking, biking, and transit usage within the model. Most importantly, Park+ considers demand variables unique to WSU. Because WSU owns the model, analyses are specifically based on the University’s needs and time considerations. Clients have found the application of this model useful for planning exercises, as well as reviewing and assessing existing conditions.
Reporting Structure

Organizationally, Transportation Services is part of the WSU Finance and Administration and reports directly to the Vice President for Public Safety. The Vice President for Public Safety reports to the Vice President for Finance and Administration, who then reports directly to the University President.

Parking on the Pullman campus is governed by the Washington Administrative Code. The State of Washington has mandated that parking at its colleges and universities will be "self-supporting." Parking user fees enable WSU to build new and maintain existing parking facilities.

Organization and Human Resources

Transportation Services currently employs 17.25 full-time equivalent (FTE) employees, including 50 part-time position employees in three discrete functional units:

- Administration (including budget and information technology [IT])
- Operations (internal and external)
- TDM and Outreach

Administration consists of the Transportation Services Director, Finance Budget Manager (one-half FTE), and a Web and Systems Manager. Led by the department’s single Assistant Director, the Operations Group is the largest of Transportation Services. This group is further broken into the Administrative Operations unit consisting of one manager and two staff and the Field Operations unit.
consisting of one manager; 4.75 FTE staff; and 60 part-time enforcement, maintenance, and event staff. TDM and Outreach consists of one supervisor, one FTE program assistant, and six part-time TDM and Outreach staff.

While there are many different organizational structures within universities’ parking and transportation organizations, WSU’s approach is fairly common and effective. The allocation of resources seems to be distributed well, although the actual number of FTE employees is low compared to other institutions of WSU’s size. In addition, there is a disproportionate number of part-time employees in the enforcement, maintenance, and event staff roles. Many universities employ a large number of event staff on a part-time basis; however, the number of part-time enforcement and maintenance employees at WSU is unique. This arrangement can add to the administrative oversight required by existing staff and limit the effectiveness of such critical functional roles within a transportation and parking organization.

Table 7. FTE by Position provides an overview of WSU Transportation Services staff composition. Table 8 provides a breakdown of the organization’s FTE staff by employment classification.

<table>
<thead>
<tr>
<th>Functional Group</th>
<th>FTE</th>
<th>Functional Group</th>
<th>FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>2.5</td>
<td>Operations</td>
<td>24.5</td>
</tr>
<tr>
<td>Director</td>
<td>1</td>
<td>Assistant Director</td>
<td>1</td>
</tr>
<tr>
<td>Finance/Budget Manager</td>
<td>.5</td>
<td>Admin Operations Manager</td>
<td>1</td>
</tr>
<tr>
<td>Web and Systems Manager</td>
<td>1</td>
<td>Program Support Supervisor</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Program Assistant</td>
<td>4</td>
</tr>
<tr>
<td>TDM/Outreach Supervisor</td>
<td>1</td>
<td>IT Technician II</td>
<td>1</td>
</tr>
<tr>
<td>Program Assistant</td>
<td>1</td>
<td>Field Operations Manager</td>
<td>1</td>
</tr>
<tr>
<td>Student (6 PT, hourly)</td>
<td>3</td>
<td>Cashier</td>
<td>1.75</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Parking Checker</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enforcement/Events/Maintenance</td>
<td>8.75</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Departmental Total FTE</td>
<td>32</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Classification</th>
<th>Administration</th>
<th>TDM/Outreach</th>
<th>Operations</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaried Staff</td>
<td>1.5</td>
<td>-</td>
<td>3</td>
<td>4.5</td>
</tr>
<tr>
<td>Classified Staff</td>
<td>1</td>
<td>2</td>
<td>9.75</td>
<td>12.75</td>
</tr>
<tr>
<td>Hourly/Student</td>
<td>-</td>
<td>3</td>
<td>11.75</td>
<td>14.75</td>
</tr>
<tr>
<td>Total</td>
<td>2.5</td>
<td>5</td>
<td>24.5</td>
<td>32</td>
</tr>
</tbody>
</table>
Professional Development

Transportation Services appears to appropriately invest in professional development through regional and industry-sponsored conferences and training opportunities, as well as distance learning opportunities such as webinars. Transportation Services actively participates in industry-specific listservs focusing on parking, transportation, and TDM strategies. Transportation Services is active in regional- and national-level parking and transportation associations (Pacific Intermountain Parking and Transportation Association; International Parking Institute and Association for Commuter Transportation, respectively).

Connection with the Public, Communications, Service Orientation, and Promotion

University parking departments are typically oriented in one of two general ways. Traditional departments see their primary role as enforcing rules and regulations. Success is often measured in terms of regulatory compliance often compelled through aggressive enforcement. This orientation can establish and reinforce an “us-versus-them” dynamic where customers are viewed as violators and parking staff are seen as enforcers. The mode of communications is primarily “tell and direct,” and is characterized by one-way communication from the parking department to parking facility users.

Contemporary parking departments see themselves as a service delivery organization where success is measured in terms of customer satisfaction. While parking rules and regulation compliance is important, the department takes on a problem-solving role with consumers and works to satisfy customer needs through less rigid enforcement. Education of the parking public is seen as critical to the success of the parking program, and communication between staff and customers is open, collaborative, and two-way in nature. Customer satisfaction is measured, and goals are established to improve parkers’ experiences.

Transportation Services appears to be firmly grounded in the contemporary orientation: It sees itself as a service organization with the primary focus of meeting customer needs.

Advisory Groups

WSU utilizes a 15-member University Transportation Task Force and Transit Advisory Group to review and discuss the university’s transportation system. The task force provides an open review process available to all campus groups to address issues relating to parking and transportation. Task force members represent various university groups including the Associated Students of Washington State University, Residence Hall Association, Graduate and Professional Student Association, a commuter student representative, WSU Faculty, WSU Administrative Professional Advisory Council, WSU Classified Staff, Transportation Services, Business and Finance, Capital Planning and Development, Parking Appeals Committee, Facilities Operations, and Administrative Services. The advisory group was formed in 2002 following recommendations from a peer review team focused on evaluating WSU parking and transportation programs and services.
The Transit Advisory Group (TAG) also resumed meeting this year. TAG is a subgroup of the University Transportation Task Force formed to review the effectiveness of current transit services, review proposed changes or additions to future transit services, review financial plans that support transit services, and to solicit and evaluate feedback from various stakeholder and constituent groups.

TAG includes representatives from the Associated Students of Washington State University, the Residence Hall Association, the Graduate and Professional Student Association, a commuter student representative, a Greek community representative, Transportation Services, and Administrative Services.

**Website**

The current Transportation Services website adequately informs parking and transportation customers about departmental programs and services. In addition to a simple column approach that includes main topical areas of information, useful links directing customers to information about how to purchase parking credentials, pay or appeal a citation, and find out where parking is offered on campus are also posted on the website. Information about alternatives to driving is also prominently provided.

The website is fairly easy to navigate; it is not overly cluttered and presents the most important services in an easy-to-find format. The link to athletic event parking is very informative and provides comprehensive information on parking by sporting event, specific maps on parking alternatives, ingress and egress routes, costs, disability parking options, alternative transportation options, and overflow facilities. A recently added interactive map offers a creative approach to patrons. As stated earlier, this website offers a great deal of information to customers regarding parking and transportation. Additionally, the website hosts a video geared towards parents offering basic information about parking and transportation.

**Enforcement Program**

Transportation Services currently has two FTE of enforcement staff and 30 temporary staff. The current shifts for the two enforcement officers are 0500 - 1400 and 1300 - 2200 Monday through Friday.
As a general rule, most modern university parking enforcement programs using contemporary equipment can function adequately at a ratio of one full-time enforcement officer per 1,400 parking spaces. With 9,177 parking spaces, adjusting out spaces for university apartments, WSU should have approximately 5 FTE enforcement officers. This staffing level covers day, evening, and some weekend enforcement coverage, which appears necessary based on special event parking demand and the need to manage some parking areas on a more continuous basis.

**Parking Violations**

The fines for parking infractions at WSU range from $400 to $15. The violation earning the largest fine amount is for a stolen or lost parking permit. The second highest fine is for parking in an accessible parking space without the proper credentials.

For the last three years WSU has:

- Issued 65,834 tickets (21,945 per year on average)
- Received $2.26M in citation revenue at an average of $34.39 per ticket
- Issued:
  - 4,299 warning tickets (6.5%)
  - 25,000 tickets for parking in the wrong area (40%)
  - 7,727 for meter violations (11.7%)
  - 11,730 garage envelopes (17.8%): These are violators who enter the garage before the attendant leaves, and then depart after the boot-attendant has left his or her shift.

Table 9 provides an overview of the fine schedule at WSU including violation category which broadly describes the type of violation.

<table>
<thead>
<tr>
<th>Violation</th>
<th>Fee</th>
<th>Violation Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stolen/Lost Permit</td>
<td>$400</td>
<td>Theft of services</td>
</tr>
<tr>
<td>Disability Parking Zone Violation</td>
<td>$250</td>
<td>Americans with Disabilities Act (ADA)</td>
</tr>
<tr>
<td>Blocking Traffic</td>
<td>$150</td>
<td>Fire, life, safety</td>
</tr>
<tr>
<td>Fire Zone Violation</td>
<td>$150</td>
<td>Fire, life, safety</td>
</tr>
<tr>
<td>Parking in Reserved Area</td>
<td>$150</td>
<td>Space management</td>
</tr>
<tr>
<td>Illegal Use of Permit</td>
<td>$150</td>
<td>Theft of services</td>
</tr>
<tr>
<td>No Mall Service Permit Violation</td>
<td>$150</td>
<td>Space management</td>
</tr>
<tr>
<td>Wheel Lock</td>
<td>$150</td>
<td>Scofflaw</td>
</tr>
<tr>
<td>No Service Permit</td>
<td>$75</td>
<td>Space management</td>
</tr>
<tr>
<td>No Parking Permit</td>
<td>$50</td>
<td>Theft of services</td>
</tr>
<tr>
<td>Parked w/o Proper Permit</td>
<td>$40</td>
<td>Space management</td>
</tr>
<tr>
<td>No Parking Zone</td>
<td>$40</td>
<td>Space management</td>
</tr>
</tbody>
</table>
Table 9. Fine Schedule

<table>
<thead>
<tr>
<th>Violation</th>
<th>Fee</th>
<th>Violation Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improper Parking</td>
<td>$30</td>
<td>Space management</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>$30</td>
<td>Miscellaneous</td>
</tr>
<tr>
<td>Storage Fee</td>
<td>$30</td>
<td>Space management</td>
</tr>
<tr>
<td>Late Fee</td>
<td>$30</td>
<td>Late fee</td>
</tr>
<tr>
<td>Nonpayment in Pay Lot</td>
<td>$25</td>
<td>Theft of services</td>
</tr>
<tr>
<td>Meter Violation</td>
<td>$20</td>
<td>Theft of services</td>
</tr>
<tr>
<td>Overtime in Timed Zone</td>
<td>$20</td>
<td>Theft of services</td>
</tr>
<tr>
<td>Improper Display of Permit</td>
<td>$15</td>
<td>Space management</td>
</tr>
</tbody>
</table>

Technology

Over the past decade, technology has been introduced in the parking industry to advance revenue control, improve customer service, and conduct data collection analyses for objectives that have historically not been possible. While it is important to remember that technology is a means to achieving various objectives and not an end in and of itself, the most progressive parking and transportation organizations are implementing new and advanced technologies.

Enforcement personnel at WSU are equipped with 14 Honeywell Dolphin 9700 handheld devices with Zebra QL320+ printers. Ticket data is automatically uploaded into the Automated Issuance/Management System (AIMS) where a custom interface exchanges vehicle and owner information with Washington State Licensing (DOL) and Data Tickets for out-of-state vehicle registrations. In addition, AIMS provides reporting capability to produce wheel lock hot sheets and enforcement productivity. Online ticket appeals are available 24/7.

At universities across the United States, it is important that enforcement resources cover their own costs through citation revenue. An industry-standard measurement used to track the efficiency of the enforcement resources is two tickets per hour. WSU has conducted its own internal cost accounting for enforcement placing the cost for issuing, processing and collection a parking ticket. This cost is approximately $40 per citation. If the average cost of ticket is approximately $40 per ticket and there are 220 service hours per week, 440 tickets per week should be issued to produce $17,600 per week or $246,400 per semester in revenue.

This technology can be effective in normal enforcement operations. With the limited roster of full-time staff and large number part-time staff at WSU, there may be economic tradeoffs in the consideration of the usage of License Plate Recognition (LPR).

Vehicle mounted LPR cameras record license plate information from a moving enforcement vehicle. In most cases, these cameras increase the efficiency and coverage of enforcement personnel, immediately identify scofflaws, and increase citation revenue. Many universities have had very positive experiences and can easily justify the expense associated with adopting LPR technology, as the marginal cost of LPR
acquisition can be offset by additional citation revenue. Payback for these systems usually only require a matter of months—not years.

**Parking Kiosks and Meters**

Parking and Transportation Services (PTS) currently uses parking kiosks and meters that accept multiple forms of payment, reduce some labor costs (compared to attended facilities), and offer a more secure means of revenue collection and control. These kiosks also communicate with PTS staff when certain alarm conditions are met, such as when receipt paper is low, the cash/coin vault is reaching capacity, or there is a jam in the coin chute. This allows PTS to maximize equipment uptime and customer satisfaction and take advantage of operational efficiency.

Contemporary revenue control equipment, like that used at WSU, also allows for the collection of data important for understanding parking demand and facility-specific utilization. Information available includes:

- **Turnover**: The number of times in a given period of time that a parking space is used by a unique parker
- **Length of stay**: Amount of time a parker stays in a particular parking space
- **Transaction amount**: Fee charged for a parking stay
- **Occupancy**: Percent of occupied spaces for a given facility (This can be expressed for a single point in time or an average. Peak occupancy [highest point of occupancy for a 24-hour period] is the most important datum point.)

Information is presented in a dashboard interface that graphically displays high amounts of data in a user-friendly, consumable format.

**Permit System and E-Commerce**

Transportation Services currently uses EDC Corporation’s AIMS (Automated Issuance Management System) for its back-of-house customer management system to manage permit sales and citation adjudication. This system allows for the online sale of permits to respond to customer demands for systems that allow for self-service and management and reduce the amount of time and frequency of in-person visits to Transportation Services.

WSU went live with AIMS in 2005. WSU sells about 14,000 permits annually, manages online permit sales via the AIMS web module, and processes the permits in the AIMS Permit request module. In addition, other custom interfaces gather student and staff demographics. A variety of reports are used to manage permit payroll deduction.

Special event permits can also be purchased online for recreational vehicle parking permits for football games. No other special event permits appear to be offered.
Chapter 2: Current Program Assessment

Permit Allocation System and Pricing

WSU has utilized a zonal parking system to allocate parking permits since 1990. In general, parking facilities in a zonal system are aggregated into geographic areas called zones, and the number of permits sold per zone is limited to ensure a high probability that a permit holder will find a space in his or her assigned zone.

![Figure 8. WSU Parking Map](image)

There are five different color groups for normal non-resident parkers (orange, green yellow, red, and blue) and two different color groups for resident parkers (crimson and gray). Each of these groups is further distinguished into multiple zones as follows:

- **Orange**: Four zones
- **Green, yellow, red, and crimson**: Three zones (each)
- **Gray**: Two zones
Commuter Permits

- **Orange**: Orange permit holders may park in their numerically assigned orange zone or in any green, yellow, red, or blue zone. For example, an orange one permit is valid in the orange one zone and in any green, yellow, red, or blue zone. It is not valid in other orange zones. This parking permit is also valid in the parking lots serving the Student Recreation Center and tennis courts.

- **Green**: Green permit holders may park in their numerically assigned green zone or in any yellow, red, or blue zone. For example, a green two permit is valid in the green two zone and in any yellow, red, or blue zone. It is not valid in other green zones.

- **Yellow**: Yellow permit holders may park in their numerically assigned yellow zone or in any red or blue zone. For example, a yellow three permit is valid in the yellow three zone and in any red or blue zone. It is not valid in other yellow zones.

- **Red**: Red permit holders may park in their numerically assigned red zone or in any blue zone. For example, a red one permit is valid in the red one zone and in any blue zone. It is not valid in other red zones.

- **Blue**: (Peripheral Parking) Blue permit holders may park in any blue zone.

![Parking Allowed in These Areas](image-url)
Resident Permits

- **Crimson**: (Resident Priority Parking) Crimson one permit holders may park in the crimson one zone or any gray one or blue zone. Crimson two permit holders may park in the crimson two, gray two, or any blue zone. Crimson three permit holders may park in the crimson three or any blue zone.

- **Gray**: (Resident Priority Parking) Gray permit holders may park in their numerically assigned gray zone or any blue zone. For example, a gray one permit is valid in the gray one zone and any blue zone. It is not valid in other gray zones.

![Parking Allowed in These Areas](image)

In this manner, WSU’s system offers some “park down” but not “park across” accommodations. “Park down” accommodations allow patrons with higher level permits to park in lower-level lots; however, parkers cannot move across the same color group, or across zones.

Registration and Assignment to Zones

Zone assignments are made to specific priority groups with a specific set of criteria for each priority group:

- ADA parkers
- Carpools of four or more
- Faculty, classified, or administrative professional staff ranked according to:
  - Hire date of continuous service to the State of Washington
  - Application receipt date
- Other activities and Compton Union Building lessees ranked according to:
  - Application receipt date
  - Batch order
- Graduate students on appointment ranked according to:
  - Application receipt date
  - Batch order
Temporary WSU employees, new faculty and staff (those that begin after early registration begins), and commuter students are not eligible for early registration and are assigned to parking zones on a first-come, first-served basis. For the purpose of re-assignment, these permit holders are ranked according to:

- Application receipt date
- Batch order

Resident students are assigned to zones by Residence Life based on the previous year’s permit sales.

**Permit Pricing**

The annual cost for a commuter permit at WSU ranges from $644 to $123. Permits offering access to the most sought-after parking area (orange) are at the high-end, and peripheral parking (blue) is offered at the low-end. Both types of resident permits cost $227 per year; residence hall parkers may also opt for the peripheral parking offered at $123 per year.

A key feature of the WSU system is that there is no distinction between affiliate groups and what they are charged for parking. In other words, students, faculty, and staff pay the same rate for parking with access to all parking facilities based on the zone assignment criteria explained above.

Another approach worth noting is that WSU offers a generous monthly refund policy and a prorated fee schedule by month to allow patrons to only buy what they need.

**Daily Parking Pricing**

Parking meters cost $1.75 per hour. Parking in one of the campus’s four garages is offered at varying hourly and daily rates as follows:

**Table 10. Daily Parking Prices**

<table>
<thead>
<tr>
<th>Time</th>
<th>Garage Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Smith Center &amp; Library</td>
</tr>
<tr>
<td><strong>Week Use: Monday - Friday</strong></td>
<td></td>
</tr>
<tr>
<td>Day: 5:00 AM – 5:00 PM</td>
<td>$2 Per Hour</td>
</tr>
<tr>
<td></td>
<td>$15 Daily Maximum</td>
</tr>
<tr>
<td>Night: 5:00 PM – 5:00 AM</td>
<td>$3 flat</td>
</tr>
<tr>
<td><strong>Weekend Use: Friday – Monday, 5:00 PM – 5:00 AM</strong></td>
<td></td>
</tr>
<tr>
<td>Saturday</td>
<td>$3 flat</td>
</tr>
<tr>
<td>Sunday</td>
<td>$3 flat</td>
</tr>
</tbody>
</table>

Additionally, daily, 10-day, and monthly parking permits are available in commuter parking lots at varying rates depending on the facility.
### IV. BUDGET

Like most major university parking and transportation departments, Transportation Services is a self-supporting, business auxiliary and accordingly receives no outside funding for the programs and services it provides. Transportation Services also redirects some of its revenue to non-parking and transportation related activities. As one example, a transfer normally occurs between Transportation Services and Washington State Public Safety. Providing some funding for non-parking and transportation services is also not uncommon, as long as such a transfer does not create long-term financial challenges for the parking and transportation program, capital and operational reserves are appropriately funded, maintenance is not deferred, and adequate levels of staffing and professional development are maintained.

#### Revenue

Total annual program revenue for Transportation Services is approximately $4.16 million. Approximately 54% is earned from the sales of parking permits. Short-term parking (meters and kiosks) represents approximately 28% of total revenue. Parking fines and special events are the remaining major funding sources and contribute 14% and 4%, respectively.

#### Prorated Parking Costs

<table>
<thead>
<tr>
<th>Color</th>
<th>Daily</th>
<th>10-Day</th>
<th>Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orange</td>
<td>$10.06</td>
<td>$100.60</td>
<td>$201.20</td>
</tr>
<tr>
<td>Green</td>
<td>$6.81</td>
<td>$68.10</td>
<td>$136.20</td>
</tr>
<tr>
<td>Yellow</td>
<td>$3.56</td>
<td>$35.60</td>
<td>$71.20</td>
</tr>
<tr>
<td>Red</td>
<td>$1.95</td>
<td>$19.50</td>
<td>$39.00</td>
</tr>
</tbody>
</table>

#### Revenue by Source

<table>
<thead>
<tr>
<th>Source</th>
<th>Revenue ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Program Revenue</td>
<td>$4,163,567</td>
</tr>
<tr>
<td>Parking Permits</td>
<td>$2,234,047</td>
</tr>
<tr>
<td>Short-Term Parking</td>
<td>$1,173,669</td>
</tr>
<tr>
<td>Special Event Parking</td>
<td>$160,000</td>
</tr>
<tr>
<td>Parking Fines</td>
<td>$580,182</td>
</tr>
<tr>
<td>Other Revenue</td>
<td>$15,669</td>
</tr>
</tbody>
</table>
Expenses

On the expense side, slightly less than one quarter of the budget is devoted to wages, salaries, and benefits. One in five dollars go towards operating expenses (20%), debt service (16%), capital expenditures (15%), and administrative service charges and a transfer out account for (13%). The smallest expense categories include alternative transportation (7%) and a maintenance reserve (6%).

![Figure 12. Transportation Services Expenses by Source](image)

<table>
<thead>
<tr>
<th>Source</th>
<th>Revenue ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Program Expenses</td>
<td>$ 4,932,117</td>
</tr>
<tr>
<td>Wages, Salaries, and Benefits</td>
<td>$ 1,127,765</td>
</tr>
<tr>
<td>Operating Expense</td>
<td>$ 983,149</td>
</tr>
<tr>
<td>Capital/Equipment</td>
<td>$ 768,550</td>
</tr>
<tr>
<td>Administrative Overhead/Transfer Out</td>
<td>$ 636,356</td>
</tr>
<tr>
<td>Debt Service</td>
<td>$ 773,546</td>
</tr>
<tr>
<td>Maintenance Reserve Contribution</td>
<td>$ 292,684</td>
</tr>
<tr>
<td>Alternative Transportation Programs</td>
<td>$ 350,067</td>
</tr>
</tbody>
</table>

Note that it appears that TS budgeted to spend over $780,000 more than it receives in revenue in FY 2016. Although reserve funds are available for capital expenses, this level of capital spending is not sustainable at the current level of parking rates.
V. PARKING PROGRAM OPERATIONAL REVIEW RECOMMENDATIONS

Mission, Vision, Philosophy

Rather than focus on the management of parking regulations, which is often found to be the mission statement and orientation of many university peer organizations, WSU’s parking department has appropriately aligned itself with the University’s overall mission in a supportive and complementary way. Contemporary university parking and transportation services departments that see their mission as providing access to the campus community in support of the broader university mission of education, research, and service typically embrace a customer-centered attitude and approach. This is evident throughout at WSU. Such an alignment gives license to the Transportation Services to pursue initiatives that enhance convenience, access, and the customer experience.

Reporting Structure

Several common alignments of parking and transportation organizations are found at institutions of higher education. In some cases, parking departments are housed within police or public safety departments, similar to WSU’s approach. This alignment is a carry-over from the early days of parking management on college and university campuses where parking enforcement was the main task of the department. As more emphasis has been placed on managing parking and transportation facilities, this model is losing popularity and is typically not recommended as a best practice. Parking and transportation departments are also housed among business or auxiliary services due to the business nature of most parking and transportation units.

Another general approach aligns the parking and transportation group with operational units, in particular those responsible for facilities operations. Affinities with units that plan campus development or maintain facilities can result in economies of scale (such as sharing janitorial functions, shop space, or equipment) and better coordination between transportation and land use planning. This alignment is considered a best-practice.

While WSU’s current alignment is not considered a best practice, it works well because of the staff and leadership involved, as well as the general reporting structure through the Vice President for Finance and Administration.

Organizational Structure and Human Resources

Based on the division of labor between administration and leadership, operations, and TDM and Outreach, the organizational structure of Transportation Services appears to be generally sound. However, some degree of control issues may exist that require further evaluation.
According to the published organizational chart, there are six positions that formally supervise other positions:

- Director
- Assistant Director of Operation
- TDM/Outreach Supervisor
- Administrative Operations Manager
- Program Support Supervisor
- Field Operations Manager

Half of these positions supervise full-time staff; the other half supervises both full- and part-time staff.

Table 14. Supervision by Position

<table>
<thead>
<tr>
<th>Position</th>
<th>Full-Time Supervised</th>
<th>Part-Time Supervised</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation Services Director</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Assistant Director for Operations</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Administrative Operations Manager</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Field Operations Manager</td>
<td>3.75</td>
<td>60</td>
</tr>
<tr>
<td>Program Support Supervisor</td>
<td>2.5</td>
<td>6</td>
</tr>
<tr>
<td>TDM/Outreach Supervisor</td>
<td>1</td>
<td>6</td>
</tr>
</tbody>
</table>
There is considerable literature and debate regarding optimal spans of control; however, contemporary thinking suggests that supervisory effectiveness is limited when a supervisor has more than 10 direct reports. Perhaps the exception of the Field Operations Manager, it appears that Transportation Services does not have a span of control issues.

While the majority of the positions reporting to the Field Operations Manager are part-time, the supervisory burdens can be the same (or greater) as with full-time staff. A Program Assistant directly reports to the Field Operations Manager; however, only 30% of that position’s responsibilities pertain to administration support—which likely requires a significant portion of time for the Field Operations Manager. Adjusting the duties of the Program Assistant’s time to deal more directly with human resource responsibilities may help the Field Operations Manager resolve his span of control challenges.

Alternatively, Transportation Services could consider moving the cashiers and parking checkers to the administrative side of operations because these positions are essentially customer service-oriented—regardless of whether services are provided in the office or in the field.

**Professional Development**

Given the ever-changing nature of the parking and transportation sector, it is critical that Transportation Services continue to invest in professional development activities at every level of the organization. Transportation Services leadership must ensure that staff, regardless of function, builds an external peer network to keep current on best practices, have problem-solving resources readily available, and maintain an outside perspective to avoid stagnation and foster innovation and creativity.

In the near-term, Transportation Services should reinforce its very strong skill base by providing training in the following areas:

- Customer service for parking and transportation organizations
- Active transportation
- TDM
- Payment card industry standards
- Incident command system and special event management
- Sustainability for parking and transportation organizations
- Parking technology, data collection, and utilization

**Connection with Public, Communications, Service Orientation, Promotion**

Further progress can be made in customer service through the following efforts:

- Conduct an annual customer service survey
- Develop measurable goals and objectives focused on improving customer satisfaction
Offer feedback mechanisms in a variety of mediums for all programs and services, especially new offerings. Customers appreciate the opportunity to provide their opinions and customer-oriented organizations act on the feedback they receive.

Evaluate enforcement practices to ensure that enforcement activities support customer service goals

Parking Enforcement Program

Citation fines are best considered locally, as comparison with communities in other states and regions are difficult. Compared with other institutions of higher education in Washington, WSU’s fines do not appear excessive. All Washington schools surveyed charged similar fines for accessible parking violations and expired meter or overtime violations.¹ However, there is a significant difference in the fines charged for fire lane violations. WSU charges the most ($150), and Eastern Washington charges the least ($20). Illegal use of permits also varies from a high of $300 at the University of Washington and a low of $100 at Eastern Washington. WSU is at the low-end for this violation at $150.

Table 15. Select Washington State Institution Violations

<table>
<thead>
<tr>
<th>Violation</th>
<th>WSU</th>
<th>EWU</th>
<th>UW</th>
<th>WWU</th>
<th>CWU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disability Parking Zone Violation</td>
<td>$250</td>
<td>$250</td>
<td>$300</td>
<td>$250</td>
<td>$250</td>
</tr>
<tr>
<td>Fire Zone Violation</td>
<td>$150</td>
<td>$20</td>
<td>$60</td>
<td>$60</td>
<td>$30</td>
</tr>
<tr>
<td>Illegal Use of Permit</td>
<td>$150</td>
<td>$100</td>
<td>$300</td>
<td>$250</td>
<td>$250</td>
</tr>
<tr>
<td>Meter Violation/Overtime</td>
<td>$20</td>
<td>$20</td>
<td>$40</td>
<td>$30</td>
<td>$15</td>
</tr>
</tbody>
</table>

Citation Analysis²

WSU wrote nearly 26,000 citations and warnings in fiscal year (FY) 2013, which was the last complete year of reporting. This was down slightly from FY 2012 and appreciably less than in FY 2009 when over 36,000 citations were written. The number of warnings also decreased over the same period.

¹ University of Washington, Eastern Washington University, Western Washington University, and Central Washington University
² Analysis includes complete years of FY 2009 - FY 2013.
The top three violations at WSU are parking without a permit, parking at an expired meter, and failure to pay in a pay lot. Through the second quarter of FY 2014, these three violation types accounted for 71% of all citations written.

Table 16. WSU Top Citations

<table>
<thead>
<tr>
<th>Citation</th>
<th>FY 2009</th>
<th>FY 2010</th>
<th>FY 2011</th>
<th>FY 2012</th>
<th>FY 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>No Permit</td>
<td>6853</td>
<td>19%</td>
<td>7342</td>
<td>22%</td>
<td>7114</td>
</tr>
<tr>
<td>Meter Violation</td>
<td>7512</td>
<td>21%</td>
<td>4099</td>
<td>12%</td>
<td>3681</td>
</tr>
<tr>
<td>Pay Lot Violation</td>
<td>2487</td>
<td>7%</td>
<td>3943</td>
<td>12%</td>
<td>3226</td>
</tr>
<tr>
<td>Total</td>
<td>16852</td>
<td>46%</td>
<td>15384</td>
<td>46%</td>
<td>14021</td>
</tr>
</tbody>
</table>

Interestingly, the number of no permit violations issued has increased from one in five to nearly one in every three citations. Meter violations have decreased from one in five to slightly over one in 10 citations, without major changes in technology. This shift may be a result of more price sensitivity on the part of students who will pay at meters but do not want to absorb the cost of a permit for short parking stays.

There are several metrics to measure a university parking enforcement program, all of which have merits and 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.
Citations per person on campus and citations per parking space give a sense of the enforcement production on a campus. Compared to select peers, WSU is slightly higher than the average in terms of both citations per campus headcount and citations per parking space, although the discrepancy is not significant enough to raise concerns.³

<table>
<thead>
<tr>
<th>Institution</th>
<th>Citations Per Person</th>
<th>Oregon State</th>
<th>0.67</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Virginia Tech</td>
<td>1.56</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Texas A&amp;M</td>
<td>1.61</td>
</tr>
<tr>
<td>Boise State</td>
<td>0.71</td>
<td>NC State</td>
<td>1.83</td>
</tr>
<tr>
<td>NC State</td>
<td>0.85</td>
<td>Boise State</td>
<td>2.24</td>
</tr>
<tr>
<td>Texas A&amp;M</td>
<td>0.97</td>
<td>Average</td>
<td>2.55</td>
</tr>
<tr>
<td>Average</td>
<td>1.04</td>
<td>Oklahoma State</td>
<td>2.60</td>
</tr>
<tr>
<td>Washington State U</td>
<td>1.10</td>
<td>Washington State U</td>
<td>2.69</td>
</tr>
<tr>
<td>Colorado State</td>
<td>1.13</td>
<td>University of Tennessee</td>
<td>2.82</td>
</tr>
<tr>
<td>Oklahoma State</td>
<td>1.21</td>
<td>Oregon State</td>
<td>2.96</td>
</tr>
<tr>
<td>University of Tennessee</td>
<td>1.25</td>
<td>Iowa State</td>
<td>3.33</td>
</tr>
<tr>
<td>Iowa State</td>
<td>1.85</td>
<td>Colorado State</td>
<td>3.81</td>
</tr>
</tbody>
</table>

Among its peers, WSU has a near-average number of parking spaces per campus headcount, which does not distort the total citations per person on campus or citations per parking space. On some campuses with relatively few parking spaces, these ratios can appear abnormally high.

<table>
<thead>
<tr>
<th>Institution</th>
<th>Parking Spaces Per Campus Headcount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oregon State</td>
<td>0.23</td>
</tr>
<tr>
<td>Colorado State</td>
<td>0.30</td>
</tr>
<tr>
<td>Boise State</td>
<td>0.32</td>
</tr>
<tr>
<td>Washington State University</td>
<td>0.41</td>
</tr>
<tr>
<td>Average</td>
<td>0.42</td>
</tr>
<tr>
<td>University of Tennessee</td>
<td>0.44</td>
</tr>
<tr>
<td>Virginia Tech</td>
<td>0.44</td>
</tr>
<tr>
<td>NC State</td>
<td>0.46</td>
</tr>
<tr>
<td>Oklahoma State</td>
<td>0.47</td>
</tr>
<tr>
<td>Iowa State</td>
<td>0.56</td>
</tr>
<tr>
<td>Texas A&amp;M</td>
<td>0.60</td>
</tr>
</tbody>
</table>

³ Total headcount is calculated as total student enrollment plus faculty and staff.
Another important component to consider when evaluating the efficacy of an enforcement program is the disposition of appeals. How a parking program deals with appeals can be an indication of its philosophical underpinnings. A high appeal rate can indicate an overly regulatory environment, whereas a low appeal rate can suggest a more customer-centered approach.

As indicated previously, WSU’s program is solidly grounded in a customer service and education approach. An analysis of the appeal rate at PTS supports this conclusion.

<table>
<thead>
<tr>
<th>Institution</th>
<th>Appeal Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colorado State</td>
<td>1.9%</td>
</tr>
<tr>
<td>Oklahoma State</td>
<td>4.5%</td>
</tr>
<tr>
<td>Iowa State</td>
<td>4.8%</td>
</tr>
<tr>
<td>North Carolina State</td>
<td>6.2%</td>
</tr>
<tr>
<td>Virginia Tech</td>
<td>9.1%</td>
</tr>
<tr>
<td>Average</td>
<td>3.5%</td>
</tr>
<tr>
<td>Washington State University</td>
<td>12.0%</td>
</tr>
<tr>
<td>Boise State</td>
<td>13.2%</td>
</tr>
<tr>
<td>University of Tennessee</td>
<td>13.9%</td>
</tr>
<tr>
<td>Texas A&amp;M</td>
<td>20.6%</td>
</tr>
</tbody>
</table>

WSU has a moderately high appeal rate compared to its peers. This means that a relatively high portion of parking patrons who receive a citation file for appeal. Several factors may contribute to this higher-than-average rate, some of which may require further consideration and evaluation. These include, but may not be limited, to:

- **Confusion**: Parkers may not understand fully how to park on the WSU campus. The zonal permit system may not be intuitive enough.
- **Price Sensitivity**: Parkers may fully understand the system, but choose to risk receiving a citation and then appeal the citation if they perceive that their chances of winning the appeal are good.
- **Fee/Fine Mismatch**: Parkers may fully understand the system, but the imbalance between the cost of a permit or daily parking and the cost of a parking citation makes it a “good” business decision to park without paying, then appeal the citation.
- **Overzealous Enforcement**: Overly aggressive parking enforcement staff may cause a higher-than-average number of parking citations to be written. This may result in a degradation of customer satisfaction and resentment towards Transportation Services.

More in-depth analysis is needed to understand the citation dynamics. This analysis should include an evaluation of repeat offenders, high-citation parking facilities, signage, and fee/fine pricing sensitivity. In the absence of such analysis and considering how WSU fares with respect to citations per person, citations per space and parking spaces per person on campus, it is very likely that price sensitivity and fee/fine mismatch are the key factors with respect to citation dynamics at WSU.
The final key enforcement measure is the void rate, defined as the percent of citations appeals that are waived, reduced, or voided. A very high percentage may be indicative of a parking program that 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. WSU —is second in its peer group only to Colorado State University. It is recommended that WSU conduct further analysis on repeat offenders to ensure that their practices that promote a high void rate are achieving desired outcomes. If there are a high number of repeat offenders the high appeal void rate is seen as positive.

Table 20. Appeal Void Rate\(^4\)

<table>
<thead>
<tr>
<th>Institution</th>
<th>Appeal Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virginia Tech</td>
<td>18.3%</td>
</tr>
<tr>
<td>University of Tennessee</td>
<td>39.6%</td>
</tr>
<tr>
<td>Oklahoma State</td>
<td>50.6%</td>
</tr>
<tr>
<td>NC State</td>
<td>53.0%</td>
</tr>
<tr>
<td>Average</td>
<td>54.8%</td>
</tr>
<tr>
<td>Boise State</td>
<td>57.4%</td>
</tr>
<tr>
<td>Iowa State</td>
<td>60.7%</td>
</tr>
<tr>
<td>Texas A&amp;M</td>
<td>69.5%</td>
</tr>
<tr>
<td>Washington State</td>
<td>69.5%</td>
</tr>
<tr>
<td>Colorado State University</td>
<td>74.6%</td>
</tr>
</tbody>
</table>

A high appeal void rate can also mean that too many “bad” citations are written. Bad citations occur when enforcement staff do not apply the parking rules appropriately and issue invalid citations. Based on available data, it appears unlikely that this is the case, but further analysis is warranted to determine the justification for appeals. If an enforcement officer error appears in more than 5% of all cases, training, staffing, or procedural deficiencies may exist and should be addressed immediately.

Parking Ambassador Program

WSU fares well compared to its peers regarding its enforcement program, yet there are still areas that need further analysis and consideration. Additionally, WSU may benefit from a thorough evaluation of its Parking Guide position to ensure the job description, training, standard operating procedures, and performance measurement system embraces and emphasizes the ambassadorial portion of duties over enforcement responsibilities. While the current job description somewhat supports this philosophy, it is one part of many that ensure that a more customer-centric approach is the norm. For example,

> Seventy percent of the duties and responsibilities are for citation enforcement

---

\(^4\) Oregon State University data not available.
The remaining duties comprise five percent each for special events, motorist assistance, identification of facility problems, monitoring lot usage, training and development, and “miscellaneous.” Proactively delivering customer service is not included as a job description.

No customer service experience is required for this position; it is only a preferred skill.

The parking ambassador approach is based on delivering excellent customer service by maximizing patron interaction. Traditional enforcement programs often focus on citation productivity, whereas the ambassador model aims to provide information, aid, and general hospitality services and information. The primary goals of an ambassador program are to help make WSU a better, safer, and more enjoyable place to live, work, and visit.

A parking ambassador is a specially trained employee who knows the entire campus, including buildings and parking lots, who assists visitors, students, faculty, and staff and ensures their experiences on the WSU campus is enjoyable from the moment they arrive. In summary, Parking Ambassadors:

- Welcome all people to campus
- Offer assurance, experience, information, and a friendly face of the campus through parking and transportation services
- Possess full knowledge of all on-campus events, including locations, times, special arrangements, and parking details
- Help passengers with questions about campus shuttles and public transportation and encourage the use of alternative transportation
- Are fully knowledgeable of bike storage locations and can make bicycle safety recommendations
- Perform all parking enforcement functions
- Provide motorist assistance
- Can administer first aid, CPR, and emergency response when necessary

The duties of a Parking Ambassador also include parking enforcement; however, they should focus on access management first. This may mean that the discretion available to the Parking Ambassador expands such that field problem solving becomes the general approach rather than rote application of parking regulations. While few citations will most likely be written, lower compliance levels and inefficient parking resource usage should not result.

Any meaningful shift from the traditional enforcement model to the ambassador approach requires a comprehensive training program, rewritten job descriptions, and a shift in the skills sought during hiring efforts. Prospective applicants are hired based on their customer service and problem-solving skills with training elements to include:

- Tactical communications
Customer service
Motorist assistance
Campus tours
CPR
Bike safety
First Observer Training
Community Emergency Response Team (CERT)

We understand that there are inconsistencies between day and evening enforcement. A significant difference in approach can result in confusion on the part of parking customers, leading to unnecessary citations and poor customer service. As special event activity increases on the WSU campus, we recommended a greater degree of consistency during all enforcement hours, including summer. Enforcement should not wield a heavy hand: instead, the goal should be an even, consistent approach that is predictable, fair, and effective in encouraging the right kind of behavior at all times.

VI. TRANSPORTATION ADVISORY COMMITTEE

There are three main considerations with respect to parking and transportation advisory bodies: responsibilities, composition, and reporting structures. Broad responsibilities for advisory committees typically include the following:

- Provide review/input on:
  - Departmental budget
  - Parking fee/fine review and approval
  - Administrative policies, procedures, and regulations
  - Long-range parking and transportation planning efforts

- Serve as a liaison/representation of campus stakeholder groups

Less common duties found on other campuses include:

- Review/recommend site locations for new parking facilities and parking lot enhancements
- Assist the department of parking and transportation services with public relations programs and promote community interaction through informational exchanges
- Support the parking and traffic appeals committee to reviews and acts upon appeals of parking citations from students, faculty, staff and visitors
- Review transit agreements and make recommendations for continuation, costs, and possible routes
- Interpret policies related to transportation and parking adopted by governance bodies
- Ensures appropriate consultation of governance bodies regarding proposed changes in any policies
The most successful advisory bodies have a broad understanding of the programs and services delivered by the parking and transportation department and understand the challenges that the department faces. It is not enough to meet yearly to review parking permit rates. Instead, the complexities of the department must be understood so that informed recommendations can be made at all times.

Effective advisory bodies also understand and accept their role as the liaison between the parking and transportation department and the broader campus community. These bodies must represent the campus community, and it is reasonable to expect members of the committee to reach out to their constituent groups for effective communication to occur.

Much like a board of directors within a corporation, it is best for the advisory group to operate within the strategic realm. Operational issues should be left to parking and transportation program administrators. The most successful parking advisory committees:

- Serve like corporate boards of directors
- Have well-constructed and university understood purposes
- Consider the big picture, not just their area of expertise or gripe
- Focus on strategic issues
- Invest in understanding contemporary parking management strategies
- Have and use a well-constructed action plan
- Understand the need for and support parking management strategies
- Are constituted thoughtfully
- Have an informed and active chair
- Have a succession plan and staggered terms
- Are viewed as integral to the university’s success

**Sample Parking Advisory Mission Statement**

The purpose of the Transportation Advisory Committee is to assist the Vice President responsible for parking and transportation in the formulation of policies and procedures related to overall transportation and parking programs at the University and all its facilities. This includes, but is not limited to, vehicles, bicycles, pedestrian traffic, as well as the operations and services provided by the Regional/City transportation authority directly impacting the campus and its constituents; to provide a communication link between users of the University’s parking and transportation programs and services, and those responsible for providing such programs and enforcing the regulations governing them.
VII. TECHNOLOGY

Advanced Single-Head Meters

New single-head parking meters offer high levels of convenience and operational efficiencies, similar to that found with multi-space meters. They also accept multiple forms of payment and provide alarm communications to parking departments. Some also include a sensor that can be imbedded in the parking space that senses when a vehicle is parked in the space. This information can be provided to the parking public so that they have real-time information about space availability. WSU has recently introduced new credit card capable parking meters.

Mobile License Plate Recognition

Mobile LPR systems comprise a vehicle-mounted camera system and on-board computer that scans and records license plate numbers and matches unique license plate numbers against allowed plate numbers. In this way, LPR can be used to manage permit parking where a hang-tag, sticker, or decal is currently used. Permit-less parking is seen by many as superior to systems that rely on hang-tag/decal credentials and eliminates the need for the patron to obtain a physical credential.

LPR is also used to efficiently identify and resolve citation issues with repeat violators. Scofflaw lists are uploaded into the LPR’s on-board database, and the driver is notified when a license plate on the list is located. The enforcement officer then follows the established department protocol in dealing with the violation.

LPR effectively collects occupancy data, while simultaneously conducting enforcement operations. As pictures of registration plates are taken, the photo is located and time-stamped to allow for improved asset utilization, reduced costs over typical enforcement, and greater data accuracy.

If parking departments do not sensor all of their parking spaces, occupancy count information from LPR and other sources can be used to develop sophisticated analytics and predictive modeling to provide parking consumers with information about where they might reasonably find an open parking space at any given hour of the day. LPR may be an acceptable alternative to installing sensors to all parking spaces, as adding hundreds of sensors may be cost prohibitive.
Pay-By-Phone Parking

Consumers want various ways to pay for parking. Until recently, parking meters have only been able to accept coins, which has caused considerable dissatisfaction. Consumers are often forced to look in the seats of their cars to find change to pay for parking.

Parking kiosks accept coins, cash, credit/debit cards, parker loyalty cards, and validation coupons. More recently, pay by cellular phone, or pay-by-cell, has been introduced as an additional form of payment.

In typical applications, parkers are required to become members of a third-party vendor with whom the university has entered into an agreement. This can be done before a parking session or at the time the parking session by calling a telephone number located near or on the parking meter. QR codes are also used to guide parkers to a sign-in or sign-up page. The patron enters his or her basic contact information, vehicle license plate number, and a credit or debit card for billing. Once a patron has become a member and are ready to begin the parking session, information about the parking area where he or she has parked and the intended duration of stay is entered into the system.

Near the end of the parking session, the system texts the parker to inform him or her that the parking session is about to expire. If additional time is allowed, the parker will be asked if the stay should be extended and the duration of the extension. A convenience charge typically between $.25-.40 is charged for each parking session. Pay-by-phone systems are typically offered with smart phone applications that make profile management including vehicle information, payment information, and time extensions particularly convenient for parkers.
GPS Shuttle/Bus Locator System

Technology that improves customer service by providing real-time information is not limited to parking environments. Transit operations are incorporating GPS tracking systems on buses and shuttles to provide riders with location and arrival information. Information is offered via web platforms and mobile devices.

In addition to customer convenience, GPS locator systems can provide management with valuable information about driver performance. Some systems are equipped with on-board systems for recording ridership, conducting pre and post-trip inspections, and other driver-related activities such as report writing and incident documentation.

VIII. PERMIT ALLOCATION SYSTEM AND PRICING

Permit Allocation System

WSU deserves considerable credit for utilizing a demand-based system for allocating parking permits. Many schools continue to use antiquated “hunting license” systems. However, it may be time for WSU to consider major modifications to its current system to improve customer service, further increase parking facility efficiency, and reduce operational costs.

The current system seems complicated, especially for people new to the system. While faculty and staff may have a comfort level based on familiarity with the system, new students may be somewhat overwhelmed. Additionally, WSU may be inadvertently encouraging intra-campus traffic and congestion by allowing so many “park down” options. WSU may need to incorporate more assigned parking features to its existing demand-based system to reduce campus congestion and improve the predictability of parkers finding spaces in their preferred parking locations.

Pricing

Annual permit prices for non-designated, reserved spaces vary across the peer groups. Designated, reserved permits allow a parker the convenience of parking in the same space each day, most often to the exclusion of other parkers. This type of approach is highly inefficient because the parking space cannot be used for other reasons and is thus excluded from this analysis.
Table 21. Annual Permit Prices, High and Low

<table>
<thead>
<tr>
<th>Institution</th>
<th>Faculty/Staff</th>
<th></th>
<th>Students</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
<td>Low</td>
<td>High</td>
<td>Lows</td>
</tr>
<tr>
<td>Iowa State</td>
<td>$503</td>
<td>$158</td>
<td>$137</td>
<td>$97</td>
</tr>
<tr>
<td>North Carolina State</td>
<td>$438</td>
<td>$102</td>
<td>$336</td>
<td>$102</td>
</tr>
<tr>
<td>Texas A&amp;M</td>
<td>$607</td>
<td>$275</td>
<td>$444</td>
<td>$275</td>
</tr>
<tr>
<td>University of Tennessee</td>
<td>$654</td>
<td>$360</td>
<td>$285</td>
<td>$182</td>
</tr>
<tr>
<td>Virginia Tech</td>
<td>$260</td>
<td>$260</td>
<td>$350</td>
<td>$250</td>
</tr>
<tr>
<td>Oklahoma State</td>
<td>$300</td>
<td>$60</td>
<td>$300</td>
<td>$60</td>
</tr>
<tr>
<td>Colorado State</td>
<td>$317</td>
<td>$317</td>
<td>$354</td>
<td>$100</td>
</tr>
<tr>
<td>Boise State</td>
<td>$377</td>
<td>$174</td>
<td>$320</td>
<td>$118</td>
</tr>
<tr>
<td>Oregon State</td>
<td>$495</td>
<td>$95</td>
<td>$495</td>
<td>$95</td>
</tr>
<tr>
<td>Washington State</td>
<td>$644</td>
<td>$123</td>
<td>$644</td>
<td>$123</td>
</tr>
<tr>
<td>Average</td>
<td>$460</td>
<td>$192</td>
<td>$367</td>
<td>$140</td>
</tr>
</tbody>
</table>

With the exception of the University of Tennessee, WSU charges the highest maximum rate for non-designated reserved permit parking for faculty and staff, yet is at the lower end of the range in terms of the minimum charge.

Figure 15. Maximum Annual Faculty/Staff Commuter Permit Charges
Figure 16. Minimum Annual Faculty/Staff Commuter Permit Charges
For student permits, WSU charges more on the high-end and slightly less on the low-end than its peers.

Figure 17. Maximum Annual Student Permit Charges
This study does not recommend that WSU adjust its permit rates based on the rates of its peer institutions. Instead, pricing should be established to achieve desired occupancy levels and based on demonstrated demand. Pricing parking too high results in inefficient parking facilities, and pricing too low encourages driving and parking. The ideal model helps patrons decide how best to access campus by using intuitive pricing signals (i.e., more sought after parking spaces demand a higher price) and charges the true cost of providing the parking space.
IX. BUDGET

From a revenue perspective, WSU compares mostly favorably against its peers in terms of having a diverse funding model. The vast majority of revenue comes from permit sales (54% of total revenue), with short-term parking comprising nearly 30% of total revenue. This compares to 59% and 12%, respectively, on average for WSU’s peers. Significantly, WSU does not appear to be overly reliant on citation revenue, which accounts for only 14% of its total revenue. This is on par with the peer group average of 13%.

WSU should further diversify its funding model by adding special event parking revenue. This will reduce some burden from permit holders and provide for a more equitable model where all users pay for the parking and transportation system.

Table 22. Revenue Sources: WSU versus Peer Institutions

<table>
<thead>
<tr>
<th>Revenue Source</th>
<th>ISU</th>
<th>NCS</th>
<th>TEX A&amp;M</th>
<th>TENN</th>
<th>VA Tech</th>
<th>OK State</th>
<th>CSU</th>
<th>BSU</th>
<th>OSU</th>
<th>WSU</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parking Permits</td>
<td>55%</td>
<td>52%</td>
<td>60%</td>
<td>51%</td>
<td>71%</td>
<td>49%</td>
<td>65%</td>
<td>55%</td>
<td>82%</td>
<td>54%</td>
<td>59%</td>
</tr>
<tr>
<td>Short-Term</td>
<td>9%</td>
<td>9%</td>
<td>19%</td>
<td>2%</td>
<td>2%</td>
<td>4%</td>
<td>19%</td>
<td>24%</td>
<td>5%</td>
<td>28%</td>
<td>12%</td>
</tr>
<tr>
<td>Special Event</td>
<td>7%</td>
<td>1%</td>
<td>11%</td>
<td>22%</td>
<td>8%</td>
<td>4%</td>
<td>0%</td>
<td>14%</td>
<td>0%</td>
<td>4%</td>
<td>7%</td>
</tr>
<tr>
<td>Parking Fines</td>
<td>26%</td>
<td>1%</td>
<td>9%</td>
<td>11%</td>
<td>17%</td>
<td>26%</td>
<td>12%</td>
<td>5%</td>
<td>12%</td>
<td>14%</td>
<td>13%</td>
</tr>
<tr>
<td>Other Revenue</td>
<td>3%</td>
<td>37%</td>
<td>1%</td>
<td>14%</td>
<td>3%</td>
<td>4%</td>
<td>4%</td>
<td>2%</td>
<td>1%</td>
<td>0%</td>
<td>7%</td>
</tr>
</tbody>
</table>

From an expenses standpoint, PTS also appears favorably compared to its peers. Not surprisingly, wages, salaries, benefits, and operating expenses are the largest expenses in the budget. The major expense categories of peer institutions are wages, debt service, and operating expenses (respectively). Debt service is not especially high and is well below a concerning level in terms of percent of total expenses. At almost 16%, operating expenses are under the group average of 25%.

Transportation Services contributes 6% of total expenses to a maintenance reserve, although it does not contribute to a new construction reserve. It also sets aside significantly more than its peers for capital and capital equipment (16% of the current total budget), which aligns well with technology recommendations made previously.
### Table 23. Expenses: WSU versus Peer Institutions

<table>
<thead>
<tr>
<th>Expense Source</th>
<th>ISU</th>
<th>NCS</th>
<th>TEX A&amp;M</th>
<th>TENN</th>
<th>VA Tech</th>
<th>OK State</th>
<th>CSU</th>
<th>BSU</th>
<th>OSU</th>
<th>WSU</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wages, Salaries &amp; Benefits</td>
<td>23%</td>
<td>23%</td>
<td>35%</td>
<td>26%</td>
<td>17%</td>
<td>18%</td>
<td>31%</td>
<td>39%</td>
<td>50%</td>
<td>23%</td>
<td>29%</td>
</tr>
<tr>
<td>Operating Expense</td>
<td>34%</td>
<td>63%</td>
<td>4%</td>
<td>31%</td>
<td>12%</td>
<td>6%</td>
<td>17%</td>
<td>26%</td>
<td>27%</td>
<td>20%</td>
<td>24%</td>
</tr>
<tr>
<td>Capital/Equipment</td>
<td>0%</td>
<td>3%</td>
<td>23%</td>
<td>2%</td>
<td>2%</td>
<td>0%</td>
<td>3%</td>
<td>6%</td>
<td>2%</td>
<td>8.4%</td>
<td>6%</td>
</tr>
<tr>
<td>Administrative Overhead/Transfer Out</td>
<td>0%</td>
<td>6%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>30%</td>
<td>11%</td>
<td>4%</td>
<td>5%</td>
<td>13%</td>
<td>7%</td>
</tr>
<tr>
<td>Debt Service</td>
<td>13%</td>
<td>5%</td>
<td>38%</td>
<td>25%</td>
<td>43%</td>
<td>44%</td>
<td>34%</td>
<td>13%</td>
<td>17%</td>
<td>16%</td>
<td>25%</td>
</tr>
<tr>
<td>Lot development</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>5%</td>
<td>0%</td>
<td>3%</td>
<td>0%</td>
<td>12%</td>
<td>0%</td>
<td>0%</td>
<td>2%</td>
</tr>
<tr>
<td>Maintenance Reserve Contribution</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>26%</td>
<td>0%</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
<td>6%</td>
</tr>
<tr>
<td>New Construction Reserve</td>
<td>30%</td>
<td>0%</td>
<td>0%</td>
<td>10%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>4%</td>
</tr>
<tr>
<td>Alternative Trans Programs</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
<td>7%</td>
<td>1%</td>
<td>1%</td>
</tr>
</tbody>
</table>
X. PEER SURVEY RESULTS

Table 24 provides an overview of WSU’s peer university parking and transportation survey conducted as part of this Comprehensive Transportation Master Plan.

<table>
<thead>
<tr>
<th>Institutions</th>
<th>Iowa State University</th>
<th>NC State University</th>
<th>Texas A&amp;M University</th>
<th>University of Tennessee</th>
<th>Virginia Tech</th>
<th>Oklahoma State University</th>
<th>Colorado State University</th>
<th>Boise State University</th>
<th>Oregon State</th>
<th>Washington State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Enrollment</td>
<td>31,040</td>
<td>34,340</td>
<td>50,227</td>
<td>27,018</td>
<td>28,836</td>
<td>22,369</td>
<td>26,769</td>
<td>22,678</td>
<td>26,393</td>
<td>19,989</td>
</tr>
<tr>
<td>Faculty Staff</td>
<td>4215</td>
<td>8000</td>
<td>11,617</td>
<td>9,698</td>
<td>10,000</td>
<td>11,058</td>
<td>6,475</td>
<td>3,269</td>
<td>5,512</td>
<td>4,697</td>
</tr>
<tr>
<td>Total Head Count</td>
<td>35,255</td>
<td>42,340</td>
<td>61,844</td>
<td>36,716</td>
<td>38,836</td>
<td>33,244</td>
<td>30,247</td>
<td>25,947</td>
<td>31,905</td>
<td>24,686</td>
</tr>
<tr>
<td>Total # of Parking Spaces</td>
<td>19,629</td>
<td>19,674</td>
<td>37,288</td>
<td>16,195</td>
<td>17,000</td>
<td>15,583</td>
<td>9,879</td>
<td>8,271</td>
<td>7,234</td>
<td>9,177</td>
</tr>
<tr>
<td>Surface Parking Spaces</td>
<td>18,519</td>
<td>12,645</td>
<td>27,698</td>
<td>8,119</td>
<td>14,800</td>
<td>13,779</td>
<td>8,993</td>
<td>5,659</td>
<td>8,382</td>
<td></td>
</tr>
<tr>
<td>Structure Parking Spaces</td>
<td>1,110</td>
<td>7,029</td>
<td>9,590</td>
<td>2,200</td>
<td>2,200</td>
<td>1,804</td>
<td>886</td>
<td>2,612</td>
<td>785</td>
<td></td>
</tr>
<tr>
<td>Ratio of Parking Spaces to Headcount</td>
<td>0.56</td>
<td>0.46</td>
<td>0.60</td>
<td>0.44</td>
<td>0.44</td>
<td>2.15</td>
<td>0.30</td>
<td>0.32</td>
<td>0.23</td>
<td>0.37</td>
</tr>
</tbody>
</table>
Chapter 3: Financial Assessment for a 1,200-Space Parking Garage
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This model contains the following information:

- A project cost estimate for a 1,200 space garage
- The current WSU Transportation Services budget, reflecting the budget from the FY 2013-14 academic year.
- Budget projections looking five years out from the current budget
- A WSU scenario analysis trying to recoup the cost of the proposed garage, and becoming self-supporting in the five year period post the FY 20113-14 academic year

**Projected Garage Costs**


- A 1,200-space garage with construction costs is estimated to cost between $28.4 million in construction costs alone and up to $39.6 million in total project costs.

- Most construction projects of similar scope incur about a 12% costs associated with the professional services. Note: a WSU staff person commented that WSU has experiences overhead as high as 50% over construction costs (i.e. the MACC project). Typical parking garage professional services include:
  - Architecture/engineering
  - Survey/soil testing
  - Inspections
  - Legal services

- There are additional considerations for financing costs that can be substantial as well. For instance:
  - Debt issuance and fees
  - Debt service reserves
  - These add another $4.6M to the estimated project costs

- We have included the following assumptions to the financial model
  - $32 million of principal
  - 4.0% interest rate
  - 30 years of debt service to fund the garage

- The annualized debt service amounts to $1.85 million
### Table 25. Cost of New Garage – Parking Structure Estimated Annual Debt Service

<table>
<thead>
<tr>
<th>Additional Information</th>
<th>Costs ($)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of parking spaces</td>
<td>1,200</td>
<td></td>
</tr>
<tr>
<td>Estimated cost per space</td>
<td>$22,000</td>
<td></td>
</tr>
<tr>
<td>Construction cost</td>
<td>$26,400,000</td>
<td></td>
</tr>
<tr>
<td>Land acquisition</td>
<td>$ -</td>
<td>Plus 4% annual inflation for two years</td>
</tr>
<tr>
<td>Total Construction Cost</td>
<td>$26,400,000</td>
<td></td>
</tr>
<tr>
<td><strong>Revised Construction Cost</strong></td>
<td>$28,554,240</td>
<td></td>
</tr>
<tr>
<td>Professional Services, including architecture/engineering, P.E. inspection, legal services</td>
<td>$3,168,000</td>
<td>12% of construction cost</td>
</tr>
<tr>
<td>Total Development Cost</td>
<td>$31,722,240</td>
<td></td>
</tr>
<tr>
<td>Financing costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Issue and other fees</td>
<td>$1,268,890</td>
<td>4% of total project cost</td>
</tr>
<tr>
<td>Debt service reserves</td>
<td>$3,172,224</td>
<td>10% of total project cost (less reserve fund)</td>
</tr>
<tr>
<td>Net interest during construction (less interest earned)</td>
<td>$723,275</td>
<td>First-year interest (debt service) less interest earned on construction budget during periodic drawdowns (12-month construction period and 5% investment rate)</td>
</tr>
<tr>
<td>Subtotal</td>
<td>$5,164,389</td>
<td></td>
</tr>
<tr>
<td><strong>Total Project Cost</strong></td>
<td>$36,886,629</td>
<td></td>
</tr>
<tr>
<td>Loan calculation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Principal</td>
<td>$32,000,000</td>
<td></td>
</tr>
<tr>
<td>Interest rate</td>
<td>4.0%</td>
<td></td>
</tr>
<tr>
<td>Term (years)</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td><strong>Annual Debt Service</strong></td>
<td>$1,850,563</td>
<td></td>
</tr>
</tbody>
</table>
WSU Current Budget

Table 26 provides the WSU budget for the FY13-14 academic year.

- The current budget provided is insufficient to cover today’s operating costs for Transportation and Parking.
- Specifically, there is a loss of $768,500 noted due to one-time capital expenditure.
- Revenues are $4.1M and expenses are $4.9M including capital expense and debt service.
- In order to offset the loss from operations and capital expenditures, money is being taken out of the reserve budget.
- This is not a viable long term strategy. If significant changes are not made to these existing budget, the reserve fund will be depleted and there will be no funds to cover the loss in just a few short years.
- The depletion of a reserve fund is not recommended.
- Three areas to consider for overcoming this financial situation are as follows:
  - Increase multiple streams of revenue via rate increases
    - Parking permits
    - Short-term parking
    - Special event parking
    - Citations/Parking fines
  - Given today’s environment of a $4.1M revenue source, there would need to be an increase of over 18% to the total revenue stream to get to a self-supporting mode that includes operations, maintenance, and capital expenses.

Figure 19. Projected Garage Costs
### Table 26: WSU Current Budget

<table>
<thead>
<tr>
<th>Revenue Source</th>
<th>FY13-14</th>
<th>Percent</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a. Program revenue by type from your most recent completed budget year</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Parking Permits</td>
<td>$2,234,047</td>
<td>53.66%</td>
<td>Annual</td>
</tr>
<tr>
<td>2. Short-Term</td>
<td>$1,173,669</td>
<td>28.19%</td>
<td>Daily</td>
</tr>
<tr>
<td>3. Special Event</td>
<td>$160,000</td>
<td>3.84%</td>
<td></td>
</tr>
<tr>
<td>4. Parking Fines</td>
<td>$580,182</td>
<td>13.93%</td>
<td></td>
</tr>
<tr>
<td>5. Other Revenue</td>
<td>$15,669</td>
<td>0.38%</td>
<td></td>
</tr>
<tr>
<td><strong>Sum</strong></td>
<td>$4,163,567</td>
<td>100.00%</td>
<td>Items 1-5 should equal all revenue received by the department</td>
</tr>
<tr>
<td><strong>b. Program expenses by type from your most recent approved annual budget</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Wages, Salaries, and Benefits</td>
<td>$1,127,765</td>
<td>22.87%</td>
<td></td>
</tr>
<tr>
<td>2. Operating Expense</td>
<td>$983,149</td>
<td>19.93%</td>
<td></td>
</tr>
<tr>
<td>3. Capital/Equipment</td>
<td>$768,550</td>
<td>15.58%</td>
<td>Garage repairs funded by reserves</td>
</tr>
<tr>
<td>4. Administrative Service Charge (Tax)</td>
<td>$416,356</td>
<td>8.44%</td>
<td></td>
</tr>
<tr>
<td>5. Debt Service (P&amp;I)</td>
<td>$773,546</td>
<td>15.68%</td>
<td></td>
</tr>
<tr>
<td>6. Non-Transportation/Parking Expense</td>
<td>$220,000</td>
<td>4.46%</td>
<td>Transfer to public safety</td>
</tr>
<tr>
<td>7. Lot Development</td>
<td></td>
<td></td>
<td>Funded from reserves with budget planning</td>
</tr>
<tr>
<td>8. Maintenance Reserve Contribution</td>
<td>$292,684</td>
<td>5.93%</td>
<td></td>
</tr>
<tr>
<td>9. New Construction Reserve Contribution</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Alternative Transportation Programs</td>
<td>$350,067</td>
<td>7.10%</td>
<td></td>
</tr>
<tr>
<td><strong>Sum</strong></td>
<td>$4,932,117</td>
<td>100.00%</td>
<td>Items 1-10 should equal all expenses paid by the department</td>
</tr>
<tr>
<td><strong>Reserve Balance</strong></td>
<td>($768,550)</td>
<td></td>
<td>Funded by reserves. Budget for reserve balance approximately $2.2M at FY14 end</td>
</tr>
</tbody>
</table>
Current Budget Projections

Table 27 includes a five-year view beyond the data provided during the course of the study.

- Without any changes to the existing permit rates, the reserve budget would be exhausted in less than four years.
- Per our most recent discussions with WSU and consistent with the study recommendations, there was an interest in building a garage to accommodate future parking demand and offset parking supply losses going forward:
  - The study recommends a 1,200 space garage, at an estimated $22K per space. The accompanying debt service for this garage is layered into the projections in the F’17-18 fiscal year.
  - The additional debt service for this garage is $1.8M, at a 4% rate of debt for $32M.
  - The model assumes a 3% labor increase annually.
  - The model assumes a 3% permit increase annually.
  - A reduction in the Cap Ex for garage and surface repair was lowered to $400K as the previous number of $768K was considered too high.

- With these changes, the net overall result is ($2.1M).
- In addition, the reserve balance is ($5.5).
- This model identifies issues in FY17-18 as there would not be sufficient reserves to cover the losses.
### Financial Assessment

#### Table 27. Current Budget Projections

<table>
<thead>
<tr>
<th>Budget Information</th>
<th>Fiscal Year</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Program revenue by type from your most recent completed budget year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Short-Term</td>
<td>$1,173,669</td>
<td>$1,173,669</td>
</tr>
<tr>
<td>3. Special Event</td>
<td>$160,000</td>
<td>$160,000</td>
</tr>
<tr>
<td>5. Other Revenue</td>
<td>$15,669</td>
<td>$15,669</td>
</tr>
<tr>
<td>Sum</td>
<td>$4,163,567</td>
<td>$4,163,567</td>
</tr>
<tr>
<td>b. Program expenses by type from your most recent approved annual budget</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Wages, Salaries, and Benefits</td>
<td>$1,127,765</td>
<td>$1,161,598</td>
</tr>
<tr>
<td>2. Operating Expense</td>
<td>$983,149</td>
<td>$983,149</td>
</tr>
<tr>
<td>3. Capital/Equipment</td>
<td>$768,550</td>
<td>$768,550</td>
</tr>
<tr>
<td>4. Administrative Service Charge (Tax)</td>
<td>$416,356</td>
<td>$416,356</td>
</tr>
<tr>
<td>5. Debt Service (P&amp;I)</td>
<td>$773,546</td>
<td>$773,546</td>
</tr>
<tr>
<td>6. Non-Transportation/Parking Expense</td>
<td>$220,000</td>
<td>$220,000</td>
</tr>
<tr>
<td>7. Lot Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Alternative Transportation Programs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sum</td>
<td>$4,932,117</td>
<td>$4,965,950</td>
</tr>
<tr>
<td>Reserve Balance</td>
<td>($768,550)</td>
<td>($802,383)</td>
</tr>
<tr>
<td>Add Back #8 Line Item</td>
<td>$2,492,684</td>
<td>$1,690,301</td>
</tr>
</tbody>
</table>
Scenario Analysis

The worksheet presented in Table 28 targets self-supporting status in a five-year time frame.

- In order to accomplish this, the following actions were taken:
  - Increase permit rates by 11% per year
  - Increase short term parking by 10% per year
  - Assume that special event rates and citation rates stay flat

- These changes proved to be insufficient to achieve the goal of being fully self-supporting
  - These changes still show a loss of -$222K
  - Also there is a negative reserve balance of -$287K
  - There was a negative balance in the FY18-19 of -$65K
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Table 28. WSU Scenario Analysis

<table>
<thead>
<tr>
<th>Budget Information</th>
<th>Fiscal Year</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Program revenue by type from your most recent completed budget year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Parking Permits</td>
<td>$2,234,047</td>
<td>$2,234,047</td>
</tr>
<tr>
<td>2. Short-Term</td>
<td>$1,173,669</td>
<td>$1,173,669</td>
</tr>
<tr>
<td>3. Special Event</td>
<td>$160,000</td>
<td>$160,000</td>
</tr>
<tr>
<td>4. Parking Fines</td>
<td>$580,182</td>
<td>$580,182</td>
</tr>
<tr>
<td>5. Other Revenue</td>
<td>$15,669</td>
<td>$15,669</td>
</tr>
<tr>
<td>Sum</td>
<td>$4,163,567</td>
<td>$4,163,567</td>
</tr>
</tbody>
</table>

b. Program expenses by type from your most recent approved annual budget

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Wages, Salaries, and Benefits</td>
<td>$1,127,765</td>
</tr>
<tr>
<td>2. Operating Expense</td>
<td>$983,149</td>
</tr>
<tr>
<td>3. Capital/Equipment</td>
<td>$768,550</td>
</tr>
<tr>
<td>5. Debt Service (P&amp;I)</td>
<td>$773,546</td>
</tr>
<tr>
<td>6. Non-Transportation/Parking Expense</td>
<td>$220,000</td>
</tr>
<tr>
<td>Sum</td>
<td>$4,932,117</td>
</tr>
</tbody>
</table>

Reserve Balance

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>($768,550)</td>
<td>($802,383)</td>
</tr>
</tbody>
</table>
This page is intentionally left blank.
Summary

- For WSU there is a sizeable and near insurmountable hurdle to overcome with the addition of a 1,200 space garage
- Specific modeling would have to take place to consider the mixture of permitted spaces vs. transient spaces
- An evaluation of the expense structure would have to take place
- Citation revenue would have to be increased
- Charges for special events would have to be increased
- Permit revenue and methodology would have to be reviewed and new approaches may be needed to accommodate debt service on garage
- A condition assessment should be completed to get an accurate picture of remediation and repairs needed on existing structured parking facilities
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Chapter 4

Community Engagement
I. INTRODUCTION AND TASK GOALS

A critical part of developing a successful parking and transportation plan is clear and concise communication with various user groups coupled with proactive and authentic stakeholder engagement. To support the WSU Comprehensive Transportation Plan, intentional and targeted outreach to the campus community was designed to provide both WSU staff and the consultant team with valuable insight into the real and perceived parking and transportation challenges that students, faculty, and staff face as they travel to and around the Pullman campus.

The following chapter outlines the campus community engagement activities that were conducted as part of the WSU Comprehensive Transportation Plan, as well as a Strategic Communications Plan to support the implementation of the plan’s recommendations. The Strategic Communications Plan explores traditional and non-traditional marketing channels, education/engagement strategies, and communication vehicles specifically identified to keep the community informed and engaged during a time of growth and change on the WSU campus. The Strategic Communications Plan also identifies target audiences for marketing and messaging strategies and positioning statements with the ultimate goal of increasing ease of use and customer understanding of WSU Transportation Services offerings.

II. STAKEHOLDER ENGAGEMENT PROCESS

In August 2014, a Campus Community Engagement Strategy was developed to support WSU’s Comprehensive Transportation Plan by:

- Placing mobility management, parking and transportation strategies, and programs and policies within the context of the institution’s larger strategic goals
- Identifying key messaging that will resonate with the campus community’s diverse user groups
- Providing insight into both real and perceived access and parking challenges, as well as areas of opportunity for future development
- Including key constituencies, both internal (e.g., Transportation Services, Finance and Administration, faculty leadership, students, Green Bike program, UREC, Athletics) and external (e.g., City of Pullman Transit, Pullman Civic Trust) in planning and development efforts from the beginning to build a strong foundation for plan support and implementation

The campus community and internal stakeholders (i.e., Transportation Services staff) were given multiple opportunities and venues to provide feedback throughout the engagement process, including small group meetings, individual interviews, “intercept surveys” at UREC, and an online survey. The main goal of the campus engagement process was to provide community members with an opportunity to share experiences, perceptions, ideas, and concerns related to parking on and moving around the WSU campus. A full overview of the WSU Campus Community Engagement Strategy can be found in Appendix F.
The Comprehensive Transportation Plan’s main stakeholder engagement site visit took place September 16-18, 2014. Over 110 unique stakeholders participated in outreach meetings, including representatives from the following groups and organizations:

- **WSU Departments, Services or Entities**
  - Public Safety/Police Department
  - Transportation Services
  - Library
  - Planning
  - Parking Appeals Committee
  - Off-Campus Student Group
  - Faculty Senate
  - University Publishing and Communications
  - Environmental Health and Safety
  - Events and Facilities
  - Green Bikes
  - UREC Faculty Services
  - Recreation Programs
  - Finance and Administration
  - Facilities
  - Administration
  - Graduate and Professional Student Association
  - Associated Students of Washington State University
  - Students
  - Faculty
  - Staff

- **City of Pullman Transit Services**

- **Pullman Civic Trust**

Extensive notes were taken during all stakeholder meetings. The feedback received, along with online survey responses, were carefully analyzed to identify key themes and the most frequently mentioned stakeholder comments. The result of that analysis is detailed in the following section.
Survey Findings

Feedback from 603 individuals was collected by the survey, which was available both online and in hard copy format. The survey was open from September 15 through November 21, 2014 and had a completion rate that varied by question. WSU Transportation Services assisted with marketing and distribution of the survey, which covered a wide range of topics, including:

- Commuter perceptions and habits
- Preferred methods of transportation and viable alternatives
- Perceived challenges and areas of opportunity

Responses for each of the online survey questions have been included in the following section. Each response also contains a table that provides additional details regarding each particular question’s response rate and a breakdown of answers by percentage. Please note that some questions have a lower response rate because respondents were not required to answer one question before proceeding to the next question.

The following sections are organized by:

- Respondent Demographics
- Commuter Behavior: Distance from Campus, Frequency of Travel, and Commute Times
- Commuter Behavior: Primary Method and Alternative Modes

Respondent Demographics

Survey respondents were majority female (66.1% female, 33.7% male and 0.2% transgender), between the ages of 50 and 59 (29.4%), and reported living “less than 2 miles to campus” (31.6%).

Demographic Snapshot

66.1% of respondents were female
33.7% of respondents were male
29.4% between the ages of 50 and 59
31.6% reported living “less than 2 miles to campus”
Question: Which of the following best describes you?

Table 29. Respondent Demographics

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Responses (percent)</th>
<th>Responses (count)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>33.7%</td>
<td>193</td>
</tr>
<tr>
<td>Female</td>
<td>66.1%</td>
<td>379</td>
</tr>
<tr>
<td>Transgender</td>
<td>0.2%</td>
<td>1</td>
</tr>
<tr>
<td>Other (specify)</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td><strong>Answered questions (total)</strong></td>
<td><strong>573</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Skipped questions</strong></td>
<td><strong>30</strong></td>
<td></td>
</tr>
</tbody>
</table>

Figure 20. Respondent Demographics
Question: What is your current affiliation with Washington State University?

(Please select all that apply.)

Table 30. Respondents’ Affiliations with WSU

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Responses (percent)</th>
<th>Responses (count)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate student</td>
<td>15.7%</td>
<td>91</td>
</tr>
<tr>
<td>Graduate student</td>
<td>8.6%</td>
<td>50</td>
</tr>
<tr>
<td>Postdoc</td>
<td>0.5%</td>
<td>3</td>
</tr>
<tr>
<td>Faculty</td>
<td>7.4%</td>
<td>43</td>
</tr>
<tr>
<td>Staff</td>
<td>70.5%</td>
<td>408</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>2.2%</td>
<td>13</td>
</tr>
<tr>
<td><strong>Answered questions (total)</strong></td>
<td><strong>579</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Skipped questions</strong></td>
<td></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

Figure 21. Respondents’ Affiliations with WSU
Question: Which best represents your age?

Table 31. Respondents’ Ages

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Responses (percent)</th>
<th>Responses (count)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 17</td>
<td>0.2%</td>
<td>1</td>
</tr>
<tr>
<td>17-24</td>
<td>21.0%</td>
<td>121</td>
</tr>
<tr>
<td>25-30</td>
<td>12.2%</td>
<td>70</td>
</tr>
<tr>
<td>31-39</td>
<td>10.8%</td>
<td>62</td>
</tr>
<tr>
<td>40-49</td>
<td>14.1%</td>
<td>81</td>
</tr>
<tr>
<td>50-59</td>
<td>29.4%</td>
<td>169</td>
</tr>
<tr>
<td>60-69</td>
<td>12.2%</td>
<td>70</td>
</tr>
<tr>
<td>70 and Older</td>
<td>0.2%</td>
<td>1</td>
</tr>
<tr>
<td>Under 17</td>
<td>0.2%</td>
<td>1</td>
</tr>
</tbody>
</table>

Answered questions (total) 575

Skipped questions 28

Figure 22. Respondents’ Ages
Commuter Behavior: Distance from Campus, Frequency of Travel, Commute Times

Question: Which of the following most accurately describes your commute to the WSU campus?

Table 32: Respondents' Commutes to Campus

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Responses (percent)</th>
<th>Responses (count)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I commute to campus daily</td>
<td>83.5%</td>
<td>500</td>
</tr>
<tr>
<td>I commute to campus 2-4 times a week</td>
<td>4.3%</td>
<td>26</td>
</tr>
<tr>
<td>I commute to campus at least one time per week</td>
<td>2.2%</td>
<td>13</td>
</tr>
<tr>
<td>I live on campus</td>
<td>6.5%</td>
<td>39</td>
</tr>
<tr>
<td>None of the above</td>
<td>3.5%</td>
<td>21</td>
</tr>
</tbody>
</table>

Answered questions (total) 599
Skipped questions 4

Figure 23: Respondents' Commutes to Campus
Question: How far do you live from campus/work?

Table 33. Respondents' Distance from Campus

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Responses (percent)</th>
<th>Responses (count)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I live on campus (in the 99163 ZIP code)</td>
<td>10.7%</td>
<td>61</td>
</tr>
<tr>
<td>2 miles or less</td>
<td>31.6%</td>
<td>181</td>
</tr>
<tr>
<td>3-5 miles</td>
<td>21.7%</td>
<td>124</td>
</tr>
<tr>
<td>6-10 miles</td>
<td>9.6%</td>
<td>55</td>
</tr>
<tr>
<td>11-19 miles</td>
<td>11.9%</td>
<td>68</td>
</tr>
<tr>
<td>20-29 miles</td>
<td>6.8%</td>
<td>39</td>
</tr>
<tr>
<td>30-39 miles</td>
<td>4.5%</td>
<td>26</td>
</tr>
<tr>
<td>40-49 miles</td>
<td>1.7%</td>
<td>10</td>
</tr>
<tr>
<td>50 miles or more</td>
<td>1.4%</td>
<td>8</td>
</tr>
<tr>
<td>Answered questions (total)</td>
<td></td>
<td>572</td>
</tr>
<tr>
<td>Skipped questions</td>
<td></td>
<td>31</td>
</tr>
</tbody>
</table>

Figure 24. Respondents' Distance from Campus
Table 4. Respondents’ Zip Codes

<table>
<thead>
<tr>
<th>Answer Options (zip codes)</th>
<th>City, State</th>
<th>Responses (count)</th>
<th>Responses (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>99163</td>
<td>Pullman, WA</td>
<td>296</td>
<td>62.30%</td>
</tr>
<tr>
<td>83843</td>
<td>Moscow, ID</td>
<td>44</td>
<td>9.30%</td>
</tr>
<tr>
<td>99161</td>
<td>Palouse, WA</td>
<td>24</td>
<td>5.10%</td>
</tr>
<tr>
<td>99111</td>
<td>Colfax, WA</td>
<td>18</td>
<td>3.80%</td>
</tr>
<tr>
<td>99102</td>
<td>Albion, WA</td>
<td>13</td>
<td>2.70%</td>
</tr>
<tr>
<td>99403</td>
<td>Clarkston, WA</td>
<td>10</td>
<td>2.20%</td>
</tr>
<tr>
<td>83871</td>
<td>Troy, ID</td>
<td>8</td>
<td>1.70%</td>
</tr>
<tr>
<td>83855</td>
<td>Potlatch, ID</td>
<td>8</td>
<td>1.70%</td>
</tr>
<tr>
<td>99113</td>
<td>Colton, WA</td>
<td>7</td>
<td>1.50%</td>
</tr>
<tr>
<td>99130</td>
<td>Garfield, WA</td>
<td>6</td>
<td>1.30%</td>
</tr>
<tr>
<td>83832</td>
<td>Genesee, ID</td>
<td>6</td>
<td>1.30%</td>
</tr>
<tr>
<td>83501</td>
<td>Lewiston, ID</td>
<td>5</td>
<td>1.10%</td>
</tr>
<tr>
<td>99164</td>
<td>Pullman, WA</td>
<td>4</td>
<td>0.80%</td>
</tr>
<tr>
<td>99174</td>
<td>Steptoe, WA</td>
<td>3</td>
<td>0.60%</td>
</tr>
<tr>
<td>99179</td>
<td>Uniontown, WA</td>
<td>3</td>
<td>0.60%</td>
</tr>
<tr>
<td>99171</td>
<td>St. John, WA</td>
<td>3</td>
<td>0.60%</td>
</tr>
<tr>
<td>83537</td>
<td>Kendrick, ID</td>
<td>2</td>
<td>0.40%</td>
</tr>
<tr>
<td>99170</td>
<td>Rosalia, WA</td>
<td>2</td>
<td>0.40%</td>
</tr>
<tr>
<td>83832</td>
<td>Genesee, ID</td>
<td>2</td>
<td>0.40%</td>
</tr>
<tr>
<td>83872</td>
<td>Viola, ID</td>
<td>2</td>
<td>0.40%</td>
</tr>
<tr>
<td>83857</td>
<td>Princeton, ID</td>
<td>2</td>
<td>0.40%</td>
</tr>
<tr>
<td>83827</td>
<td>Elk River, ID</td>
<td>1</td>
<td>0.21%</td>
</tr>
<tr>
<td>83834</td>
<td>Harvard, ID</td>
<td>1</td>
<td>0.21%</td>
</tr>
<tr>
<td>83844</td>
<td>Moscow, ID</td>
<td>1</td>
<td>0.21%</td>
</tr>
<tr>
<td>83870</td>
<td>Tensed, ID</td>
<td>1</td>
<td>0.21%</td>
</tr>
<tr>
<td>99162</td>
<td></td>
<td>1</td>
<td>0.21%</td>
</tr>
<tr>
<td>99176</td>
<td>Thornton, WA</td>
<td>1</td>
<td>0.21%</td>
</tr>
<tr>
<td>99613</td>
<td>King Salmon, AK</td>
<td>1</td>
<td>0.21%</td>
</tr>
</tbody>
</table>

Answered question: 475
Skipped questions: 128
Total response count: 475
Question: How long is your typical one-way commute?

Table 35. Respondents’ Durations of One-Way Commute

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>AM</th>
<th>Midday</th>
<th>PM</th>
<th>Responses (count)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than five minutes</td>
<td>39</td>
<td>24</td>
<td>30</td>
<td>53</td>
</tr>
<tr>
<td>5-10 minutes</td>
<td>159</td>
<td>101</td>
<td>104</td>
<td>197</td>
</tr>
<tr>
<td>10-15 minutes</td>
<td>111</td>
<td>80</td>
<td>110</td>
<td>171</td>
</tr>
<tr>
<td>15-20 minutes</td>
<td>89</td>
<td>47</td>
<td>92</td>
<td>139</td>
</tr>
<tr>
<td>20-30 minutes</td>
<td>88</td>
<td>30</td>
<td>88</td>
<td>125</td>
</tr>
<tr>
<td>30-40 minutes</td>
<td>43</td>
<td>9</td>
<td>55</td>
<td>65</td>
</tr>
<tr>
<td>40 minutes to one hour</td>
<td>36</td>
<td>8</td>
<td>38</td>
<td>46</td>
</tr>
<tr>
<td>One hour or more</td>
<td>11</td>
<td>3</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td><strong>Answered questions (total)</strong></td>
<td>565</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Skipped questions</strong></td>
<td>38</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 25. Respondents’ Durations of One-Way Commute
Question: When do you usually arrive on campus in the morning?

Table 36. Respondents’ Times of Arrival On-Campus

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Responses (percent)</th>
<th>Responses (count)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 7:00 AM</td>
<td>12.2%</td>
<td>68</td>
</tr>
<tr>
<td>7:00 – 7:30 AM</td>
<td>18.4%</td>
<td>103</td>
</tr>
<tr>
<td>7:30 – 8:00 AM</td>
<td>32.7%</td>
<td>183</td>
</tr>
<tr>
<td>8:00 – 8:30 AM</td>
<td>17.4%</td>
<td>97</td>
</tr>
<tr>
<td>8:30 – 9:00 AM</td>
<td>9.5%</td>
<td>53</td>
</tr>
<tr>
<td>9:00 – 9:30 AM</td>
<td>3.0%</td>
<td>17</td>
</tr>
<tr>
<td>After 9:30 AM</td>
<td>6.8%</td>
<td>38</td>
</tr>
<tr>
<td>Answered questions (total)</td>
<td></td>
<td>559</td>
</tr>
<tr>
<td>Skipped questions</td>
<td></td>
<td>44</td>
</tr>
</tbody>
</table>

Figure 26. Respondents’ Times of Arrival On-Campus
Question: When do you usually depart campus in the afternoon?

Table 37. Respondents’ Times of Departure

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Responses (percent)</th>
<th>Responses (count)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 3:00 PM</td>
<td>5.0%</td>
<td>28</td>
</tr>
<tr>
<td>3:00 – 3:30 PM</td>
<td>4.8%</td>
<td>27</td>
</tr>
<tr>
<td>3:30 – 4:00 PM</td>
<td>4.3%</td>
<td>24</td>
</tr>
<tr>
<td>4:00 – 4:30 PM</td>
<td>15.9%</td>
<td>89</td>
</tr>
<tr>
<td>4:30 – 5:00 PM</td>
<td>20.0%</td>
<td>112</td>
</tr>
<tr>
<td>After 5:00 PM</td>
<td>50.1%</td>
<td>281</td>
</tr>
</tbody>
</table>

Answered questions (total) 561
Skipped questions 42

Figure 27. Respondents’ Times of Departure
Commuter Behavior: Primary Method and Alternatives Modes

Question: How do you usually commute to campus/work?

Table 38. Respondents’ Modes of Transportation

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Drive Alone</th>
<th>Motorcycle or Scooter</th>
<th>Carpool</th>
<th>Vanpool</th>
<th>Bicycle</th>
<th>Bus</th>
<th>Taxi</th>
<th>Rideshare (i.e., Zimride)</th>
<th>Walk</th>
<th>Telework</th>
<th>Responses (count)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>324</td>
<td>5</td>
<td>86</td>
<td>19</td>
<td>10</td>
<td>40</td>
<td>0</td>
<td>2</td>
<td>58</td>
<td>1</td>
<td>545</td>
</tr>
<tr>
<td>Tuesday</td>
<td>317</td>
<td>3</td>
<td>94</td>
<td>19</td>
<td>13</td>
<td>40</td>
<td>0</td>
<td>0</td>
<td>57</td>
<td>0</td>
<td>543</td>
</tr>
<tr>
<td>Wednesday</td>
<td>325</td>
<td>5</td>
<td>83</td>
<td>19</td>
<td>11</td>
<td>39</td>
<td>0</td>
<td>2</td>
<td>55</td>
<td>3</td>
<td>542</td>
</tr>
<tr>
<td>Thursday</td>
<td>322</td>
<td>3</td>
<td>90</td>
<td>19</td>
<td>12</td>
<td>43</td>
<td>0</td>
<td>1</td>
<td>54</td>
<td>0</td>
<td>544</td>
</tr>
<tr>
<td>Friday</td>
<td>321</td>
<td>4</td>
<td>77</td>
<td>18</td>
<td>10</td>
<td>41</td>
<td>0</td>
<td>2</td>
<td>56</td>
<td>4</td>
<td>533</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>30</td>
</tr>
</tbody>
</table>

Answered question: 549

Skipped question: 54

Figure 28. Respondents’ Modes of Transportation
Question: Why have you chosen your current method of transportation to and from campus?

Table 39. Respondents’ Times of Departure

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Responses (percent)</th>
<th>Responses (count)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convenience</td>
<td>48.3%</td>
<td>263</td>
</tr>
<tr>
<td>Cost</td>
<td>11.9%</td>
<td>65</td>
</tr>
<tr>
<td>No other viable option</td>
<td>28.3%</td>
<td>154</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>11.6%</td>
<td>63</td>
</tr>
<tr>
<td>Answered questions (total)</td>
<td></td>
<td>545</td>
</tr>
<tr>
<td>Skipped questions</td>
<td></td>
<td>58</td>
</tr>
</tbody>
</table>

Figure 29. Respondents’ Times of Departure
Question: What other modes do you use throughout the year? (i.e., on a part time or seasonal basis)

Table 40. Respondents’ Alternative Modes of Transportation

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Responses (percent)</th>
<th>Responses (count)</th>
</tr>
</thead>
<tbody>
<tr>
<td>None, I don't vary from my usual mode of transportation</td>
<td>49.6%</td>
<td>269</td>
</tr>
<tr>
<td>Drive alone (including motorcycles and scooters)</td>
<td>23.6%</td>
<td>128</td>
</tr>
<tr>
<td>Bicycle</td>
<td>7.7%</td>
<td>42</td>
</tr>
<tr>
<td>Carpool/vanpool</td>
<td>8.3%</td>
<td>45</td>
</tr>
<tr>
<td>Telecommute</td>
<td>4.8%</td>
<td>26</td>
</tr>
<tr>
<td>Combination of modes (e.g., bus to campus then bike around campus)</td>
<td>7.7%</td>
<td>42</td>
</tr>
<tr>
<td>Walk</td>
<td>21.2%</td>
<td>115</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>7.9%</td>
<td>43</td>
</tr>
<tr>
<td><strong>Answered questions (total)</strong></td>
<td><strong>542</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Skipped questions</strong></td>
<td><strong>61</strong></td>
<td></td>
</tr>
</tbody>
</table>

Figure 30. Respondents’ Alternative Modes of Transportation
Question: In order of preference, please rank the other commute options that you would consider as an alternative to driving alone. (1 = first choice, 10 = last choice)

Table 41. Respondents’ Potential Alternative Commute Options

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Responses (percent)</th>
<th>Responses (count)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motorcycle or Scooter</td>
<td>5.42</td>
<td>528</td>
</tr>
<tr>
<td>Carpool (two or more people)</td>
<td>3.12</td>
<td>528</td>
</tr>
<tr>
<td>Vanpool/Rideshare (i.e., Zimride)</td>
<td>4.87</td>
<td>528</td>
</tr>
<tr>
<td>Bus</td>
<td>3.33</td>
<td>529</td>
</tr>
<tr>
<td>Bicycle</td>
<td>5.18</td>
<td>528</td>
</tr>
<tr>
<td>Bike Share (i.e., Green Bike)</td>
<td>7.09</td>
<td>528</td>
</tr>
<tr>
<td>Walk</td>
<td>4.78</td>
<td>528</td>
</tr>
<tr>
<td>Telework (if more available)</td>
<td>4.25</td>
<td>528</td>
</tr>
<tr>
<td>Parking on the perimeter of campus</td>
<td>5.29</td>
<td>528</td>
</tr>
<tr>
<td>Remote parking with shuttle connection to campus</td>
<td>5.88</td>
<td>527</td>
</tr>
</tbody>
</table>

| Answered questions (total)                           | 529                 |
| Skiped questions                                     | 74                  |

Figure 31. Respondents’ Potential Alternative Commute Options
Question: Do you think there is enough bicycle parking on campus?

Table 42. Perceptions of Sufficient Bicycle Parking

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Responses (percent)</th>
<th>Responses (count)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>50.6%</td>
<td>264</td>
</tr>
<tr>
<td>No</td>
<td>25.1%</td>
<td>131</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>24.3%</td>
<td>127</td>
</tr>
</tbody>
</table>

Answered questions (total) 522

Figure 32. Perception of Sufficient Bicycle Parking
Question: How much would you be willing to pay for covered, secure bike parking?

Table 43. Willingness to Pay for Bike Parking

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Responses (percent)</th>
<th>Responses (count)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1-2/per month</td>
<td>7.9%</td>
<td>38</td>
</tr>
<tr>
<td>$3-5/per month</td>
<td>5.6%</td>
<td>27</td>
</tr>
<tr>
<td>$5-7/per month</td>
<td>1.5%</td>
<td>7</td>
</tr>
<tr>
<td>$7-$10/per month</td>
<td>1.3%</td>
<td>6</td>
</tr>
<tr>
<td>One time joining fee of less than $15 (no monthly fee)</td>
<td>11.9%</td>
<td>57</td>
</tr>
<tr>
<td>One time joining fee of $15-$25 (no monthly fee)</td>
<td>5.4%</td>
<td>26</td>
</tr>
<tr>
<td>One time joining fee of $25-$50 (no monthly fee)</td>
<td>2.5%</td>
<td>12</td>
</tr>
<tr>
<td>I would not be willing to pay for covered, secure bicycle parking.</td>
<td>63.8%</td>
<td>305</td>
</tr>
</tbody>
</table>

Answered questions (total) | 478

Figure 33. Willingness to Pay for Bike Parking
**Table 44. Incentives for Alternatives Modes of Transport**

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Responses (percent)</th>
<th>Responses (count)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guaranteed emergency ride home</td>
<td>38.0%</td>
<td>198</td>
</tr>
<tr>
<td>Hourly vehicle rental/car-sharing (i.e., Zipcar)</td>
<td>6.1%</td>
<td>32</td>
</tr>
<tr>
<td>Flexible work schedule</td>
<td>40.9%</td>
<td>213</td>
</tr>
<tr>
<td><strong>Ability to telecommute</strong></td>
<td>43.6%</td>
<td>227</td>
</tr>
<tr>
<td>Showers and lockers</td>
<td>16.3%</td>
<td>85</td>
</tr>
<tr>
<td>Secure, convenient bicycle parking</td>
<td>11.7%</td>
<td>61</td>
</tr>
<tr>
<td>Safe, convenient bike paths and routes</td>
<td>22.3%</td>
<td>116</td>
</tr>
<tr>
<td>Safer sidewalks and crosswalks</td>
<td>19.8%</td>
<td>103</td>
</tr>
<tr>
<td>Prize drawings for bicyclists, ridesharing commuters</td>
<td>7.7%</td>
<td>40</td>
</tr>
<tr>
<td><strong>Financial incentives (e.g., &quot;parking cash-out&quot;: a set monthly financial incentive that can be used to purchase parking, transit passes, invest in a bicycle, etc.)</strong></td>
<td>37.0%</td>
<td>193</td>
</tr>
<tr>
<td>On-site services and amenities to reduce after-work and lunchtime errands</td>
<td>20.9%</td>
<td>109</td>
</tr>
<tr>
<td>Increased cost and/or inconvenience of driving (including parking)</td>
<td>10.9%</td>
<td>57</td>
</tr>
<tr>
<td>Need to save money</td>
<td>22.1%</td>
<td>115</td>
</tr>
<tr>
<td>Bike Share (i.e., Green Bike)</td>
<td>3.5%</td>
<td>18</td>
</tr>
<tr>
<td>Expanded Safe Walk program</td>
<td>7.1%</td>
<td>37</td>
</tr>
<tr>
<td>Availability of on-campus shuttle</td>
<td>32.4%</td>
<td>169</td>
</tr>
<tr>
<td>Nothing would alter my current driving habit</td>
<td>19.4%</td>
<td>101</td>
</tr>
</tbody>
</table>

Answered questions (total) 521  
Skipped questions 82

---

**Figure 34. Incentives for Alternatives Modes of Transport**

![Diagram showing the percentage and count of responses for different incentives, amenities, and programs.](chart.png)
Question: What concerns you the most about your current commute?

Table 45. Concerns about Current Commute

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Responses (percent)</th>
<th>Responses (count)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall travel time from home to campus</td>
<td>22.1%</td>
<td>116</td>
</tr>
<tr>
<td>Overall travel time from campus to home</td>
<td>21.0%</td>
<td>110</td>
</tr>
<tr>
<td>Cost of commute</td>
<td>26.7%</td>
<td>140</td>
</tr>
<tr>
<td>Finding a convenient car parking space</td>
<td>37.9%</td>
<td>199</td>
</tr>
<tr>
<td>Finding a convenient and safe bicycle parking space</td>
<td>2.7%</td>
<td>14</td>
</tr>
<tr>
<td>Congestion and/or traffic</td>
<td>23.4%</td>
<td>123</td>
</tr>
<tr>
<td>Concerns about bad weather</td>
<td>43.4%</td>
<td>228</td>
</tr>
<tr>
<td>I have no concerns</td>
<td>19.6%</td>
<td>103</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>19.8%</td>
<td>104</td>
</tr>
<tr>
<td>Answered questions (total)</td>
<td></td>
<td>525</td>
</tr>
<tr>
<td>Skipped questions</td>
<td></td>
<td>78</td>
</tr>
</tbody>
</table>

Concerns about bad weather

- Finding a convenient car parking space: 37.9%
- Cost of commute: 26.7%
- Congestion and/or traffic: 23.4%
- Overall travel time from home to campus: 22.1%
- Overall travel time from campus to home: 21.0%
- Other (please specify): 19.8%
- I have no concerns: 4.3%
- Finding a convenient and safe bicycle parking space: 2.7%

Figure 35. Concerns about Current Commute
Question: What services, programs or amenities that are currently provided by Washington State University Transportation Services do you value and find most useful? (Select all that apply)

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Responses (percent)</th>
<th>Responses (count)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friendly, helpful staff</td>
<td>36.1%</td>
<td>167</td>
</tr>
<tr>
<td>Variety of parking options (i.e., surface/structured)</td>
<td>25.8%</td>
<td>119</td>
</tr>
<tr>
<td>Safe and convenient bicycle parking</td>
<td>4.3%</td>
<td>20</td>
</tr>
<tr>
<td>Safe and convenient access to public transportation</td>
<td>23.6%</td>
<td>109</td>
</tr>
<tr>
<td>General information and payment options are available online</td>
<td>45.2%</td>
<td>209</td>
</tr>
<tr>
<td>Safe and convenient pedestrian options</td>
<td>14.3%</td>
<td>66</td>
</tr>
<tr>
<td>Range of parking price points</td>
<td>27.5%</td>
<td>127</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>17.1%</td>
<td>79</td>
</tr>
<tr>
<td><strong>Answered questions (total)</strong></td>
<td></td>
<td><strong>462</strong></td>
</tr>
<tr>
<td><strong>Skipped questions</strong></td>
<td></td>
<td><strong>141</strong></td>
</tr>
</tbody>
</table>

General information and payment options are available online  **45.2%**

Friendly, helpful staff  **36.1%**

Range of parking price points  **27.5%**

Variety of parking options (i.e., surface/structured)  **25.8%**

Safe and convenient access to public transportation  **23.6%**

Other (please specify)  **17.1%**

Safe and convenient pedestrian options  **14.3%**

Safe and convenient bicycle parking  **4.3%**
Question: Did parking and/or transportation options (i.e., availability of onsite parking, accessible public transportation, price of parking) impact your decision to attend, seek employment or work at Washington State University?

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Responses (percent)</th>
<th>Responses (count)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>11.5%</td>
<td>60</td>
</tr>
<tr>
<td>No</td>
<td>88.5%</td>
<td>460</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>11.5%</td>
<td>60</td>
</tr>
</tbody>
</table>

Answered questions (total) 520
Skipped questions 83

Figure 37. WSU Transportation and Enrollment Decision
Key Themes: Opportunities & Challenges

Several strong themes emerged from both the survey responses and from in-person stakeholder interviews. While many of the quantitative findings were outlined in the previous section, the following observations include key themes present throughout both the quantitative (i.e., survey) and qualitative (i.e., in-person meetings and intercept survey) stakeholder engagement efforts.

Additionally, it is important to note that several of the themes outlined in the following section echo and support some of the findings described in the Public Involvement Chapter of the 2013 Bicycle and Pedestrian Plan (conducted by Alta Planning + Design). The most significant similarities include the need to:

- Provide a variety of multi-modal solutions that serve the transportation needs of WSU’s diverse campus community, especially those with accessibility challenges
- Investment in infrastructure to support the use of alternative modes with special attention to addressing “hot spots” of potential bike, pedestrian, and vehicle conflict
- View the transportation and commuting behavior of the WSU campus as part of a larger regional system that includes neighborhood areas immediately adjacent to the WSU campus, Town of Pullman, and major regional connection points like The University of Idaho

With few exceptions, nearly every stakeholder group reported that better communication about parking and transportation initiatives was needed. Parking communication requires both technical savvy and an understanding of the often intense emotions that are experienced when dealing with parking concerns and issues. Relationship and trust-building can be a slow and a “show me, don’t tell me” kind of process; however, building trust between WSU Transportation Services and the campus community it serves will be vitally important to creating a truly multimodal campus. To this end, community outreach cannot be a one-time investment. The campus community should be continually engaged and asked for their feedback on major policy and programmatic decisions to help built trust and “show” that WSU Transportation Services is taking stakeholder feedback into account when making programmatic and policy decisions. As will be detailed later on in this chapter, identifying and activating key stakeholder groups and campus affinity organizations (e.g., ASWSU, GPSA) can help the department broaden its reach in a cost-effective way that utilizes existing networks and established communication networks.
While this finding is not surprising and was touched on in both the 2012 Plan Update and 2013 Bicycle and Pedestrian Master Plan, “concerns about weather” was reported by survey respondents as the top issues concerning their current commutes. While weather, like the campus topography, might be more challenging to address than other commuter issues, both issues are consistently deterrent campus constituents from using alternate modes. As a result, these issues cannot be treated as factors simply beyond the control of WSU Transportation Services. Additional investments in transit infrastructure, including shelters, the addition of more buses, more frequent and convenient routes, and the possible introduction of an on-campus shuttle, were all reported as improvements that would encourage more members of the campus community to leave their cars at home. Campuses around the country deal with weather and challenging, “uphill both ways” topography and have made investments in transit that provide alternatives to driving that are viewed as an integral part of the fabric of campus (i.e., The University of Iowa’s “Cambus”).

While “concerns about weather” was reported by survey respondents as the top issue with their daily commute (43.4%), “conveniencefinding a space” was listed as the second most important issue (37.9%). These survey findings were also supported by the comments made in meetings with stakeholders. “Convenience,” “making it easier to get around,” “increased accommodation for those with disabilities,” and “providing more choices” were reported as key areas of desired future investment for WSU Transportation Services.

While “cost” ranked in a not-too-distant third place (26.7%), it is important to note the distinction that convenience was ranked as a higher priority than cost. According to the stakeholder outreach done for this report alone, increasing the availability of convenient, affordable, and varied transportation options could make a significant impact on at least one-third of the campus’ commuting behaviors. While not everyone will be convinced to try an alternate mode, the most important knowledge to take away from the ranking of convenience over cost is that in order to alter behavior, key alternate modes like Pullman Transit, cannot just be inexpensive or free. They must also be convenient, meet accessibility needs, and offer a variety of choices to meet the campus community’s diverse commuting needs.
In conversations with both campus stakeholders and Pullman Transit, it was overwhelmingly clear that the transit system is well used, considered the top alternative to driving, and, most importantly, is struggling to meet current demand. WSU has a tremendous partner in Pullman Transit. With the new leadership of Transit Manager Michael Wagner, WSU is well positioned to make the campus a thriving regional transit hub. However, before that can happen, significant investment must be made to meet current demand. Pullman Transit was described by stakeholders as “overloaded,” “more than full,” “super packed in the winter,” and “impossible.”

When asked to name the top three things that WSU should invest in to improve access, additional buses, stops, shelters and more reliable services were all ranked at the top of the list. There is great opportunity for WSU and the City of Pullman to work together in positioning Pullman as a thriving transit hub through joint initiatives like the creation of an on-campus regional transit center and the introduction of an amenity like Bus Rapid Transit (BRT) that could increase connectivity between campus and downtown Pullman. It is strongly encouraged that WSU Transportation Services continue to strengthen the university’s relationship with Pullman Transit in an effort to identify ways to partner on future transportation projects and programs that will serve both the campus’ desire to decrease the use of SOVs and continue to integrate WSU into the fabric of the larger Pullman community.

When stakeholders were asked to list the top three areas in which they would like to see WSU invest to improve campus access, comments related to “pedestrian safety,” “crosswalk improvements,” and “dedicated bike paths and travel lanes” came in a close second to investment in additional transit infrastructure. Respondents were particularly concerned about the removal of several pedestrian bridges and the reduction of the speed limit to 20 miles per hour (mph). Many stakeholders reported that they felt unsafe when crossing the street as pedestrians, especially during the winter and there were often issues with bicyclists using the sidewalks to avoid conflicts with vehicles. There was a great amount of similarity between the issues raised during the stakeholder engagement process for this Comprehensive Transportation Master Plan—especially regarding balancing the needs of all modes of transportation (i.e., bicycle, pedestrian, transit, and automobile) –as was raised in the 2013 Bicycle and Pedestrian Master Plan. As such, feedback from this engagement effort should provide additional support for the findings outlined in the 2013 Bicycle and Pedestrian Master Plan.
As outlined in the 2012 Update, the introduction of an on-campus shuttle could be a critical component of encouraging the campus community to use modes of transportation beyond SOVs. When mentioned by the consulting team during stakeholder interviews, both in the context of an internal campus loop and as a service to connect more remote areas the heart of campus, a timely and free campus shuttle was seen as a viable transportation option. Students, faculty, and staff all indicated that the shuttle should run in less than 10-minute loops, run consistently, and preferably connect to mobile technology that provided real-time tracking for riders to be successful.

The idea of connecting less expensive, remote parking lots to the heart of campus with a convenient and free shuttle was very well received.
III. STRATEGIC COMMUNICATION PLAN COMPONENTS

Regardless of whether an organization is budgeting for dollars, staff time, and/or scarce resources, strategic investments in marketing and communications often slides to the bottom of the list. However, thinking strategically about communications, public education, and media relations decisions can support every other aspect of a parking and transportation system’s operations.

This section highlights opportunities to proactively engage key user groups in policy and programmatic decisions that will impact their experience accessing the Pullman campus.

The strategies have been divided into three categories:

- **Program Brand Development, Messaging and Key Audiences**: Ways to build connection, pride, and ownership among staff and users
- **Media Tools and Platforms**: Strategies to build the organization’s narrative via consistent and creative communication by utilizing the most effective tools
- **Implementation Framework**: How to organize the various elements of your plan for practical implementation and progress tracking

**Program Brand Development: Messaging and Key Audiences**

Intentional promotion and positioning of Transportation Service offerings on the WSU campus will provide opportunities for increased user recognition and engagement, as well as increased understanding about existing and future service areas.

**Organizational Brand and Messaging**

A brand goes beyond an organization’s name, logo, and visual identity. A brand represents an unspoken promise or commitment regarding the quality, value, professionalism, financial stewardship, and/or consistent experience patrons can expect when interacting with WSU Transportation Services. Over time, a brand becomes synonymous with an organization. When patrons see an organization’s signage, communication pieces, or

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**Key Definitions**

- **Brand Position**: A brand position is a simple statement that conveys the essence of an organization and provides a promise to patrons about type of interaction they can routinely expect. It also sets the tone for the development of the actual brand. The brand will only resonate with WSU Transportation Services “patrons” if it reflects the true character of the organization.

- **Messaging**: A messaging strategy is the foundation for all of an organization’s marketing efforts. Put simply, a messaging strategy tells the audiences why they should visit your organization, what they will find when they do, and why they should care. For a brand to resonate with its patrons and partners, the messaging strategy needs to inspire confidence that WSU understands the needs of its patrons and partners offers something relevant and unique.

- **Vision**: This statement should be very aspirational and speak to the Transportation Service’s ultimate point of success.

- **Mission**: This statement defines what the Transportation Department is and why it exists.
uniforms, an emotional connection is created that evokes the memories and feelings that a person associates with a particular organization.

**Branding creates value and starts with truth.** It identifies shared values and areas of expertise; for example, what campus community needs are and are not being met by the department? What story is your current brand telling about Transportation Services? What story do you want to tell? An organizational brand provides the foundation for the creation of content and tone for marketing, customer relations efforts, and overall organizational culture.

WSU Transportation Services should be commended for recognizing the importance of clearly stating its mission and key areas of focus right on its website. The current Mission Statement of WSU Transportation Services is to: “Get people where they want to be as courteously, safely, and efficiently as possible.” According to the department, this is accomplished by:

- Promoting and providing transportation options
- Maintaining the parking infrastructure and the unobstructed flow of traffic
- Managing parking facilities and parking spaces responsively and fairly
- Enforcing parking rules predictably and fairly
- Providing host services to the campus community
- Maintaining a well-trained, sensitive staff
- Maximizing fiscal resources

Additionally, Transportation Services has developed a unique visual image that is prominently featured on the Transportation Services website.

The other key pieces of establishing an organizational brand identity include developing key messaging, creating a vision statement, and identifying the organization’s key audiences.

**Messaging**

Messaging provides a foundation for the creation of content and a tone for marketing, advertising, and outreach. Messaging for Transportation Services should focus heavily on how the department is working to align parking policies and programs with the community’s strategic development and growth goals.

The three key elements to effective brand messaging include:

- **Consistency:** Maintain a similar tone/feeling when communicating to your audience
- **Frequency:** Keep the message in front of the audience as often as possible. Do not just focus on providing “must have” information about construction, special events, and programs; instead, provide updates that reinforce the goals of the organization and remind users of the bigger picture. This is the driving force behind a messaging strategy.
Anchoring: Develop messaging that provides a compelling call to action using memorable, high-impact language and visual presentations that talks to the patron, not at the patron.

Effectively utilizing the brand approach/positioning strategy will help create an image or identity in the mind of the parking and transportation patron and a connection between the person and the organization.

During in-person meetings, each focus group was asked to identify what they thought the most effective message would be for Transportation Services to use while explaining a new policy or program or sharing news that might be challenging (e.g., closure of a parking lot, displacement of parkers). Nearly every group mentioned the following messaging angles:

- Convenience (students, graduate students, staff, faculty)
- “Making it easier to get around” and efficiency (staff, faculty)
- Affordability and cost (students, graduate students, staff, faculty)
- Quality of life enhancements (students)

While the feedback was very mixed about whether it would be helpful to refer to the 2012 Update as one of the main reasons of parking and transportation decisions, students and even graduate students were largely unaware of the campus master plan. Most interestingly, a few groups of faculty and staff reported that “most faculty and staff don’t care about the master plan” and/or see how it will directly impact them.

Target Audiences

Every successful communication and outreach plan starts with identifying the primary and secondary audiences. While every unique communication effort does not have to be tailored to meet the needs of a specific audience, it is important to keep in mind that communication—especially during tense or challenging times—is not always a “one-size-fits-all” solution. Audience identification can help Transportation Services in multiple ways:

- Determine when additional communication or explanation of a situation might be needed
- Prevent overwhelming customers with irrelevant or too much communication
- Assist with making choices about which communication tools will be most effective for a particular audience (e.g., using heavily-trafficked social media sites of partners like ASWSU when communicating an important message to students).

The following groups have been identified as primary audience segments for Transportation Services:

- Pre-matriculation undergraduate students and transfers: This audience is one of the most important to educate effectively because it is one of Transportation Services first contacts with this user group. Positioning the department as a resource, not an enforcer, will help the relationship with its newest customers begin on a positive note.
**Undergraduate students:** This is one of the most difficult audiences to reach because their attention is drawn in so many different directions. It is vital to understand the (ever-changing) habits of this group and take the department’s messages to where students are actually listening. A good place to start is by identifying what mediums students are most likely to be engaged with (e.g., ASWSU social media sites like Facebook and Twitter) and finding creative ways to incorporate your message in other, complementary informational efforts (e.g., as part of Alive! Summer Orientation).

**Graduate students:** Graduate students are typically very connected with their departments, often through a central department administrator that distributes important information. This audience is often more sophisticated than the undergraduate audiences and messaging should be similar in tone to faculty/administration communication. The consulting team met with members of GPSA for this project, and they are a very engaged group. They reported a strong willingness to help distribute messaging through their organizations and listservs.

**Affinity Groups (e.g., ASWSU, GPSA):** As previously mentioned, organized student groups are an excellent way to disseminate information in a “peer-to-peer” format that is likely to be better received. Engaging with key student leaders to assist with department messaging can be a useful tactic.

**Biking Community:** Departmental messaging should be specifically tailored for the audience and should be proactively disseminated using a few key “friends” of the department. Similar to the “peer-to-peer” information dissemination tactic with students, information shared between sympathetic parties (i.e., from biker to biker) can prove effective.

**Faculty:** Faculty have different community needs from students and even graduate students. Their opinions must be taken into account, and they should be messaged to in a thoughtful and proactive way. Similar to graduate students, faculty keep different hours than undergraduates and face unique challenges, such as being displaced for sporting events. Faculty members are typically very connected with their departments, often through a central department chair that distributes important information. Another key group to engage with faculty communication is the WSU Faculty Senate.

**Staff:** This audience will also be one of the hardest to reach due to their varying levels of access to/use of online communication tools. This audience is also likely the most challenging to address because they can face more financial challenges in paying for and finding parking than faculty. Communication should be funneled through trusted supervisors if possible. It should also be presented in hard copy/written as well as digital formats.

Secondary audiences include:

- Pullman Transit
- WSU Administration/Leadership
- Adjacent neighborhoods, businesses, and property owners
- City of Pullman
- Media/Press
- Transportation and Parking Services at The University of Idaho at Moscow
Creation of a Cohesive Brand Position

Here is a helpful way to think about how each of these pieces—organizational mission, vision, audiences, and messaging—all fit together to create one cohesive brand position:

**Brand Position**
- To (target audiences):
- We are (unique identifier):
- That (provides “X” to the audience):
- By (details that support “X”):

**Vision**
- How would you define your ultimate point of success?
- What umbrella task/goal do you possess that will be worked on indefinitely?

**Mission:**
- What will you do to continuously work towards your vision?
- What markets are you serving and what benefit do you offer them by working towards your vision?

**Questions to identify key words in a statement that presents the means in which your organization will work towards your vision:**
- What perceptions, habits, or beliefs do we need to work on or develop in order to grow?
- What are we “selling”?
- Who do we benefit?
- What’s in our toolbox (i.e., what resources do we provide)?
Media Tools and Platforms

It is important to identify and utilize a variety of mediums when communicating with customers. From updating the campus community on current construction projects and policy changes, providing basic educational information, to rolling out system enhancements, the key is to communicate early, often, and in ways in which your messages will be heard.

Throughout this campus community engagement effort, stakeholders consistently expressed a desire for more proactive and timely information about the ways that parking and transportation on the Pullman campus would be impacted by current and future construction efforts. Many of those interviewed reported a general sense or feeling that “significant parking and transportation changes will be coming,” both from simply seeing construction around campus and due to their familiarities with recommendations outlined in the 2012 Update. As outlined below, in the absence of communication about the changes going on around them, customers will often make up their own information, more easily believe untrue, “worst case scenario” rumors, and worry (and complain to administration) more than necessary.

When identifying the media tools and platforms that will work best for WSU Transportation Services, the following items should be considered:

Updated/Enhanced Web Presence

The Transportation Services website should be a one-stop-shop for all critical information about parking services and policies at WSU. To that end, Transportation Services is off to a good start in creating an online resource that serves the campus community. The current site is simple and straightforward and includes relevant and timely information about parking at WSU.

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<table>
<thead>
<tr>
<th>Must Have Online Resources</th>
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<tbody>
<tr>
<td>▶ Basic Transportation Services information, location, and directions</td>
</tr>
<tr>
<td>▶ Mission, vision and, values of the organization and work underway to achieve those goals</td>
</tr>
<tr>
<td>▶ Detailed information about service and programmatic offerings</td>
</tr>
<tr>
<td>▶ Comprehensive calendar of events and opportunities for target market audience engagement with the organization</td>
</tr>
<tr>
<td>▶ Links to social media</td>
</tr>
<tr>
<td>▶ Special event information, including event-related street closures, parking rates, and links to legitimate private event parking operators</td>
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<tr>
<td>▶ Contact form</td>
</tr>
<tr>
<td>▶ Emergency contact information with phone number that is answered 24/7</td>
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<tr>
<td>▶ Staffing with professional pictures of leadership and front line parking staff</td>
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<tr>
<td>▶ The ability to pay citations and purchase permits and cancel permits</td>
</tr>
<tr>
<td>▶ Important news including construction-related street/lane closures, temporarily reserved parking areas, special event parking information, and meters that are hooded or out of service, etc.</td>
</tr>
<tr>
<td>▶ Links to relevant transit information</td>
</tr>
<tr>
<td>▶ Information for cyclists, including information about the Green Bike program</td>
</tr>
<tr>
<td>▶ Instructions on how to utilize meter and garage technology in written and, preferably, video format</td>
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</table>
As the department looks to elevate the level of customer care provided online, the following enhancements should be considered:

- The site must be well-managed with a plan to keep content fresh and new. Users returning to the site and finding nothing new are likely to stop utilizing it as a resource. Important news should be more prominently listed on the homepage.

- The font should be increased on the home page (if possible). The images and font in the links are fairly small and could be difficult for some patrons to read.

- The site should be reviewed to ensure accessibility for those with visual impairments.

- The use of images—especially images of WSU community members—is a great way to personalize the site. While this is already done on the homepage, the images are a bit too small to see. Using one or two high-quality images on the homepage that are regularly changed out by season or special event, is recommended.

- The site (and the entire WSU website) should offer a mobile-optimized version for those who wish to access the site on mobile devices. This is an important item to address, as the majority of the WSU Transportation Services “customer” base will be using a mobile device.

- Consider using Google Analytics (or a similar tool) to track where the website is receiving the most traffic and actively move those items to the homepage (this will be discussed later in the Metrics section of this report).

According to the online survey, the Transportation Services website was by far the preferred method of receiving information about parking and transportation on the WSU campus (74%), followed by WSU campus e-mail (48%).

<table>
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<th>Table 48. Preferred Means of Communication</th>
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<tbody>
<tr>
<td><strong>Answer Options</strong></td>
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<tr>
<td>Transportation Services website</td>
</tr>
<tr>
<td>Transportation Services Facebook</td>
</tr>
<tr>
<td>Transportation Services Twitter</td>
</tr>
<tr>
<td>Daily Evergreen</td>
</tr>
<tr>
<td>WSU campus email</td>
</tr>
<tr>
<td>Flyer or handout</td>
</tr>
<tr>
<td>Other (please specify)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>
Effectively Use Social/New Media Tools

Social media is changing the way people communicate, how stories are told, and how information gets distributed. However, as many industries are noticing, social/new media strategies are only as effective as the consistency of the staff member, intern, or volunteer time that is spent to maintain them. The effective use of social media means making a commitment to keeping it updated and fresh with content. The most successful parking programs and organizations using social media are creative in their messaging and approach. Such organizations use the site not just for information, but also for contests and “fun” interactions. Social media gives the brand a personable level of accessibility that gives a user a continuous reason to return.

WSU Transportation Services currently has active Facebook and Twitter accounts and has done a good job with posting relevant, timely content. Additional social media sites that the department should consider using include:

- **YouTube**: YouTube is a video-sharing site where users can create, upload, and share videos. Organizations can create “channels” that users can subscribe to. This channel could be utilized for guerrilla marketing (e.g., videos taken at events, instructional videos for existing and new technologies, etc.). WSU is currently using YouTube as a forum for posting Alive! Summer Orientation videos.

- **Instagram**: Instagram is a free photo-sharing program that allows users to take a photo, apply a digital filter (if desired), and then share it on a variety of social networking services (e.g., Facebook and Twitter). Instagram is great way to show the visual changes happening to the downtown area and share fun pictures in a way that puts a human face on the department and its services. It is important to keep in mind that Facebook usage among teenagers (future Cougars!) has dropped from 72% to 45%, while the usage of Instagram has increased from 69% to 76% (Forbes, 2014).

Using platforms like HootSuite, organizations can easily and automatically posts updates to Facebook, Twitter, and Instagram so that the same post does not have to be manually loaded to various sites multiple times.

It is also important to consider how much, if any, staff time can be dedicated to keeping content updated, fresh, and relevant when developing a social media strategy. There is a tremendous opportunity for the Transportation Services to leverage relationships with partners like the ASWSU (7,679 Facebook fans, 2,836 Twitter followers) that have successful and highly trafficked sites.

All the social/new media tools implemented by Transportation Services should ultimately connect with and feed live updates to the updated Transportation Services website.

Additional Communication Tools and Tactics

In addition to an updated website and active engagement with social/new media strategies, the following communication tools can be very useful for sharing information and engaging diverse user groups:

- **Annual Report**: It is important to not only share news and information with user groups, but also to document progress. A popular trend in annual reports is the creation of online-only reports designed as...
infographics instead of the traditional text report. This can cut down on cost, provide additional transparency, and be more digestible for stakeholders.

- **Smartphone Applications:** Explore free smartphone applications that help provide information without a significant capital investment. Applications like “ParkMe” are free to consumers and use algorithms, rather than expensive real-time data, to help customers find a space using their mobile devices.

- **Continue frequent-user focus groups and targeted stakeholder engagement:** The extensive community engagement work that was done as part of the larger Comprehensive Transportation Plan (and as part of both the 2012 Master Plan and 2013 Bicycle and Pedestrian Plan) have laid the foundation for frequent future communication with campus stakeholders. It is strongly recommended that this trend continue. In the future, provide interactive stakeholder engagement opportunities to keep the campus community informed, educated, and part of the decision-making process for future technological, programmatic, and policy decisions.

- **Patron engagement campaigns:**
  - **PARK(ing) Day:** Partner with the Green Bike program, UREC, and ASWSU to organize a PARK(ing) Day, an annual, worldwide event where artists, designers, and citizens transform metered parking spots into temporary public parks (www.parkingday.com).
  - **Bike to School/Work Day:** Partner with Green Bike, UREC, and ASWSU to organize a bike to school/work day would be a positive way to encourage increased use of alternative modes of transportation.
  - **Student Participation:** Include students in the development of educational materials, videos, and other media campaign (e.g., students can be used to demonstrate technology in educational videos, replace stock photos on the website, and trained as citizen peer advocates for particular stakeholder groups).

**Public Relations**

The importance of a well thought out public relations plan cannot be overstated. In the absence of information, the general public will make up their own answers and rumors will be given more “legs” than when an organization is proactively communicating out their desired messages.

Relationship and trust building can be slow; however, a few strategic first steps can be begin the process of developing productive relationships with the campus community and the local City of Pullman media:

- **Media relations:** Form strong, reciprocal relationships with campus affinity groups and on-campus, local, and regional media outlets. This is especially important during times of crisis.

- **Be in front of stories:** Transportation Services staff leadership should meet weekly to discuss potential public relations issues and make an informed decision about what communication is needed and the best angle to take.

- **Develop a Crisis Communication Plan:** It is absolutely critical to have a written Crisis Communication Plan in-place and to know the chain of command protocols for addressing issues publicly before control of messaging is lost. (Please note: Any plan will have to be vetted by and complement the universities overall Crisis Management Plan). See Appendix F-III for a Sample Crisis Communication Plan Outline.
**Increase communication during times of transition:** People and organizations often stop communicating during times of transition (e.g., construction, program building, introduction of new technologies) because they feel that they “aren’t there yet” and need to have everything complete before bringing their constituencies along. This is exactly the opposite of what should be done: parking and transportation changes and/or “inconveniences” can lead to intense frustration and fuel complaint volumes. During times of transition, communication should be:

- Clear and understandable
- Tailored to key audiences
- Repetitive and simple

**IV. IMPLEMENTATION FRAMEWORK**

This framework plan was designed to provide strategies that can be implemented immediately, as well as those that will take longer to develop and cultivate. Some recommendations can be done with little to no resources, while others will require more significant investments.

This section includes both a high-level overview of the strategies that are recommended as immediate focus areas for WSU Transportation Services, as well as an implementation matrix that has been developed to guide staff through execution of recommendations outlined in the preceding sections.

**Key areas to consider during plan implementation and in combination with the tools and tactics outlined in the previous section are included in this section.**

**Staffing and Staff Development**

The organization should have a qualified individual(s) who are properly trained to provide the marketing, communication, and stakeholder outreach expertise needed to meet the organization’s strategic goals and effectively serve its patrons. Transportation Services has a head-start on this task, as one manager-level position (TDM and Outreach Coordinator) and assistant-level position (Program Assistant) have “outreach duties” in their formal job descriptions.
RECOMMENDATIONS:

- Job description(s) or part of existing job description with specific marketing and communication duties are established in detail and documented. They are an integral part of initial training, evaluations, and promotion opportunities.

- Position-specific training is well organized, effective, and ongoing. The extent and depth of training is tailored to the skill level of the employee and should be well documented.

- Employee performance measures specific to marketing and communication are established as part of the employee onboarding process. Performance evaluations should occur regularly and be well documented.
  - Formal evaluations are performed at least once a year.
  - The evaluation process is supported by an appropriate written evaluation instrument that includes both scored criteria and relevant comments from the evaluator.
  - Evaluation criteria are specific to the marketing and communications functions and responsibilities of the employee being evaluated.
  - Evaluation documentation is produced and the evaluation interview conducted by the supervisor who is in the best position to evaluate that employee’s performance.

SUGGESTED DOCUMENTATION:

- Job description with specific marketing, communications, and public relations duties
- Marketing and communications training program outline, materials, and records
- Ongoing development program for marketing and communications staff member
  - Schedule and materials
  - History of participation and completion
- Marketing and communications specific evaluation forms, criteria, and evidence of evaluation completion (annually at minimum)

Annual Communications, Marketing and Stakeholder Engagement Planning

The organization should create an annual communications, marketing, and stakeholder engagement plan and a dedicated budget that supports the overall organization’s strategic goals. The plan should be reviewed regularly and include reporting and evaluation metrics.

RECOMMENDATIONS:

- Plan is established and refined in the first and second quarters of the preceding school year and aligned with the organization’s overall strategic goals. Plan is assessed biannually by the marketing and communications staff member(s) and the appropriate supervisor

- Create a dedicated communications, marketing, and stakeholder engagement budget
Budget priorities are established and refined in the third and fourth quarters of the preceding school year and aligned with the organization’s overall strategic goals. Budget is assessed quarterly by the marketing and communications staff member(s) and the appropriate supervisor.

Metrics are identified to evaluate the effectiveness of marketing and stakeholder engagement tactics, campaigns, and strategies. (See the “Metrics to Measure Success” section for ideas)

- Metrics are assessed annually. These evaluation processes are supported by appropriate written documentation.
- Evaluations should include, but not be limited to, the following methods: outreach to internal and external audiences; targeted surveys and/or focus groups with vendors, sponsors, and partnering organizations; and web and social media analytics.

**SUGGESTED DOCUMENTATION:**

- Strategic Communications, Marketing, and Stakeholder Engagement Plan
- Process descriptions and notes/minutes from meetings where proposed marketing and community outreach plan is reviewed and approved (at least annually)
- Notes/minutes from meetings where marketing and community outreach budget is reviewed and discussed (at least biannually)
- Process descriptions and notes/minutes from meeting where evaluation metrics are reviewed and approved (at least annually)
- Written documentation of evaluation metrics, processes, and data

**Media Relations Planning**

The organization should have an established media relations strategy that includes local, regional, and national media connections. Strategies should be built on a foundation of trust, reciprocity, and transparency.

**RECOMMENDATIONS:**

- Develop a media relations strategy
  - Includes a comprehensive list of local, regional, and national media contacts that is reviewed for accuracy (at least quarterly)
  - Includes specific sub-sections outlining approved policies and procedures for addressing re-occurring annual, seasonal, campaign, and event-specific communications functions (e.g., special events, service disruption, construction).
  - Aligned with the organization’s overall strategic goals and assessed every other year by the marketing and communications staff member(s) and the appropriate supervisor.
- Designate individual or individuals who are properly trained to communicate with the media
Designate one or more spokespeople who have specific experience and/or training on how to effectively communicate with the media

**SUGGESTED DOCUMENTATION:**

- Current media list
- Names and titles of designated media spokespeople
- Documentation of media/public relations training program for all designated spokespeople
- Records of past media relations campaigns and/or notification materials and documentation (e.g., press releases, collateral material, talking points)

**Organizational Visual Identity**

The organization should develop a consistent and appealing visual identity that includes a new logo and brand identity standards.

**RECOMMENDATIONS:**

- Develop a consistent visual identity across all mediums, including logo, fonts, letterhead and presentation templates, web and social media presences, signage, uniforms, collateral material, and enforcement and informational documentation, etc.

**SUGGESTED DOCUMENTATION:**

- Organizational brand identity standards
- Marketing collateral (e.g., brochures)
- Annual report
- Website URL and written description of current functions and process for maintaining and updating web materials
- Social media policy, including written description of which social/new media sites are currently being utilized
Implementation Matrix

The following implementation matrix aims to provide guidance on short-, mid- and long-term implementation recommendations for communications, marketing and stakeholder engagement efforts.

Strategies correspond with categories listed in the previous sections and are coded for ease of reference as follows:

Table 49. Implementation Matrix

<table>
<thead>
<tr>
<th>SHORT TERM “YEAR ONE” STRATEGIES (Spring and Summer Semesters 2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COMMUNICATIONS STRATEGY RECOMMENDATION:</strong></td>
</tr>
<tr>
<td>Identity</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Social</td>
</tr>
<tr>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
## Chapter 4: Community Engagement

### Comprehensive Transportation Plan

<table>
<thead>
<tr>
<th>Media</th>
<th>Build (or thoroughly update) a comprehensive media contact list</th>
<th>Transportation Services outreach staff</th>
<th>No cost beyond staff time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media</td>
<td>Designate and train a media spokesperson</td>
<td>Transportation Services Director in partnership with WSU Communications and Administration</td>
<td>$500-$750 for training</td>
</tr>
</tbody>
</table>
| Staffing | Formalize and document (in detail) job description duties specific to communications and public engagement:  
  - Ideally, this will be an FTE; however it could be an opportunity for existing staff promotion and training in FY2016  
  - Explore opportunities for student intern support of marketing, communications, and social media tasks | Transportation Services Director | For FY2016, this could be done within an existing staff position (Program Assistant). Could budget for a "promotion" or increase in duties for FY2017. Based on WSU salary data for 2013, a reasonable salary wage for an FTE communications staff member would be $32,000-$35,000. |
| Engage | Develop an annual communications and campus outreach plan  
  - Ideally, this would be done immediately in preparation for the 2015-2016 school year.  
  - Develop specific communications and stakeholder engagement line item in the budget | Outreach staff with support from Transportation Services Director | $30,000 total communications budget for the 2015-2016 school year. Includes funding for various campaigns and outreach efforts. |
| Metrics | Establish data benchmarks that create accountability to both internal stakeholders (i.e., students, faculty, and staff) and external stakeholders (e.g., City of Pullman)  
  - Develop a customer satisfaction survey administered annually and that tracks similar items to begin building patterns and provide data on program trends.  
  See the next section, “Metrics to Measure Success” for additional detail | Transportation Services Director in consultation with staff | $500 - $750/annually for online tool like SurveyMonkey; assumes premium membership at $50/month. Less expensive options are available. |
V. METRICS TO MEASURE SUCCESS

A strategic and proactive communications and stakeholder engagement plan can lead to tremendous progress. However, how does an organization truly know which tactics and campaigns are making the difference and when they have achieved “success”? Metrics and benchmarks are an important aspect of instituting any program. For each initiative embarked upon, specific metrics will have to be established. WSU Transportation Services should consider investing in one or several of the following tools and strategies for measuring both the success of outreach campaigns and customer satisfaction:

▲ Surveys: Surveys are by far the most commonly used tool for organizations looking to track consumer and investor perceptions towards an organization or initiatives. Surveys should probe how well the organization is serving its constituents and identify what improvements and/or additional services they would like to see. The prevalence of online survey tools like SurveyMonkey make it easy to bring some of the evaluation processes in-house at significant cost savings for the parking program. However, when the program has a significant campaign, is looking to introduce a new technology, and/or would like to ensure statistical significance for survey results, outsourcing survey distribution and analysis to an established market research firm is recommended.

▲ Establish Data Benchmarks: Benchmarking data is an excellent way to measure the success of both annual and project/initiative-specific strategic planning efforts. We recommend that the following data and indicators be benchmarked and tracked as the communications and stakeholder outreach strategy is implemented:

- **Media Impressions**: Using advertising costs, average the value of free mentions in news clips via newspapers, magazines, and television and radio programs in public relations efforts.

- **Social Media Metrics**: While tracking social media analytics can be time-consuming, expensive, and/or seem like an exercise in futility, but there are a few free tools that can be used to track your growing social media presence:
  - Twitter: “GetTweets” is a simple and fast Google tool that lets you quickly export Twitter search results into a spreadsheet to track user engagement.
  - Facebook: Facebook tracks the number of people who view a particular post and displays that number for account administrators just below the post.
  - Website Metrics/Google Analytics: Google Analytics is a free tool provided by Google that is constantly updated and improved. It will not only show you valuable data about your website visitors, how they got there (e.g., Google search keywords, referral, or direct entry), and their locations, but you can also monitor and view reports on their experience on the site, such as where they stayed the longest, what they were looking for, and where they left, among other data points. This tool produces a variety of reports that can be used to measure specific online campaigns and overall usage over periods of time, to provide a basis for further improvements, and/or to fix functions that may not be working as intended for end-users.
  - Customer Service Metrics: Keep track and monitor email feedback into different categories (i.e., positive, negative, neutral).
VI. VISION FOR THE FUTURE

WSU Transportation Services should be commended for their commitment to including the campus community engaged in the exploration of new, customer-focused initiatives like the Comprehensive Transportation Plan. What the department rightly realizes is that campus stakeholder engagement is a vital part of developing a successful parking and access-management strategy that supports the 2012 Update. Outreach to WSU’s diverse constituencies, while not without its challenges and varied opinions, provides important insight into the real and perceived parking challenges regularly faced by students, faculty, staff, and campus visitors.

Campus engagement efforts can also play an important role in uncovering and promoting a shared vision for the future of a university community. Creating a balanced engagement strategy that both identifies the current parking and access landscape—in the opinion of those who participate in it—and starts to build a shared vision for the future, is vital to success of any long-term planning effort. A plan without a vision or shared campus narrative is less likely to be successfully adopted, championed, and ultimately implemented.

“Closing the Communication Loop”: How Engagement Informs Policy Recommendations

It is not uncommon that when universities and colleges undertake a planning or study process like this one, communication with stakeholders about how their feedback was used to develop study or plan recommendations is often missing. After spending hours of time attending meetings, taking surveys, and engaging in discussion, stakeholders often feel disenchanted with the process because they cannot see their “fingerprints” when it comes time for recommendations on policies and programming to be made. In many communities, engagement grinds to a halt when the study is complete or the consultant leaves town, and stakeholders do not hear from their cities, communities, or institutions again until it is time for a new round of public meetings.

On progressive campuses like WSU—where proactive and authentic public engagement is part of the campus community culture—it is really important to continue communication and education throughout the implementation phase to offer stakeholders and general public an avenue to provide feedback that could help refine the implementation process. This process, which has been termed “Closing the Communication Loop,” also helps build trust and confidence that the feedback given during the public involvement process was both heard and incorporated into the final recommendations. It is the hope of the consultant team that stakeholders will see their words and thoughts reflected in the community engagement chapter of the Comprehensive Transportation Plan.

Finally, it is also strongly recommended that this report be made available to the general public using a variety of formats, including posting on the Transportation Services website, through social media, and through presentations to key campus groups like ASWSU, GPSA, Faculty and Staff Senate.
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I. OVERVIEW

As part of this study, Kimley-Horn has provided WSU with a unique parking analysis tool known as Park+. This tool allows WSU to measure how changes in land use and parking will affect the demands on existing and future parking supply. The following sections describe the Park+ modeling application developed for WSU.

II. INTRODUCTION TO PARK+

The Park+ model is largely modeled after traditional supply and demand evaluations and includes a multi-step process for evaluating parking demand conditions for a development, community, or campus. The multi-step process typically includes gathering data, defining assumptions or characteristics, selecting generation rates, applying reduction factors, creating scenarios, and evaluating results. The Park+ model features a predictive gravity demand modeling algorithm that allocates projected parking demand to adjacent parking facilities based on walking distance, price, and general attractiveness of each facility. The gravity modeling algorithm used in this model was developed specifically for the applications in Park+. The algorithm uses the range of walking distances, price, and facility types in the model to define localized scores related to each facility and land use pair. These scores are then used to define the percentage of parking demand allocated to each parking facility, up to a user-specified maximum occupancy percentage that reflects the perceived effective capacity conditions within each Park+ community or campus.

Outputs of the Park+ model include parking demand, parking supply, general surplus or deficit, latent (unmet) demand, and traditional parking demand comparisons. The parking demand metric is a summary of the demand generated for the entire study area (or for a selected area therein). The parking supply metric is a summary of the parking capacity for the entire study area (or the selection area). The surplus or deficit metric is simply the difference between the demand and supply metrics for the given area. The latent demand represents the amount of demand that is not met within each localized walking radius defined within the model. While the overall supply and demand may be met within a given scenario, there may still be localized deficiencies within specific areas of the model. The latent demand captures and identifies these areas.

Study Area

The study area included in the WSU Park+ model consists of the main campus bordered on the west and south by East Main Street, Terre View Drive to the east, and NE Terre View to the north provides an aerial view of the study area. The study area includes:

- 4,615 student residents (both on- and off- campus)
- 1,883,355 SF dedicated to student use (e.g., classroom space, student services, recreational facilities)
- 4,148,378 SF dedicated to faculty and/or staff uses (e.g., offices, research spaces, maintenance facilities)
- 9,190 parking spaces available to students, student residents, employees, and visitors
  » Overall campus population of 24,866 (2014)
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Figure 40. Study Area
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III. PARK+ CALIBRATION AND SCENARIO DEVELOPMENT

The Park+ calibration process utilizes existing parking demands (including both historic demands and more recent data collected by the project team) to calibrate parking generation rates for each individual land use within the study area. The result is a more accurate depiction of parking generation rate characteristics of the study area, rather than depending on city/county code or outdated national parking generation rates reported by the Institute of Transportation Engineers (ITE) or the Urban Land Institute (ULI). The calibration process uses the parking occupancy data based on data collected in March of 2014 and permit information provided by the University, land use characteristics, multi-modal characteristics, parking relationships, and area-specific walking tolerances to define the adjusted parking generation rates. The WSU-specific inputs are found in the appendix of this report.

Once the model calibration settings are determined to accurately reflect existing conditions, the Park+ model is able to run projected conditions for the current parking environment, as well as develop and run future scenarios based on a myriad of different conditions. Four scenarios were developed using the WSU Park+ model to reflect development projections identified in the University’s 10 Year Plan; each scenario builds off of the assumptions in the base model and incorporates additional developments into each new scenario. The four scenarios are summarized below:

- Existing land uses and parking demands
- Current projects under construction
- Projects to be completed between years one and five in the 10-Year Plan
- Projects to be completed between years six and 10 in the 10 Year Plan

The following sections review the four parking scenarios developed for the WSU study area. In addition to analyzing the impacts that future development will have on existing parking supplies, the following scenarios also model and propose new parking opportunities in an effort to accommodate future parking needs. The location of new parking facilities are based on the proposed parking garage locations presented in the WSU 2012 Update (reference Figure 41) and considers the proximity of each of the proposed garages to the areas of greatest need, geographic limitations, and the appropriate parking facility size required to meet parking demands.
transportation, access and parking

ROADWAYS + PARKING

Figure 41. Proposed Garage Locations – 2012 Update
IV. PARK+ SCENARIO OUTCOMES

Existing Conditions – Projection Results

The output shown in Table 50 provides the initial existing conditions projection from the WSU Park+ model, which reflects existing parking demands, parking relationships within campus parking facilities, multi-modal factors, and acceptable walking distances for faculty, students, residents, and visitors. Based on the data collection and the provided information, 1:00 PM was found to be the peak hour.

Overall, the results of the existing conditions scenario indicate that there is an 8,110 space demand for parking versus a 9,190 space supply within the study area at the peak demand hour of 1:00 PM. This indicates that the study area is operating at approximately 88% of total supply. The Park+ model is able to isolate demands by user group based on parking/land use allocations set up in the model. Table 50 identifies the parking demands of each primary user group on campus. The demands for each user group are derived using the predictive gravity demand modeling algorithm that allocates projected parking demand to adjacent parking facilities based on walking distance, price, and general attractiveness of each facility.

<table>
<thead>
<tr>
<th>User Group</th>
<th>Demand (Spaces)</th>
<th>Percentage of Total Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td>2,661</td>
<td>29%</td>
</tr>
<tr>
<td>Students</td>
<td>1,916</td>
<td>21%</td>
</tr>
<tr>
<td>Student Residents</td>
<td>3,369</td>
<td>37%</td>
</tr>
<tr>
<td>Visitor</td>
<td>187</td>
<td>2%</td>
</tr>
</tbody>
</table>

The output for this scenario indicates that WSU experiences some instances of localized latent demand (approximately 65 spaces). The latent demand is the result of some facilities being outside of the established walking tolerance or of certain facilities being unavailable to users with the demand due to the permitting structure. In a study area as large as the WSU campus, the occurrences of latent demand are distributed across campus in very small numbers and generally range from one to three spaces of latent demand per building. These figures are largely negligible.

5 These user groups are based on the parking allocations defined in the Park+ model and may not exactly align with campus space counts. The appendices include the specific allocations utilized in the WSU Park+ model.
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Figure 42: Park+ Output (Existing Conditions)
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Future Development Scenarios

The following three scenarios analyze the impacts on the future development projects included in the University’s 10-Year Plan on campus parking supplies. While no new parking facilities are specifically included in the 10-Year Plan, the impacts of campus expansions will likely exceed the existing parking supplies’ ability to accommodate the additional demands. Accordingly, these modeling efforts define the future parking needs as a result of new development and identify new parking facilities to serve campus parking demands.

Initially, all developments proposed in the 2012 Update were modeled in Park+. However, following discussions with the Campus Planning Department, it was agreed that some of the developments proposed in the 2012 Update may be too speculative to be included in the model. As a result, a revised set of development projects were defined by campus planning are referred to in this report as the University’s 10-Year Plan.
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Figure 43. 2012 Update Proposed Development
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Current Development Projects – Projection Results

The current development projects scenario consists of developments which are currently under construction and/or planned to be completed by 2016. Table 51 identifies the development projects and their associated gross square footages (GSF) that are included in this scenario.

Table 51. Current Development Projects

<table>
<thead>
<tr>
<th>Development Project</th>
<th>GSF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washington Grain Plant Growth Facility</td>
<td>19,000</td>
</tr>
<tr>
<td>Museum of Art</td>
<td>16,000</td>
</tr>
<tr>
<td>Facilities Services Addition to McCluskey</td>
<td>11,000</td>
</tr>
<tr>
<td>SG Plant Growth (Greenhouse) Phase 1</td>
<td>25,000</td>
</tr>
<tr>
<td>Clean Tech Laboratory Building</td>
<td>96,000</td>
</tr>
<tr>
<td>Northside II Residence Hall</td>
<td>100,000</td>
</tr>
<tr>
<td>Chief Joseph Apartments (Renovation)</td>
<td>125,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>392,000</strong></td>
</tr>
</tbody>
</table>

The results of this scenario indicate that there is an 8,375-space demand versus a 9,070-space supply. The total parking supply includes a 120-space parking reduction that will result of redevelopment on existing surface parking facilities. The resulting scenario yields a 694 space surplus of parking on campus. Table 52 identifies the parking demands for each user group on campus; Figure 44 depicts the results of this scenario.

Table 52. Demands by User Group – Current Development

<table>
<thead>
<tr>
<th>User Group</th>
<th>Demand (spaces)</th>
<th>Percentage of Total Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td>2,886</td>
<td>32%</td>
</tr>
<tr>
<td>Students</td>
<td>1,916</td>
<td>21%</td>
</tr>
<tr>
<td>Student Residents</td>
<td>3,501</td>
<td>39%</td>
</tr>
<tr>
<td>Visitor</td>
<td>71</td>
<td>0.7%</td>
</tr>
</tbody>
</table>

To further define the impacts of Current Development projects on the campus parking system, Table 53 examines the parking demand for each new development project.

Table 53. Demands by Project – Current Development

<table>
<thead>
<tr>
<th>Development Project</th>
<th>Demand (spaces)</th>
<th>Primary Parkers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washington Grain Plant Growth Facility</td>
<td>31</td>
<td>Faculty/graduate students</td>
</tr>
<tr>
<td>Museum of Art</td>
<td>16</td>
<td>Visitors</td>
</tr>
<tr>
<td>Facilities Services Addition to McCluskey</td>
<td>10</td>
<td>Staff</td>
</tr>
</tbody>
</table>

*While new development generates 406 spaces of demand, there is a difference of 261 spaces of demand between the Existing and Current Development scenarios. This is a result of existing demand shifting from existing facilities to the new construction on campus.*
Table 53. Demands by Project – Current Development

<table>
<thead>
<tr>
<th>Development Project</th>
<th>Demand (spaces)</th>
<th>Primary Parkers</th>
</tr>
</thead>
<tbody>
<tr>
<td>SG Plant Growth (Greenhouse) Phase 1</td>
<td>40</td>
<td>Faculty/graduate students</td>
</tr>
<tr>
<td>Clean Tech Laboratory Building</td>
<td>154</td>
<td>Faculty/graduate students</td>
</tr>
<tr>
<td>Northside II Residence Hall</td>
<td>124</td>
<td>Student residents</td>
</tr>
<tr>
<td>Chief Joseph Apartments (Renovation)</td>
<td>31</td>
<td>Student residents</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>406</strong></td>
<td></td>
</tr>
</tbody>
</table>

While an overall parking surplus exists on campus, 491 spaces of latent demand was identified in this scenario. This latent demand is primarily located in the core of campus as a result of the construction of Northside Phase 2 due to the needs of student residents, as well as surrounding new development projects primarily due to the needs of faculty users. Yet while the core experiences latent demands, ample parking is available on the fringe areas of campus. For example, parking is available in many facilities in the southeast portion of campus in surface lots including Rodgers-Orton, Columbia Street, Columbia and Spokane, and Spokane Street.

The university should consider policies and practices considered to increase walkability and coverage areas to meet the campus’ latent parking demands. In order to leverage the surplus of parking available and maximize the use of existing parking assets, improvements in bicycle and pedestrian infrastructure should be made. Connecting the core of campus with the outlying areas would encourage people to walk further for available parking. By increasing walking tolerances in the model by 500 feet, the met demand on campus increased by 396 spaces. Unmet parking demand is still apparent in the student residential buildings surrounding the Northside Dormitories (approximately 318 spaces of latent demand).

To help address the latent demand issues associated with the Northside Dormitories, WSU should encourage student residents to park their vehicles in remote parking locations, such as the Rodgers Orton Surface Lot. Most residents do not require a vehicle to drive to and from class, and their vehicles remain parked in student resident lots most of the time.

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\(^7\)Latent demand is the amount of parking demand that cannot be met within desirable walking distances.
Figure 44. Park+ Output (Current Development Projects)
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Year One to Year Five Developments – Projection Results

Year One to Year Five developments are expected to be completed five years after current development projects are built. Table 54 identifies development projects included in this scenario and their associated gross square footage (GSF).

<table>
<thead>
<tr>
<th>Development Project</th>
<th>GSF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washington Grain Plant Growth Facility</td>
<td>19,000</td>
</tr>
<tr>
<td>Museum of Art</td>
<td>16,000</td>
</tr>
<tr>
<td>Facilities Services Addition to McCluskey</td>
<td>11,000</td>
</tr>
<tr>
<td>SG Plant Growth (Greenhouse) Phase 1</td>
<td>25,000</td>
</tr>
<tr>
<td>Clean Tech Laboratory Building</td>
<td>96,000</td>
</tr>
<tr>
<td>Northside II Residence Hall</td>
<td>100,000</td>
</tr>
<tr>
<td>Chief Joseph Apartments (Renovation)</td>
<td>125,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>392,000</strong></td>
</tr>
</tbody>
</table>

The results of this projection indicate that there is an 8,695 space demand versus a 9,062 space supply of parking within the study area. Eight parking spaces were removed for redevelopment. Total demand represents the demand generated by all land uses including existing conditions, current development projects, and the years one through five projects discussed in Table 54. Table 55 examines the parking demand of each user group on campus.

<table>
<thead>
<tr>
<th>User Group</th>
<th>Parking Demand (spaces)</th>
<th>Percentage of Total Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td>3,206</td>
<td>35%</td>
</tr>
<tr>
<td>Students</td>
<td>1,916</td>
<td>21%</td>
</tr>
<tr>
<td>Student Residents</td>
<td>3,501</td>
<td>39%</td>
</tr>
<tr>
<td>Visitor</td>
<td>71</td>
<td>0.8%</td>
</tr>
</tbody>
</table>

The projects associated with this phase of development generate 320 spaces of demand. Table 56 breaks down the parking demand for each development project.

<table>
<thead>
<tr>
<th>Development Project</th>
<th>Parking Demand (spaces)</th>
<th>Primary Parkers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Safety and Police</td>
<td>8</td>
<td>Faculty</td>
</tr>
<tr>
<td>Agricultural Animal Health Research Facility</td>
<td>43</td>
<td>Faculty/graduate students</td>
</tr>
<tr>
<td>Global Animal Health Phase 2</td>
<td>108</td>
<td>Faculty/graduate students</td>
</tr>
</tbody>
</table>
The output of this scenario indicates the latent demand is 585 spaces primarily generated by student residents surrounding the Northside Dormitories at the north end of campus, as well as faculty members in the center of campus, such as the Veterinary and Biomedical Research Building and Food Science and Human Nutrition. Most of the new research buildings to be built as part of the 10-Year Plan are concentrated near the center of campus and are the primary contributor to the faculty latent demand observed in the area.

A new parking facility was considered for demand mitigation to accommodate the latent demand that occurs during this period of development. After analyzing the new parking garages proposed in the Master Plan, Parking Garage No. 9 adjacent to Beardsley Coliseum will most effectively serve future demands due to its proximity to the core of campus and location on an existing surface lot. This facility will replace the existing Coliseum East student resident parking (248 spaces) and include 1,200 spaces for students, faculty, and student residents. Yet while located near the center of campus, Parking Garage No. 9 will be just outside of the desired walking tolerance of most users. As a result, the university should encourage longer walking trips by investing in pedestrian and bicycle infrastructure that connects the new garage to the center of campus.

After including the new parking facility and increasing the desired walking distances by 500 feet, latent demand is decreased to 68 spaces. Table 57 summarizes how the proposed parking facility will be utilized by each primary user group:

Table 57. Parking Garage No. 9 Proposed Use by Group

<table>
<thead>
<tr>
<th>User Group</th>
<th>Parking Demand (space)</th>
<th>Percentage of Total Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td>288</td>
<td>24%</td>
</tr>
<tr>
<td>Students</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Student Residents</td>
<td>385</td>
<td>32%</td>
</tr>
<tr>
<td>Total</td>
<td>673</td>
<td>56%</td>
</tr>
</tbody>
</table>

Land uses that serve athletic or recreational activity, such as the Indoor Practice Facility, do not create “new demand” but rather accept existing demand. As a result, these uses generate zero additional spaces of demand on campus.
Figure 45. Park+ Output (Years 1 – 5)
Year Six to Year Ten Developments – Projection Results

Table 58 identifies the years six to ten development projects included in this scenario and the associated GSF.

<table>
<thead>
<tr>
<th>Development Project</th>
<th>GSF</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Tech Classroom Building</td>
<td>60,000</td>
</tr>
<tr>
<td>REC6 - Bioengineering Laboratory</td>
<td>100,000</td>
</tr>
<tr>
<td>Equine Performance Evaluation and Rehabilitation Center</td>
<td>29,000</td>
</tr>
<tr>
<td>Undergraduate Education Building 2</td>
<td>90,000</td>
</tr>
<tr>
<td>Vet Education Center (McCoy Replacement)</td>
<td>60,000</td>
</tr>
<tr>
<td>REC3 - USDA ARS Building</td>
<td>100,000</td>
</tr>
<tr>
<td>REC7 - Bioengineering Research Lab</td>
<td>100,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>559,000</strong></td>
</tr>
</tbody>
</table>

The results show that there is a 9,516 space demand versus a 9,782 space supply for parking within the study area. The total supply represents all parking spaces found on the WSU campus and accounts for 232 spaces removed for redevelopment and 1,200 spaces added for Parking Garage No. 9 as proposed in the years one through five scenario. Table 59 highlights the parking demands for each user group on campus.

<table>
<thead>
<tr>
<th>User Group</th>
<th>Parking Demand (spaces)</th>
<th>Percentage of Total Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td>3,831</td>
<td>39%</td>
</tr>
<tr>
<td>Students</td>
<td>2,133</td>
<td>22%</td>
</tr>
<tr>
<td>Student Residents</td>
<td>3,501</td>
<td>36%</td>
</tr>
<tr>
<td>Visitor</td>
<td>71</td>
<td>7%</td>
</tr>
</tbody>
</table>

Projects developed during this phase will generate the following demand.

<table>
<thead>
<tr>
<th>Development Project</th>
<th>Parking Demand (spaces)</th>
<th>Primary Parkers</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Tech Classroom Building</td>
<td>87</td>
<td>Students</td>
</tr>
<tr>
<td>REC6 - Bioengineering Laboratory</td>
<td>161</td>
<td>Faculty/graduate students</td>
</tr>
<tr>
<td>Equine Performance Evaluation and Rehabilitation Center</td>
<td>47</td>
<td>Faculty/graduate students</td>
</tr>
<tr>
<td>Undergraduate Education Building 2</td>
<td>130</td>
<td>Students</td>
</tr>
<tr>
<td>Vet Education Center (McCoy Replacement)</td>
<td>96</td>
<td>Faculty/graduate students</td>
</tr>
<tr>
<td>REC3 - USDA ARS Building</td>
<td>161</td>
<td>Faculty/graduate students</td>
</tr>
<tr>
<td>REC7 - Bioengineering Research Lab</td>
<td>161</td>
<td>Faculty/graduate students</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>843</strong></td>
<td></td>
</tr>
</tbody>
</table>
The output for this scenario indicates that the latent demand is 490 spaces. Like previous scenarios, the areas with latent demand include the student residential area near Northside Dormitories and the core of campus. Because parking demand exceeds the supply, drivers will likely have a difficult time finding a place to park.

**Traffic Demand Management**

If the university invests in TDM initiatives as recommended in this study, campus parking demand will be significantly reduced as compared to the predictions in this scenario. As a result, the construction of an additional parking facilities is not recommended.

To understand the impacts of TDM investments, an additional scenario was developed to reflect potential increased mode-split on campus as shown in Table 61. In this scenario, a five percent increase in alternative transportation modes for each user group was applied. As a result, demand is reduced to 8,790 spaces to yield a 994 space campus surplus. The effective parking cushion is increased from 3% to 11%, a figure that indicates an effectively operating parking system on a university campus.

<table>
<thead>
<tr>
<th>User Group</th>
<th>Parking Demand (spaces)</th>
<th>Percentage of Total Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td>3,619</td>
<td>37%</td>
</tr>
<tr>
<td>Students</td>
<td>1,600</td>
<td>16%</td>
</tr>
<tr>
<td>Student Residents</td>
<td>3,501</td>
<td>36%</td>
</tr>
<tr>
<td>Visitor</td>
<td>70</td>
<td>7%</td>
</tr>
</tbody>
</table>

Table 61. Parking Demand by User Group (TDM Initiatives)
Parking Demand Scenario Conclusions

The following summaries define the modeled conditions for each scenario developed in Park+. The figures on the following pages provide an overview of each of each scenario.

- **Existing Conditions**: The existing conditions scenario included a parking demand of 8,133 spaces versus a supply of 9,190 spaces to yield a surplus of 1,057 spaces. Despite this large surplus, some low levels of localized parking deficiency exist near the center of campus where available parking is located outside of desirable walking tolerances.

- **Current Development**: The results of the current development scenario predict a parking demand of 8,376 spaces, including an increase of 406 spaces attributed to campus expansion. The development projects included in the current development scenario removed 230 spaces from the parking system. By increasing the users’ walking tolerances through bicycle and pedestrian improvements, all parking demand on campus would lessen, although most parking facilities are at capacity with few instances of localized latent demand. To mitigate parking demands, the university should strongly promote the use of multimodal transportation alternatives and the implementation of TDM strategies as discussed in this report. At this time, it is likely that WSU will need to begin planning for additional parking capacity on campus to meet future parking needs generated by new development in the later phases of the 10-Year Plan. (Reference Error! Reference source not found.)

- **Years One to Five Development**: This scenario analyzed the impacts of projects planned for years one through five in WSU’s 10-Year Plan. The results project an increase in parking demand of 319 spaces, from 8,376 to 8,695. The additional demand on campus surpasses available parking supply. At this point, a new 1,200-space parking facility should be constructed to accommodate the demand. Based on an evaluation of the alternatives presented in the master plan, Parking Garage No. 9 adjacent to the Beasley Coliseum is the recommended alternative. The excess supply created by this facility will later accommodate projected parking demands in years six through ten of the 10-Year Plan. After incorporating the facility into the model, nearly all parking demand is accommodated. The latent demand is reduced to 68 spaces, which is largely inconsequential on a campus of this size. (Reference Error! Reference source not found.)

- **Years Six to Ten Development**: The final phase of the 10-Year Plan yields 9,537 spaces of parking demand and 9,782 spaces of supply, including the proposed 1,200-space parking garage. Because no true parking deficiency exists on campus, the construction of additional parking facilities during this phase of development is not recommended. However, the parking system will only have a 3% cushion between supply and demand, which is not ideal. Campus parking demand will be reduced to a more manageable level if the TDM initiatives proposed in this study are implemented as students, student residents, staff, faculty, and visitors utilize alternative methods of transportation to and around campus. (Reference Error! Reference source not found.)

The projects identified in the 10-Year Plan are strongly focused on laboratory and research facilities and are primarily located near the campus center. As these facilities are developed, existing campus parking supply will become strained and no longer able to serve parking demands—particularly because the development sites coincide with the locations where parking supply is already limited.

While existing capacity is able to meet current demands, future parking demands will surpass the threshold during the year one to year five phase. To be able to meet the additional demands during this
phase and in future phases, a 1,200-space parking structure should be constructed just east of Beasley Coliseum available for student, faculty, visitor, and student resident use.

Table 62 provides an overview of the parking demand versus supply in all scenarios analyzed.

Table 62. Parking Demand versus Supply (All Scenarios)

<table>
<thead>
<tr>
<th>Phase</th>
<th>Parking Demand (spaces)</th>
<th>Parking Supply (spaces)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Conditions</td>
<td>8,133</td>
<td>9,190</td>
</tr>
<tr>
<td>Current Development</td>
<td>8,367</td>
<td>9,070</td>
</tr>
<tr>
<td>Years One through Five</td>
<td>8,695</td>
<td>10,016</td>
</tr>
<tr>
<td>Years Six through Ten</td>
<td>9,537</td>
<td>9,782</td>
</tr>
</tbody>
</table>

![Figure 47. Demand versus Supply Scenario - Current Development](image-url)
Figure 48. Demand versus Supply Scenario – Development Year 1 – Year 5
Figure 49. Demand versus Supply Scenario – Development Year 6 – Year 10
Supplemental Parking Supply/Demand Analysis

Following an initial review of the Park+ model analysis, Transportation Services questioned if the proposed site for the recommended 1,200-space parking garage (Facility No. 9) adjacent to the Beasley Coliseum is preferred. Recent developments in the northwest quadrant of campus have decreased supply and increased parking demand in this area of campus. In addition, the razing of the former “Bookie Site” near NE Colorado Street and NE Thatuna Street created an opportunity to add parking supply in a quadrant of that campus has several compelling arguments:

- The northwest corner of the site was designated for a major campus gateway signage element. The proposed gateway element could be incorporated into the garage structure if a structure was developed on the site.
- The site could be extended into an adjacent surface lot to help reconfigure a problematic intersection at NE Colorado and NE Thatuna Streets.
- Thatuna Street is currently configured as a one-way street traveling north. The 2012 Update suggests that converting this to be a two-way street in the future would be beneficial.
- If the facility were designed to be a combination parking garage and mixed-use building, its location makes it an attractive site for athletic or other office uses. Such a configuration would also provide the opportunity to blend the structure’s design into the existing campus architecture without having the appearance of a parking garage.
- Adding parking in this area would resolve some long-standing issues, such as access to Music Department events and provide the opportunity to create an activity space for students, such as a green roof with an activated area featuring a coffee shop or other amenities.

Figure 50 depicts the northwest campus proposed parking garage location on NE Colorado Street and NE Thatuna Street. The design sketches that follow illustrate potential concepts for a garage at this location.
Figure 50. Northwest Campus Proposed Parking Garage Location – NE Colorado Street and NE Thatuna Street
Figure 5.1: Potential Garage Concept A
Figure 52. Potential Garage Concept B
Figure 53. Potential Garage Concept C
The orientation map below shows the location of three additional potential parking garage sites that WSU Transportation Services staff recommended for consideration. These include the current Red 2 and Yellow 1 lots, both of which are adjacent to the Indoor Practice Facility accessible via Ferdinand Lane. Details about each of these three options are provided in the section that follows.
Red 2 Garage Concept
Kimley-Horn and the WSU Transportation Department Director have also discussed the current “Red 2” parking lot near the indoor practice field on Ferdinand’s Lane as a potential garage development site. A rough conceptual analysis of the site estimates that the existing lot footprint could accommodate a four-bay parking structure with approximately 238 spaces per typical level. The first floor would have slightly less spaces to accommodate entry and exit lanes and Americans with Disabilities Act (ADA)-compliant parking.

Following the initial site evaluation above, WSU requested additional site explorations in this general area. The following reflects the additional site options developed based on that request.

As authorized, we have developed preliminary design concepts for parking structures on two sites located on the campus of Washington State University (WSU) in Pullman, WA. The first site (Lot A) is bounded by Ferdinand Lane, North Fairway Road, Stadium Way and North Fairway Lane and currently serves as a surface parking lot. The second site (Lot B) is situated immediately east of the indoor practice facility and fronts Ferdinand Lane and also serves as a surface parking lot. These parking structures would provide permit parking for students, visitors and university staff. WSU’s goal for developing structured parking on these sites to provide an additional 1,000 to 1,200 parking spaces.
Lot A Parking Structure Concept

The parking structure footprint in this concept occupies the western portion of the site and maintains a significant portion of the existing surface parking spaces. Refer to enclosed Drawing S101. Key attributes of this concept are summarized as follows:

- Structure footprint and height: 361 ft. by 248 ft.; 45.75 ft. to top of parapet.
- Four parking bays wide with a side-by-side single thread helix ramping system for vehicular circulation. A single thread helix is a ramp orientation that circulates vertically one floor with each 360 degrees of revolution. This system also provides for level perimeter parking bays resulting in level façade elements.
- The side-by-side ramping configuration can provide operational flexibility with regards to being able to provide dedicated access and parking for IP employees.
- Grade plus four supported levels of parking providing approximately 1,335, 8.5 ft. by 18 ft., 90-degree stalls. Net new spaces gained is 1,140.
- Gross building square footage of parking approximately 424,555 square feet
- Average design parking efficiency of 318 square feet per stall.

<table>
<thead>
<tr>
<th>Item</th>
<th>Estimated Costs</th>
<th>Cost per Stall</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Base Construction Cost</strong> Note 1</td>
<td>$23,650,000</td>
<td></td>
</tr>
<tr>
<td><strong>Design Contingency @ 15%</strong></td>
<td>$3,548,000</td>
<td></td>
</tr>
<tr>
<td><strong>Construction Contingency @ 10%</strong></td>
<td>$2,365,000</td>
<td></td>
</tr>
<tr>
<td><strong>Total Construction Cost</strong></td>
<td>$29,563,000</td>
<td>$22,144</td>
</tr>
<tr>
<td><strong>Owner Soft Costs (@25%)</strong></td>
<td>$7,391,000</td>
<td></td>
</tr>
<tr>
<td><strong>Total Project Costs (2015 Dollars)</strong></td>
<td>$36,954,000</td>
<td>$27,681</td>
</tr>
</tbody>
</table>

*Note 1: The base construction cost includes an allowance of $300,000 for site demolition, utility relocation/reconfiguration within structure footprint and regrading of remaining portion of existing surface parking area. The parking structure construction cost is based on a $55 per square foot unit cost.*
Figure 56: Lot A Parking Garage Concept
LOT B PARKING STRUCTURE CONCEPT

The parking structure footprint in this concept fronts Ferdinand Lane and occupies the southern portion of the site. Its placement maintains a portion of the existing surface parking spaces adjacent to the indoor practice facility. Refer to enclosed Drawing S102. Key attributes of this concept are summarized as follows:

- Structure footprint and height: 290 ft. by 189 ft.; 56 ft. to top of parapet.
- Three parking bays wide with single-thread thread side-by-side helix ramping system for vehicular circulation. A single thread helix is a ramp orientation that circulates vertically one floor with each 360 degrees of revolution. This system also provides for level perimeter parking bays resulting in level façade elements.
- Grade plus five supported levels of parking providing approximately 1,001, 8.5 ft. by 18 ft., 90-degree stalls. Net new spaces gained is 827.
- Gross building square footage of parking approximately 316,540 square feet
- Average design parking efficiency of 316 square feet per stall.
- Concept Level Opinion of Probable Project Cost

<table>
<thead>
<tr>
<th>Item</th>
<th>Estimated Costs</th>
<th>Cost per Stall</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Base Construction Cost</strong></td>
<td>$17,550,000</td>
<td></td>
</tr>
<tr>
<td><strong>Design Contingency @ 15%</strong></td>
<td>$2,633,000</td>
<td></td>
</tr>
<tr>
<td><strong>Construction Contingency @ 10%</strong></td>
<td>$1,755,000</td>
<td></td>
</tr>
<tr>
<td><strong>Total Construction Cost</strong></td>
<td>$21,938,000</td>
<td>$21,916</td>
</tr>
<tr>
<td><strong>Owner Soft Costs (@25%)</strong></td>
<td>$5,485,000</td>
<td></td>
</tr>
<tr>
<td><strong>Total Project Costs (2015 Dollars)</strong></td>
<td>$27,423,000</td>
<td>$27,396</td>
</tr>
</tbody>
</table>

Note 2: The base construction cost includes an allowance of $140,000 for site demolition, utility relocation/reconfiguration within structure footprint and regrading of remaining portion of existing surface parking area. The parking structure construction cost is portion of existing surface parking area. The parking structure construction cost is based on a $55 per square foot unit cost.
Figure 57. Lot B Parking Garage Concept
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I. INTRODUCTION

Reducing dependence on the automobile has been an increasing priority for comprehensive parking and transportation departments over the past few decades based on the realization that solely focusing on supply-side strategies to achieve overall programmatic objectives has both financial and environmental impacts. Either by necessity or forward thinking, universities have been at the forefront of developing effective demand management strategies, thereby demonstrating that this approach can be more cost effective than providing structured parking and can positively contribute to a campus’ sustainability goals.

As universities continue to grow, TDM is becoming an increasingly critical piece of the transportation puzzle. In further support of TDM initiatives, younger generations, especially the so-called “millennials,” have shown less interest in obtaining a driver’s license and purchasing vehicles. Instead, these so-called “millennials” are opting to use a new-generation of shared transportation services largely made possible by the proliferation of mobile communications devices and participation of the “sharing” economy.

Looking Towards the Future

A new factor that we should begin taking into consideration is the very real and rapidly advancing development of autonomous vehicle (AV) technology. AV technology (also referred to as self-driving vehicles) offers the possibility of fundamentally changing transportation as we currently know it. Equipping cars and light vehicles with this technology will likely reduce crashes, energy consumption, and pollution—all while reducing the costs of congestion.

Careful policymaking will be necessary to maximize the social benefits that this technology will enable while minimizing the disadvantages. Policymakers are only beginning to think about the challenges and opportunities this technology poses. Parking and transportation practitioners would be wise to also begin weighing the potential impacts on our industry. A good place to start is by reading the report entitled, “Autonomous Vehicle Technology - A Guide for Policymakers” published by the RAND Corporation. It is available for download at www.rand.org/pubs/research_reports/RR443-1.html

Uber's plan for self-driving cars is an interesting example that illustrates the potential impact of this technology. A recent edition of the Mobility Lab e-newsletter (Mobility Lab Express #69 - September 1, 2015) includes an article entitled “Uber's Plan for Self-Driving Cars Bigger than Its Taxi Disruption.” The article discusses how Uber has fundamentally changed the taxi industry. However, its biggest disruption may be yet to come. The report comments,

The ride-hailing company has invested in autonomous-vehicle research, and its CEO Travis Kalanick has indicated that consumers can expect a driverless Uber fleet by 2030. Uber expects its service to be so inexpensive and ubiquitous as to make car ownership obsolete. Such ambitious plans could make its disruption of the taxi industry look quaint in comparison . . .
A study by Columbia University calculates that with a fleet of just 9,000 autonomous cars, Uber could replace every taxicab in New York City—with a passenger wait time of 36 seconds and a cost of $.50 per mile . . . Going further to an economy-wide perspective, Pricewaterhouse-Coopers estimates, as noted by writer and entrepreneur Zack Kanter that ‘autonomous vehicles would reduce the number of vehicles on the road by 99 percent, and the fleet of cars in the U.S. would fall from 245 million to 2.4 million.’

Should Uber’s plans materialize, the impact may not all be positive. Self-driving cars will greatly affect the job market, car manufacturers, dealerships, transit, and the urban lifestyle itself (not mention the parking industry!).

While it may seem far-fetched at this point, it may not be too early to consider the possibilities and potential ramifications of how AVs could impact future campus parking and transportation programs. Now is a good time for campus, community, urban development, and transportation-thought leaders to think creatively together about the positive and negative aspects of this amazing transformation that may be coming in the next few decades.

It is worth considering if the recommended 1,200-space parking garage should be designed for potential conversation to another use in the long-term if the promise of AV is to be realized in the next 20 years. This type of thinking has some immediate planning impacts that should be evaluated. As one example, although somewhat counter-intuitive, parking structures are designed to support approximately 50 pounds per SF, while an office building has a structural capacity of nearly 120 pounds per SF. If a parking structure is built with the assumption that it may be converted to an office building at some point in the future, then designing it with higher structural capacity and floor-to-floor heights and primarily flat floors supported by a helical ramp for vertical circulation may be an appropriate and forward-thinking strategy.

II. UNDERSTANDING TRANSPORTATION DEMAND MANAGEMENT

TDM has traditionally focused on incentives to encourage commuters to consider alternatives to SOV commutes to reduce congestion and mitigate air quality concerns. As the TDM arena has matured, additional creative strategies have emerged that target behaviors on many fronts via marketing and public awareness, leveraging new technologies, and influencing land-use patterns.

TDM aims to reduce the carbon footprint and dependence on SOVs. While these goals are an important part of any campus sustainability program, they likely resonate particularly strongly at WSU due to the campus’ focus on environmental stewardship and the role that sustainability plays in WSU’s overall identify. WSU’s former President was one of the first in the country to sign the American College and University Presidents’ Climate Commitment. In doing so, the President committed to developing a plan to track the institution’s progress toward reducing its greenhouse gas emissions through actions such as designing new construction to LEED Silver standards, reducing energy consumption, increasing the use of public transportation, and incorporating sustainability into the University’s curriculum.
As WSU continues to grow and enter into a new era of campus expansion, students, faculty, and staff will have new and different transportation demands and needs than in the past. WSU’s current programs and attitudes regarding TDM described in this chapter form a baseline from which a more robust system may develop to address the future needs of the WSU campus. This chapter also includes a section that provides an overview of the characteristics of an “integrated university parking and transportation department.” By combining supply- and demand-side strategies, a more balanced approach to the campus transportation equation can be created. Furthermore, this chapter provides a structured approach to developing a sustainable parking and transportation management program in support of WSU’s climate commitment goals.

### III. ASSESSMENT OF CURRENT TDM AND TRANSPORTATION ALTERNATIVES PROGRAMS

#### Travel Patterns and Behaviors

**Existing Mode Split**

WSU’s existing mode-split is not currently tracked; however, a high percentage of students on campus currently use alternatives to SOV trips to travel to campus. The campus experiences high transit ridership on Pullman Transit from nearby apartment-heavy locations such as “Apartment Land” along Terre View Drive to the north. Walking and biking are also popular ways of getting to and around campus. Nonetheless, a high number of students, faculty and staff drive alone and park on the Pullman campus.

**Home Locations**

The ability to increase the use of alternative modes of transportation hinges strongly on where people live related to where they work or attend school. Unlike many of its peers, WSU and the City of Pullman have relatively compact land-use patterns, and rural areas comprise most of the Palouse region outside of the City limits.

Most students live either on campus or in high-density apartment areas primarily along Terre View Drive and along connecting streets north of College Hill and also on the northern part of Military Hill. Freshmen are required to live on campus. The proximity of housing means that attracting individuals to alternative modes of transportation may be a slightly more manageable task than many of WSU’s peers.

The registered home addresses of faculty, staff, and students were mapped based on a zip code sort, as depicted in Figure 58 and Figure 59.
Figure 58. WSU Students by Zip Codes (2015)

Figure 59. WSU Salaried Employees by Zip Codes (2015)
**Existing Bicycle and Pedestrian Framework**

With hilly terrain and winters consisting of regular snowfall events, the WSU campus can be challenging to traverse on foot or bicycle. However, the weather is pleasant for much of the year, and the beauty of the area creates a compelling reason to walk or bike. The campus consists of a relatively robust network of pedestrian and bicycle facilities that serves pedestrians and bicyclists well. A Bicycle and Pedestrian Plan was developed in 2013 by Alta Planning+ Design that outlines projects that should be further investigated to enhance the campus’ on- and off-campus bicycle and pedestrian networks.

The WSU Bicycle and Pedestrian Plan comprised five areas:

- Background
- Existing Conditions
- Needs Analysis
- Recommended Improvements
- Implementation Strategies

The Needs Analysis chapter documented the results of a campus survey with approximately 1,500 responses. Two key questions in the survey attempted to identify reasons that keep participants from biking and walking. The results are summarized in Figure 61 and Figure 62.

![Figure 60. WSU Bicycle and Pedestrian Plan (2013)](image)

![Figure 61. Needs Assessment - Bicycling Constraints](image)
The report also included an engineering assessments of the bicycle and pedestrian networks including a “gap analysis” and an evaluation of collision and safety data. Recommendations were provided in five categories as follows:

- **Engineering**: Provided a recommended network of bicycle and pedestrian facilities for the WSU campus and surrounding areas.

- **Education**: Identified strategic opportunities for providing education and educational materials to the campus community.

- **Encouragement**: Outlined encouragement strategies for WSU and other partners to promote walking and bicycling as viable transportation options based on WSU-specific findings and the experiences of other communities around the region and across the United States.

- **Enforcement**: Identified enforcement strategies that have proven effective at creating greater compliance with the “rules of the road” and foster greater mutual respect toward sharing the road among all transportation users.

- **Evaluation**: Provided strategies were developed and designed to assist WSU staff in measuring the success of this plan over time. This section identified two distinctly separate yet interrelated items as baseline and benchmarking tools: system usage and expansion. The baselines will be established during the planning process to allow WSU staff to track usage and expansion over time.

The primary recommendations of the Alta report were divided into a recommendations framework using three categories:

- **Fix What You Have**: This section identified projects to improve the existing system while adding to the system as funding allows. Project types in this category included both on-campus and off-campus projects such as:
  - Gap closures
  - Crossing improvements
  - Wayfinding and signage
  - Maintenance and repaving needs

- **Bicycle Connections**: This section identified projects to improve bicycle connectivity to downtown Pullman and the WSU campus. Project types in this category included:
  - New neighborhood greenways
New trails
Extensions of existing paths
New roadway cross-sections to accommodate bicyclists and/or pedestrians

**Circulation:** This section identified projects intended to improve circulation within the campus, including both long- and short-term priorities. Many of the long-term recommendations are designed to respond to the planned 2012 Update recommendations. Project types in this category included:

- Priority bicycle route/campus greenway improvements (e.g., sharrow, signage, wayfinding)
- New campus trails
- Major capital projects (e.g., Stadium Way/Grimes Way realignment)
- Long-term campus planning efforts (2012 Update, proposed Multimodal Transit Center)
- Pedestrian mall design/re-design recommendations (reference Figure 63 and Figure 64)

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Figure 63. Circulation #9: Stadium Way Reconfiguration

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The report also included eight appendices that discuss vision, goals and objectives, plan and policy review, public involvement plan, outreach summary, detailed existing conditions analysis and design guidelines, detailed recommendations, and planning level cost estimates.

**Existing On-Road, Off-Road, and End-Trip Bicycle Facilities**

A series of multi-use paths exist along much of the perimeter of campus that generally run along Grand Avenue, East Main Street, Terre View Drive, and Airport Road. On-road bike lanes and “sharrows” are provided at several streets on campus, such as Colorado Street; however, on-road facilities are limited in general.

Shower facilities for bicyclists are located in the Student Recreation Center. Secure bicycle parking is located at two locations in the western half of campus in the alley off of Linden Street and in the Northside Residence Hall. Unsecure bike racks are scattered throughout the reminder of campus and generally experience high levels of use.

**Existing Sidewalks**

Sidewalks are abundant along roadways internal to campus and within the City of Pullman. The center of campus consists of the Glenn Terrell Pedestrian Mall, a beautifully designed space for pedestrians to access the most densely populated portion of campus. Service vehicles are also allowed to drive in the mall at low speeds.
Bicycle and Pedestrian Travel Patterns

While pedestrian and bicycle participation is high on campus, there are barriers that keep many that would consider practicing using these modes. The Bicycle and Pedestrian Plan surveyed nearly 1,500 respondents to determine the constraints that limits some constituents’ willingness to walk and bicycle around campus. Respondents reported that the most significant reasons that they do not walk more are time, weather conditions, and distance (respectively). Respondents also mentioned inadequate lighting and inaccessible sidewalks as barriers to walking.

Green Bikes

Green Bikes is a shared-bike program that allows students, faculty, and staff to check out a bike free of charge. The program started only a few years ago and is gaining popularity. There are 140 bikes available at 11 existing stations throughout campus, with plans for additional stations. The program is paid by student fees and had a start-up cost of $50,000. The program operates from March through November due to harsh winter conditions. However, the campus reports some desire to continue service during winter months.

Existing Transit Framework

Pullman Transit

Pullman Transit, a function of the City Public Works Department, is the transit provider for the city and is the primary transit provider for the campus. Pullman Transit provides over 1.4 million rides per year. A separate service, Wheatland Express, connects the WSU campus with the University of Idaho in Moscow. Rides associated with WSU comprise approximately 85 percent of all of Pullman Transit’s ridership.

Pullman Transit offers several different routes throughout the City, with those accessing “Apartment Lane,” along Terra View Drive experiencing the highest ridership. Headways are generally 45 minutes on this route. Buses are equipped to carry bikes; however, bike racks are usually full during peak periods. As a result, it difficult for patrons with bikes to have a reliable transit experience.

While the transit system is heavily utilized, it does experience shortfalls. Due to funding constraints, the system’s headways are not frequent enough to provide a very high level of service. Patrons must time their arrival at bus stops correctly to avoid a 45 minutes wait for the next bus. It also has challenges meeting the unique demands of travel patterns internal to the campus. One-way loops and long headways internal to campus reduce much of its usefulness for on-campus trips. Furthermore, no central
transit hub exists on campus; instead, services is provided via a series of small bus stops throughout campus.

An additional challenge the City is experiencing on an increased level are students, faculty, and staff utilizing the transit system as a way to avoid paying for on-campus parking. Because of the lack of parking regulation within the City, many patrons create their own park and ride lots by parking in City facilities and private lots, then taking Pullman transit into campus.

Pullman Transit officials have indicated that they are constrained by current funding and that they only own 19 buses. Additionally, Pullman Transit is required to have covered facilities to house the bus fleet, and their current facility only has space for 18 vehicles. Thus, adding fleet capacity would also require that the requirement to provide additional covered vehicle storage likewise be addressed. Pullman Transit indicated the need for six to 11 additional buses to reduce headways to a more reasonable level. A maintenance facility on WSU’s campus is also desired to further improve service.

Pullman Transit is primarily funded by a two percent local utility tax and contributions from WSU (approximately 40 percent of the budget). The WSU portion of the budget is primarily comprised of parking fees and annual student and activity fees. The cost to ride Pullman Transit is extremely low at only 50 cents for an adult trip or $14 per month for a Pullman resident. It is free for WSU students, faculty, and staff. Resultantly, fare recovery only accounts for approximately one percent of the budget. In 2015, WSU agreed to a five percent increase in transit system fees with no significant increases in service levels.

**Car/Ride Share**

<table>
<thead>
<tr>
<th>Carpool</th>
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<tbody>
<tr>
<td>While some carpools do exist, WSU’s carpool program is relatively unsophisticated. The program is coordinated by WSU Motorpool services. Individual carpools are not tracked, and pricing incentives or preferential parking spaces for carpool participants are not provided.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vanpool</th>
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<tbody>
<tr>
<td>WSU Motorpool coordinates several vanpools originating from Colfax, Colton, Uniontown, and the Lewiston/Clarkston Valley.</td>
</tr>
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<table>
<thead>
<tr>
<th>Zipcar</th>
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</thead>
<tbody>
<tr>
<td>Three Zipcar stations are located on campus along Colorado Street on the north side of campus and off of Nevada Street on the south side of campus. Zipcars are available to anyone with a valid driver’s license over the age of 18. Vehicles can be used for a minimum of one hour up to a few days.</td>
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</tbody>
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<table>
<thead>
<tr>
<th>WSU Zimride</th>
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<tbody>
<tr>
<td>WSU subscribes to the WSU Zimride software program that links individuals together in order to form carpools for commutes, road trips, and special events to create the ability to form carpools on-demand. Individuals must have an account to access the system. This service costs the school $7,500 per year.</td>
</tr>
</tbody>
</table>
Supporting Programs

Emergency/Guaranteed Ride Home Program
An emergency or guaranteed ride home program allows individuals that utilize alternative transportation to receive a free ride if they must return home unexpectedly before their shared transportation departs. This program allows for individuals to take advantage of alternative commute modes without the fear of being left stranded if an emergency arises. WSU currently has an emergency ride home program; however, staff says that the services are rarely used.

Organizational Structure
TDM programs generally operate out of the Transportation Services Division under the Office of Public Safety. However, some components of TDM are operated by other entities. Green Bikes are operated by UREC, the motor pool (carpool and vanpool) is operated by the Facilities Department, and transit is operated by the City of Pullman. Within the Transportation Services Division, a TDM/Outreach Supervisor is responsible for coordinating all TDM-related affairs, including coordination with other departments and the City of Pullman.

TDM Transportation Budget
Funds supporting TDM initiatives and programs can often be challenging to tabulate because many groups are responsible for the successful implementation of SOV trip-reduction initiatives. For instance, Pullman Transit operates the bus system, Transportation Services manages parking pricing policies, Facilities manages the carpool and vanpool, and UREC manages the Green Bikes program. No specific line item is included in the Transportation Services Department’s budget for TDM specific programs or services.

Key Opportunities to Investigate
WSU is fortunate to have an institutional framework that can support additional TDM measures to reduce future SOV trip reduction campaigns on campus. While some infrastructure, programs, and policies are currently operating, the program is relatively unsophisticated. The following areas should be investigated for feasibility. Realizing that constraints such as campus culture, physical barriers, and costs will impact each of these, WSU should focus on those elements that have the greatest chance at success.

Parking permit pricing adjustments
- Parking permit assignment (lot designation and internal departmental procedures)
- Increased marketing and TDM program awareness
- Increased collaboration with City of Pullman and Palouse Regional Transportation Planning Organization (RTPO)
- Infrastructure investments such as a centralized transit hub or multi-modal facility and additional bike and pedestrian facilities
- Subsidies and incentives to promote alternative mode usage
Recent TDM Advances

The scope and range of TDM or mobility management strategies has expanded greatly over the past decade. Planners working in this area have begun to divide these strategies into four major categories:

1. Improvements to transport options
2. Incentives to shift modes of transportation
3. Land-use management
4. Policies and programs

Table 65 provides examples of demand management strategies organized by the four major categories outlined above. Many tactics and strategies can be considered: determining which combination of strategies is the best fit for the WSU campus is a key goal of the comprehensive transportation plan.

Table 65. TDM Strategies (Source: Victoria Transport Policy Institute)

<table>
<thead>
<tr>
<th>Improved Transit Options</th>
<th>Incentives to Shift Mode</th>
<th>Land-Use Management</th>
<th>Policies and Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative work schedules</td>
<td>Bicycle and pedestrian encouragement</td>
<td>Car-free districts</td>
<td>Access management</td>
</tr>
<tr>
<td>Bicycle improvements</td>
<td>Congestion pricing</td>
<td>Compact land-use</td>
<td>Campus transport management</td>
</tr>
<tr>
<td>Bike/transit integration</td>
<td>Distance-based pricing</td>
<td>Location-efficient</td>
<td>Data collection and surveys</td>
</tr>
<tr>
<td>Car-sharing</td>
<td>Commuter financial incentives</td>
<td>New urbanism</td>
<td>Commute trip reduction</td>
</tr>
<tr>
<td>Guaranteed ride home</td>
<td>Fuel tax increases</td>
<td>Smart growth</td>
<td>Freight transport management</td>
</tr>
<tr>
<td>Security improvements</td>
<td>High occupancy vehicle priority</td>
<td>Transit-oriented development</td>
<td>Marketing programs</td>
</tr>
<tr>
<td>Park and rides</td>
<td>Pay-as-you-drive insurance</td>
<td>Street reclaiming</td>
<td>School trip management</td>
</tr>
<tr>
<td>Pedestrian improvements</td>
<td>Parking pricing</td>
<td></td>
<td>Special events management</td>
</tr>
<tr>
<td>Ride-sharing</td>
<td>Road pricing</td>
<td></td>
<td>Tourist transport management</td>
</tr>
<tr>
<td>Shuttle services</td>
<td>Vehicle use restrictions</td>
<td></td>
<td>Transport market reforms</td>
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<tr>
<td>Improved taxi service</td>
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<tr>
<td>Telework</td>
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<tr>
<td>Traffic calming</td>
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<tr>
<td>Transit improvements</td>
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</table>

The following sections present a range of TDM best practices and recommendations. These strategies, tools, and recommendations should be considered for implementation by WSU staff.
IV. INTEGRATED UNIVERSITY PARKING AND TDM PROGRAMS

As university transportation programs evolve to adopt more comprehensive and integrated campus access management programs, a question that is increasingly being asked is: "What does optimal performance in an integrated University Parking and Transportation System look like?"

We might begin our exploration by asking the following questions:

- Is transit ridership at the level you want it to be?
- Are parking ratios known? Are they higher or lower than desired?
- Are surface parking lots being lost to new building projects or green space?
- Is there a desire to make the campus more pedestrian friendly?
- Are there problem areas with regard to pedestrian/vehicular conflicts?
- Is the transit operation self-supporting?
- Are parking revenues supplementing transit system costs?
- Do parking services complement TDM policies (e.g., preferred parking for carpools, reduced parking rates for carpools, vanpools, and ride-sharing)?
- Does parking pay for bike racks on campus?
- Has the parking department co-sponsored car-share programs such as ZipCar or similar programs?
- Does the parking office sell bus passes?
- Are remote park and ride lots with shuttles and reduced parking rates being utilized?
- Do Parking and Transportation Services work collaboratively to handle peak demand periods and special events?
- Is there a defined Parking and Transportation Master Plan?

In an integrated program, parking and transportation share a common vision of the definition of “enhanced campus access.” On many campuses, the parking and transportation departments appear to have different or competing goals; in an integrated program, the goals of both programs merge. In general, because parking is often a positive revenue generator and transit is typically revenue neutral at best (assuming a campus-wide transportation fee), the partnership tends to favor transit more than parking. When the two programs are combined, assuming they are both working toward a common set of goals, the entire campus can benefit. The fact that this Comprehensive Transportation Plan was funded and authorized is a positive development, shows leadership among peers, and an overall appreciation of the value that a comprehensive and enhanced transportation program can provide in addressing both campus access and sustainability goals.

In reality, parking and transportation are both support services: the goals of both should be subordinate to the larger University-wide strategic goals and objectives. Without this larger strategic framework clearly established, it is hard for parking and transportation goals to make sense except as they relates to supporting the programs for their own sakes. If the campus has an up-to-date master plan with clearly identified strategic goals and objectives, then a parking and transportation master plan can be developed.
that dovetails specific supply- and demand-side strategies with the achievement of the campus’ broader access goals. **Integrating WSU’s Comprehensive Transportation Plan into the broader 2012 Update is one of the key goals of this study.**

Following are some examples of these strategy elements as they can be applied in an integrated university access management program. These elements are divided into demand- and supply-side strategies.

**Demand-Side Strategies**

**Land-Use/Housing**

Making it easier for people to live closer to work and/or school is one of the most effective ways to reduce the need to travel. WSU should continue to increase the supply of on-campus housing; build on its existing programs; provide incentives for staff, faculty, and/or students to live within walking/cycling distance of campus or along defined university transit routes; or a combination thereof. A related issue is the provision of more on-campus services to reduce the need for students, staff, and faculty to have access to a car during the day such car-share programs provided by the University or a third-party contractor.

**Transit Improvements**

If a key goal of the transportation plan is to reduce SOV usage and increase the modal split of alternative transportation options, the University must support and encourage a larger investment in transit programs. The 2012 Update envisioned a significant loss of existing parking spaces (approximately 4,300) and a need for up to 9,600 additional spaces by 2020 to meet projected demands. The document also identified up to six new parking structures, two of which are proposed to be transit hubs. Of course, this level of investment assumes the full build-out of the proposed campus master plan.

In conversations with Campus Planning during the development of our campus parking demand model, we identified a need for only 1,200 additional parking spaces for the next 10-year planning horizon. To meet the goals of a more pedestrianized campus with less reliance on SOV usage going forward, the investments in transit should be on a similar scale to parking investment. Therefore, investments in such elements as a multi-modal parking facility/transit center that would shift parking from the campus core and increase transit system capacity (bus storage and staging) should be an equal priority when selecting parking structure investments.

To address route modifications, headway reductions, or other service improvements designed to better meet transit ridership needs and ultimately to promote increased ridership, additional analysis and planning is required from Pullman Transit. The need for enhanced service levels on existing routes has already been documented, and all parties appear to agree that reduced headways are need to meet current and future demands.
During the course of this study, Pullman Transit was provided with an example of the proactive transit system planning endeavor undertaken by TransFort, the municipal transit agency in Fort Collins, Colorado responsible for service at Colorado State University (CSU). TransFort and CSU are proposing to enhance service levels to provide and maintain reduced system headways, account for increasing student housing densification based on future development proposals, and provide new services such as a campus circulator to eliminate the need for a car to effectively move around campus for daily business activities. Figure 65. TransFort Routes and Frequencies In and Around CSU illustrates current transit routes and frequencies and hourly transit system capacities in and around the CSU campus. Figure 66 illustrates proposed transit routes, frequencies and service additions based on projected increases in student housing densities. It also shows changes to hourly transit system capacities.

Figure 65. TransFort Routes and Frequencies In and Around CSU
While these types of service enhancements would necessitate increased transit funding, it is an expectation that the type of planning undertaken by TransFort should come from Pullman Transit to continue to be the primary provider of transit services on the WSU campus. If these services are not or cannot be provided by Pullman Transit then alternative or supplemental transit services may be required. Accordingly, it is recommended that WSU consider developing an RFP for firms that provide campus transportation services to provide options for various types and levels of supplemental transportation services. The RFP should be developed to explore and develop options related to the following questions/scope:

- What new routes might be necessary to serve concentrations of students, faculty, or staff both now and as the campus continues expanding to the east?

- Fifteen minute headways are generally necessary to attract a large number of riders with a choice of modes. What system enhancements would be required to achieve this level of service?

- To reduced headways, many campuses utilize bi-directional transit service, which often to leads to a dramatic increase in transit ridership. How might such a system work on the WSU campus?

- Based on a limited assessment of the current transit program, where might enhanced service spans be appropriate?
What adjustments can be made without increasing service hours?

Is there the potential to adjust schedules on some routes to provide higher effective frequencies between the campus core and primary commuter destinations?

What educational/marketing investments are needed to increase awareness of existing or proposed programs, support the interest in shared transportation options valued by millennials, and encourage greater usage of transportation alternatives overall?

Provide a recommended strategy to create an on-campus shuttle program to meet current and future campus circulation needs that takes into account proposed new parking facility locations.

**Bicycle and Pedestrian Improvements**

In an integrated parking and access management program, all modes of access are managed and coordinated under a comprehensive program. This includes not only parking and transit, but also what is known as “active transportation” modes such as biking and walking. Key questions in this area include:

- What bike and multi-use path routes are most in need of improvement?
- Are there adequate crossing facilities?
- Are new routes needed?
- Is signage adequate?
- Is there enough secure, covered bicycle parking in the right places?
- Are facilities such as lockers and showers available?
- Do all university busses have bike racks?

Many of these issues were addressed in the 2013 WSU Bicycle and Pedestrian Plan.

**Parking Pricing**

Parking pricing is perhaps the single most effective strategy to encourage a shift away from SOV usage. Furthermore, demand-based parking pricing, particularly when combined with improved transit/shuttle service, can be a powerful tool for redistributing demand from overused to underused parking areas. Key questions to consider in this area include:

- What is the scope (and political will) to increase parking prices?
- What is the general acceptability of price increases, and how they might be distributed among different users? For example, to what extent do union contracts limit or preclude price increases for certain staff?
- What expenses (e.g., parking construction and/or TDM strategies) should/can be financed by parking permit fees and citation revenue?

**Car-Sharing**

Car-sharing allows residents and employees access to a car for occasional use without the need to own or drive one to campus on a daily basis. Universities are generally well suited to car-sharing, partly
because of their high residential densities. Given the trend away from vehicle ownership and acceptance of shared mobility strategies, especially among younger generations, there is a real opportunity to increase car-sharing and other shared transport options.

**Background: What is car-sharing?**

- A model of traditional car rental that occurs for a shorter period of time with cars available 24 hours, 7 days a week
- Car-sharing companies provide the cars and insurance to drivers
- Most used by people who only need occasional access to a car
- Most commonly used are for getting around at night, going to restaurant/bars, commuting to work, visiting family and friends, and going to events
- Can be considered both a business within the Pullman marketplace and a public service
- Membership requires a driving record check to gain insurance approval and an on-file credit card for billing purposes. Once approved, the organizations send a smartcard or key-fob for access into the cars. Keys are usually located inside the vehicle.
- Users must return car to dedicated spot at the end of the trip

**A Brief History and Current Status**

- Originated in Portland, Oregon in 1998 and is now found in dozens of cities nationwide
- Since 1998, 83 car-sharing programs have been deployed in the Americas, 45 of which are still operational and 38 are defunct
- As of January 1, 2015, there is a total of approximately 1,529,811 car-sharing members sharing 22,134 vehicles in the Americas:
  - 20 active programs in Canada
  - 23 active programs in the U.S.
  - One active program in Mexico
  - One active program in Brazil
- The three largest car-sharing operators in the U.S. and Canada support 95.9% and 83.2% of the total membership, respectively.
- In January 2015, U.S. for-profit programs (10 of 23) represented 43.5% of the operators and accounted for 97.9% of the members and 96.2% of vehicles. In Canada, for-profit programs (8 of 20) represented 40.0% of the operators and accounted for 95.5% of the membership and 89.9% of the fleets deployed. (Note: Numbers include roundtrip and one-way car-sharing and do not include peer-to-peer car-sharing.)
- Noted trends: Growth of automakers, one-way programs, and rental cars
As of January 2015, two automaker programs represented 33.5% and 30.2% of the car-sharing membership and fleets deployed, respectively, in North America. As of June 2015, car2go and DriveNow operated in 12 American markets in the U.S. (Austin, Columbus, Denver, Los Angeles, Miami, New York City, Portland, San Diego, San Francisco, Seattle, the Twin Cities, and Washington, D.C.). As of June 2015, car2go operated in four metropolitan markets in Canada (Calgary, Montreal, Toronto, and Vancouver).

One-way (or point-to-point) car-sharing allows members to pick-up a vehicle at one location and drop it off at another. As of January 2015, 35.7% of North American fleets were one-way trip capable, and 30.8% of members had access to these fleets. (Note: in December 2014, Zipcar announced the launch of its one-way car-sharing service in Boston with 200 vehicles.) As of January 2015, car2go, Communauto, DriveNow, Zazcar, and Zipcar offered one-way car-sharing services. As of January 2015, 100% of South American fleets were one-way trip capable, and 100% of members had access to these fleets.

Four rental car companies provide car-sharing services worldwide. In North America, rental car programs represented 60.4% and 56.5% of the car-sharing membership and fleets deployed, respectively, in January 2015.

Models of Car-Sharing

There are many models of car-sharing that range from formal car-sharing programs to casual agreement between friends. Administrators of these programs can include non-profit agencies, companies, governments, or a group of neighbors. The most common type of car-sharing is for-profit administered by a private company. The following discusses more in-depth some of the various types of car-sharing programs.

**For-profit car-sharing model**
- Membership requires registration and driver background check
- Private companies are required to respond to RFPs or submit proposals to the city for desired number of car-share parking spaces
- In 2012, there were 800,000 car-sharing members in the U.S. Zipcar (80% of the market) and Car2Go are the largest companies in the marketplace, both of which are for-profit companies.

**Non-profit car-sharing model**
- Generally works most efficiently in a single-metro area
- More emphasis on a social agenda and desire to change behavior
- Usually led by motivated groups or individuals in the community
- Examples include Chicago, Philadelphia, San Francisco, Austin, and Minneapolis with fleets ranging from less than 12 (Austin) to over 400 (Philadelphia)
Co-op car-sharing model
  » Generally limited to smaller cities
  » Example cities include Eugene, Oregon and Rutledge, Missouri
  » Typically considered non-profits
  » Largest example of a company in multiple cities include Modo.

Government run car-sharing model
  » One example in the U.S. is Aspen, Colorado
  » Staffed by cities employees, but run as a separate not-for-profit organization.
  » Most common outside of the U.S.
  » Another example is Berkley, California, which replaced its government car fleet with car-share vehicles that enables government employees to use vehicles at night and on weekends, yielding an average financial savings of $8,000 per year. A private car-share company manages this venture.

**Peer-to-peer car-sharing model**
  » People can rent a car from someone nearby
  » Shared access to cars offsets ownership fees
  » Existing car owners can rent underutilized personal vehicles
  » Getaround or Relay Rides are existing companies
  » Drivers are screened by the service, and the service provides insurance for car owners

*State of the Practice*

- In 2014, 1,181,087 members shared 16,754 vehicles among 23 operators in the United States.
- Between January 2014 and 2015, car-sharing declined 4% in the U.S. It is thought this decline is due to online for-hire driver services. However, car-sharing increased 19% from 2013-2014

*Relationship to Other Modes*

- Car-sharing is most successful in cities that offer transit to car-sharing pod or station locations
  » This could include placing bike racks near car-sharing stations or placing stations near popular transit lines
- Car-sharing has not been shown to significantly reduce the use of other transit systems including rail, bus and biking because it is not typically used for everyday commuting.
- Use of public transit, walking, and bicycling by CarShare members in San Francisco increased

*Market Development*

- Find areas of zero-vehicle households and one-vehicle/two driver households
Find best locations for station by understanding that each vehicle serves a one-quarter-mile to one-half-mile radius of car-sharing station

Early adopters of car-sharing were typically in their 30s and 40s with middle to upper middle incomes, and the practice has grown in popularity among young people

**Impacts of Car-sharing**

*Studies have shown that car-sharing decreases personal car miles traveled per year, reduces GHG emissions, increases perceived mobility of a city, and reduces traffic and parking congestion.*

- **Vehicle ownership**
  - Car-sharing allows increased mobility for low-income populations without owning a vehicle
  - Research shows car-sharing members reduce average vehicle ownership from 0.47 to 0.24 vehicles per household (Smart Mobility, p. 21)
  - Car-sharing puts more fuel efficient vehicles on the roads, and most car-sharing services require a certain fuel efficiency for each car in their fleet
  - According to Zipcar, 13% of car-share users in Washington, DC and Boston have sold a car since joining and more than 40% have avoided buying a car

- **Greenhouse gas emissions**
  - Car-sharing gives members incentives to drive less with per hour and per mileage fees
  - San Francisco City Carshare reported members driving an average of 47% less after joining

**Conclusions**

Car-sharing is growing steadily in terms of membership, number of vehicles deployed, and the variety and type of services offered. A growing body of data documents the benefits and positive impacts of car-sharing within a community. Some policy issues are emerging related to coverage areas within certain cities that are raising social equity issues. Cities and universities are beginning to enact policies to address equity issues related to market area coverage.

**The Role of Partners**

The role of partners within any car-sharing program is determined by the type of car-sharing model and the goal of the car-sharing organization. Regardless of the type of program used, surrounding organizations play a large role is promoting car-sharing and providing accessibility to car-share pods.

- **Partner organizations:**
  - Are organizations and groups that help promote car-sharing
  - Can comprise others in the community who could benefit from car-sharing being promoted in the area
  - Form a symbiotic relationship with both entities benefiting from the success of the other
Types of organizations involved:
- Local businesses that replace their fleets with car-sharing vehicles
- Local homeowners associations and neighborhood groups who promote car-sharing within their groups and dedicate spaces to car-sharing
- Low- and moderate-income communities who want to establish a car-sharing program
- Universities with on-campus programs
- New developers who want to dedicate parking spaces to car-sharing spots

Contributions of partner organizations
- Can contribute in many ways including with time, money, space, resources, volunteers, guidance about the area or adjusting their current mode of operation to better fit car-share users.

Local government and universities
- Dedicate parking space
- Help fund startup car-share organization expand with the expectation of repayment with interest
- Change government fleet to car-share vehicles
- Offer expedited review for car-sharing policy implementation and/or parking space review

Transit agencies
- Offer transit lines directly to car-sharing pods
- Promote car-sharing with advertising inside transit
- Offer bike racks near each car-sharing pod

Employers and businesses
- Convert their fleets to car-sharing vehicles
- Offer emergency ride home compensation for those who choose to take transit to work and have an emergency where they need to find a way home immediately.
- Offer compensation for those non using personal vehicles to get into work.

Developers
- Developers pursuing LEED green building certification can earn points by providing designated parking for car-share services (USGBC 2005)
- Consider unbundling and separating parking costs from rent or housing sale prices, which reduces costs for non-car owners and increases desire for alternative transportation

Universities
- Non-profit volunteer organization sponsor car share programs
- Car share programs offer various cars, trucks, mini-vans, and all-wheel drive vehicles with ski/bike racks
Utilized by individual students, school clubs and university departments
Each space calculated to replace 9-13 cars according to car share companies

Conclusions
There are many opportunities for the community to become involved within the car-sharing process. Each partner contributes to the success of car-sharing within a community, especially when first introduced to a community.

Factors for Success
There are many factors that can be used to determine the success of car-sharing in a community. Some of these main factors include the density of an area, walkability of the area, number of existing commuters, transit access, mixed land use, and low vehicle ownership levels. Many things contribute to the success of how car-sharing is perceived and used within a city, including the following:

- Visibility of cars on streets
- Convenience of cars in relation to pedestrian routes
- Providing shared cars in a variety of models and sizes for different uses
- Placing cars in:
  - Convenient locations around public transit and multi-unit housing complexes
  - Clusters at stations with two to three vehicles per location and 45-60 members in proximity to pod
  - Walkable, high-density areas of cities

Overcoming Barriers

- Need to successfully communicate to the public that providing downtown parking spaces dedicated to shared vehicles exceeds the value of the spaces (either payed directly to the city or through non-monetary benefits).
- Because people feel insecure the inability to leave work in case of an emergency, promote the guaranteed ride home programs that exists and is operated by WSU.
- Cars parked for long periods of time in commercial or residential zones can cause people to complain. In Seattle, complaints have decreased with time as cars get more use. Proposed solutions include moving vehicles or altering service area.
- If car-share vehicles can receive parking violations, provide information to the car-sharing company about which agency(s) can issue citations and train police and local enforcement about the regulations and processes applicable to shared vehicles.
- Other cities have experienced problems with non-car-sharing cars parking in designated spaces (e.g., Sydney).
- Car-sharing services should be less expensive than peer-to-peer mobility services, such as Uber or Lyft.
Consider where vehicles could be located if parking is reduced or if it is determined that some populations have more exposure and access than other populations.

**Car-Sharing and Public Policies**

Car-sharing policies can include both formal and informal guidelines for car-sharing organizations. Policies usually encompass the amount of parking spaces allocated to car-sharing, the percentage of on-street and off-street spaces, the cost of each space and associated permits, the requirement for public involvement, and the required deliverables from car-sharing companies on the information they collect.

**Benefits**

- Ensures revenue because car-sharing companies pay for downtown parking spots
- Reduces air pollution by traveling less and by using appropriate cars for the purpose of each journey and new cars with high-emission standards
- Increases mobility options for low-income populations
- Provides timesaving and convenience if parking spaces are dedicated downtown
- Decreases demand for downtown parking
- Lowers transportation costs for people who drive less than 5,000 miles per year (Average household spends over 18% of income on transportation according to the U.S. Bureau of Labor Statistics)
- Contributes to viability of small business in inner-city neighborhoods using shared-vehicles, including vans

**Costs**

- Few cities or universities make money off of the car-sharing model
- With the rise of car-sharing, more cities and universities are trending towards a revenue-neutral fee structure
- City or university to set a fee for each space equal to the lost parking revenue and any public cost of the car-sharing program
- Membership costs typically include a fee of under $100 and an annual renewal fee of $25-$50. This cost goes to members, not the local municipality; the only other cost is rental cost (mostly on a per hour basis)
- Major costs include leasing cars, maintenance and repairs, insurance, parking, in-car technology, reservation and billing systems, call center, staffing, marketing, and outreach
- $400 for on-street signing and striping (according to the San Francisco model)
- Expenses are funded by each user through registration and per mile fees

**Car-sharing in urban residential areas**

- Most members utilize vehicles for short trips of 30 minutes to four hours
New development to include car-sharing spaces in urban areas

Charge for parking in new urban residential developments and unbundle the cost of parking from rent costs

San Francisco requires one car-share space for 50-200 units and one, plus one for every 200 dwellings over 200 units

Some developers argue that car-share requirements do not reflect current market desires and needs, and cost savings should be passed on to developers

**Best Practices in North America**

- A new vehicle is needed for every 20-30 registered drivers (e.g., Sydney)

- Place car-sharing stations in areas characterized by:
  - Low levels of car ownership
  - Where people commute with transit or bike to work
  - High visibility

**Conclusions**

Policy is important to the success of car-sharing programs. Policy needs to reflect the desired results of implementing car-sharing for a city or university and needs to communicate to developers and community members how policy differs for new development. Policies should reflect the desires of the public and the municipality.

**Improved Vanpool and Carpool Programs**

An increased emphasis and investment in carpool and vanpool programs is an area of opportunity for WSU. There are several new alternative models for vanpool service delivery such as the flexible program offered at the University of California Los Angeles (UCLA) worth investigating. Evaluation of grant funding from regional transportation management associations should also be explored.

**Other Transportation Demand Management Strategies**

As noted earlier, there are many new and innovative TDM strategies available today. A more specific focus on expanding TDM programs is needed. Given the cost of structured parking, mitigating parking demand is a very cost-effective alternative to building new supply. Creating a specific TDM function with dedicated staff and budget should be a priority for WSU moving forward.

While TDM programs can be very effective, the programs need continual adjustment and refinement. Additional TDM program opportunities include financial incentive programs, such as parking cash-out, and cafeteria-style employee benefits, alternative work schedules, telework options, car-free districts, and parking policy restrictions, among others. Reference Table 50 for additional options that could be explored.
Marketing and Communications

Another key area of focus is TDM education and marketing. Programs such as the Mobility Lab in Arlington County, Virginia and Metro in Portland, Oregon are excellent examples of how marketing and education can increase awareness and utilization of TDM strategies. The “Commute Options” program from Cal Poly University in San Luis Obispo is a good example of a university-specific TDM marketing and awareness program. Figure 67, Figure 68, and Figure 69 provide examples of the alternative transportation options offered by the CalPoly program.
Chapter 6: Transportation Demand Management | Page 193

What are your OPTIONS?

It's your choice about the way you commute to campus. We'd like to offer you a few other options - carpooling, biking, walking, busing, vanpooling. Cal Poly OPTIONS is here to help.

Biking: Get some playtime into your day!
You remember how fun this was when you were a kid? It's still the same rush now that we're grown up and going to campus for work and class. biking is a joyride for your mind and body—the perfect infusion of fun, healthy energy to get you where you need to be. Tune up your body and your budget every day.
[link: http://www.cirimkejia.org/

Walking: Get your feet on the street!
Walking is the easiest OPTION to get you to school with a smile on your face. Each step saves you gas money and a lot of stress. 5,000 steps = real beauty when you see it close-up. Say goodbye to the noise of traffic and searching for parking. Say hello to your new favorite time of day.

Carpooling: Beat the Drive-Alone Blues!
Those extra seats in your car are just begging to be used. Your car and wallet will thank you because you will be cutting down on fuel, maintenance and repair bills by leaving your car at home occasionally. So, call back and chat with your new carpool buddies. Have some coffee. Do a crossover. Relax and enjoy the ride.

Vanpooling: Everyone in the pool!
For those of us commuting from puttying communities, this is a perfect OPTION for making that precious time more precious. At a small cost, you can enjoy the leisure of new free time while someone else gets you to campus on time. No more daily wear-and-tear on your car. Now you can read the paper before your lunch break or grab a few extra minutes of rest.

Bus: Let someone else do the driving!
Affordable, Convenient, Less stressful! Sound good? Get on the bus and nutty your mind. OPTIONS can provide maps and schedules and even help you plan your best route. No worries—just time and space to enjoy your journey.
[link: http://www.earo.org/eqat.htm
http://www.star.org/vot.asp

The choice is yours...

Figure 68. Cal Poly Alternative Transportation Options (Overview)

Testimonials:
Look at the transportation choices your friends, colleagues and students are making.

It's your choice.....

Figure 69. Cal Poly Alternative Transportation Options (Testimonials)
Chapter 6: Transportation Demand Management

TDM Toolkit

One of the primary deliverables of this report is an extensive TDM reference library found in Appendix I that includes a wealth of information including, but not limited to:

- TDM toolkits
- Checklists
- Transportation coordinator handbooks
- Employer toolkits
- Commute alternatives systems handbook
- Commuter assistance program evaluation manuals
- Example TDM plans from other communities, etc.
- TDM impact monitoring
TDM Impact Monitoring

Processes for modeling the intended results of individual TDM program components should be developed. In general, such processes should include identifying the specific goals and objectives of the TDM program, then defining the targeted parking demand reductions to be gained by each program component. Specific performance measurements can then be created and tracked for each element. Through this process, progress toward parking demand reduction goals can be monitored and strategies adjusted based on demonstrated results. This process can also help determine the cost/benefit relationship of investing in specific program components.

Figure 71 illustrates the basic elements of this concept.
Supply-Side Strategies

Supply-side strategies maximize the efficiency and effective management of existing and future parking resources. Key strategies include:

- Know your resources
- Shared parking
- Parking regulations
- Flexible parking standards
- Parking maximums
- Smart growth
- Walking and cycling improvements
- Appropriate parking facility design
- Improved parking operations and management
- Overflow parking plans

- Improved user information and marketing
- Parking pricing
- Improved enforcement, technology, and controls
- Improved payment methods
- “Unbundling” parking
- Parking management organization/coordination
- Guiding principles
- Parking environment improvements
- Coordinated special event policies

Know Your Resources

This strategy generally involves mapping and monitoring current parking resources and their utilizations. The key is keeping this data current. As part of this project, Transportation Services will be provided with a GIS-based parking demand model that will greatly aid in keeping information organized and up-to-date. It also provides the opportunity to run an unlimited number of potential development scenarios as changes to the campus continue to evolve.

Shared Parking

Shared parking can have a significant impact on mixed-use development parking requirements. Combining 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.

Shared parking is defined as parking space that can 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, day, and/or 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

Examples of university-specific shared parking applications include:

- Virtually all campuses share parking between buildings. Concepts such as peripheral parking structures, zoned parking, and other concepts that concentrate parking supply to support for multiple facilities are part of the fabric of most campuses. The concentration of parking on campuses helps minimize traffic and congestion and is commonly employed to help make campuses more pedestrian-friendly.
In areas where universities border a downtown, shared-use garages can be developed that provide university parking during the daytime and downtown parking for evening uses such as cinemas, restaurants, and entertainment venues.

Shared-use parking structures often support special event venues such as stadiums and arenas, while also providing student, faculty, and/or visitor parking during weekdays.

Parking Regulations

Parking regulations control who, when, and how long vehicles may park at a particular location to prioritize parking facility use. There are three general steps to developing parking regulations.

- **First**, rank parking facility use priorities
- **Second**, choose appropriate regulations to favor the higher-priority activities
- **Third**, determine how regulations will be indicated and enforced

Signs, curb paint, maps, and brochures are used to identify which parking facilities are intended for which user type and how violations will be punished.

Typical parking facility-use priorities include:

1. Customers, tourists, and visitors
2. Vehicles used by people with disabilities
3. Rideshare and transit vehicles
4. Deliveries and service vehicles
5. Employees and residents
6. Long-term vehicle storage

Table 66. Common Parking Regulations provides an overview of common parking regulations.

<table>
<thead>
<tr>
<th>Type</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>User or vehicle type</td>
<td>Loading, taxi, disabled person</td>
</tr>
<tr>
<td>Duration</td>
<td>5-minute loading, 1-2 hour time limits</td>
</tr>
<tr>
<td>Time period restrictions</td>
<td>Prohibited occupancy at certain times</td>
</tr>
<tr>
<td>Employee restrictions</td>
<td>Promote customer or short-term usage</td>
</tr>
<tr>
<td>Special events</td>
<td>Restrictions during special events</td>
</tr>
<tr>
<td>Residential permits</td>
<td>Residential permit program area</td>
</tr>
<tr>
<td>Street cleaning restrictions</td>
<td>Allows for street sweeping</td>
</tr>
</tbody>
</table>

Accurate and Flexible Standards

More accurate and flexible standards mean that the parking requirements at a particular location are adjusted to account for various factors. Examples of adjustment factors include:

- Geographic location
- Residential density
- Employment density
- Land-use mix
Parking Maximums
Parking maximums place an upper limit on parking supply at individual sites or in specific area. Area-wide limits are called parking caps. These can be in addition to or instead of minimum parking requirements. Maximums often apply only to certain types of parking, such as long-term, single-use, free, or surface parking, depending on planning objectives. Since abundant, free, and on-site parking is sometimes considered a competitive advantage in attracting customers, individual firms often find it difficult to reduce supply. Parking maximums that apply equally to all businesses in an area (or on a university campus) may be more acceptable and effective than efforts to reduce supply at individual businesses.

Smart Growth
Smart growth is a general term for development policies that result in more efficient transportation and land-use patterns by creating more compact, developments with increased densities and multimodal transportation systems. Smart growth includes several urban design trends such as:

- New urbanism
- Complete streets
- Location-efficient development
- Transit-oriented development

These same concepts are beginning to be applied in university environments, as well.

Walking and Cycling Improvements
Walking and cycling (together called non-motorized, active, or human-powered transport) improvements support parking management strategies in several ways:

- Improving walkability (the quality of walking conditions) expands the range of parking facilities that serve a destination. It increases the feasibility of sharing parking facilities and the use of remote parking facilities.

- Improving walkability increases “park once” trips: parking in one location and walking, rather than driving, to other destinations, thereby reducing vehicle trips and the amount of parking required at each destination.

- Walking and cycling improvements allow these modes to replace some automobile trips.
Walkability is affected by pedestrian facility quality (sidewalks, paths, crosswalks, amenities) and the distance between parking and destinations. Acceptable walking distances vary depending on the type of trip, the type of user and environmental conditions. **Figure 72** provides an overview of acceptable walking distance by environment and level of service conditions.¹⁰

<table>
<thead>
<tr>
<th>How Far Should Patrons Have To Walk After They Park?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level of Service Conditions</strong></td>
</tr>
<tr>
<td>Environment (A)</td>
</tr>
<tr>
<td>Climate Controlled</td>
</tr>
<tr>
<td>Outdoor/Covered</td>
</tr>
<tr>
<td>Outdoor/Uncovered</td>
</tr>
<tr>
<td>Through Surface Lot</td>
</tr>
<tr>
<td>Inside Parking Facility</td>
</tr>
</tbody>
</table>

**Figure 72. Walkability by Environmental Conditions and Level of Service Conditions**

**Parking Facility Design and Operations**

Parking facility design and operations refers to physical layout, construction, and day-to-day management. Improved design and management can help integrate parking facilities into communities, improve the quality of service experienced by users, improve parking efficiency, and help address various problems.

**Improved User Information and Marketing**

User information refers to information for travelers about parking availability, regulations and price, and about travel options such as walking, ridesharing and transit. Many parking problems result, in part, from inadequate user information. User information can be provided by signs, maps, brochures, websites, and electronic guidance systems. Information is particularly useful if there is a perceived parking shortage even though space is actually available in the area.

*This study noted specifically that it is difficult to find WSU Transportation Service’s mobile mapping program.* In fact, when “Washington State University Transportation Services Offices” was type into the iPhone mapping program, directions were provided to the University of Washington Transportation Services in Seattle.

**Parking Pricing**

Parking pricing means that motorists pay for using parking facilities. This may be implemented as a parking management strategy to reduce parking problems, as a mobility management strategy to reduce transportation problems, to recover parking facility costs, or to raise revenue for other purposes, such as

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funding local transportation programs or downtown improvements. In practice, it is often intended to achieve a combination of objectives. Best practices for parking pricing include:

- Charge motorists directly rather than indirectly for using parking whenever possible
- Establish prices so that approximately 15% of parking spaces are unoccupied during peak periods
- Use improved pricing methods to make priced parking more cost-effective, convenient, and fair (e.g., pricing systems that charge for just the amount of time a vehicle is parked rather than fixed time blocks)
- Use short pricing periods (e.g., charge by the minute rather than by the hour for short-term parking, and charge by the hour rather than by the day or month for long-term parking). One healthcare campus in Seattle eliminated monthly parking and only offered parking on a daily basis to incentivize the use of transportation alternatives.
- Consider programs such as parking cash-out
- Charge higher rates and use shorter pricing periods for more convenient parking spaces to increase turnover and favor high-priority uses.
  - Prime space prices should be at least twice the price of less-convenient spaces (e.g., charge 25 cents per 15-minute period with a two hour limit at convenient locations; charge $4 per day at less convenient locations)
  - Adjust the ratio between short-and long-term spaces as needed to optimize use
- Use variable rates that are higher for peak locations and times (e.g., charge $1 per hour for parking downtown during weekdays, 75 cents per hour for parking downtown during evenings and weekends, and 50 cents per hour for parking in other locations)
- Set parking prices to equal or exceed transit fares (e.g., set daily rates equal to or exceeding two single fares and monthly rates equal to or exceeding a monthly pass)

**Improve Parking Pricing and Payment Methods**

Resistance to parking pricing can result from inconvenient pricing methodologies. Examples of inconvenient parking methods and procedures include:

- Require payment in specific denominations (coins or bills)
- Require motorists to predict how long they will be parked with no refund available if motorists leave earlier than predicted
- Cannot easily handle multiple price structures or discounts
- Confusing or slow to use
- High equipment or enforcement costs
- Enforcement often seems arbitrary or excessive
“Unbundle” Parking

Unbundled parking is rented or sold separately rather than automatically included with building space or paid for by the school or department. For example, rather than renting an apartment with two parking spaces for $1,000 per month, the apartment would rent for $800 per month, plus $100 per month for each parking space. This is more equitable and efficient because occupants only pay for parking they need. Additional points of note include:

- Facility managers can “unbundle” parking when renting building space
- Developers can make some or all parking optional when selling buildings
- It may be easier to offer a discount to renters who use fewer than average parking spaces rather than charging an additional fee

Boulder, Colorado offers the option of purchasing a parking “scratch card” instead of a traditional parking access card for monthly parkers. This option is essentially as mechanism for “unbundling monthly parking.” With a traditional parking access card, parker may drive when other options are available because the entire month has already been pre-paid. With a scratch card, parkers only pay for the days that are actually used. In this scenario, there is an incentive for a user to carpool, telework, or use some other transportation so the card is not “scratched” for that day. This creative strategy encourages motorists to consider a range of commute options rather than defaulting to driving SOVs.

Strong Planning

Some basic parking planning questions might include:

- Is parking planning information well developed and up-to-date?
- Is parking inventory complete and up-to-date? Complete parking inventories are:
  - Sub-divided by type and use of space
  - Parking utilization by type of spaces is known and trends are tracked
  - Periodic parking supply-demand studies are completed
  - Quality parking maps are available
- Is land-use data available and up-to-date?
  - Have changes in utilization been tracked?
- Is planning for the next parking developments “on-the-drawing board”?
- Is parking represented and participatory in other types of community studies such as strategic plans and marketing, retail, economic development, transportation, and traffic studies?
- Have strategically located potential parking development sites been identified?
  - Are future parking development sites “land banked”?
Do the potential sites that have been assembled have an adequate footprint size to develop an efficient parking structure (310 to 325 square-feet per stall)?

- Are parking lot and structure design guidelines well-defined and developed?

**Safety, Security, and Risk Management**

Basic safety, security, and risk management characteristics include:

- Meet or exceed the lighting minimums established by the Illuminating Engineering Society (IES)
- Provide consistent lighting levels in all facilities via established facility lighting standards
- Integrate parking attendants, cleaning and maintenance staff, shuttle drivers, and other staff members etc. into the parking security program
- Incorporate safety and risk management in a weekly facility walk-through checklist.

**Summary**

An integrated university parking and transportation system is one in which parking supply needs have been carefully assessed within the framework of the university’s broader strategic goals and environmental context. Parking system revenues and campus transportation fees provide a broad array of transportation alternatives and innovative programs to reduce parking demand and provide an assortment of flexible access options. The most fundamental measure of a successfully integrated access management system is the degree to which both parking and transportation management functions work collaboratively to further the larger campus community’s goals and objectives.
V. IMPLEMENTING EFFECTIVE, EMPLOYER-BASED TDM PROGRAMS

An older, but still effective approach to defining the appropriate level of investment in a TDM program is provided in the manual titled *A Guidance Manual for Implementing Effective Employer-Based Travel Demand Management Programs* (see Appendix H). This resource provides an excellent process and set of tools for estimating the benefits of implementing TDM measures. It is recommended that WSU Transportation Services utilize the approaches in this document for developing specific programs to meet long-term parking and transportation demand reduction goals.

Below are several tables from this document that demonstrates how the process can help identify the resources needed to achieve desired trip reduction goals based on various levels of employer support for TDM (i.e., transit support and rideshare support). These different “levels” of support and incentives are defined as follows:

**Employer Transit Support Program**

In an employer transit support program, the employer offers various services and supporting measures to enhance the attractiveness of using transit.

<table>
<thead>
<tr>
<th>Level</th>
<th>Support Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 0</td>
<td>No support</td>
</tr>
<tr>
<td>Level 1</td>
<td>Provides an on-site transit information center and a transportation coordinator who commits ¼ time to supplying information and encouraging transit use</td>
</tr>
<tr>
<td>Level 2</td>
<td>Offers all features of level 1 plus a policy of leniency in work hours (tolerate periodic late arrivals/early departures) to accommodate transit schedules</td>
</tr>
<tr>
<td>Level 3</td>
<td>Offers all features and levels 1 and 2 plus on-site transit pass sales and an increase of the coordinator role to ½ time.</td>
</tr>
<tr>
<td>Level 4</td>
<td>Offers all features and levels 1, 2 and 3 plus a Guaranteed Ride Home program for transit users, and a full-time coordinator.</td>
</tr>
</tbody>
</table>


**Employer Rideshare Support Program**

The employer offers various incentives and services to enhance the attractiveness of using ridesharing, carpooling, and/or vanpooling.

<table>
<thead>
<tr>
<th>Level</th>
<th>Support Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 0</td>
<td>No Support</td>
</tr>
<tr>
<td>Level 1</td>
<td>Provides information on carpool/vanpool opportunities, supports external matching programs, and dedicates a ¼ - time transportation coordinator.</td>
</tr>
<tr>
<td>Level 2</td>
<td>Offers all features of level 1 plus adoption of in-house sponsorship of matching services, and sponsorship of rideshare candidate get-togethers.</td>
</tr>
<tr>
<td>Level 3</td>
<td>Offers all features of levels 1 and 2 plus a policy of leniency in departure/arrival times; provides preferential parking for pools, and extends coordinator role to ½ time. For vanpools, also includes vanpool development and operating assistance (such as loan guarantees, insurance assistance, or start-up subsidies), plus additional services like on-site van washing and servicing.</td>
</tr>
</tbody>
</table>
Table 68. Levels of Employer Rideshare Support Program

<table>
<thead>
<tr>
<th>Level</th>
<th>Support Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 4</td>
<td>Offers all features and levels 1, 2 and 3 plus guaranteed ride home and full-time coordinator. For vanpools, includes major in-kind financial assistance such as favorable leasebacks, free maintenance and insurance, and empty-seat subsidies.</td>
</tr>
</tbody>
</table>


Levels of Financial Incentives

The manual provides sub-tables differing by the level of financial incentive offered with the supporting strategies. This financial incentive is expressed as a daily subsidy to rideshare/transit users or, conversely, as a surcharge on SOV parking. Table 69 and Table 70 identify the anticipated percent of vehicle trips reduced under two different financial incentive scenarios: no support and a $1 per employee daily rideshare/transit subsidy.

Table 69. Modal Shift Trip Reduction Factors (Differential = $0)

<table>
<thead>
<tr>
<th>CP &amp; VP Program Support</th>
<th>Level of Transit Support</th>
<th>Financial Incentive Differential = $0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Level 0</td>
<td>Level 1</td>
</tr>
<tr>
<td>Level 0</td>
<td>0.0</td>
<td>0.2</td>
</tr>
<tr>
<td>Level 1</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Level 2</td>
<td>1.6</td>
<td>1.6</td>
</tr>
<tr>
<td>Level 3</td>
<td>7.4</td>
<td>7.3</td>
</tr>
<tr>
<td>Level 3</td>
<td>11.5</td>
<td>11.4</td>
</tr>
</tbody>
</table>


Table 70. Modal Shift Trip Reduction Factors (Differential = $1)

<table>
<thead>
<tr>
<th>CP &amp; VP Program Support</th>
<th>Level of Transit Support</th>
<th>Financial Incentive Differential = $1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Level 0</td>
<td>Level 1</td>
</tr>
<tr>
<td>Level 0</td>
<td>10.5</td>
<td>10.7</td>
</tr>
<tr>
<td>Level 1</td>
<td>11.2</td>
<td>11.5</td>
</tr>
<tr>
<td>Level 2</td>
<td>12.3</td>
<td>12.5</td>
</tr>
<tr>
<td>Level 3</td>
<td>18.5</td>
<td>18.7</td>
</tr>
<tr>
<td>Level 3</td>
<td>22.7</td>
<td>22.9</td>
</tr>
</tbody>
</table>

The trip reduction estimates in Table 69 and Table 70 assume that the level of effort for the program is compared to having “no program” currently in place. One can compare the percent vehicle trip reduce produced with a wide-range of employer support for transit and rideshare measures. The tables illustrate the trade-offs between ride-share, transit, and financial incentives for attaining a reduction in vehicle trips.

VI. A STRUCTURED APPROACH TO DEVELOPING A SUSTAINABLE PARKING AND TRANSPORTATION MANAGEMENT PROGRAM

Introduction

This section outlines a recommended approach to developing and operating an environmentally sensitive parking management program. Several areas are explored that offer opportunities for “green approaches” to parking operations that can be implemented by an institution, owner, or parking operator in the day-to-day management of a parking facility or program.

Before embarking on the development of a sustainable parking management initiative, it is important to answer the following questions:

- What is the motivation for the initiative?
- What are the stated goals?
- What level of support exists for implementing programs that may result in increased expenses or reduced revenues?
- How important is the initiative relative to the organization’s core vision and mission?

There are many possible answers to these questions, and the answers will have a direct impact on the approach to a specific sustainability initiative. For example, if an institution has adopted significant carbon emission reduction goals and integrated sustainability into its vision statement, then its approach will differ significantly from that of an organization that views sustainability as “important as long as it doesn’t impact the bottom line.” Other important goals such as reducing overall traffic and SOV usage reflect the multiple levels that a sustainable parking and transportation program might incorporate.

If an institution is fully committed to sustainability and considers the environment in every aspect of its operations, that institution may employ strategies that go so far as changing the parking department’s name or at least how it “brands” its parking program.

One example of this is University of Colorado’s Parking and Transportation Services (PTS) Department. Upon adopting its greener approach to parking operations, the traditional PTS was rebranded/redefined to reinforce the new program mission: PTS became Promoting Transportation Sustainability.
Defining the Approach: Sustainable Parking Operations and Management Principles

The first step in implementing a sustainable parking operations and management program is to develop a set of principles that will frame the scope and goals of the program. These principles could cover a wide range of objectives depending on the organization’s environment, motivation, priorities, and resources. To illustrate, the following section highlights a basic set of principles that could serve as a starting point.

Sustainable Parking Operations and Management Principles

The WSU Transportation and Parking program has adopted the following guiding principles for developing a more environmentally sensitive and sustainable parking program:

- **Principle # 1:** Support for Institutional Goals. The WSU Transportation and Parking program will be a leader in promoting sustainable parking and transportation best practices as a means of supporting our institution’s commitment to the global climate compact (or other specific institutional commitments).

- **Principle # 2:** Recognition of Industry Impacts. We recognize that on a national basis, transportation-related activities account for approximately 30% of all carbon emissions.

- **Principle # 3:** Core Strategy Areas. We will adopt a variety of strategies to help reduce our operation’s carbon footprint. These strategies are divided into four primary areas.
  - Planning, Design, and New Construction
  - Policy and Program Development
  - Facility Operations and Maintenance
  - Support for Alternative Transportation Solutions

- **Principle # 4:** Developing Program Metrics. We will develop tools to identify specific measurable metrics to track and document the progress and impact of our sustainable parking operations program.

- **Principle # 5:** Reporting and Community Education. The WSU Transportation and Parking program will report our progress on sustainability goals and new management initiatives and celebrate program accomplishments annually.

Charting the Course: Effective Goal-Setting Strategies

By December 2007, over 450 American colleges and universities (including WSU) had signed the ACUPCC pledging to “eliminate their campuses’ greenhouse emissions over time.” Since then, similar initiatives have been enacted by mayors, governors, and other governmental agencies, as well as many private corporations across the country.

These pledges require the various agencies and institutions to implement carbon mitigation activities, develop robust plans, and forecast dates by which to attain “climate neutrality.” Climate neutrality is defined by the ACUPCC as “no net emissions of greenhouse gas emissions.”
One aspect of aligning a transportation and parking program’s sustainability initiatives with larger institutional goals is understanding the level of commitment required by the program or operation as a component of the overall institutional goal. The size of the specific goal for the transportation and parking operation could have significant staffing and budgetary impacts.

There are many potential advantages of adopting a greener approach to facilities planning and new construction. Some of these potential benefits include:

- Contributions to community or institutional environmental goals
- Decreased environmental impacts
- Long-term reduction of operating costs
- Increased building values
- Improved project returns on investment (ROI)
- Increased tenant, customer, and staff satisfaction

However, transportation and parking operations and management sustainability initiatives can increase operating costs and even decrease operating revenues in the short-term. Therefore, it is important to understand all of the potential impacts, track the specific costs, and ensure the institution is supportive of these initiatives. The key to success in sustainability initiatives is the ability to quantify outcomes that are directly related to larger community or institutional sustainability goals. This is accomplished by developing a set of success metrics at the beginning and obtaining buy-in from the larger institutional administration on both goals and the metrics to measure their successes. A discussion regarding defining appropriate metrics is discussed later in this section.

**Establishing a Baseline**

Establishing a baseline is essential for measuring success and documenting progress. Generally, this process begins by conducting a current conditions and program-wide assessment to determine what metrics are available for measurement. The follow are examples of program metrics that parking and transportation programs might track:

**Transportation Mode-Split (Reducing SOV Usage)**

Measuring this metric involves developing a methodology for estimating total campus trips and defining the breakdown (by percent) of various transportation mode-split categories:

- SOV
- Motorcycle
- Carpool
- Vanpool
Bus/Transit
Walk
Telecommute
Other

There are numerous potential metrics that could be tracked within each category. To further explain how this concept is implemented, the vanpool category at the University of California, Los Angeles (UCLA) will be highlighted as a case study. In Los Angeles, the long commute distances make vanpooling an effective alternative. The City of Los Angeles has promoted vanpooling for over 20 years, and there are more than 150 vanpools in the metropolitan area serving more than 80 southern California communities. The vanpool program at UCLA has over 1,500 full-time and 700 part-time riders. These numbers can be broken down into the following categories: 80% staff/faculty, 10% students, 10% non-UCLA. The following summarizes the 20-year vanpool program contributions measured by the UCLA program:

- Elimination of:
  - 8.1 million passenger vehicle trips
  - 324 million passenger miles
  - 107,000 tons of carbon dioxide
  - 3,200 tons of carbon monoxide
  - 343 tons of nitrogen oxides
  - 212 tons of hydrocarbons

- Savings of 15.3 million gallons of gasoline

This example provides important lessons in defining benchmarks and metrics for sustainability program results. The first lesson is to identify base unit measurements that can be combined to create relational metrics. The base elements measured above include vehicle trips and vehicle-trip miles. Those numbers then can be related to relatively “hard numbers” for acceptable industry standards such as average miles per gallon of gas, estimated tons of CO₂ per 100 miles driven, or estimated tons of hydrocarbons per 1,000 vehicle miles.

UCLA documented 1.7 million trips saved due to its TDM program; Table 71 includes a breakdown of the program’s results. In this example, the base elements measured include participants by program type, and annual trips saved by program type.
### Developing the Data Baseline: What to Measure

As previously discussed, to quantify progress there must be a baseline to measure against. Therefore, it is important to identify what will be measured and why.

Consider a relatively small hospital with four parking garages and 20 surface parking lots with a total of approximately 5,000 parking spaces. The hospital’s CEO has pledged to reduce the campus’ carbon emissions by 20% in five years. Every department must define strategies to contribute to this goal. The following data sources could be used to develop a baseline for measuring the effectiveness of his/her strategy:

- **The number of vehicles** entering and exiting the hospital facilities each day is documented based on the parking access and revenue control system. Each entry and exit is characterized as one trip.

- **The number of bus boardings and deboardings** that occur at hospital bus stops on a daily, weekly, and monthly basis could be documented by working with the local transit agency.

- **The number of bicycle trips** to determine average bicycle trips per day could be documented based on survey data.

Several consultants have models that estimate vehicle emissions by the amount of time vehicles remain queued in hospital parking garage exit lanes. A baseline of parking queuing-related emissions can be established by measuring vehicle queuing at campus parking facility exit lanes.

### Strategies for Quantifying Impacts

To meet carbon emission reduction goals, transportation and parking program changes may include:

- Offering more commuting options
- Providing alternative commute incentives
- Designating preferred parking spaces for carpool vehicles
- Offering reduced parking prices for alternative fuel vehicles
- Implementing a parking cash-out program
Offering guaranteed ride home programs

Creating a campus bike share program

Adding shower/changing facilities for bike riders

Implementing disincentives for driving alone

Increasing parking prices

Decreasing parking supplies

Tracking the participation levels in each new program, as well as the impacts on overall campus trips, enables program managers to quantify the results of their green initiatives. Campus trips can be measured in the same way they were for establishing the data baseline. It also is important to document the timing of the rollout of new programmatic changes, as well as any changes to the baseline elements, such as loss of a surface lot, the addition of new demand generators (e.g., construction of new campus building). Success with these metrics may be measured by a reduction in annual campus vehicle trips and growth in alternative mode choice categories or changes to the campus mode split over time, among other options.

One of the more complicated elements to measure is vehicle emissions (and emission reductions resulting from green initiatives). Additional research may be necessary to relate baseline operational metrics to environmental elements such as assumed emission rates for Carbon Monoxide (CO), Volatile Organic Compounds (VOC), and Nitrogen Oxide (NOx).

To achieve and maintain credibility, it is important that methodologies and calculations be unassailable. Therefore, methodologies and assumptions should be tested and supported by the organization’s management before they are established.

**Example of Vehicle Emissions Calculation**

One green initiative commonly undertaken by parking operations is reducing vehicle emissions from idling vehicles at the exit plazas of parking facilities. Quantifying the results of this initiative can become somewhat complicated due to the variety of operational factors such as the specific conditions created by different exit lane processing/payment methods. There are measurable differences, for example, among the idling vehicle emissions from an exit lane configured for free flow, an “express” exit for motorists using access or pre-paid cards (stop-and-go), or an exit lane designed to handle cash and/or credit transactions (stop-and-idle).

Generally these emissions calculations are made using an air quality monitoring spreadsheet model. A sample from such in **Figure 73**.
The model shows key factors and related variables that are derived from specific research. For example, the key factor in the sample model shown (i.e., emission rate for an idling vehicle [75 grams/hour]), is related to the variables associated with the conditions at the exit plaza: number of lanes, service rate (seconds/vehicle), number of vehicles per hour per lane, hours of operation per day, and days of operation per year. All of these factors and variables are combined to calculate kilograms of CO emissions per year. Using other key metrics, the model also provides the annual CO, VOC, and NOx emissions.

Getting Started: Current Operations Assessment from a Sustainability Perspective

Once the motivating factors and approach are determined, guiding principles are drafted, preliminary goals are established, and baseline data requirements are considered. Specific action items can then be developed for the sustainable parking operations and management program.

Assembling a Team

It is important to assemble a team of transportation and parking department staff who are energized about and invested in the results of the program. While they need to understand the overall goals and direction of the program, they must also understand the importance of their involvement. In fact, developing realistic and achievable goals supported by measurable tasks that give each staff member a role to play is one key to developing an effective program.

Identifying “Green Opportunity Areas”

Defining focus areas within the context of the overall operation is a good way start and engage staff in program development. They may not be highly knowledgeable about LEED® certification or climate compacts, but they do know their own campuses, facilities, and daily routines. They will be able to provide details that can lead to action items for effective and sustainable operations. Specific teams should be created within the overall program. For example, teams for a typical university might include:

- Parking team
- TDM team
- Fleet Management team
Opportunity categories then can be developed for each team. Below are several opportunity categories and related action items organized by the three teams noted in the example above.

**Parking Team: Opportunity Categories and Potential Action Items**

*Facility lighting*

» Reevaluate lighting types (e.g., consider replacement with LED or fluorescent lights to reduce power usage)
» Develop a fluorescent lamp recycling program
» Stain or paint interior parking garage surfaces to maximize reflectivity and enhance facility lighting without increasing energy costs
» Consider the use of sensors/timers to reduce light levels in certain zones when not in use, or during daylight hours
» Evaluate individually powered solar parking lot lights
» Replace all light bulbs in the parking department with compact fluorescent bulbs

*Recyclables*

» Replace concrete parking and traffic products with those made from 100% recycled rubber (e.g., wheel stops, speed humps, sign bases, etc.)
» Add recycling containers for all facilities where they are convenient to patrons and staff

*Water management*

» Replace plumbing fixtures with water-saving fixtures
» Use water-efficient landscaping (e.g., xeriscaping/native plants to reduce irrigation needs)

*Facility cleaning*

» Implement on-site wastewater treatment
» Use sustainable cleaning supplies
» Make interior spaces tobacco free

*Alternative transportation support programs*

» Increase the amount and types of bike parking
» Be a funding partner for campus or community bike rental programs
» Invest in changing rooms/showers for bicyclists
» Partner with bike concierge services
» Create reserved parking areas
» Implement or expand reserved areas for car/vanpools
» Implement or expand reserved areas for hybrid/low-emission vehicles
» Offer “Clean Air Car Discounts” or “Green Parking Permits” (i.e., reduced parking rates) for car/vanpools and hybrid/low emission vehicles

» Install electric vehicle charging stations

▲ Parking guidance

» Evaluate or implement parking guidance systems to improve parking efficiency

» Develop a parking availability/location mobile device application to reduce the circling of vehicles

▲ Shared parking

» Promote shared parking whenever possible to “rightsize” parking development (i.e., take advantage of complementary peak parking accumulation patterns by certain combinations of land-uses when the parking resources can be effectively shared)

▲ Demand reduction

» Evaluate demand-based parking pricing

» Consider restricting parking availability

» Provide easy access to alternative modes of transport

» Offer discounted transit passes to be sold with parking permits

» Develop a “commute options” program to make patrons more aware of the alternatives to driving alone

» Provide commute bonuses for alternative commute (up to $65/month pre-tax deduction)

» Provide a company or free bike for an employee who commits to bike to work at least 2 days/week

» Implement an on-line commute management system that allows employees to claim commute bonus, track parking charges, plan alternative commute trips, and find carpool/vanpool partners.

▲ Parking allocation

» Develop a parking allocation program based on “essential need” (The way we allocate our resources gets to heart of a parking program’s philosophy and core principles. If sustainability is considered a core value, then decisions related to parking resource allocation should reflect sustainability principles. For example, at the Seattle Children’s Hospital, all parking is provided only on a daily fee basis (monthly parking charges were eliminated). With no sunk costs related to monthly parking passes, other commute options are encouraged.)

▲ Layout

» Assess current parking space layouts and consider options to maximize use of existing spaces

▲ GSF ratio

» Develop a parking space-to-GSF ratio goal that reflects “essential need”

» Use the target ratio in campus planning
**Green garages**

- Adopt a standard that all parking construction will seek a LEED®-based equivalency rating of “Silver” or better when feasible and/or adopt Green Parking Council standards.
- Adopt a standard for new garage development that solar arrays that generate up to 50% of the facility’s power needs must be integrated.

**TDM Team: Opportunity Categories and Potential Action Items**

**Zero-impact modes of travel**

- “Unbundle” monthly parking by offering a punch card option instead of a traditional access card so drivers only pay for days they drive.
- Creates incentive to consider alternatives to driving.
- Add or expand secured parking facilities for bikes.
- Implement a program of providing temporary bike racks to handle seasonal demand peaks for bike parking.
- Implement or expand a campus bike-share program.

**Marketing**

- Improve TDM marketing outreach to include direct participation in all new student and employee orientations.
- Solicit and convey vanpool and bus club customer testimonials about their positive experiences as members.
- Solicit/expand transportation department’s participation in the larger campus’ sustainability committee.
- Generate/expand car-sharing program participation through user-based promotional efforts.

**Funding**

- Promote an increase in funding for transit and campus shuttle.

**Fleet Management Team: Opportunity Categories and Potential Action Items**

**Fleet vehicles**

- Reduce campus fleet vehicle’s reliance on fossil fuels.
- Increase percentage of “alternative fuel” vehicles in fleet.
- Expand car-share fleet to meet daily vehicle trip demand of departments, employees, and students.
- Integrate campus fleet management with car-sharing programs to provide faculty, staff, and students with instant access to a fleet of vehicles within walking distance from campus offices.
Policies

» Develop a “transit-first” campus policy

Developing teams, exploring opportunity categories, and developing a list of primary action items are important steps to creating a well-defined sustainable parking and transportation operation and management program. A fully sustainable program spans the organization’s entire transportation system—not just the parking facilities. While comprehensive, the potential action items listed above should not be considered all-inclusive. New ideas are identified every day as system owners and operators discover new ways to be more sustainable.

Summary

The following are key steps to developing a successful sustainable parking operations and management program:

- Promote and uphold the program’s guiding principles
- Develop baseline data for each activity and focus area
- Create metrics for tracking progress related to each major program initiative
- Develop benchmarks that relate program metrics to carbon emission reduction and other environmental targets

Research Resources

The following is a list of resources that offer additional information on strategies and approaches to developing environmentally conscious programs:

- Fostering Sustainable Behavior, Doug McKenzie-Mohr, 1999
- Planning for Higher Education: Sustainability, Taking the Long View, Society for College and University Planning, 2003
- CU-Boulder Blueprint for a Green Campus, 2006
- U-Cal-Berkeley Climate Action Plan, 2007
- Oberlin College Carbon Neutrality Plan, Rocky Mountain Institute, 2002
- University of Florida Carbon Neutral Assessment Project, 2004
- CU-Boulder GHG Emissions Inventory, 2007
City of Boulder Climate Action Plan, 2007
State of Colorado GHG Emissions Inventory, 2007
The Carbon Neutrality Toolkit, Middlebury College, January 2007
Changing the Campus Climate: Strategies to Reduce Greenhouse Gas Emissions at University of California, Santa Barbara, May 2006
“American Research Universities During The Long Twilight Of The Stone Age,” Michael Crow, President, Arizona State University, February 21, 2007, CU-Boulder
Tackling Climate Change in the U.S., American Solar Energy Society, 2007
VII. TDM RECOMMENDATIONS

Recommendation 1: Demand-Based Pricing
Implement demand-based pricing for all WSU parking facilities to reduce parking demand, adjust parking behavior, and increase user convenience.

The primary goal of demand-based pricing is to appropriately price parking based on proximity and convenience while making it easier to find a parking space by not over-subscribing premium parking areas. By monitoring occupancy trends and adjusting pricing to meet parking behaviors, demand can be effectively managed so that when a motorist chooses to park, he or she can do so without hassle or aimless cruising. **Pricing of parking has been shown to be one of the most effective ways to reduce vehicle trips, cruising for parking, GHG emissions, and parking demand.** Because motorists are sensitive to pricing changes and are a direct user cost, parking fees often have the greatest impact on travel behavior.

Recommendation 2: Tiered Pricing Structure
It is recommended that WSU implement a tiered pricing structure for its fall and spring student parking permits.

There are two primary objectives for this recommendation. First, differentiated pricing seeks to redistribute demand more evenly across WSU parking facilities so that each parking facility is utilized more efficiently. Second, a tiered pricing structure provides additional flexibility to those students who would prefer to park in the more remote campus facilities *if they were cheaper.*

It is also recommended that WSU increase prices for all permits. There are five primary reasons for increasing permit prices:

- To begin building reserves to meet debt service obligations for the proposed 1,200 space parking structure
- Allow WSU to cost-effectively reduce vehicle trips and meet its goals for GHG emissions reductions
- Ensure the current and future supply is adequate to meet parking demand
- Provide adequate funding for WSU’s expanded TDM programs and enhanced transit/shuttle services
- Ensure that costs keep pace with inflation

It is proposed that all WSU’s parking rates increase an average of 10% per year (estimated)

- Annual permit revenue
- Daily permit revenue
- Meters and other cash operations
- Event parking Revenue
- Library garage hourly
Recommendation 3: Additional Bicycle Parking
Provide additional short-term and long-term bicycle parking

While WSU provides bicycle parking throughout campus, bicycles are frequently seen parked in locations other than bicycle racks, and bicycles parked for extended periods of time are prone to theft. It is recommended that WSU conduct annual utilization counts to confirm the adequacy of existing short-term bicycle parking infrastructure. When parking capacity is insufficient, additional bicycle parking should be installed. In addition, because some students prefer to store their bicycles on campus, long-term storage should be an option.

Recommendation 4: Green Bike Program
Expand the GreenBike program

In the university setting, bicycle sharing is particularly attractive because it offers a flexible and inexpensive option for short-distance trips around campus. It can improve accessibility between periphery facilities (such as a parking lot or transit stop) and the campus core.

Recommendation 5: TDM Coordinator
Hire or appoint a TDM coordinator to implement and manage TDM measures

An enhanced TDM program at WSU will require additional staff time to coordinate the development, implementation, and evaluation of the specific strategies described in this plan. Given the breadth and depth of the proposed TDM strategies, it is recommended that a dedicated TDM coordinator be hired or appointed to implement the TDM program. This position can supplement key work performed by existing WSU staff and help to coordinate efforts across key departments. The estimated cost of this position, including salary and benefits, is $120,000 per year.

Recommendation 6: Use of Technology
Expand the use of technology

The ubiquity of smart phones and tablets and ability of simple software to provide key pieces of static and dynamic information make applications (or “apps”) an excellent option for informing students, faculty/staff, and visitors about mobility options. The development of a WSU mobile smart phone app, including a map of campus parking facilities and links to information regarding campus shuttles, Pullman Transit, the GreenBike program, Zimride, and other useful transportation-related information is highly recommended. The development of a new app or app function could also include, but not limited
to, the locations of transit stops; bicycle parking, paths, lanes, and routes; and future bike concierge services. The estimated cost for implementation is $60,000.

**Recommendation 7: Enhance Marketing**

**Enhance on-campus marketing and social media**
An effective outreach and marketing program is a key component of any successful TDM program. Universities that have had the most tangible success with their TDM efforts have invested substantial time and money in promoting and marketing their TDM programs. Implementation of the strategic communications plan provided as part of this study will be an important element in framing the discussion related to creating a sustainable transportation program. WSU should also develop a suite of new or updated outreach and marketing materials to distribute to campus affiliates. Materials should be consistently branded and reinforce other marketing strategies. It is estimated that the cost of this additional outreach could be accomplished with an annual budget of $10,000.

**Recommendation 8: Pre-Tax Benefits to Bicyclists**

**Extend pre-tax benefits to bicyclists**
Pre-tax commuter benefits allow employees to reduce their commute costs and employers to reduce payroll taxes. By deducting the cost of commuting from pre-tax income, employees use tax-free dollars (subject to certain monthly limits set by the IRS each year) to pay for their commuting expenses. It is recommended that WSU extend the benefits of this program to bicyclists. By extending the program to employees who regularly commute by bicycle, WSU could catalyze additional mode shift away from SOVs.

**Recommendation 9: Incentivize Ride-Sharing**

**Reduce parking costs for carpools/vanpools to incentivize ride-sharing**
Ride-sharing is a proven and effective means of reducing the number of commute trips and vehicle-miles traveled (VMT). Ride-sharing is attractive to commuters because it can save both time via the use of high-occupancy vehicle (HOV) lanes and money due to shared travel costs. To maximize the use of spaces and incentivize ride-sharing, this strategy recommends reducing parking costs for carpools by 15% from the base parking rates.

**Recommendation 10: Guaranteed Ride Home Program**

**Maximize use of guaranteed ride home program**
One of the barriers to ridesharing or using other alternative transportation options is the fear that an individual will not be able to get home quickly in the event of an unexpected event or emergency. Guaranteed ride home programs provide commuters who regularly carpool, vanpool, bike, walk, or take transit to work with a reliable ride home (usually a taxi ride) when such instances arise. WSU currently has such a program, yet it is underutilized.
It is recommended that WSU ensure all campus employees are aware of the existing programs, as well as how to utilize it effectively if needed. WSU should also consider extending the program to all campus affiliates, including students, to encourage alternatives to driving alone to campus. Low to minimal administrative costs are associated with promoting the existing GRH program.

**Recommendation 11: Monitoring and Evaluation**

**Implement an annual monitoring and evaluation program**

A robust monitoring and evaluation program is a crucial component to an effective TDM program. Consistent evaluation of TDM strategies enables objective assessments of program performance and allows administrators to quantify the efficacy of individual TDM strategies. To meet its TDM objectives, it is crucial that WSU enhance its existing monitoring program to better gauge the impacts of ongoing TDM efforts. The recommended monitoring and evaluation actions include:

- Conduct an annual student and faculty/staff travel demand survey
- Conduct and analyze parking occupancy annually for motor vehicles and bicycles
- Conduct annual bicycle counts
- Gather transit ridership data from Pullman Transit and other service providers
- Count daily shuttle ridership by route and stop
- Monitor traffic collisions near WSU campus
- Prepare an annual report describing travel demand, survey results, occupancy data, and safety trends

Monitoring and evaluation costs are estimated to be approximately $10,000 per year.

**Recommendation 12: Improve Wayfinding**

**Improve parking wayfinding to enhance user experience and ensure efficient use of parking facilities**

Currently, WSU provides maps of parking structures and lots on its Parking and Transportation Services website, but there is not clear signage on campus directing motorists to parking facilities. WSU should develop a system of signage to direct newcomers to campus to appropriate parking facilities using clear, legible signs with general parking wayfinding information posted at all entry points to campus with additional signs to guide motorists along each step of the way to their destination.

To aid students, faculty, and staff who park regularly on campus, WSU should also consider implementing variable display signs that indicate the amount of parking available in real-time at each parking lot and structure. This information would also help distribute parking demand between popular and lesser-used facilities. This information could also be made available on WSU’s website and with an integrated smart phone app to further assist motorists in planning where to park.
The cost per real-time space availability display is approximately $40,000 per unit with a $500 annual operating cost (each). Conversely, a new lower-cost system has just hit the parking market. Parking Logix developed a low-cost and accurate parking lot count system that allows parking availability data to be accessible online and via mobile apps and variable message signs. More information can be obtained at www.parkinglogix.com.

**Recommendation 13: Car-Sharing**

**Expand and diversify on-campus car-sharing**

An expansion of existing car-sharing services at WSU would increase transportation options for students, faculty, and staff—especially as the campus continues to grow in the coming years. WSU could incorporate the location of additional car-sharing pods throughout campus with plans for campus expansion. WSU could also consider various car-sharing incentive programs by increasing the available enrollment discount or providing additional discounts to those who join commute clubs. WSU should also explore working with peer-to-peer car-sharing companies to expand and diversify the types of services provided at WSU.

**Recommendation 15: Alternative Schedules**

**Evaluate the use of alternative schedules for class and work shifts**

Alternative scheduling entails shifting some campus activities (classes, work shifts, etc.) to off-peak hours, thereby placing less strain on the parking and transportation system during peak hours. WSU already employs an alternative scheduling strategy for classes and University Police work schedules. Additional, more coordinated alternative scheduling practices implemented at a larger scale may prove necessary as the campus expands and the population grows.

An expanded alternative scheduling strategy at WSU could entail the following elements:
- Schedule additional off-peak classes
- Create a formalized WSU alternate work schedule program to actively encourage more faculty and staff to utilize compressed work weeks
- Implement a formal policy and program for telecommuting

**Recommendation 16: Transit Amenities**

**Enhance transit amenities and campus shuttle services**

The development of a WSU campus shuttle system to supplement existing Pullman Transit service and to support a “park once” strategy was an integral transportation element envisioned in the 2012 Update. The shuttle program could start by focusing on a few set campus routes on the main campus, then grow to include local and regional destinations. It is also recommended that any proposed shuttle routes take into account the WSU Long-Range Housing Plan.
It is recommended that WSU Transportation Services put out either an RFP for qualified firms to recommend an initial set of on-campus shuttle routes and service frequencies, as well as provide an estimated costs for the proposed services. This strategy is not designed to threaten existing Pullman Transit services, but to enhance campus mobility options through targeted improvements. This recommendation is designed to provide supplemental access and better service to the campus and complement other proposed TDM strategies. Other related recommendations include:

- Additional and enhanced bus shelters
- Pedestrian-scale lighting
- Trash receptacles
- Consistent maintenance of passenger facilities

**Recommendation 17: Bicycle Concierge Service**

**Implement an on-campus bicycle concierge service and information station**

Increasing the bicycle mode share of trips to WSU will require overcoming the concerns of those who have not yet chosen to bike to campus. Among these concerns is the risk of mechanical failure and the inability to adequately repair a bicycle while on campus. For new riders less comfortable fixing their own bikes, an on-campus bicycle concierge service would provide a helpful resource and peace-of-mind.

With this improvement, a person able to provide bicycle repair assistance and parts sales would be constantly on-campus. The University could manage the operation of the facility itself or outsource the work to a contractor like Bike and Park, which operates bike centers in several cities across the U.S. Assuming a single employee, discounted rental of space in an existing building, and modest inventory, annual costs may be estimated at $150,000.

**Recommendation 18: Parking Restrictions**

**Explore the use of vehicle parking restrictions**

More than 65 universities across the country utilize vehicle restrictions to manage a limited parking supply and encourage the use of alternative travel modes. Most commonly, freshmen are restricted from bringing cars to campus. To complement such policies, many universities with such restrictions provide generous transit subsidies and offer a variety of other TDM programs, such as car-sharing, on-campus car rentals, or guaranteed ride home programs.

Given the availability of on-campus parking and the rural nature of the area, this strategy is not recommended for immediate or short-term implementation. However, as transportation constraints become more pressing, more student housing is built, and demand for parking increases, this strategy could be examined in greater detail.
TDM Handbooks, Manuals and Other Resources

The following manuals and guidance documents are designed to help TDM agencies design, manage, and evaluate TDM programs. The hyperlinked text (in blue) links to the actual documents.

**Table 72. Additional TDM Resources**

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<thead>
<tr>
<th>Employee Transportation Coordinator Handbooks</th>
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<tr>
<td><strong>Employee Transportation Coordinator Handbook</strong> Employee Transportation Coordinator Handbook</td>
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<tr>
<td>The Westside Transportation Alliance (WTA) handbook <em>Getting to Work</em> is published for the Employee Transportation Coordinator (ETC). It is a step-by-step training manual with simple, practical tools to implement programs that will help employees make the choice to drive less. The handbook is written in an easy-to-read style designed for the busy professional. It covers the elements of a good plan of action and shows how to break down big projects into small workable tasks. The handbook contains sections on: The role of the Employee Transportation Coordinator Benefits of trip reduction, including Qualifying for Federal Tax Benefits and Oregon Business Energy Tax Credits How to Do Employee Surveys Monitoring and Evaluating Results Strategies for Successful Programs Marketing Section — with complete seasonal programs and examples from major employers. The Appendix of the handbook is a complete resource guide. It also contains many useful samples including: Letters to management Cover letters for employee surveys Employee Commute surveys Business Energy Tax Credit Application. WTA will mail a copy to you for shipping and handling, $8. More info</td>
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| Employer Toolkit was originally designed by the U.S. Environmental Protection Agency (EPA), the organization that created and service-marked the Best Workplaces for Commuters designation. The toolkit includes valuable tools and resources to help you enhance your commuter benefits program, increase employee participation, and add to your visibility as one of the Best Workplaces for Commuters. |

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<tr>
<th>A Guidance Manual for Implementing Effective Employer-based Travel Demand Management Programs</th>
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<tr>
<td>One three current reports available on Travel Demand Management (TDM) provided by the Federal Highway Administration and the Federal Transit Administration. The other two reports are entitled &quot;Implementing Effective Travel Demand Management Measures: Inventory of Measures and Synthesis of Experience,&quot; and &quot;Overview of Travel Demand Management Measures.&quot;</td>
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<tr>
<th>Commute Alternatives Systems Handbook</th>
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<tr>
<td>This handbook provides an introduction to transportation demand management (Source: Center for Urban Transportation Research at the University of South Florida)</td>
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<tr>
<th>Commuter Assistance Program Evaluation Manual</th>
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<tr>
<td>This manual was developed to assist Florida’s Commuter Assistance Programs (CAP) in their efforts to measure and evaluate their performance. As such, this manual focuses on providing the information necessary for a CAP to devise and conduct their own evaluation program. It will also provide guidance on how to report the results of that evaluation so that key CAP funders, elected officials, and the general public can understand and appreciate the efforts of the CAP in addressing traffic congestion, air quality, and mobility concerns. (Source: Center for Urban Transportation Research at the University of South Florida)</td>
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<tr>
<td>This manual is a companion piece to the Commuter Assistance Program Evaluation Manual that was developed to assist Florida’s Commuter Assistance Programs (CAP) in their efforts to measure and evaluate their performance. While the CAP Evaluation Manual provides a detailed description of how to devise conduct, analyze, and report an evaluation, this manual is intended to provide a basic understanding of how a CAP can meet the minimum evaluation requirements of the Florida Department of Transportation. The first part describes the performance measures that are required and/or available to evaluate CAP program efforts, including how to obtain the data necessary to measure CAP performance. Where appropriate, guidance is provided on how to calculate performance. The second part provides the basics on how to evaluate, including how to select performance</td>
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measures, and how to conduct the evaluation. The appendix includes a sample survey the CAP program can use to obtain all necessary survey data to address the FDOT required and optional performance measures. (Source: Center for Urban Transportation Research at the University of South Florida)

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<tr>
<th>Cost-Effectiveness of Transportation Demand Management (TDM) Strategies</th>
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<tr>
<td>Transit Cooperative Research Program’s Project B-4 provides a prototypical planning process for developing, implementing, and evaluating public agency TDM programs that can be readily adapted and modified to fit the varied needs and circumstances of specific states or metropolitan regions. An approach is described that can be incorporated into statewide and metropolitan transportation planning processes, the development of congestion management systems, the implementation of major transportation investment studies, and state and local ordinances. A four-step process is used to examine the feasibility of TDM program strategies that a public agency might implement. Supporting this process are specific examples from public agencies that are exhibiting the kind of analytical rigor necessary to develop an effective TDM program.</td>
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| Source: Center for Urban Transportation Research at the University of South Florida |

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<th>Transit Cooperative Research Board</th>
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<tr>
<td>Analyzing the Effectiveness of Commuter Benefits Programs</td>
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<tr>
<td>TRB’s Transit Cooperative Research Program (TCRP) Report 107: Analyzing the Effectiveness of Commuter Benefits Programs includes guidance on evaluating the effectiveness of a transit benefits program and information on how a transit benefits program can be designed and implemented to more effectively meet goals and objectives. The report also summarizes research on the impacts of transit benefits programs on travel behavior and on transit agencies’ system-wide ridership, revenues, and costs. The appendixes to TCRP Report 107 have been released as TCRP Web Only Document 27.</td>
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<tr>
<th>Strategies for Increasing the Effectiveness of Commuter Benefits Programs</th>
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<tr>
<td>Commuting in America III provides a snapshot view of commuting patterns and trends derived principally from an analysis of the 2000 decennial U.S. census. This is the third report in the series.</td>
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<tr>
<th>Risk Management for Rideshare Carpool Matching Programs (Transit Cooperative Legal Research Digest No. 2.) Part of the Transit Cooperative Research Program</th>
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<tr>
<td>There are a multitude of state, public, and private rideshare/carpool matching organizations nationwide. The question that has arisen is one of assessing the liability exposure for an organization that is offering and promoting these services. This report identifies the risks from the standpoint of the sponsoring agency and suggests ways to mitigate these risks. Also, the research offers alternatives to contain or protect against this type of liability.</td>
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<tr>
<th>Resources from Best Workplaces for Commuters (<a href="http://www.bestworkplaces.org">www.bestworkplaces.org</a>)</th>
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<td>Carpool Incentive Programs (388K PDF) – This briefing paper can be used as a step-by-step &quot;how to&quot; guide by employers establishing carpool incentive programs. It presents the benefits of these programs, describes when such programs make sense, and outlines implementation issues and costs.</td>
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| Commuter Tax Benefits (738K PDF) – A comprehensive briefing paper that describes the transportation fringe benefits covered under a tax-free and pretax provision of the federal tax code. Relevant portions of the tax code are included with translations of code particulars for non-technical readers. The briefing also contains an employer tax savings worksheet. |

| Marketing Commuter Benefits to Employees (582K PDF) – Marketing a commuter benefits program to employees is an important and continuous part of a successful commuter benefits program. This briefing paper discusses marketing strategies and messages, including suggestions for program implementation and launch, ongoing marketing, and measuring employee awareness. |

| Parking Cash Out (312K PDF) - This briefing paper discusses the tax and other benefits of parking cash-out programs and helps employers identify when they make sense. It also includes an implementation guide and case studies. |
Telework Programs (691K PDF) – This briefing paper explores the benefits of teleworking, as well the implementation issues and costs. It arms employers with the information needed to create an effective telework program through an implementation guide, answers to frequently asked questions, and case studies.

Transit and Vanpool Benefits (3.4MB PDF) – This briefing paper clarifies which transportation fringe benefits qualify for Best Workplaces for Commuters™. It summarizes the employer, employee, and tax benefits of commuter choice programs. The briefing also includes a “Guide to Implementation” and case studies for employers.

Vanpool Programs (1.07MB PDF) – This briefing document explores the benefits of vanpool programs and provides guidance on when and how to implement them. It provides answers to frequently asked questions and case studies for employers.

Traveler Response to Transportation System Changes series by the Transit Cooperative Research Program of the Transportation Research Board (TRB)

Transit-Oriented Development -- Traveler Response to Transportation System Changes (8/1/2007)
TRB’s Transit Cooperative Research Program (TCRP) Report 95: Traveler Response to Transportation System Changes, Chapter 17—Transit-Oriented Development explores the transit-oriented development (TOD) land use strategy and its transportation impacts in terms of regional context, land use mix, and primary transit mode. TOD generally refers to higher-density development, with pedestrian priority, located within easy walking distance of a major public transit station or stop. [More]

HOV Facilities -- Traveler Response to Transportation System Changes (11/17/2006)
TRB’s Transit Cooperative Research Program (TCRP) Report 95: Traveler Response to Transportation System Changes, Chapter 2 – HOV Facilities examines how travelers respond to high occupancy vehicle (HOV) applications. HOV facilities provide preferential treatment for transit, vanpools, carpools, and other designated vehicles by providing lanes and roadways reserved for their use. HOV and bus-only lanes in separate rights-of-way, on freeways and tollways, on ramps, and on arterials and city streets are among the approaches used for giving HOV priority over general traffic. The report does not cover busways primarily on their own alignment. This application is addressed in TCRP Report 95: Chapter 4 - Busways, BRT (Bus Rapid Transit), and Express Bus. [More]

Vanpools and Buspools - Traveler Response to Transportation System Changes (8/12/2005)
TRB’s Transit Cooperative Research Program (TCRP) Report 95: Traveler Response to Transportation System Changes, Chapter 5 -- Vanpools and Buspools examines the effects of travel times, pricing, and other consequences from the decision to vanpool. The report also quantifies vanpooling and buspooling as best can be done; looks at vanpooling trends; examines rider survey information; identifies indicators of market potential; and explores cost implications, among other subjects. [More]

Parking Pricing and Fees - Traveler Response to Transportation System Changes (2/28/2005)
TRB’s Transit Cooperative Research Program (TCRP) Report 95: Chapter 13 -- Parking Pricing and Fees examines traveler response to both the introduction of parking pricing and fees and to changes in the level, structure, or method of application of parking fees. Included are actions that can change the costs to users of parking even without fee changes, notably through elimination of employer parking subsidies and by fee structures that differentiate by modes of parking (short/long term) or travel (drive-alone/ridesharing). [More]

Transit Pricing and Fares - Traveler Response to Transportation System Changes (9/13/2004)
TRB’s Transit Cooperative Research Program (TCRP) Report 95: Chapter 12 – Transit Pricing and Fares examines transit ridership response to fare changes as applied to conventional urban area bus and rail transit services. Topics covered include changes in general fare level, changes in fare structure including relationships among fare categories, and free transit. [More]
Bus Routing and Coverage -- Traveler Response to Transportation System Changes (8/17/2004)

Park-and-Ride/Pool -- Traveler Response to Transportation System Changes (8/16/2004)

Transit Scheduling and Frequency - Traveler Response to Transportation System Changes (5/25/2004)
TRB’s Transit Cooperative Research Program (TCRP) Report 95: Chapter 9 – Transit Scheduling and Frequency examines scheduling changes made to conventional bus and rail transit, including changes in the frequency of service, hours of service, structuring of schedules, and schedule reliability. [More]

Demand-Responsive/ADA - Traveler Response to Transportation System Changes (5/25/2004)
TRB’s Transit Cooperative Research Program (TCRP) Report 95: Chapter 6 – Demand-Responsive/ADA includes traveler response and related information for services open to the general public and Americans with Disabilities Act (ADA) services intended for persons with disabilities. [More]

Parking Management and Supply - Traveler Response to Transportation System Changes (3/2/2004)
TRB’s Transit Cooperative Research Program (TCRP) Report 95: Chapter 18 – Parking Management and Supply examines how travelers respond to differences in the supply and availability of vehicle parking, including changes that might occur as a result of shifting land-use patterns, changes in regulatory policy, or attempts to “manage” the supply of parking. [More]

Transit Information and Promotion - Traveler Response to Transportation System Changes (3/2/2004)
TRB’s Transit Cooperative Research Program (TCRP) Report 95: Chapter 11 – Transit Information and Promotion examines travelers’ responses to mass-marketed and targeted information and promotions, customer information services, and real-time transit information dissemination. [More]

Land Use and Site Design - Traveler Response to Transportation System Changes (11/11/2003)
TRB’s Transit Cooperative Research Program (TCRP) Report 95: Chapter 15 – Land Use and Site Design provides information on the relationships between land use/site design and travel behavior. Information in the report is drawn primarily from research studies that have attempted to measure and explain the effects. [More]

Other Resources

Online TDM Encyclopedia
The Online TDM Encyclopedia is produced by the Victoria Transport Policy Institute to help improve understanding of Transportation Demand Management. Transportation Demand Management (TDM) is the general term for actions that encourage more efficient use of existing transportation systems. It includes a wide range of specific strategies. This Encyclopedia is designed to be a primary source of information about TDM. It provides detailed information on more than three dozen specific TDM strategies. It is an ongoing project.
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The CD affixed below includes the following appendices:

A. Sample Parking Garage Operations Manual
B. Parking Enforcement Program Sample Parking Enforcement Operations Manual
C. Parking Enforcement Program Audit Checklist
D. Recommended Parking Program Benchmarks
E. Parking Facility Maintenance Manual
F. Community Engagement
G. Annual Parking Report Template
H. Transportation Demand Management Best Practices
I. WSU Parking Management Best Practices Tool Box