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CHAPTER 1. INTRODUCTION

This report summarizes existing parking and transportation conditions for the University of Washington Tacoma (UWT) campus, and makes recommendations for future parking and transportation strategies, including a ten year projection of parking systems revenues and expenses.

Commuting to the UWT campus is dominated by the single occupant vehicle and the campus community at UWT utilizes many different parking locations, both free and paid, to reach campus. Data collected indicate that the parking near campus is effectively full. Feedback gathered from the campus community provided the basis for many of the ultimate future recommendations that will provide additional parking resources while decreasing overall parking demand. These actions will allow the UWT campus to continue to grow.

This document is arranged as follows:

- Chapter 2 provides the current conditions, including community feedback and results of a parking count of on and off-street facilities near the UWT campus.
- Chapter 3 provides analysis of current and future parking demand, and how this demand relates to current capacity.
- Chapter 4 includes a list of alternatives to deal with the expected increase in demand for parking from the UWT campus, and provides a summarized capital plan and financing.
- Chapter 5 provides guidelines and recommendations for a campus parking management and operations plan and concludes with a 10-year Financial Pro Forma.
- Finally, Chapter 6 provides a summary of recommendations and an action plan.
CHAPTER 2. CURRENT CONDITIONS

This chapter summarizes the data collected on the current status of parking and transportation at UWT. The most common mode of commute to campus is by automobile, particularly single occupant motor vehicles. Given this, parking is a key issue to UWT affiliates. The current perception of campus parking is that spaces are limited and parking is difficult. Indeed, both UWT off-street parking facilities and free street parking in the area of campus are highly utilized on most weekdays, but there are some vacancies in the more remote surface parking lots that serve campus and other users.

Specific feedback was obtained from the campus community through an electronic survey, open house, and specific stakeholder groups meetings.

DATA SOURCES

This report makes use of information gathered from the following sources:

- Information from UWT provided by a Request for Information and additional requests.
- Campus parking occupancy surveys on Wednesday, November 9, 2011. These surveys covered UWT campus lots and on-street parking from S 15th Street to the north, S 25th Street to the south, Pacific Avenue to the east, and Tacoma Avenue S to the west. This area represents the project study area.
- An internet-based electronic parking survey open for responses from November 16 – November 23, 2011. This survey received responses from approximately 7% of total students, 12% of faculty, and 15% of staff.
- All-day campus stakeholder meetings and a public outreach session on December 6, 2011.

EXISTING CAMPUS PARKING CONDITIONS

UWT Parking Facilities

Parking for the UWT campus community consists of hourly, daily, and permit lots operated by UWT and Diamond Parking, local on-street parking, and parking at the Tacoma Dome Link Station. Campus lots are identified in Figure 1. Table 1 provides basic information on these facilities.
TABLE 1. UWT OFF-STREET PARKING FACILITIES

<table>
<thead>
<tr>
<th>Lot Name</th>
<th>Operations/Enforcement</th>
<th>Unrestricted Spaces</th>
<th>ADA Spaces</th>
<th>Parking Type</th>
<th>Quarterly Permit Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cragle</td>
<td>UWT</td>
<td>115</td>
<td>9</td>
<td>Hourly parking</td>
<td>N/A</td>
</tr>
<tr>
<td>Pinkerton</td>
<td>UWT</td>
<td>27</td>
<td>4</td>
<td>UWT Permit Only</td>
<td>$150</td>
</tr>
<tr>
<td>WT31</td>
<td>Diamond</td>
<td>116</td>
<td>2</td>
<td>UWT Permit Only 7:00 to 4:00, M-Th</td>
<td>$124</td>
</tr>
<tr>
<td>WT32</td>
<td>Diamond</td>
<td>72</td>
<td>4</td>
<td>UWT Permit Only 7:00 to 4:00, M-Th</td>
<td>$52</td>
</tr>
<tr>
<td>WT40</td>
<td>Diamond</td>
<td>122</td>
<td>10</td>
<td>Permit and daily parking</td>
<td>$124</td>
</tr>
<tr>
<td>WT44</td>
<td>Diamond</td>
<td>20</td>
<td>1</td>
<td>UWT Permit Only 7:00 to 4:00, M-Th</td>
<td>$52</td>
</tr>
<tr>
<td>WT 61</td>
<td>Diamond</td>
<td>33</td>
<td>2</td>
<td>UWT Permit Only 7:00 to 4:00, M-Th</td>
<td>$52</td>
</tr>
<tr>
<td>Milgard</td>
<td>UWT</td>
<td>0</td>
<td>0</td>
<td>C1 Permit Only</td>
<td>N/A</td>
</tr>
</tbody>
</table>

UW Tacoma, 2011

Permits are currently sold to all faculty and staff who request them, with the remaining permits sold to students. In recent quarters, student requests for permits have been greater than the supply available.

Fehr & Peers surveyed the occupancies of these lots on Wednesday November 5, 2011 (considered a normal parking day by UWT staff) at key times between 8:30 AM and 7:00 PM. The results of that survey are provided in Table 2. After of our initial survey at 8:30 AM, general spaces in the Cragle lot were essentially full during the remainder of the day. Vehicles were seen waiting in this lot for spaces to become available. During all surveys, there was at least one ADA space available in the Cragle Lot; however the ADA spaces in the lower lot area on Dolly Roberson Lane were fully occupied during the afternoon survey. The motorcycle parking in the Cragle lot was fully occupied until the 5:30 PM survey.

In other lots, both WT 31 and WT 44 were almost completely occupied at 12:30 PM, and the restricted Milgard lot was full during the middle of the day. Other lots generally had ample vacancies and overall peak occupancy was at 12:30 PM.

While not included in the survey, there were several public pay lots operated by Republic located to the west of the Convention Center that had very low occupancies during our survey day. Additionally, between surveys we traveled to the Tacoma Dome area and observed that the Sound Transit Parking Garage was full by late morning as was on-street parking near other Tacoma Link stations. However, several large surface lots immediately surrounding the Tacoma Dome were completely vacant.
TABLE 2. OFF-STREET PARKING OCCUPANCY, UNRESTRICTED SPACES

<table>
<thead>
<tr>
<th>Time</th>
<th>Cragle</th>
<th>Pinkerton</th>
<th>WT31</th>
<th>WT32</th>
<th>WT40</th>
<th>WT44</th>
<th>WT61</th>
<th>Milgard [a]</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 AM</td>
<td>78%</td>
<td>52%</td>
<td>34%</td>
<td>32%</td>
<td>50%</td>
<td>17%</td>
<td>29%</td>
<td>38%</td>
</tr>
<tr>
<td>10:30 AM</td>
<td>99%</td>
<td>63%</td>
<td>81%</td>
<td>57%</td>
<td>80%</td>
<td>83%</td>
<td>50%</td>
<td>63%</td>
</tr>
<tr>
<td>12:30 PM</td>
<td>100%</td>
<td>63%</td>
<td>95%</td>
<td>68%</td>
<td>80%</td>
<td>96%</td>
<td>71%</td>
<td>100%</td>
</tr>
<tr>
<td>3:00 PM</td>
<td>94%</td>
<td>63%</td>
<td>93%</td>
<td>69%</td>
<td>79%</td>
<td>91%</td>
<td>76%</td>
<td>100%</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>97%</td>
<td>41%</td>
<td>66%</td>
<td>32%</td>
<td>55%</td>
<td>48%</td>
<td>29%</td>
<td>50%</td>
</tr>
<tr>
<td>7:00 PM</td>
<td>98%</td>
<td>11%</td>
<td>44%</td>
<td>10%</td>
<td>32%</td>
<td>4%</td>
<td>12%</td>
<td>25%</td>
</tr>
</tbody>
</table>

[a] The spaces in Milgard all require a C1 permit.

Fehr & Peers, 2011

**Tacoma Dome Lot**

Located approximately one mile from campus, the Tacoma Dome area is a transportation hub for Sounder Commuter Rail, Sound Transit Express Buses, Tacoma Link light rail, and Pierce Transit. It contains two parking garages that provide a total of 2,283 free parking spaces for commuters.\(^1\) Tacoma Link Light Rail provides direct service to the UWT campus from this location between approximately 5:00 AM to 10:00 PM with service every 12 minutes for most of the day. Based on feedback from our stakeholder meetings and observations made during parking surveys, the parking at this facility reaches capacity by approximately 9:30 AM most weekdays. Additional pay parking lots and street parking are available near the Dome.

**Street Parking**

On-street parking surrounding the UW Tacoma campus is a mix of paid and time restricted, free and time restricted, residential permit restricted, and free with no posted time limit. **Table 3** provides the estimated parking supply by type. **Tables 4 and 5** provide the observed occupancies for the free and unrestricted spaces and the pay parking spaces, respectively. For purposes of data collection, the parking areas were subdivided based on the areas identified on **Figure 2**. We estimate that there are approximately 780 free and unrestricted street parking spaces in the project study area.

By the time of our first survey at 8:30 AM most of the free on-street parking located close to campus was already occupied. By 10:30 AM, and continuing through our 3:00 PM survey the only free street parking generally available was in Area A, one of the farthest areas from campus. After 5:00 PM, free on-street parking had low occupancy levels.

Local paid on-street parking, which is free before 8:00 AM and after 6:00 PM, showed clear peaks at lunch time and in the evening hours. Parking along Pacific Avenue was generally full from our 12:30 PM survey through our 7:00 PM survey.

Spaces with time restrictions, but did not require payment, were 60% or less occupied during all of the surveyed time periods. The overall peak parking occupancy time period was 10:30 AM, while 12:30 PM had almost identical occupancy levels.

\(^1\) [http://www.soundtransit.org/Rider-Guide/Tacoma-Dome-Station.xml](http://www.soundtransit.org/Rider-Guide/Tacoma-Dome-Station.xml)
### TABLE 3. ON-STREET PARKING SUPPLY BY TYPE AND LOCATION

<table>
<thead>
<tr>
<th>Parking Control</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free</td>
<td>81</td>
<td>78</td>
<td>137</td>
<td>110</td>
<td>0</td>
<td>187</td>
<td>0</td>
<td>0</td>
<td>79</td>
<td>0</td>
<td>0</td>
<td>85</td>
<td>26</td>
<td>783</td>
</tr>
<tr>
<td>60 Min</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>90 Min</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>23</td>
<td>0</td>
<td>61</td>
<td>0</td>
<td>0</td>
<td>41</td>
<td>20</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>145</td>
</tr>
<tr>
<td>Paid</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>113</td>
<td>93</td>
<td>0</td>
<td>40</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>145</td>
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<tr>
<td>Disabled</td>
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<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
</tbody>
</table>

Fehr & Peers, 2011

### TABLE 4. ON-STREET FREE AND UNRESTRICTED PARKING OCCUPANCY

<table>
<thead>
<tr>
<th>Survey begin Time</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 AM</td>
<td>51%</td>
<td>85%</td>
<td>61%</td>
<td>100%</td>
<td>N/A</td>
<td>94%</td>
<td>N/A</td>
<td>N/A</td>
<td>86%</td>
<td>N/A</td>
<td>N/A</td>
<td>92%</td>
<td>100%</td>
<td>83%</td>
</tr>
<tr>
<td>10:30 AM</td>
<td>72%</td>
<td>99%</td>
<td>99%</td>
<td>100%</td>
<td>N/A</td>
<td>99%</td>
<td>N/A</td>
<td>N/A</td>
<td>100%</td>
<td>N/A</td>
<td>N/A</td>
<td>96%</td>
<td>100%</td>
<td>96%</td>
</tr>
<tr>
<td>12:30 PM</td>
<td>70%</td>
<td>96%</td>
<td>96%</td>
<td>99%</td>
<td>N/A</td>
<td>99%</td>
<td>N/A</td>
<td>N/A</td>
<td>97%</td>
<td>N/A</td>
<td>N/A</td>
<td>99%</td>
<td>96%</td>
<td>95%</td>
</tr>
<tr>
<td>3:00 PM</td>
<td>79%</td>
<td>90%</td>
<td>93%</td>
<td>96%</td>
<td>N/A</td>
<td>96%</td>
<td>N/A</td>
<td>N/A</td>
<td>95%</td>
<td>N/A</td>
<td>N/A</td>
<td>89%</td>
<td>92%</td>
<td>92%</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>47%</td>
<td>59%</td>
<td>55%</td>
<td>82%</td>
<td>N/A</td>
<td>63%</td>
<td>N/A</td>
<td>N/A</td>
<td>44%</td>
<td>N/A</td>
<td>N/A</td>
<td>34%</td>
<td>23%</td>
<td>56%</td>
</tr>
<tr>
<td>7:00 PM</td>
<td>31%</td>
<td>31%</td>
<td>24%</td>
<td>59%</td>
<td>N/A</td>
<td>32%</td>
<td>N/A</td>
<td>N/A</td>
<td>8%</td>
<td>N/A</td>
<td>N/A</td>
<td>24%</td>
<td>8%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Fehr & Peers, 2011
### TABLE 5. ON-STREET PAID PARKING OCCUPANCY

<table>
<thead>
<tr>
<th>Survey Start Time</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 AM</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>20%</td>
<td>65%</td>
<td>N/A</td>
<td>22%</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>37%</td>
</tr>
<tr>
<td>10:30 AM</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>60%</td>
<td>26%</td>
<td>N/A</td>
<td>51%</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>46%</td>
</tr>
<tr>
<td>12:30 PM</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>77%</td>
<td>100%</td>
<td>N/A</td>
<td>56%</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>82%</td>
</tr>
<tr>
<td>3:00 PM</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>65%</td>
<td>94%</td>
<td>N/A</td>
<td>59%</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>75%</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>81%</td>
<td>94%</td>
<td>N/A</td>
<td>44%</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>80%</td>
</tr>
<tr>
<td>7:00 PM</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>94%</td>
<td>100%</td>
<td>N/A</td>
<td>76%</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>93%</td>
</tr>
</tbody>
</table>

Fehr & Peers, 2011
SUMMARY OF COMMUNITY INPUT

Current parking and transportation conditions and issues were assessed via site visits, campus surveys, campus open house, and stakeholder meetings. This section summarizes the information collected.

Electronic Survey

An internet-based survey was distributed to students, faculty, and staff of UWT and was available for responses from November 16 to November 23, 2011. The survey received a total of 318 responses. Of these responses, approximately 66% were from full-time students, 10% from part-time students, 9% from faculty members or lecturers, and 15% from staff members. Based on current enrollment and employment figures, these responses constitute approximately 7% of students, 12% of faculty and 15% of staff.

In addition to asking a series of multiple choice questions, the survey provided two open response questions that allowed survey takers to provide feedback on any other ideas or thoughts about transportation and parking at UWT. Survey results are included as Appendix A, and summarized below.

Current Transportation Mode Share and Parking Location Preference

Campus transportation is primarily via the personal automobile. The results of the electronic survey show that approximately 80% of respondents reach campus by motor vehicle, either as drive alone or in carpool/vanpool. These results are almost identical to the 2011 UW Tacoma Winter Assessment Survey results where 74% of students indicated that they drive alone to commute to campus and 5% reported carpooling.

Table 6 provides survey feedback on campus commute modes.

<table>
<thead>
<tr>
<th>Survey Response</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive Alone</td>
<td>73.9%</td>
</tr>
<tr>
<td>Bus/Mass Transit</td>
<td>15.1%</td>
</tr>
<tr>
<td>Carpool/Vanpool</td>
<td>6.3%</td>
</tr>
<tr>
<td>Walk</td>
<td>1.9%</td>
</tr>
<tr>
<td>Bicycle</td>
<td>0.6%</td>
</tr>
<tr>
<td>Other</td>
<td>2.2%</td>
</tr>
</tbody>
</table>

Among these survey respondents who carpool or drive alone, they were subsequently asked to identify their parking location from a list of potential locations and to respond if they Always, Usually, Rarely, or Never used that respective location. The results of this question were grouped according to responses in the Always or Usually categories and this information is displayed in Figure 3.
Parking destination information was also divided by user type, with the results presented in Table 7.
## Table 7. Parking Destination by Survey Respondent Type

<table>
<thead>
<tr>
<th>Parking Destination</th>
<th>Percent who “Always” or “Usually” Utilize the Parking Destination</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Faculty</td>
</tr>
<tr>
<td>UWT Facility with Permit</td>
<td>41%</td>
</tr>
<tr>
<td>UWT Facility Pay by Hour/Day</td>
<td>22%</td>
</tr>
<tr>
<td>Private Lot Near Campus</td>
<td>4%</td>
</tr>
<tr>
<td>Free Street Near Campus</td>
<td>11%</td>
</tr>
<tr>
<td>Metered Street Near Campus</td>
<td>11%</td>
</tr>
<tr>
<td>Free Parking at Tacoma Dome</td>
<td>11%</td>
</tr>
<tr>
<td>Pay Parking at Tacoma Dome</td>
<td>0%</td>
</tr>
</tbody>
</table>

Number of Responses: 27, 33, 240

2011 UW Tacoma Parking & Transportation Survey

Based on the results shown in Table 7, faculty and staff make greater use of campus parking facilities, especially through the use of quarterly permits. This is logical given that the University sells permits to faculty and staff first, and then makes a limited supply of permits available to students.

The presence of street parking that is free and does not have any time limits is clearly a draw for students. Indeed, this is the location where most students park. In addition to these locations, free parking at the Tacoma Dome area was identified as a popular parking destination with 20% of students stating that they always or usually utilize this destination.

### Alternative Commuting Methods

#### Walk & Bike

As indicated in Table 6, walking and biking make up less than 3% of the campus transportation mode share. During the parking surveys campus bicycle parking racks were largely unused, with the exception of the covered rack outside the UW Tacoma library (see photo on following page). It should be noted that this bike rack was the only outdoor covered bike parking area observed on campus. The weather on our survey day was in the mid-50s and partly cloudy.
During our stakeholder open house, we did hear the suggestion that the campus provide more covered, secure bicycle parking, but campus facilities alone will likely not significantly increase bicycle mode share. There are currently no on-street or off-street bikeways (paths, bicycle boulevards, bike lanes, etc.), but the City of Tacoma has identified a bicycle boulevard along Fawcett Avenue as a 2012 priority project and planning is beginning for the Prairie Line Trail project which will travel through campus and connect to a system of regional bicycle and walking trails.

Transit

Around 15% of electronic survey respondents reported using mass transit to reach campus. The UWT campus is served by Sound Transit Express Buses, Pierce Transit, Intercity Transit, and the Tacoma Link light rail. Unlimited travel is provided on Pierce Transit and Sound Transit (and select other regional carriers who do not directly serve campus) by the U-Pass which is available to students for $45/quarter and faculty/staff for $60/quarter. One suggestion provided at the open house and via the electronic survey was to also provide coverage for Intercity Transit via the U-Pass. Tacoma Link Light Rail is currently free for all riders.

Data was collected on U-Pass usage for UWT affiliate boardings on Pierce Transit and Sound Transit. The top routes utilized are presented in Table 8.

---

**Bike Rack outside UW Tacoma Library**
TABLE 8. AVERAGE DAILY UWT U-PASS DAILY BOARDINGS [A]

<table>
<thead>
<tr>
<th>Carrier</th>
<th>Route</th>
<th>Description</th>
<th>Daily U-Pass Boardings</th>
<th>Percent of Total Pierce and Sound Transit U-Pass Boardings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound Transit</td>
<td>594</td>
<td>Lakewood/Tacoma/Seattle</td>
<td>140[b]</td>
<td>17%</td>
</tr>
<tr>
<td>Pierce Transit</td>
<td>1</td>
<td>6th Avenue / Pacific Avenue</td>
<td>135</td>
<td>17%</td>
</tr>
<tr>
<td>Sound Transit</td>
<td>578</td>
<td>Federal Way/Puyallup/Tacoma/Seattle</td>
<td>94[b]</td>
<td>11%</td>
</tr>
<tr>
<td>Sound Transit</td>
<td>566</td>
<td>Auburn/Overlake[c]</td>
<td>92[b]</td>
<td>11%</td>
</tr>
<tr>
<td>Sound Transit</td>
<td>574</td>
<td>Lakewood/Tacoma/SeaTac</td>
<td>50[b]</td>
<td>6%</td>
</tr>
<tr>
<td>Pierce Transit</td>
<td>2</td>
<td>19th Street / Bridgeport Way</td>
<td>49</td>
<td>6%</td>
</tr>
<tr>
<td>Pierce Transit</td>
<td>400</td>
<td>Puyallup/Tacoma</td>
<td>49</td>
<td>6%</td>
</tr>
</tbody>
</table>

[a] Results are an average of Tuesday-Wednesday-Thursday daily boardings, October 18-20, 2011
[b] Sound Transit boardings were provided for one direction only, inbound to Tacoma. This total assumes that two U-Pass trips were made on each route.
[c] This route does not serve Tacoma.

The routes in Table 8 above represent almost 75% of the Sound Transit and Pierce Transit boardings where UWT U-Pass was used on the survey days. Sound Transit route 594 and Pierce Transit route 1 stand out as the highest usage routes for UWT affiliates. The fourth most popular route, Sound Transit 566, does not serve Tacoma. This indicates that UWT affiliates also take advantage of the U-Pass for trips not related to coming to/from campus.

Response to UWT Parking Permit Price Changes

Survey respondents were asked a series of questions to assess their willingness to pay higher prices for UWT Permits, and how an increase in UWT parking facility pricing might shift their transportation mode or parking location. Responses to these questions were only collected from survey respondents who indicated that they are likely, or may be likely, to purchase a UWT parking pass in the future. There were 182 such responses indicating they will, or potentially will, purchase permits in the future.

Table 9 identifies the response to pricing increases reported by survey respondents and Figure 4 shows the transportation mode or parking location choice that respondents reported they would “Always” or “Often” use if an increase in permit prices caused them to not purchase a permit.
### TABLE 9. EFFECT OF PARKING PERMIT PRICE INCREASE

<table>
<thead>
<tr>
<th>Response</th>
<th>Quarterly Permit Price Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$15 Increase</td>
</tr>
<tr>
<td>No Effect</td>
<td>31.3%</td>
</tr>
<tr>
<td>Somewhat Less Likely to Purchase a Permit</td>
<td>31.3%</td>
</tr>
<tr>
<td>Much Less Likely to Purchase a Permit</td>
<td>17.6%</td>
</tr>
<tr>
<td>Would Not Buy a Permit</td>
<td>19.8%</td>
</tr>
</tbody>
</table>

2011 UW Tacoma Parking & Transportation Survey

The survey question regarding reaction to price increases was an attempt to understand how permit parking pricing affects behavior, or the parking price elasticity of demand. Price elasticity of demand is defined as the measure of responsiveness in the quantity demanded for a commodity as a result of change in price of the same commodity. Since most of the current quarterly price of parking permits vary from $52 - $124 (the small Pinkerton lot is $150), only a range of elasticity can be developed based on the survey responses alone. Using the percentage of respondents who stated that they “would not buy a permit” for each given increase and an average current permit cost of $88, the price elasticity of demand for a UW Tacoma Parking Permit ranged from -1.16 at a $15 increase to -1.39 at an increase of $45. This means that a 10% increase in parking pricing would likely lead to around an 11% decrease in parking permits purchased.

The effect of parking pricing in urban settings is generally cited in literature as the price elasticity of vehicle travel with respect to parking pricing and are -0.1 to -0.3. However, these ranges assume that parking is evenly priced or higher priced in other available locations. Given the well-utilized free options for parking (See Figure 3), it would be expected that many motorists would react to increase parking pricing in UW Tacoma facilities by attempting to shift demand to lower cost options. This prediction is apparent in the location choice where respondents identified in response how an increase in parking permit costs would potentially affect their transportation and parking choices. This is shown in Figure 4.

While the survey responses provide some insight into expected behavior, survey-derived elasticity ranges and diversion locations are probably unrealistic given a combination of factors. First, demand for parking permits currently is greater than the available supply. This implies that increasing pricing would not lead to a reduction in permits purchased. Secondly, it is reasonable to assume that preferences stated on a survey may exaggerate the true effect of a price increase. Finally, the stated preference to shift to free parking resources may not be an option for many users, given the existing high levels of occupancy both on-street and in the Tacoma Dome area. A more realistic outcome is a short term decrease in purchased permits. After drivers recognize the difficulty of utilizing other options, there would likely be minimal long term decrease assuming the University continues to grow. One outcome that could be expected is that local vehicle congestion may increase as more drivers circulate for scarce free street parking spaces, and drivers parking at on-street locations increasingly utilizing spaces farther away from campus.

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Open Response Questions

In discussing potentially raising the cost of on-campus parking, the survey asked, “If you have any other ideas about how additional parking revenue could be used, please enter them in the box.” The final survey question asked “Do you have any other ideas or thoughts about transportation and parking at UW Tacoma? If so, please share them in the box below.”

The first question, concerning the use of additional parking revenue, received responses from about 24% of total overall survey respondents. Responses included the following (not listed in any order):

- Increase the supply of free or cheap parking
- Increase advertisements of carpool and alternative transportation programs
- Increase number of handicapped spaces available on campus
- Extend meter hours to allow for three or four hour paid parking sessions
- Include Intercity Transit in U-Pass Program
- Sell discounted bicycle supplies
The final question regarding other ideas or thoughts received responses by 34% of total survey respondents. Responses were largely similar to the first question. Duplicate responses include (not listed in any order):

- Increase the supply of free or cheap parking
- Extend meter hours to allow for three or four hour paid parking sessions
- Include Intercity Transit in U-Pass Program

Several new responses were provided to this question. These included (not listed in any order):

- More frequent transit service, especially in the evening
- Host an annual transit fair to make students aware of alternative transportation options
- Increase parking security
- General compliments regarding the Tacoma Link Light Rail service, but requests for published schedule / arrival information
- Complaints over lack of parking availability at Tacoma Dome
- Recommendations to provide option for half-day parking permits in the pay lots
- Allow more venues for parking permit sales other than only over the phone

Electronic Survey Conclusions

This survey reinforces the results from previous surveys that indicate that the single occupant vehicle is the mode by which the majority of UWT faculty, staff, and students travel to and from the campus. While UWT parking facility utilization is generally high among faculty and staff, students are more likely to utilize free parking on-street or at the Tacoma Dome area. Increasing the price of parking would likely further increase the usage of these free parking locations. Generally there does not seem to be stated support for use of parking options that are not free, given the current availability of free parking.

Campus Community Outreach

Open House

Fehr & Peers and Carl Walker held an open house from 12:00 PM – 2:30 PM on December 6, 2011. The open house was advertised to all campus community members through flyers.

To spur public input, a floor map was used to get feedback on what elements of the campus parking and transportation system worked well, what elements need improvement, and what elements are not working well. Additionally, posters at the meeting advertised project goals and timeline. An illustration of the floor map is shown on the following pages.
Campus Open House
Campus Feedback Map Following Open House

After this session, comments were summarized and included the following:

- Bicycle facilities on campus are lacking. One faculty member spoke with us who stores her bicycle in her office. There is also a lack of bicycle facilities connecting the campus with other city neighborhoods.
- There is a lack of parking information available to incoming students.
- The parking permit for students does not provide for parking for days before classes start.
- There are issues accommodating event parking.
- Car prowls are a concern amongst students; one reported witnessing a car prowl in progress in the Cragle lot in the middle of the day.
- Positive feedback on Link light rail and parking at the Tacoma Dome area, but comments that this parking is full by late morning.
- Feedback from students that “what we have isn’t working” in regards to parking.
- Understanding that most students come and hunt for free parking and will settle for hourly/daily lots as a last resort.
- Complaints over the small size of some of the parking spaces.
- Recommendation for more remote lot locations with shuttle services.
- Request for better street lighting near the street parking.
- Need for traffic calming on Dolly Roberson Lane.
- ADA issues to and from Dolly Roberson Lane parking areas.
- Lot WT44 always has spaces available.
• Students like that street parking is free after 6:00 PM.
• University should work with Convention Center to convert the surface lot immediately north of 17th Street to paid hourly parking.
• Campus feels like a maze, with no clearly defined front door.
• Students are sometimes late to class because they are searching for parking.
• There are not enough disabled spaces.
• Call boxes on and off campus would increase security.
• Several pedestrian crossing locations were identified as being a safety concern:
  o C Street at S 21st Street
  o Jefferson Ave at S 19th Street
  o Jefferson Ave at Broadway
  o Jefferson Ave at S 21st Street

Stakeholder Outreach

On December 6, 2011, Fehr & Peers and Carl Walker met with the following stakeholder groups to discuss issues relating to parking and transportation at UWT:

• Student Needs (ASUWT Representatives)
• Local Business and Property Owners
• Transportation Demand Management (TDM) Partners (Pierce Transit, Downtown: On the Go!, City of Tacoma)
• Facilities and Planning (City of Tacoma Planning, UWT Facilities)
• Campus and Public Safety (UWT Safety and Security, Tacoma PD)
• Parking Resource Owners (City of Tacoma, Diamond Parking, Republic Parking, Tacoma Convention Center)

Each group provided feedback specific to their areas of concern, and this feedback is summarized below.

Student Needs

– Met with Tim Hyatt (ASUWT Senator) and Joseph Franco (Student Transportation Coordinator)

• Parking is a huge issue for students.
• ASUWT tries to encourage use of public transportation by students.
• Daily process for most students who don’t have a permit is to hunt and hunt for free parking, and resort to pay parking if there is no choice.
• Students generally feel that parking should be included with tuition and fees.
• Big issue with students is that they do not know all of the options available.
  o ASUWT will have a presence at a February 2012 campus wide event and provide information on alternative transportation.
- Thought more students would be interested in parking at the Tacoma Dome if they saw that this was an option.

- Students are very aware of safety concerns everywhere around campus, particularly car prowls and recognitions of areas with poor lighting.

- General feel that Tacoma Link light rail works well.

- Suggestion to build discussion of transportation options more into Orientation for new students. It is now covered in campus security/parking.

- Have heard complaints about lack of U-Pass for Intercity Transit (Olympia). *Ben Mauk responded that there are compatibility issues with the card readers on Intercity Transit.*

- Felt that students would use a satellite lot if connections were reliable and spaces available.

- Students know that Cragle lot enforcement is not regular and often risk a $25 ticket for short visits.

- Daily parking price ($7) and quarterly permit price (as low as $54) differences are large. Any options for a pass for a certain number of days per quarter?

- Bicycling may not be much of an option for many students (most live too far away).

- Recommendations from this project need to address significant short-term issues, not just long-term concerns.

**Local Business / Property Owners**

- Met with Rollie Herman (WestPac Marine), Jack McQuade (The Swiss), and Brix Iverson (Rock Wood Fired Pizza)

- Issues are not parking at lunch, but during evenings around the time on-street restrictions end each day (at 6:00 p.m.).

- Rollie’s business has off-street parking and is generally unaffected, but works with local merchants on Advisory Council to city.

- Concerns over footprint expansion of University campus.

- Parking task force right now looking at parking options on Jefferson Avenue near Broadway.

- No local support for expanding paid parking or parking time limits

- A recommendation was made to use available UW-Tacoma property to provide more off-street parking, specifically questioning the option of an additional surface lot at 19th and Market on University property.

- Businesses work with Diamond Parking to have a validation program but it is not widely used.

- Concern that future projects (example is current campus library) will further reduce available on-street parking.

- Need to understand that UWT is an urban campus, so access and on-street parking is important. Do not want to see a “closed” campus in the middle of an urban environment.

- Installation of meters has helped, but enforcement may be too aggressive. Frustration with heavy-handed parking enforcement and its impact on customer experience.

- Recommended University Ambassadors at beginning of quarters to help students in understanding parking options.
TDM Partners

– Met with Kristina Walker (Downtown on the Go / Tacoma Chamber of Commerce), Kelly Hayden (Pierce Transit), Diane Wiatr (Tacoma Mobility Coordinator / Planner)

• Since 2007, Pierce Transit has cut 42% of service, but has only seen a 22% reduction in ridership.

• Discussed successful programs to date: Bike to work activities in May, Walk Tacoma, Live Downtown Program (working with employers to incentivize living near work through rental programs and discount closing costs. This has been utilized by UW Tacoma employees, but does not have a student component.).

• Diane spoke of the future bicycle lanes being added citywide, and noted that contained in their top 4 projects for 2011-2012 there is a bicycle boulevard planned on Fawcett Avenue through campus. She has additionally prepared a map indicating current and future bicycle access to UWT campus.

• Recommendation was made to plan for the mode share that UWT wants to achieve, regardless of current.

• Feedback that the Dome District is concerned over any construction of new parking, but that they would likely support increased usage of existing parking.

• Group spoke highly of the efforts of Jennifer Burley, Employee Transportation Coordinator, but added that she is just one person, implying that managing UWT’s alternative transportation efforts is a demanding job.

• City is currently implementing a wayfinding signage program extending south to 17th Street. Discussed options for extending into campus. Signs could advise students that it is a X minute walk to certain key destinations.

• Transit service underwent a boundary revision on December 16th that may further change service to/from campus in the future.

• Ben Mauk offered to provide information on student’s residential address by zip code and Kelly offered to provide information on U-Pass utilization on Pierce Transit.

• The topic of future campus growth was discussed. There is no academic master plan, but UWT is loosely planning on annual growth in the 10-15% range. It is not clear in the future if some growth will utilize online classes.

• The group asked if it was a goal for students to live near campus and Ben Mauk replied that most students live at home.

• Kelly pointed out the value of the existing transit options at the 19th Street stop on Pacific Ave. He also identified the Tacoma Community College Park and Ride as a potential location students could use as there are three transit lines that connect this facility to campus. This location has 95 spaces.5

• There have been proposals to charge for parking at Tacoma Dome commuter rail garage and integrate it with the Orca Card. This may affect student’s use of the facility. Group recommended we contact Rachel Smith from Sound Transit for further information.

• Recommendations for bike facility improvements, including indoor secure spaces.

5 TCC Transit Center Traffic Analysis Study, DKS Associates, June 2010
- Noted that zipcars on campus are well used.
- Additional marketing and communication may be warranted to better educate the UW-Tacoma community about transportation options.
- There is currently no Downtown Tacoma transportation plan.
- UWT may need additional staff to help improve the use of alternative forms of transportation (e.g., assist with marketing and communications or manage TDM programs).

**Facilities and Planning**

- Met with Milt Tremblay, Terry Bills, and Hugh Smith (UWT Facilities) and Chelsea Levy (City of Tacoma)
- No new campus building projects are anticipated for the next eight years.
- UWT is currently working on a “mini” master plan for campus.
- UWT owns a number of properties near campus that could, at least temporarily, provide additional off-street parking.
- Future campus growth is uncertain, but may be approximately 15% for the next two years and approximately 10% after that.
- The impact of pay parking in downtown Tacoma appears to have pushed parking demand to other free areas.
- There is a concern that parking demand moving outward from downtown will negatively impact those adjacent areas.
- There will be a greater transition from single-occupancy vehicles to other forms of transportation in the future when transit services/options improve.
- The use of alternative forms of transportation is important to South Downtown planning efforts.
- UWT is subject to City of Tacoma city zoning codes.
- Chelsea provided an update on other local planning projects in process. These include the current area wide State Environmental Policy Act (SEPA) permitting effort to identify mitigation impacts, including parking, of increased development in the Brewery and Dome Districts. The intent is to focus growth on south downtown area which has existing transportation resources.
- Local community members want to see UWT parking focused on campus or at Tacoma Dome.
- Dome area is sensitive to making them a parking lot for the rest of the city, but would be open to making better use of existing parking.

**Campus and Public Safety**

- Met with Susan Wagshul-Golden and Darren Bailey (UWT Campus Safety and Security) and Wayne Bealls (Tacoma Police Department)
- November can be the height of vehicle thefts and break-ins. Crime stats are available online, including mapping of crime sites. Last year there were 45 reported car prowls, but no personal assaults or similar crimes related to students walking to/from parking.
- Evening parking can be a concern for students, especially those that park further from the campus core. A safety escort service is available until 10:00 PM Monday-Thursday and 11:00
PM on Friday. Escorts only provide service within the UW Tacoma campus boundaries, between S 17th and S 21st Streets and Pacific and Tacoma Avenues.

- Campus security actively works with Tacoma PD to improve safety/security on and near campus.
- Campus security helps educate the campus community through printed materials and safety-related classes.
- There are occasional issues with high school students at the transit stop at 19th and Pacific, but campus security generally maintains a strong presence at this location at strategic times of day.
- There are no transit amenities at stop on 19th Street, and if amenities were provided, could make this stop more of a friendly place to wait.
- Campus security has discussed lighting concerns with the City of Tacoma.
- Campus security officers provide parking enforcement in the Cragle Lot and Diamond Parking provides enforcement in the lots they operate/manager. The City of Tacoma can also enforce parking in ADA accessible parking spaces.
- There have been concerns about providing enforcement in the Cragle Lot, as the multi-space parking meter does not always work properly.
- Bicycle thefts on campus are rare.
- Campus parking permits are issued by Diamond Parking and UWT directly. Students can purchase their parking permits by phone, and faculty/staff can purchase permits online. However, parking permits must be picked-up at the cashier's office.
- Tacoma PD is losing a significant number of police officers.
- There is (or will be) an increase in the services provided to the homeless near campus. Some of the people breaking into vehicles are members of the homeless community.
- There will be more housing facilities for registered sex offenders near campus.
- Concern that if Dome is used for more parking, what the safety and security planning will be for those areas.
- Safety awareness, including parking safety, is provided at new student orientation and students are made aware of crime issues through alerts.

Parking Resource Owners

- Met with Linda Davenport, Shylah Hayes, and Shannon Mahaffey (Diamond Parking), Eric Huseby (Republic Parking), David Carr (City of Tacoma Parking), and Jon Houg (Tacoma Convention Center)

- Republic did not have any lots readily available for UWT use other than those serving the Convention Center (some lots may be too far away to be useful, or would require a shuttle service).
- The Convention Center would like UWT to utilize its excess spaces, but there needs to be a balance so that the spaces can be available when needed by the Convention Center (an overflow parking area would need to be identified).
- The City of Tacoma discussed the potential of a pilot program to give UWT affiliates access to Convention Center facilities. UWT would be granted permits with a set number of blackout dates per quarter.
- There are two or three times a year where the Republic surface lots are fully utilized.
• Generally there is advanced notice of large events, but not always.
• Diamond identified the lot at Puyallup and G Street near the Tacoma Dome as a location with excess current capacity.
• Regarding the Tacoma Dome lots there are weekday events, but not normally.
• Diamond feels that current permit prices (set by UWT) are well below market prices. They see market prices near campus being closer to $80 - $100 / month.
• The City is currently working with Rick Williams Consulting on pricing strategies for on and off-street parking. The city parking program is still developing.
• Political realities make changes to street parking regulations near campus difficult. Changes need to be focused on improvements to demand, durations, turnover, and modal splits – not just increased revenues.
• Improvement is needed to the City residential parking zone program.
• The City of Tacoma understands that UWT and the city need to work together to address concerns.
• City on-street parking rates are relatively low (free to $.75 per hour).
• The City does not currently conduct regular utilization, duration, or turnover surveys.
• Both the city and Diamond Parking are investigating the integration of pay-by-cell phone.
CHAPTER 3. BASELINE PROJECTION OF PARKING SUPPLY, DEMAND, AND ADEQUACY

CURRENT CAMPUS PARKING ADEQUACY

In determining the current parking adequacy for the study area (with respect to the UWT community only), it is important to define two terms typically used in analyzing parking adequacy: Effective Supply and Design Day Conditions. When a parking area’s occupancy reaches 85-95% of the total capacity, depending on the user group, the area becomes effectively full. When parking occupancy exceeds effective capacity, users become frustrated as it becomes increasingly difficult to find an available parking space. Users will begin to either park illegally or search for parking elsewhere. When people are faced with significant parking challenges, some could choose to avoid the area altogether and attend classes or work elsewhere. The accepted effective fill percentage for university-related parking in the study area is estimated at 92%. This 8% “cushion” of spaces is used to accommodate the natural movement of vehicles into and out of parking spaces, spaces lost temporarily due to construction, improper or illegal parking, and provide for shorter searches for available parking.

Design day parking conditions attempt to represent typical peak activity that may be exceeded only occasionally during the year. Due to having occupancy data for only one day of the year for this project, as well as the time of the year the surveys were completed, design day adjustments are not factored into the projection of future parking demands. Based on information provided by the university community during the public input process and on responses to the online parking survey, the occupancy data that was collected appears to have provided an adequate “snapshot” of parking conditions during a typical parking period.

The parking demand model (discussed on the following page) developed for this project based on counts taken in November 2011 estimates a current parking supply of approximately 1,868 spaces that is available for, or currently used by, the university community (e.g., faculty, staff, students, and visitors). Assuming an effective supply factor of 92%, the effective supply of parking available for campus user groups is approximately 1,718 spaces.

Table 10 details the current estimated parking adequacy for the university community.

<table>
<thead>
<tr>
<th>TABLE 10. CURRENT ESTIMATED PARKING ADEQUACY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Estimated Parking Supply[a]</td>
</tr>
<tr>
<td>Current Effective Parking Supply (92% of total)</td>
</tr>
<tr>
<td>Adjusted Observed Peak Parking Occupancy[b]</td>
</tr>
<tr>
<td>Current Effective Parking Surplus/Deficit (Effective Supply minus Adjusted Observed Occupancy)</td>
</tr>
</tbody>
</table>

[a] Includes UWT lots and other parking supplies available to Campus Community
[b] Current demand estimate based on the parking demand model and November 2011 Parking Counts
Carl Walker and Fehr & Peers, 2012

The current estimated parking adequacy for the UWT campus community is approximately a surplus of 25 parking spaces. Therefore, the parking supply currently used by the campus community is essentially full. This means that any future increases in parking demand will need to be addressed through increases in the use of alternative forms of transportation, other changes in campus transportation characteristics.
(e.g., more internet-based, distance learning, or more evening classes), increased availability and utilization of private parking facilities, and/or additional university parking supplies.

**PROJECTION OF FUTURE PARKING SUPPLY, DEMAND, AND ADEQUACY**

**Parking Demand Model**

To provide planning-level estimates of future parking needs, a parking demand model was created in Microsoft Excel. The model is calibrated to current conditions for a typical mid-week day, based on parking occupancy observations. To assign future parking demands, it allows the user to change the number of students by type (including traditional FTEs, resident students, and online-based students). It also allows for the adjustment of on and off street parking spaces available to the campus community, and allows for changes in non-motorized commute percentages. On a more advanced tab, the user can modify the parking destination percentages (hourly paid lot, free street parking, etc.) for each user type.

Time of day parking accumulation was developed using current class schedules and the 2008 Winter Quarter Survey of Students, which asked students their campus and arrival departure information. The model assumes that, for each hour of demand, those campus members not possessing a parking permit will first fill in free spaces before resorting to utilizing pay facilities. Street parking spaces that are time restricted are utilized more heavily from 5:30 PM to later, to account for parking restrictions that end at 6:00 PM. The model then predicts the occupancy of each parking location and the additional amount of parking spillover by hour of day resulting from campus growth.

Screenshots and additional model details are provided as Appendix B.

**Campus and Parking Demand Growth**

While the University is currently projecting increases in all campus population groups, there are no plans for the construction of any new buildings within the next eight years. It is currently anticipated that any new campus growth will be accommodated in existing campus buildings (or through the use of space in existing privately-owned buildings near campus). Therefore, the current campus-controlled parking supply of approximately 612 permit and hourly spaces should remain available for the foreseeable future.

However, the campus currently relies heavily on the availability of non-university controlled parking supplies (e.g., city-controlled on-street parking, Tacoma Dome parking, and nearby privately-owned facilities). Approximately 67% of the parking used by the campus community is not controlled by the university. This means that a large portion of the parking used by the campus community on a daily basis may or may not be available in the future. This parking supply could be lost to redevelopment projects, streetscape changes, or the management of the parking could change so that campus parking is discouraged or impractical. Any changes in non-University controlled parking supplies are not known at this time. Therefore, the baseline parking supply demand projections assume these spaces will be available through 2025.

Baseline future parking demand is calculated using the information and assumptions included in the parking demand model. The information/assumptions by user group concerning attendance, mode split, and peak hour vehicle accumulations provide the base estimate to which anticipated growth rates are added. The university provided the following growth rates for each primary user group:

- Faculty: 7% per year
- Staff: 3% per year
- Students: 10% per year
The primary purpose of the baseline projection of parking supply, demand, and adequacy is to estimate future parking inadequacies assuming all other conditions remain constant. To this, recommendations for addressing future parking demands will be factored into the baseline projection later in this report.

As previously mentioned, the current effective parking supply is estimated at 1,718 spaces, the current estimated parking demand is 1,693 spaces, and the current parking adequacy is calculated as a small surplus of 25 spaces. Assuming all other conditions remain constant (e.g., campus community members drive at the same rate, hourly vehicle accumulations remain constant, and campus class/office schedules remain the same), and campus populations grow at the rate identified by the university, the Table 11 details estimated baseline future parking demands by primary user group. Figure 5 illustrates baseline parking demands versus current parking supplies.

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<th>TABLE 11. ESTIMATED FUTURE PARKING DEMAND BY GROUP AND YEAR</th>
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Carl Walker and Fehr & Peers, 2012
While there is currently a small estimated parking surplus for the university community, future peak parking demands will exceed available parking resources as early as next year. In five years (2017), estimated future parking demands could exceed current effective parking supplies by 893 spaces. By 2025, estimated parking demand could exceed current supplies by 3,607 spaces.

Again, the baseline projection of parking demands is designed to provide a starting point. Changes in parking market dynamics, parking resources, university parking management, class/office schedules, and Transportation Demand Management (TDM) strategies will impact projected parking adequacies. This would likely include appropriately priced and managed accommodations for those choosing to drive to campus, as well as strategies to encourage the use of alternative forms of transportation.

Recommended alternatives for addressing estimated future parking demands are discussed in later sections of this report.
CHAPTER 4. PARKING ALTERNATIVES ANALYSIS AND CAPITAL PLAN

As the anticipated baseline future parking demand exceeds the existing parking supply currently used by the UWT community by approximately 3,607 spaces in 2025, steps will need to be taken to both reduce parking demands and increase available supplies. To meet anticipated future parking demands, four primary parking supply/demand alternatives are available:

- **UWT would first work to improve the efficiency and utilization of existing parking supplies.** This would include working with the City of Tacoma and private parking lot owners within the study area to better utilize available on-street and off-street parking supplies. Using the concept of shared parking, existing resources could be maximized to help meet anticipated needs. This would include both immediately adjacent parking resources and those located on an existing transit route.

- **UWT would work to reduce campus parking needs through the implementation (or marketing) of various transportation demand management and parking demand management strategies.** These strategies would be geared toward reducing parking demands by encouraging the use of alternative modes of transportation, improving parking resource management, and encouraging appropriate transportation behaviors/choices.

- **UWT would investigate opportunities to either jointly develop additional parking resources with a future private/public development or agree to lease excess capacities of a future development that is reasonably situated near campus.** While developments within a reasonable walking distance of campus would be preferred (approximately 1,200 feet), future developments located further away could also be considered if they are located on an existing transit route.

- **As a last option, UWT would create additional parking spaces in existing unimproved areas (either on-street or off-street) to provide additional parking.** This could also include on-street facilities, through the introduction of angled parking or as part of closing roadways near campus. As most of the available campus land is currently planned to support future buildings, there is likely insufficient space available to construct any significant long-term surface parking. However, surface parking lots could be constructed initially to meet near-term demands and “land bank” space until buildings are needed. Structured parking could become a viable option in the future, especially with improved management of campus and nearby parking resources. The cost for providing parking would be covered through parking user fees to the greatest extent possible.

**IMPROVING THE UTILIZATION OF EXISTING SPACES**

In order to minimize the use of available financial resources for parking-related development, UWT should attempt to better utilize available parking supplies in the area. This strategy would mitigate the need to construct additional parking and thereby help keep parking costs as low as possible. As underutilized parking supplies are available in some areas near campus (based on the parking occupancy counts and field reviews), this alternative appears to have merit. Better utilization of the available supply would eliminate at least the need for near-term parking supply additions, maintain existing land for future development space, encourage pedestrian movement through the study area, and reduce UWT parking responsibilities (e.g., maintenance, signage). Ideally, long-term parkers would be directed to available off-street parking facilities and on-street parking would be held for short-term parking durations.
Improving the utilization of existing parking areas is substantially less costly than creating new spaces. As an added benefit, the shared use of available off-street parking spaces could help the various parking owners generate additional parking revenues from parking spaces that may ordinarily be unused during weekdays. Based on the observed occupancy in the study area, several options are available to better utilize existing parking resources. Options could include:

- **Off-Street Parking:**
  - The parking permit oversells for two UWT parking locations could be increased. Based on the information collected during the parking occupancy counts, the oversell percentages for the WT61 and WT40 parking locations could be increased. Assuming the oversell percentage for WT61 is increased to 115% and the percentage for WT40 is increased to 125%, an additional 20 parking permits could be available to the campus community.
  
  - Approximately 9 parking spaces will be added back to the Lot WT31 parking supply once construction on the new library is complete.
  
  - While the parking is primarily dedicated to special event parking, the Greater Tacoma Convention and Trade Center parking facilities could help provide parking for the campus community when not in use for events. This would include the convention center’s surface and structured parking facilities (including the surface parking lots located west of Market Street). UWT and the City of Tacoma have recently partnered to provide a limited number of limited-use parking passes to campus community members on a pilot basis. The passes are valid for up to 22 parking stays per quarter (approximately 2 stays per week for 11 weeks) and cost $66.00. Pending the outcome from the current trial, parking opportunities could be expanded at these locations. For example, daily parking could also be available to the campus community (space permitting) for $5.00 for stays up to 4 hours and $10.00 all day. While the availability of parking will fluctuate depending on special events, approximately 40 spaces could be available to the campus community on a typical weekday. These spaces could be available for a daily rate and/or UWT could negotiate a set monthly or quarterly price with the city. Additional existing parking may be available at either the A Street Garage or Pacific Plaza, both owned and operated by the City of Tacoma. It is possible that UWT faculty, staff, and/or students could utilize more than 40 spaces if sufficient parking is available.
  
  - A significant amount of underutilized weekday parking appears available in the Tacoma Dome area. There are currently approximately 1,800 surface parking spaces at the Tacoma Dome that are generally unused during most weekdays. A review of upcoming events for March through May 2012 appears to show that the spaces (or at least a large portion of them) could be available for UWT parking on 58 of 66 weekdays. However, the recently opened Lemay-America’s Car Museum, which was constructed on surface parking, may lead to further increase in demand for the remaining spaces and result in fewer spaces available. In addition to parking at the Dome, there are existing spaces operated by private operators in the Dome Area. UWT has recently entered into a trial program to allow parking at Diamond Parking Lot WT39 adjacent to the Tacoma Dome.
Station. This program will provide approximately 40 parking passes for Lot WT39 located adjacent to the Tacoma Dome Station. The passes cost $60 per quarter, or approximately 50% of the current market rate. The passes provide all day parking. While the availability of dome parking (outside of dedicated spaces) will fluctuate depending on special events and private space availability, approximately 350 spaces in the Dome area could easily be available to the campus community on a typical weekday. UWT could negotiate with the Tacoma Dome for more spaces, but a conservative estimate of 350 is used in future parking adequacy projections.

- There are several museums located to the east of Pacific Avenue that could provide a limited amount of parking to members of the campus community during weekdays. This could include the Tacoma Art Museum, the Washington State Historical Museum, and the Museum of Glass. Programs here could include providing a limited amount of daily parking or a limited number of quarterly parking passes. Similar to the arrangement between UWT and the City of Tacoma for Convention Center parking, a limited number of limited-use parking passes for the Museum of Glass are available to campus community members. The passes are valid for up to 22 parking stays per quarter (approximately 2 stays per week for 11 weeks) and cost $66.00. While the availability of parking will fluctuate depending on special events and anticipated visitor levels, a conservative estimate of approximately 20 spaces could be available to the campus community on a typical weekday. These spaces could be available for a daily rate and/or UWT could negotiate a set monthly or quarterly price.

- As the parking for the Convention Center, museums, and the Dome is primarily event/visitor focused, the availability of spaces will fluctuate depending on special events and anticipated attendance levels. This would make the parking less predictable for UWT users. In order to improve the usability and utilization of the shared spaces, the following strategies are recommended:
  - If passes are used to authorize parking in shared facilities, the number of passes should be limited initially and usage should be monitored. As parking trends become more predictable, additional parking passes could be sold if space is available.
  - If parking passes are used in shared parking facilities, the parking permit application and any materials sent with the parking pass must highlight the fact that the availability of parking can be limited from time to time due to special events or periods of high venue attendance. If this occurs, arrangements for additional parking will be made (if spaces are available).
  - UWT would need to closely coordinate with each venue to ensure those using the parking are aware of upcoming events or other lot closures. Monthly parking coordination meetings with each venue would help UWT prepare for changes in parking availability. Parking permit holders would need to provide their email addresses and/or cell phone numbers so that UWT can send parking alerts if needed. In addition, parking availability updates would be available on the UWT website and campus CCTV.
  - Parking could be limited to daily parking in locations with limited availability (no monthly/quarterly parking permit obligations). Availability limitations could be due to limited supplies or limited availability due to event or visitor loads. The availability of parking in these areas could be advertised to the campus community, with the understanding that parking availability is limited and will fluctuate depending on special events or anticipated venue attendee levels.
  - In some locations, it may be preferable that campus community members arrange for parking directly with the venue that owns the parking spaces. This
would be typical for locations that are already managed by an outside parking management company.

- As some of the available shared parking alternatives are located a significant distance from campus (e.g., the Tacoma Dome surface lots), they will need to be priced lower than other alternatives to the greatest degree feasible to help encourage use.

- Shared parking resources need to be located within a reasonable walking distance to campus or be located on an existing transit route. Off-campus parking facilities that are located outside of an acceptable walking distance from campus and are not located on a transit route could require a shuttle service to encourage use. The cost of providing a shuttle service would likely outweigh the benefits of arranging off-campus parking in the long-term.

- All shared parking arrangements and options should be communicated to the campus community on the campus parking map. This should include current prices, contact information (if needed), and any applicable use restrictions and limitations.

- On-street prices (or lack thereof in many locations) discussed in the following section may not be conducive to encouraging the use of more expensive shared parking resources, or parking lots that require the use of transit to reach campus. It is recommended that UWT work with the City of Tacoma to ensure on-street parking rates encourage appropriate parking behaviors (e.g., appropriate durations, space turnover, and space choice) and discourage cruising for inexpensive or free parking spaces.

- **On-Street Parking:**
  - Nearly all of the on-street parking located in the study area is controlled by the City of Tacoma. Therefore, UWT may not have any opportunity to alter current on-street parking management strategies to increase utilization. However, the following improvements are recommended to help make the available on-street spaces more accessible to the campus community.

  - One common complaint from students concerning on-street parking was that current time limits are not conducive to daily use. Parking time limits in non-metered parking spaces are currently 90 minutes, and time limits in metered parking spaces are 2 hours. Both of these limits are too short for student use. While it is understandable that parking limits are needed to encourage turnover and discourage all-day parking stays, some areas with on-street parking do not appear to require high levels of turnover as there are few or no commercial buildings surrounding them. In order to improve the utilization of on-street parking supplies during the daytime peak of UWT parking demand, the following time limit adjustments are recommended. Alternatively, the City of Tacoma could explore a joint effort to sell on-street parking permits to UWT students.

    - Extend the time limits for metered parking spaces that are not located adjacent to significant commercial land uses. Time limits could be extended from 2 hours to 3 hours. This could make approximately 40 additional spaces available to UWT students. This could include:
      - Court C from Jefferson Avenue to 17th Street.
      - Market Street from 19th Street to 15th Street.

    - Extend the time limits for free parking spaces that are not located
adjacent to significant commercial land uses. Time limits could be extended from 90 minutes to 3 hours. This could make approximately 60 additional spaces available to UWT students. This could include:

- Fawcett Avenue from 23rd Street to 15th Street.
- Tacoma Avenue from 23rd Street to 17th Street.

There is currently no charge for many of the on-street spaces near campus, nor is the parking time limited. Therefore, a significant number of campus community members will look for parking in these areas first. This leads to a significant overuse of the available parking supply, added traffic due to cruising, and likely a reduced turnover rate. In order to increase turnover rates, and thereby make the parking available to a greater number of campus community members, it is recommended that a 3 hour time limit be instituted. In the future, pay parking should be instituted on streets closest to campus. If parking will continue to be allowed on both sides of Court D, a one-way traffic flow should be considered as insufficient space is provided for two-way traffic and parking on both sides of the street.

On-street pay parking spaces are currently less expensive than many off-street parking lots. This can encourage people to drive around looking for available on-street spaces – increasing traffic and pollution. It is typically recommended that on-street parking be more expensive than off-street parking to encourage the use of on-street parking for shorter duration stays and discourage cruising. In the case of the study area, current time limits may be helping to offset the misalignment of parking prices. However, this may be fostering an underutilization of on-street parking in certain areas. It is recommended that UWT work with the City of Tacoma and nearby private parking owners to help bring on-street and off-street parking in to alignment. Ideally, on-street parking prices would be set at a level that encourages shorter stays, and therefore increase space turnover, without the need for time limits.

The combination of increasing oversells in two UWT parking lots, new spaces already planned, arranging for shared parking in nearby parking facilities (including arrangements already made), and improving the utilization/availability of on-street parking spaces could provide up to 579 additional parking spaces to the campus community.

It is currently assumed that all of these spaces could be available by the fall quarter of 2012. The future parking demand projections incorporate this assumption. However, UWT may not be able to negotiate for the use of all of the projected spaces by that time. In order to satisfy all projected 2012 parking demands, UWT must secure approximately 100 additional parking spaces in off-site parking facilities. After 2012, parking demands will continue to grow. So, additional parking spaces in either off-site private/public parking facilities or on-campus parking lots/structures will be required.

**INCREASING THE UTILIZATION OF ALTERNATIVE FORMS OF TRANSPORTATION**

In addition to dealing with demand from a supply perspective, UWT should focus a significant amount of attention to encouraging the use of alternative modes of transportation and using parking demand
management strategies to reduce parking demands. Encouraging the use of alternative modes of transportation would include providing adequate pedestrian and bicycle linkages and amenities, providing sufficient access to mass transit alternatives, encouraging the use of carpools/vanpools, guaranteed ride home programs, telecommuting, etc.

Some of these transportation options are already available at UWT. UWT currently provides, either directly or in partnership with outside entities, the following services: subsidized transit passes to faculty, staff, and students (U-PASS program); carpool matching services; guaranteed ride home services, trip planning; bicycle parking; TDM information, an informative transportation website; student and employee transportation coordinators; and carsharing services (Zipcar). While additional options could be available (see the section titled Incorporating Parking and Transportation for additional information), efforts to increase the use of alternative modes of transportation will likely be focused on marketing the available choices, improving services (e.g., bicycle facilities and transit stop enhancements), and creating a parking environment that discourages the use of single-occupancy vehicles.

Developing appropriate parking demand management strategies will be key to reducing campus parking demands and creating a more financially sustainable parking system. Parking demand management strategies could include any of the following options (but are not limited to):

- Shared parking concepts
- Instituting and enforcing appropriate parking time limits and user group restrictions
- Managing peak campus parking demands by shifting class schedules to off-peak times (e.g., more evening classes) or adding internet-based instruction opportunities
- Increasing the size of the car sharing program as demand dictates to reduce or eliminate the need for some campus community members to drive individual vehicles to campus (or for future resident students to own cars)
- Preferential parking and/or reduced parking rates to registered carpools
- Improved parking system information and marketing
- Charging market rates for campus parking (both on-street and off-street)
- Pricing parking to encourage the use of perimeter parking areas
- Improved parking enforcement.

The goal of each of the aforementioned parking demand management strategies is to spread parking demands to appropriate locations, improve the utilization of available parking supplies, and/or reduce overall parking demand.

Currently, most members of the campus community drive to campus. After that, mass transit is the most popular choice followed by other options (walking, bicycling, etc.). As UWT is predominantly a commuter campus, the current mode split is not necessarily unusual. However, there appears to be an opportunity to shift the mode split toward alternative transportation options instead of single-occupancy vehicles.

For the purposes of this study, it is estimated that the following demand management strategies could be implemented by UWT and result in the estimated parking demand reductions shown with each strategy.
Demand reductions are based loosely on reduction estimates found in *Parking Management: Strategies, Evaluation, and Planning*.6

- **Provide Pedestrian and Bicycle Improvements**: UWT already provides some covered parking and showers, but further enhancements could include providing better bicycle storage/parking locations; more secure bicycle parking; better bicycle paths to campus (including the Prairie Line Trail); changing and shower facilities for bicyclists; bicycle and pedestrian maps and marketing information; and, pedestrian crossing notification lights, signage, and/or street markings. Clearly, many of these improvements would require the approval and cooperation of the City of Tacoma. A typical parking demand reduction of between 5% and 15% would be estimated for implementing pedestrian and bicycle improvements. However, as UWT is a commuter campus and most students live too far away to walk or bicycle to campus, a much more conservative parking demand reduction estimate of 2% for students and .5% for faculty/staff is reasonable (beginning in 2014).

- **Changes Due to Increases in Parking Rates**: As parking management strategies change, and new parking supplies are constructed, parking rates will increase. According to private parking operators with parking located around UWT, current parking market rates range between $36.00 and $100.00 per month ($108.00 to $300.00 per quarter). Current UWT parking rates range from $50.00 to $150.00 per quarter. In addition, current UWT parking revenues do not adequately cover all parking system expenses (including debt service obligations). Therefore, it would appear that parking rate increases are needed to generate sufficient funds to adequately manage the parking system. While the Transportation and Parking Survey found a very high level of parking price elasticity, the level found is not typical of other campuses reviewed by the project team. Assuming the parking supply of the entire study area is managed in unison (both on-street and off-street), the estimated parking demand reduction would likely be much less. It is estimated that for every 10% increase in price, parking demand will be reduced by 2%. This will also help account for the fact that increases in UWT parking prices may not fully eliminate parking demand but rather shift demand to other parking resources (e.g., free on-street parking). Due to projected parking system expenses, it is estimated that parking prices should increase 20% in 2012, 15% in 2013, 10% per year in 2014 through 2020, and 5% in 2021.

- **Improved Marketing of Alternative Modes of Transportation**: Several people that attended the parking study input meetings noted that many members of the campus community may not be aware of the transportation choices available to them, or are unaware of all of the costs associated with driving to campus. Marketing of alternative transportation options currently include an informational kiosk at enrollment services, periodic transportation campaigns, and promotion of transportation alternatives at new student and employee orientations. To further increase awareness of these options, transportation options could be publicized via campus newsletters, flyers, and the sponsorship of student advocacy groups. The typical reduction for improved marketing efforts range from 5% to 15%. To provide a more conservative estimate of the potential impact of improved marketing, it is estimated that parking demands could be reduced by 2% for students and .5% for faculty/staff (beginning in 2013).

UWT should monitor the results of efforts to encourage the use of alternative forms of transportation. This would include collecting necessary data before and after each change (e.g., transit ridership data, U-PASS sales, permit sales, parking occupancies, and parking durations). As necessary, adjust strategies to better meet demand reduction targets or adjust future parking needs to account for better than anticipated demand reductions.

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Additional issues that could impact campus parking demand, but are not currently known (at least with respect to timing), include:

- The implementation of pay parking at the Tacoma Dome Station parking structures could shift some students to other transportation options or other parking resources.
- Greater implementation of pay parking or time limits in on-street parking spaces could shift some students to other transportation options or other parking resources.
- Losses of parking related to new development projects (both on campus and off) could increase demand for available parking, shift some demand to other forms of transportation, and/or increase parking prices.
- Increases in campus residential units (additional residential students could result in lower parking demands, but longer parking durations).
- Adjustments in class schedules or offerings (e.g., more evening classes or more online offerings) that could shift parking demand to off-peak times or result in lower demands per student.
- Changes in the availability of transit or transit route adjustments/improvements.
- Increases in fuel costs.
- Increases in traffic.

As they are not known, these potential changes are not included in the adjusted future assumptions.

**OPPORTUNITIES TO BUILD PARKING WITH OTHER ENTITIES**

The City of Tacoma is in the process of developing a subarea plan for the areas immediately south of the UWT campus. The two areas are designated as the Brewery District and the Dome District.

Tacoma is planning for denser development, fewer surface parking lots, and an increased focus on transportation demand management to help maximize the development in each area. Parking in the South Downtown Subarea will be provided in new parking structures instead of large surface lots. The hope is that up to 30 million square feet of new buildings would be constructed (including UWT growth potential). The new developments could draw up to 30,000 new employees and 30,000 new residents to the area by 2030. This level of development could provide the opportunity for UWT to jointly develop parking resources with private or public developments.

Unfortunately, the type, character, and schedule of future development projects in the South Downtown Subarea are not currently known. Therefore, specific parking partnerships cannot be explored for this study. However, it is recommended that UWT remain a part of future area planning efforts to determine if a suitable opportunity arises. Possible opportunities should be reviewed on a project-by-project basis.

Ideally, suitable future opportunities would include the following characteristics:

- The land uses included in the development would provide for reasonable shared parking. Land uses with the same peak period of parking occupancy as UWT would provide little, if any, shared parking benefits.
- The parking provided should be cost-effective for the university, providing a reasonable supply of parking at a reasonable cost. The cost to finance, construct, operate, and maintain a parking structure could be between $150 to $300 per month per space (depending on construction costs, financing strategies, construction type, and operating methodology). As parking structures will likely be inevitable in the future as the area develops, the UWT will need to select the most cost effective options and distribute the costs across the parking system to keep rates as low as possible.
• The parking should be provided within a reasonable walking distance of campus (within 1,200 feet) or be located on a transit route.

• The parking arrangements (construction partnership, lease, etc.) must provide a reasonably stable parking supply. Arrangements that could be voided or adjusted quickly should be avoided.

It is generally assumed that the likelihood of private developments building parking facilities for UWT use is fairly low. The cost of constructing parking facilities (including land), along with necessary operating and maintenance costs, are not conducive to the private development of public parking resources. Existing market parking rates are simply too low to adequately support on-going facility costs. However, as parking rates increase in the future due to reduced parking supplies and increased parking demands, from new developments, the feasibility of private parking development could improve.

INCREASING UWT CAMPUS PARKING SUPPLIES

Using the UWT population growth projections included in the estimate of baseline future parking demand, there could be a projected shortage of available parking beginning in 2013 unless steps are taken to increase supply and/or reduce demand. The adjustments for improving the use of available parking supplies (both UWT and possible private supplies) and reductions in parking due to changing prices or transportation choice could result in sufficient parking supplies until 2017. However, additional parking supplies will likely be needed by the beginning of 2018.

The construction of future parking facilities should focus on low cost alternatives in the short-term and push the construction of parking structures as far into the future as possible. Assuming only land currently owned by UWT is available for parking, the surface parking lots in Figure 6 could be constructed. These surface parking lot locations and space counts provided below are only used to estimate future capacities using existing land and placed as such to help minimize costs. The actual location of future surface parking lots will depend on ongoing campus master planning efforts and future development projects.

Figure 6. Potential Surface Lot Locations
Lot 1 could provide approximately 101 parking spaces at an estimated cost of $482,000 ($4,772 per space).

Lot 2 could provide approximately 54 spaces at an estimated cost of $325,000 ($6,019 per space).

Lot 3 could provide approximately 56 spaces at an estimated cost of $315,000 ($5,625 per space).

Lot 4 could provide approximately 36 spaces at an estimated cost of $260,000 ($7,222 per space).

Lot 5 could provide approximately 101 spaces at an estimated cost of $486,000 ($4,812 per space).

Currently available UWT land could provide approximately 348 surface parking spaces for a combined construction cost of approximately $1,868,000 ($5,368 per space). The estimated construction costs include the costs for retaining walls, resulting in higher than the average costs to develop a surface parking lot on a level site.

Assuming Lot 5 is constructed and opened by 2018 and Lots 1, 2, 3, and 4 are constructed and opened by 2019, the identified surface parking areas could help meet projected parking demands through at least 2019. While expensive, the estimated cost per space for surface parking is considerably less than structured parking. However, it is unclear how long the land will be available for surface parking. The latest university master plan assumes this land will be used for other purposes (e.g., buildings, green space, or structured parking).

While the use of currently available land for additional surface parking could be an option for at least the next eight to ten years, it will likely not provide a permanent solution. In order to provide a more stable long term solution, the university could develop surface parking in portions of campus that are less likely to be developed in the next 15 or more years. This could include the southwest portion of the campus. However, this will require the university to purchase additional parcels of land to provide the amount of parking needed per the parking demand projections contained in this report – thereby increasing the projected cost of constructing parking. For example, future parking Lots 2, 3, or 4 could be expanded to provide more parking and Lots 1 and 5 could be eliminated from consideration. While the timing of future parking space additions should be based on future parking demands, the future location of surface parking lots should be flexible in order to maximize the benefits of parking resource investments.

By 2021, a projected parking shortage of 302 spaces could occur. At this point, current UWT land would not be able to support any significant additional surface parking lots (without demolishing existing buildings). The university would likely need to purchase additional land to construct surface parking or a parking structure. Due to the potential growth of parking demand between 2020 and 2025 (average of 250 spaces per year), and assuming no other significant shared parking opportunities are available, constructing parking structures may be the only means of adequately meeting demand. In order to meet the parking demands for 2020 through 2025, three 500-space parking structures are recommended (or some other combination of structure spaces to reach 1,500 spaces by 2024). The following graphic illustrates potential parking structure locations identified in the 2008 campus master plan update. These locations could provide initial areas where future parking structures could be built.
While the locations on the western edge of the future campus (just east of Tacoma Avenue) would provide suitable sites for future parking structures, other areas of campus were also identified for future parking facilities. This could include the Cragle Lot, the southwest corner of Market Street and 17th Street, or the northwest corner of Market Street and 21st Street (among others). If possible, it is recommended that the university consider one future parking structure to be located on Market Street or in the Cragle Lot to help provide parking that is more convenient to the current campus core and provide more accessible parking for campus community members with disabilities. The other future parking structures could be located along Tacoma Avenue.

The parking structures could be constructed as stand-alone aboveground facilities, as underground structures, or as part of another building development (e.g., a wrapped aboveground parking structure or an aboveground structure with additional building space on top). The estimated footprint of a 500-space facility would be approximately 122’ by 330’ (although the size of each garage will depend on campus master plans and development projects). Assuming a parking efficiency of approximately 320 square feet
per parking space, 500 parking spaces could be provided in 4 levels. The parking structures would take approximately 18 to 24 months to design and construct, so sufficient time should be provided to ensure they are opened when needed. The projected open dates of each facility to meet projected demands are as follows:

- Parking Structure #1: 2020
- Parking Structure #2: 2022
- Parking Structure #3: 2024

The estimated costs for each parking structure will depend on many variables. This would include design features, architectural treatments, aboveground versus belowground parking, site conditions, utility mitigation, etc. Using current industry average construction costs for aboveground structures that is adjusted for the Seattle market (approximately $17,000 per space), and adding estimated soft costs of 35.1%, a total project cost of $23,000 per space in 2012 dollars is projected (not including land). Assuming increases of 3% per year in construction costs, the following time-adjusted total project costs would be projected:

- Parking Structure #1: $29,966 per space (2020)
- Parking Structure #2: $31,791 per space (2022)
- Parking Structure #3: $33,727 per space (2024)

It is assumed that UWT would take on debt to fund the construction of campus parking structures. Assuming terms of 5% for 30 years, the following are annual debt service estimates for each structure.

- Parking Structure #1: $974,655 (principal amount is $14,982,833)
- Parking Structure #2: $1,034,019 (principal amount is $15,895,407)
- Parking Structure #3: $1,096,986 (principal amount is $16,863,371)

The estimated parking system pro forma for UWT includes the projected operating expenses and debt service for the five surface lots and the first parking structure. The costs for Parking Structure #2 and #3 fall outside of the 10-year pro forma window. Any UWT surface parking spaces lost to campus developments, or losses of available off-campus parking supplies, will have to be added to future parking facilities or otherwise offset with reductions in parking demand.

ADJUSTED PROJECTION OF FUTURE PARKING SUPPLY AND DEMAND

Adding the improvements to parking utilization and efficiency, changes in transportation choice, and new parking resources to the baseline projection provides an adjusted estimate of future parking supply and demand. Instead of future parking demands exceeding available parking resources by 2013, peak parking demand will exceed the available effective supply in only two years (by 45 spaces in 2019 and by 5 spaces in 2025 – although total parking supply will not be exceeded). Tables 12 and 13 detail the adjusted projection of future parking supply and demand for UWT.
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### TABLE 13. ESTIMATED PEAK PARKING DEMAND

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Carl Walker, 2012
SUMMARIZED CAPITAL PLAN AND FINANCING

As stated previously, new parking resources will likely be needed if other alternatives cannot meet campus parking and transportation needs. In addition, new equipment will be needed to improve parking facility safety/security, improve parking enforcement, replace existing multi-space meters (and purchase new meters for future parking facilities), and provide for electric vehicle charging. The following outline summarizes the estimated capital needs for the UWT parking system through 2025. The items and amounts shown are also included on the 10-year financial pro forma for the UWT parking system (except Parking Structures #2 and #3 as they fall outside the 10-year pro forma timeframe).

- Parking Facilities (see previous section for more details):
  - Surface Parking Lots
    - Five surface parking lots are projected to meet future parking demands (see Figure 6 for more details). The projected order of construction, timing of each lot opening, and projected costs for each parking lot is as follows:
      - Lot 5:
        - The lot will provide 101 parking spaces.
        - To be constructed and open by 2018.
        - Estimated construction costs are $486,000 ($4,812 per space)
        - Assuming terms of 5% for 30 years, the estimated annual debt service is $31,615.
      - Lots 1, 2, 3, and 4:
        - The lots will provide a combined 247 parking spaces.
        - To be constructed and open by 2019.
        - Estimated construction costs are $1,382,000 ($5,595 per space)
        - Assuming terms of 5% for 30 years, the estimated annual debt service is $89,901.
  - Parking Structures
    - Parking Structure #1:
      - The structure will provide 500 parking spaces.
      - To be constructed and open by 2020.
      - Estimated total project costs are $14,982,833 ($29,966 per space)
      - Assuming terms of 5% for 30 years, the estimated annual debt service is $974,655.
    - Parking Structure #2 (Not in financial pro forma):
      - The structure will provide 500 parking spaces.
      - To be constructed and open by 2022.
      - Estimated total project costs are $15,895,407 ($31,791 per space)
      - Assuming terms of 5% for 30 years, the estimated annual debt service is $1,034,019.
    - Parking Structure #3 (Not in financial pro forma):
      - The structure will provide 500 parking spaces.
      - To be constructed and open by 2024.
      - Estimated total project costs are $16,863,371 ($33,727 per space)
      - Assuming terms of 5% for 30 years, the estimated annual debt service is $1,096,986.
Parking Equipment (see the section titled *Campus Parking Management and Operations* for more details):

- **Emergency Call Boxes for Campus Parking Lots and Structures:**
  - Estimated initial cost of $5,000 per unit in 2013. In future years, call box costs increase 3% per year.
  - Estimated equipment purchases and associated costs are as follows:
    - 2013 – 8 units for existing parking lots (total cost is $40,000)
    - 2018 – 1 unit for new Lot 5 (total cost is $5,797)
    - 2019 – 4 units for new Lots 1, 2, 3, and 4 (total cost is $23,800)
    - 2020 – 8 units for Parking Structure #1 (total cost is $49,200)
    - 2022 – 8 units for Parking Structure #2 (total cost is $50,676, not in financial pro forma)
    - 2024 – 8 units for Parking Structure #3 (total cost is $52,197, not in financial pro forma)

- **Electric Vehicle Charging Stations:**
  - The initial purchase of electric vehicle charging stations is anticipated to occur in 2013.
  - The estimated cost of four additional charging stations, should demand warrant, is $30,000.

- **Parking Enforcement Handheld Citation Computers and Back-Office Software:**
  - The equipment and software would be purchased in 2015.
  - Estimated equipment and software costs are $58,000 (plus on-going software licensing fees of $12,000 per year thereafter).

- **Multi-Space Parking Meter Replacement and New Meters:**
  - Existing meter equipment may need to be replaced by 2016 as the equipment will be reaching the end of its useful life. Estimated equipment costs are $75,000.
  - Additional meter equipment would be purchased in the future for new lots and structures if hourly parking is provided. Additional meter costs are estimated as follows:
    - 2018 – 1 Meter at $15,914 for Lot 5
    - 2019 – 4 Meters at $65,564 for Lots 2, 3, and 4
    - 2020 – 2 Meters at $33,766 for Parking Structure #1 (portion of facility)
    - 2022 – 2 Meters at $35,822 for Parking Structure #2 (portion of facility, not in financial pro forma)
    - 2024 – 2 Meters at $38,004 for Parking Structure #3 (portion of facility, not in financial pro forma)
  - The meter replacement cycle could begin again in 2024 or 2025 for the meters purchased in 2016 for the existing UWT lots.

Due to the expense of providing parking, it is assumed that UWT would finance the construction of future parking facilities. This is a common practice of universities and municipalities as sufficient funds are
rarely available. Annual debt service, equipment/software purchases, and on-going operating expenses would be funded through increases in parking revenues. In order to cover anticipated expenses (rough cumulative breakeven between 2012 and 2021), all parking system permit and daily parking rates are increased 20% in 2012, 15% in 2013, 10% each year in 2014 through 2020, and 5% in 2021 and citation fine revenues are increased 10% per year (citation revenue increases are due to increases in enforcement efficiencies, increases in citations written, and rate adjustments as needed in the future). At this rate of increase, average UWT parking permit prices in 2021 would roughly be $43 lower than the current highest 2012 market rate.
CHAPTER 5. CAMPUS PARKING MANAGEMENT AND OPERATIONS

GUIDING PRINCIPLES

When planning for parking there is a built-in conflict to which all university administrators can easily relate. The conflict revolves around three primary factors: cost, convenience, and supply. Unfortunately, usually you can have only two of the three. Given this basic problem, keeping all customers satisfied is an on-going challenge. Having well-defined parking principles is one way of framing the policy decisions required by this inherent conflict.

Guiding principles add value in three primary areas. First, the establishment of a set of approved operating guidelines helps define the role and relationships of parking and transportation within the larger organizational structure of the university. Secondly, guiding principles can emphasize the importance of planning for parking. Finally, guiding principles help communicate the goals and objectives of the parking and transportation system to the campus community.

However, guiding principles are not intended to replace policies and procedures. In general, the parking principles should be kept short and concise (a maximum of three pages). Some of the items typically incorporated in such a document by other universities include mission/vision, funding strategies, parking allocation strategies, departmental relationships, enforcement and maintenance responsibilities, etc.

Based on the information and input received by the campus community, the following set of preliminary parking and transportation system guiding principles are recommended:

Guiding Principle #1

“All services related to campus parking will be provided and/or managed exclusively by the designated Parking Management Organization (PMO). This includes (but is not limited to) all parking permits, parking enforcement, parking facility maintenance, visitor and special event parking, and coordination with campus transit/transportation demand management programs.”

For most university campuses, the initial PMO is the campus security department (although other campus departments could assist in providing parking services). UWT should officially designate a campus department as the PMO (and it is recommended that UWT consider Campus Safety and Security as the first choice, with assistance from other departments as necessary), and other campus departments should not be authorized to provide parking operations or management services, including special events, without the prior approval of the PMO. This will help ensure parking services are uniformly managed and operated, as well as fairly allocated. Departments needing special event parking services should make prior arrangements with the PMO.
Guiding Principle #2

“Available campus parking spaces will be allocated among the primary parking user groups as follows (in the following order of priority):

• First choice of campus parking will be provided to faculty and staff.
• Visitor parking will be located near the campus core in appropriate amounts based on observed and anticipated needs.
• Resident student parking will be provided first in parking lots adjacent to campus residences (or as close as reasonably possible), with overflow parking provided in other areas as needed.
• Commuter student parking will be provided as available in designated parking locations after the other allocations are made.
• Accessible parking will be provided in suitable parking areas throughout campus based on Americans with Disabilities Act (ADA) requirements and observed demand.
• Parking for special events will be provided in campus parking facilities when space permits, and in non-campus parking facilities when appropriate arrangements are made.”

Campus parking would be allocated first to faculty and staff, and then to students. As they generally spend more time on campus and often require greater flexibility, faculty and staff will be provided with the first choice of campus parking permit purchase (similar to conditions today). Campus visitor parking should be provided in designated parking areas near the campus core and located as conveniently to the campus core as possible. This will minimize the impact of visitor parking on permit holders and better support campus needs.

Resident student parking should be located as close to residences as possible to encourage on-campus living (improving convenience) and increase resident student safety. Commuter student parking will generally be provided outside of the campus core, with a focus on providing sufficient parking and easier access to surrounding streets. Existing transit could provide a means for students parking in remote parking areas to reach the campus core more conveniently.

Accessible parking should be provided based on applicable ADA accessibility guidelines and observed parking occupancies. However, this does not mean that every parking lot needs dedicated accessible parking. While accessible parking needs should be calculated on a lot-by-lot basis, the parking should be located close to the campus core (or adjacent to primary campus destinations as necessary).

Guiding Principle #3

“The PMO will provide consistent and fair parking enforcement to ensure parking resources are utilized efficiently, fees/fines are properly collected, and appropriate parking behaviors are encouraged. The PMO will adequately communicate parking enforcement policies and regulations to the campus community to help encourage voluntary compliance.”

Consistent, but friendly, parking enforcement is required to ensure all users use campus parking appropriately, all fees/fines are paid, vehicle turnover in hourly parking spaces is maximized, and safety/security concerns are addressed. Much as it is today, campus parking enforcement should include the ability to issue citations, collect fines, provide appeals, immobilize or impound scofflaw’s vehicles, etc.
Guiding Principle #4

“The PMO is an auxiliary function of the university and will be organized and managed in a manner that allows the PMO to fund its own expenses to the greatest extent possible, including any long-term maintenance needs and debt service. In order to ensure the financial viability of the system:

- Campus parking and transportation services are to be considered commodities that are to be purchased by students, faculty, and staff. These services are not benefits of employment or enrollment.
- System funding will be provided through fees charged for parking permits, visitor parking, service charges, citation fines, and other approved revenue streams as follows:
  - Parking permit and visitor parking rates will be determined based on user group, the parking facility’s proximity to campus buildings, the level of service provided, and/or the level of parking demand within a facility or group of facilities. Rates will be reviewed annually to ensure current and future funding needs are met to the greatest extent possible.
  - Parking citation fines will be designed to discourage illegal parking. Parking fines will be determined based on parking fines in other appropriate jurisdictions (e.g., city, state, state universities, peer universities), as well as on prevailing campus conditions and any legal restrictions.
  - Special event parking rates will be determined based on a parking facility’s proximity to event venues, the level of service provided, and/or observed levels of parking demand. Rates will be designed to cover the direct and indirect costs of providing parking services to the greatest extent possible.
  - Expenses will be distributed throughout the parking and transportation system to minimize costs for all user groups.
- The PMO will establish a three-year budget planning cycle to ensure all anticipated expenses are covered by parking revenues to the greatest extent possible, and rate changes can be communicated in a timely fashion.”

The parking system must generate sufficient revenue to cover operating and maintenance expenses, as well as any future debt service to the greatest extent possible. Instead of relying on general university funds that could be better spent furthering the educational goals of the university, the users of the campus parking and transportation system should pay reasonable rates for the services they use.

The PMO will accomplish this by distributing costs through the system, charging all users of parking resources. This will help mitigate potential future rate increases to any one user group, as well as support parking operations and management, system improvements, new technologies (as appropriate), TDM initiatives, and future parking-related construction projects.

The PMO should establish an appropriate budget planning cycle to plan for anticipated expenses (e.g., periodic facility maintenance needs), as well as provide sufficient time to communicate funding needs to the campus community.

Guiding Principle #5

“The PMO will be an active member of the campus community by assisting the University in achieving overall goals and objectives, as well as communicating policies, regulations, and systems changes to all parking customers.”
The University and the PMO must make a strong commitment to adequately market its services and accomplishments, as well as strengthen its communication with the campus community. This could be accomplished through printed materials (e.g., brochures, educational flyers, and maps), a PMO-specific Internet presence, broadcast e-mails to permit holders, improved parking-related signage and wayfinding, etc.

Guiding Principle #6

“The PMO will be included in all future campus planning activities that impact the campus parking system. This includes planning endeavors that impact campus parking supplies, parking demands, or general parking operations/management. In order to ensure future parking needs are adequately addressed:

- The PMO will endeavor to provide sufficient services and facilities to meet the anticipated needs of the campus community.
- The PMO will conduct periodic surveys of parking inventories and occupancies for use in planning projects.
- The replacement of any parking lost or displaced by campus development projects will be addressed during the initial planning stages of the development.”

Clearly, all future campus development projects will impact the parking system. Future development projects could eliminate existing parking spaces, increase parking demands, increase campus traffic, increase transit needs, etc. Therefore, the PMO should be included in all applicable campus planning projects at the earliest point possible to ensure campus transportation needs are addressed.

Guiding Principle #7

“To the greatest extent possible, the PMO will encourage the use of alternative modes of transportation to mitigate campus parking needs, reduce campus traffic, and minimize the environmental impacts of driving. This will be accomplished through the use of programs designed to encourage the use of available campus transit, local transit, carpools, bicycles, flexible work schedules, etc.”

The construction of future campus parking facilities will be expensive, and can take significant amounts of land that could be used for buildings or green space. Also, additional parking facilities could increase campus traffic and air pollution. Therefore, encouraging the use of alternative modes of transportation can help reduce parking needs (and associated expenses), as well as help create a more pedestrian-friendly campus. Sufficient pedestrian and bicycle paths/facilities should be provided to encourage alternative modes of transportation.

Guiding Principle #8

“The PMO will endeavor to incorporate appropriate new technologies into parking management initiatives to ensure the efficient use of available parking.”

While the upfront costs of parking technology can sometimes be daunting, the benefits often outweigh the expense. Also, the latest parking technologies can provide enhanced utilization data that the PMO can use to better manage parking resources. For example, the cost of providing updated access control equipment can be justified based on the reduced need for enforcement personnel, improved levels of customer service, and real-time utilization data for improved efficiency.
ORGANIZATION AND MANAGEMENT

There is currently no single department responsible for overall parking management at UWT. Many campus parking systems have evolved similarly over time into organizational structures that are "horizontally integrated." This means that various parking system components are spread among multiple departments or entities.

In a horizontally integrated parking program, where different entities manage one part of the parking system (such as residential parking, enforcement, or permit issuance), no one has responsibility, or the perspective, to manage all these interrelated components as a system. In one situation where different departments each managed a small amount of the parking supply along with responsibilities for several other areas, the observation was made that "parking was everyone's part-time job, but no one's full-time job."

It is recommended that the university work to create a vertically-integrated parking system (the Parking Management Organization or PMO). Initially, responsibility for the campus parking and transportation program could reside in the Department of Campus Safety and Security. This department is often the PMO (at least initially) due to the level of parking-related management services they already provide (e.g., parking enforcement). Parking management responsibilities for many university campuses reside within public safety. As part of a larger parking and transportation management program, TDM could also be managed by the PMO in the future.

The process of organizing the management of the parking system will take time and should be set up to maximize the benefits of a coordinated parking and transportation system in the future, not just appeasing the needs of today. All campus parking assets should be incorporated into the new parking management structure including all parking lots and spaces, enforcement, fine collection, etc. All parking-related revenues and expenses should be accounted for in the PMO budget, and revenues should flow toward the goals of the system in concert with the designated parking and transportation guiding principles. If the system is financially stable and achieving its goals, then revenue could be diverted to other associated needs (such as TDM initiatives or other university programs). The parking system can also serve the following functions:

- A clearinghouse for campus parking and transportation information.
- Provide parking-related support for all campus departments/organizations.
- Participate in campus planning and development process.
- Develop policies and procedures based on approved guiding principles.
- Develop parking system mission and vision statements to reflect alignment with larger campus strategic plans and goals.

A unified parking management organization would likely require additional staff dedicated to the administration of campus parking. This would include a full-time campus parking coordinator (approximate salary of $48,000, plus taxes and benefits – a total of approximately $60,000 per year assuming a taxes and benefits factor of 1.25) and a part-time administrative assistant (approximately 25
hours per week at $13.00 per hour, or $16,900 annualized). The budgetary impact of additional staff is added to the projected UWT parking system financial pro forma starting in 2013. These new positions would work with the existing student and employee transportation coordinators to integrate parking and transportation, the transportation coordinators could be repositioned within the PMO, or the PMO could otherwise grow to incorporate TDM coordination/services.

While the primary responsibility for campus parking would reside with Campus Safety and Security, other campus departments may still be involved with operating and maintaining parking lots. For example, the Facilities Department will still provide certain maintenance services. These services could be managed through periodic coordination meetings, defined service contracts, and/or set maintenance schedules. The departments providing parking-related services to the PMO would charge for services to ensure that costs flow to PMO budgets. Some services, such as permit issuance, parking enforcement, and day-to-day operations, could be outsourced to a qualified parking operator (similar to the arrangement between UWT and Diamond Parking today).

**PARKING OPERATIONS**

*Current Operations*

Direct UWT parking operations and management is currently limited to parking operations, permit issuance, and enforcement in the UWT-controlled parking lots (Cragle Lot, Pinkerton Lot, and the Milgard Lot). The other UWT parking lots are operated and enforced by Diamond Parking. UWT has also made arrangements with the City of Tacoma and Diamond Parking to officially allow student parking in the other parking areas: the Greater Tacoma Convention and Trade Center, the Museum of Glass, and WT39 (adjacent to the Tacoma Dome Station).

In some ways, current UWT parking operations is more sophisticated than other similarly sized campuses. This is due in large part to the fact the UWT is an urban campus and parking can be challenging. The current parking operation includes the following elements/services (but is not limited to):

- **Parking Permit Sales:**
  - Students can purchase automobile permits via telephone through Diamond Parking on a quarterly basis (depending on availability). Motorcycle permits are available through the UWT Cashier's Office.
  - Faculty and staff can purchase parking permits using the student method (via telephone through Diamond Parking) or using payroll deduction through UWT (via the website). Faculty and staff can purchase permits on a quarterly, nine month, or annual basis. Parking permit payments via payroll deduction are pre-tax.
  - ADA Accessible permits are available through UWT with special approval from UW Disability Service in Seattle (employees) or UWT Disability Support Services (students). Permits are available on a quarterly basis.

- **Hourly Parking Operations:**
  - Hourly (short-term) parking is provided in all of the UWT lots (although many lots do not allow hourly parking until after 4:00 p.m. Monday through Thursday).

- **Parking Enforcement:**
  - Parking enforcement in UWT-controlled parking lots is provided by Campus Safety and Security staff. According to the university, an average of approximately 6.75 hours of parking enforcement is provided each weekday.
  - Enforcement in the other UWT lots is provided by Diamond Parking.
Parking enforcement operations includes citation issuance and tracking, parking appeals, and citation collections. Students parking in on-street or privately-owned off-street spaces are subject to City of Tacoma or private enforcement, respectively.

UWT has the ability to utilize a number of strategies to collect outstanding citations including assessing late fees, immobilizing/impounding vehicles, and placing holds on registration, transcripts, grades, and degree conferrals.

Parking Technologies:

- Currently, no UWT parking lots are controlled using access control equipment. Permit parking is controlled using parking permits and parking enforcement. Parking citations are handwritten (no handheld citation computers or tracking/invoicing software is used).
- Hourly parking is controlled using multi-space parking meters (five Digital “Luke” pay stations) in four lots and honor boxes in two lots (WT44 and WT 61). The multi-spaces meters are approximately 3 years old.

Parking Marketing/Communications:

- UWT maintains an informative parking website as part of the larger university website. The website provides information on purchasing permits, possible parking locations (including a map of UWT lots) and prices, parking enforcement, transportation alternatives, and campus parking news updates.
- UWT also provides printed information in various forms.

Future Alternatives

Although the current UWT parking supply is fairly small, the parking challenges of the urban environment require a relatively high level of parking operations. The areas of parking permit management, parking enforcement, and marketing/communications are especially important. Typically, parking systems are most efficient and effective when all parking-related services are operated in a consistent fashion. Current operating strategies are somewhat fragmented between UWT, Diamond Parking, as well as between various university departments. While the parking system can function in this environment, it may not be as efficient, effective, and simple to understand.

With this in mind, it is recommended that UWT work to fully consolidate parking operations to improve operational efficiency, eliminate redundancies, and improve consistencies. There are generally three primary methodologies for operating parking programs of UWT’s size. These are:

- **Self-Operation** – UWT could directly operate the parking program itself. This would require UWT to hire sufficient staff to provide parking services (e.g., parking permit sales/tracking, parking enforcement, and day-to-day operations).
- **Outsourced – Management Contract** – UWT could contract with a private parking operations and management firm to handle day-to-day operations through a management contract. Through the management contract, the private parking operations and management firm is either paid a fixed management fee and/or a percentage of gross revenues and is reimbursed by the owner for all costs incurred in the operation.
• **Outsourced – Concession Agreement** – UWT could contract with a private parking operations and management firm to assume full responsibility for all aspects of the operation, including expenses. In this arrangement, UWT would be paid a guaranteed amount and/or a percentage of gross revenues.

A more detailed description of each option is provided in the following sub-sections.

**Self-Operation**

Self-operation of the parking system requires that the owning entity provide all the necessary employees (e.g., full or part-time staff and/or temporary employees), equipment, supplies, etc. With this method of operation, the owning entity receives all gross parking revenues and pays for all operating expenses. Self-operation requires internal administrative and managerial staff at a higher level than the management contract or concession style agreements.

Self-operation allows the owning entity to have complete control over the parking facilities and the level of service provided to its patrons. This requires a well-trained and experienced staff to effectively manage the parking operation. Parking has become a highly specialized field and also requires good general and facility management skills. Without proper training and professional development, self-operation can result in a lower than desired level of service and revenue controls. This, in conjunction with the requirements for a high level of customer service and the specialized nature of parking, makes the idea of using a professional parking management firm a logical and attractive alternative for inexperienced parking operators.

Potential advantages of self-operation include:

- Complete control over day-to-day parking operations, including customer service.
- Internal parking knowledge to assist with future planning.
- Uniform look and feel with other UWT services.
- Better control over staff and staff training.

Disadvantages to this approach would include:

- Typically higher expenses than contracting with a private parking provider due to:
  - Higher pay rates than private operators
  - More restrictive benefit requirements
  - Higher staff training and development costs
  - Private operators have a greater economy of scale relative to supplies
  - Higher insurance costs/requirements.
- More operational duties for UWT.
- Smaller staff pool to draw from for covering sick days and vacations.
- Without adequate training, customer service could suffer.
- UWT would need to find and hire experienced parking staff.
- UWT would likely have higher administrative and back office costs than an experienced private operator.
- UWT would deal directly with customer complaints.
Can be more difficult to terminate the employment of staff when needed.

Management Agreement Operations

With a management agreement, the contracted parking operator provides the necessary labor and services for the operation of the parking facilities in accordance with an agreed upon annual operating expense budget. The parking operator will then receive a monthly payment, either a lump sum amount or a percentage of the gross or net revenue. This monthly payment represents the fee to manage the system. This form of operation can give the owning entity complete control over staffing levels, parking allocations, parking rates, and customer service policies.

The parking operator should provide the owning entity with a detailed monthly report package including: operating statistics, revenue summaries, expenses summaries, budget variance reports, utilization statistics, etc. The management agreement still requires some additional personnel time for the owning entity’s staff, since it is necessary to audit the gross parking revenues, as well as the monthly operating expenses. The preferred arrangement is that all reporting guidelines and accounting practices are determined up-front so that each party understands their responsibilities.

The owning entity’s stakeholders and staff should have significant input into establishing the “level of service” for the parking system by deciding on staffing levels, services and service standards, customer service policies, etc.

Potential advantages of in-house management and outsourced operations include:

- Reasonable control over day-to-day parking operations.
- An internal parking coordinator could be hired by UWT with sufficient parking knowledge to assist with future planning.
- A well-structured management agreement would provide:
  - Reasonable control over staff and staff training.
  - High customer service expectations.
  - A high level of staff appearance.
  - Strong auditing capabilities
  - Operator accountability.
- Parking services from an experienced service provider.
- Typically, operations are less expensive due to:
  - Lower staffing and training costs.
  - Lower supply costs.
  - Lower administrative costs.
  - Lower insurance costs.
- The use of a private parking operator, at least for a short time, would provide valuable parking experience to UWT.
- A larger pool of operator staff to draw from for sick day and employee vacations.
- The contracted parking operator would deal with most customer complaints.
- Relatively predictable parking system expenses.
Parking operator would provide insurance coverage for day-to-day operations.

Disadvantages to this approach would include:

- UWT would have to compensate a private operator with a management fee or a percentage of gross revenues.
- Somewhat less control over day-to-day operations.
- Somewhat less control over staffing and training issues.
- UWT may need to find and hire an experienced parking coordinator.
- UWT would still have some parking-related administrative costs.

Concession Agreement Operations

With a concession agreement, the concessionaire will provide all necessary labor and services for the complete operation of parking facilities in return for the parking revenues. The actual percentage of parking revenues given to the operator varies from operation to operation based on the size, complexity, revenue potential, and perceived risk to the operator. There may be a guaranteed minimum annual payment to the owning entity.

In general, concession agreements work best in situations where the owning entity wishes to divest itself from the day-to-day parking operational concerns in order to better focus on its core business/Responsibilities. With this type of agreement, a minimal amount of time is required by the owning entity’s staff in the day-to-day operations of the parking program. The owning entity also gives up some level of control as it relates to defining day-to-day operations, as the concessionaire is responsible for all expenses and most liabilities. Periodic conversations with the parking operator are necessary to discuss operational issues that affect the quality of service to the owning entity’s patrons.

The concession agreement is the simplest type of agreement for administrative purposes, in that only the gross parking revenues need to be audited. All operational expenses are the responsibility of the concessionaire, thereby resulting in minimal control of this function by the owning entity staff. Also, as with the management agreement, the parking operator serves as a buffer to the owning entity’s management with respect to parking complaints and potential wrongdoing by those employed within the parking system.

Potential advantages of leasing parking facilities include:

- No day-to-day parking operations or management required by UWT.
- No substantial daily auditing required UWT.
- Facilities would be leased to an experienced parking services provider.
- Requires no internal parking experience on the part of UWT.
- Relatively predictable revenue stream.
- Less operations-related financial risk.
- Parking operator takes all significant parking customer complaints.

Disadvantages to this approach would include:

- UWT could have little to no control over day-to-day parking operations.
- No control over staffing and training issues.
• Less customer service accountability.
• Difficult to measure expenses, if the parking operator is required to share them at all.
• The parking operator may be encouraged to reduce facility expenses to a minimum level (negatively impacting customer service), to increase profits.

Recommendations

After reviewing the potential operating methodologies for UWT parking, it is recommended that the university consider outsourcing all day-to-day parking operations to an experienced parking services provider via a management agreement. This would include basic system operations such as (but not necessarily limited to): parking permit sales and tracking (for all permits, using appropriate university policies and procedures), hourly parking operations, parking enforcement, and basic parking facility maintenance (e.g., trash pick-up, equipment cleaning, and signage repairs). Overall parking system expenses could be reduced by 10% or more using a contracted parking operator (versus self-operation), as pay rates for staff would be lower, benefit costs would be lower, and supply costs would typically be lower. In addition, liability risks could be significantly reduced through the structure of the management agreement. The selected parking operator should be required to provide sufficient insurance to cover risks related to the operation of the parking facilities.

Outsourcing all parking operations, in addition to designating a single department as the PMO, could provide the following benefits to UWT:

• More consistent day-to-day parking operations.
• A single contact for customers to request information or make complaints.
• More consistent answers to customer questions.
• More uniform policies and procedures.
• Lower operating costs.
• More experience with parking operations and management.
• Campus security staff could be freed from parking enforcement duties to focus more on safety/security issues (e.g., patrol parking areas to deter vehicle thefts).
• More consistent parking enforcement.

The impact of costs related to outsourcing all day-to-day parking operations is included in the projected UWT parking system financial pro forma starting in 2013. Based on our experience with outsourcing operations, anticipated operations and enforcement costs are reduced by 10% to conservatively estimate the impact of a complete outsourcing of day-to-day parking operations.

The current technologies used by UWT are consistent with similarly sized and situated campuses, and investments in additional parking access controls or guidance technologies do not appear feasible at this time. These technologies, while capable of improving parking operations (e.g., better protecting parking spaces or helping people find available spaces), are expensive to purchase and maintain. In addition, access controls (e.g., gates and credential readers) would likely result in the loss of parking spaces to accommodate entry and exit lanes. As the campus and the area surrounding the campus change, these technologies could become more feasible. In any event, future campus parking facilities (especially any future parking structures) should be designed to accommodate additional control equipment in the future if needed.

However, UWT will need to plan for future parking technology purchases. The existing multi-space parking meters are currently three years old. The typical lifespan of parking technologies exposed to the
elements ranges from 6 to 10 years. Therefore, the projected financial pro forma for the parking system includes costs associated with the replacement of the multi-space meters in 2016 (assuming $15,000 per machine, inclusive of associated equipment needs).

**PARKING USER GROUP ALLOCATIONS**

Most campuses similar to UWT allocate separate parking supplies to faculty/staff, students, and campus visitors. The parking closest to the campus core (or primary parking demand generators) is often allocated to campus faculty, staff, and visitors. The parking located further from the campus core is allocated to commuter students. Parking for residential students is typically provided as close to residences as possible.

The available parking at UWT is not allocated by user group. Instead, parking is divided into permit parking and hourly parking, with each primary user group having access to most parking locations. UWT parking permits are first made available to faculty/staff, and then to students on a first-come-first-serve basis.

The current general parking allocation strategy provides all user groups with at least the opportunity to park in most campus parking locations and provides a certain level of choice relative to the various price points. Given the limited amount of campus-controlled parking facilities, this general allocation strategy appears reasonable assuming the following:

- Faculty and staff have the first opportunity to purchase parking permits.
- Hourly visitor parking is provided close to the campus core (ideally, priced or time limited to help ensure at least some of the parking spaces are available to true campus visitors and not only students).
- ADA-accessible parking spaces are provided in suitable areas and in appropriate quantities.
- Sufficient university vehicle parking is provided.
- Adequate parking for motorcycles/scooters is provided.

Campus parking allocations, especially those for physically-challenged community members and motorcycles/scooters riders as they tend to be fairly variable, should be monitored on a regular basis to ensure sufficient parking is provided to each user group.

While specific instances of conflicts between hourly and permit parking were not identified (outside of the beginning of academic quarters), there is a potential for permit holders in mixed lots to be unable to find parking due to hourly usage of the lot. However, during typical peak parking times (before 4:00 p.m. per the parking demand model) several UWT parking locations are permit only, with overflow parking locations identified. Parking lot usage should be monitored on a regular basis to determine if conflicts are occurring. If problems occur, it may be necessary to officially allocate and properly mark hourly spaces and permit spaces to ensure permit holders are able to find parking in their assigned lot.

A number of concerns related to accessible parking on campus were raised during the public input session. The concerns were generally related to the supply of parking and the location of accessible spaces. UWT currently provides 46 accessible parking spaces on campus (approximately 6.2% of the total UWT parking supply). Of the total accessible parking supply, 12 spaces are van-accessible (26% of the total supply) – more than is typically required. Overall, the current accessible parking supply exceeds current Americans with Disabilities Act guidelines by 18 spaces. These counts do not include nearby accessible on-street spaces.

While the current accessible parking supply appears to exceed typical requirements, actual demand should determine the number of accessible parking spaces provided. During field reviews, it did not
appear that overall accessible parking supplies were full. However, accessible parking spaces located closest to the core of campus (e.g. C Street and Dolly Roberson Lane) did appear to be well utilized. The best way for UWT to properly adjust accessible parking locations and supplies is to monitor utilization (at least once per academic quarter) and adjust as needed. For example, during the field reviews the accessible parking on C Street was effectively full, but the accessible parking on Commerce Street was nearly vacant. In this instance, the amount of accessible parking could be increased on C Street and reduced on Commerce Street. While frequent changes would not be desired, accessible parking demands can change more quickly than those of other user groups depending on the number of physically-challenged students, faculty, and staff on campus during any given academic quarter. In addition, campus parking maps should clearly note the locations of accessible parking spaces to help people find them when needed.

In the future, parking resources will likely change to accommodate increasing parking demands. This would probably include increases in campus parking supplies. More parking spaces controlled by the university could provide the opportunity to designate some parking areas for certain user groups (e.g., core parking for faculty/staff and perimeter parking for students). However, the designation of user-specific areas is not required at this time.

PARKING PERMIT STRATEGIES

Ideally, all parking permits would be issued either directly by or through the PMO via the contracted parking operator. This would include all residential, ADA accessible, faculty/staff, commuter student, and university vehicle permits. Parking permits should be issued as follows:

- Faculty and staff should continue to register for parking as they do today. Faculty and staff should have the first opportunity to purchase parking on campus.
- Commuter students should have the ability to purchase parking permits either by telephone or online. Parking permits would be mailed to students by the PMO or contracted parking operator, or they could be picked-up from the PMO or contracted parking operator when the student arrives to campus. All permit order fulfillment and tracking would be performed by the PMO or contracted parking operator.
- As resident students are added, they should have the ability register for parking at the same time they register for housing, or purchase parking as a commuter student would. Residential parking permits could be mailed to students, or they could be picked-up from either the PMO or at their residences. Permit order fulfillment and tracking would be performed by the PMO or contracted parking operator. Students wanting resident parking would need to furnish proof of residence prior to being issued a parking permit.
- All other specialty parking permits/passes (e.g., motorcycle permits, ADA accessible permits, and university vehicle permits) will be issued through the PMO or contracted parking operator. Policies and procedures should be put in place to provide ADA accessible parking permits without the need for customers to contact separate university departments for approval.
- Parking permits available after the beginning of each quarter would be sold through the PMO or the contracted parking operator.
- As they are today, parking permits should be valid for no more than one year.
- While the permit colors can remain the same each year, parking permit designs should vary. For example, parking permits could be square one year and round the next. Parking permit shapes should not be reused for at least four years. In addition, parking permits should incorporate counterfeit-deterrent features such as unique colors and fonts, watermarks, and/or holographic lettering or borders.
• The university should provide existing permit holders with a renewal period that occurs prior to opening general sales for the next academic period. Parking permit renewal could occur a week or two before open sales. Open parking permit sales could begin at the usual time, after the renewal process is complete and available open parking quantities and locations are determined.

• Parking lot occupancies should be monitored regularly in order to adjust permit oversell rates. This would include parking occupancy surveys conducted at the beginning of each quarter (approximately two weeks after the start of classes). Current designated oversell rates range from 105% to 115% for regular parking permits. Current oversell rates for most lots appear appropriate. However, oversell rates could be increased for WT61 and WT40 (currently 110% and 115%, respectively). Based on the results of the occupancy surveys conducted in November 2011, the oversell rate for WT61 could be increased to 115% and the rate for WT40 could be increased to 125%.

The PMO (or the contracted parking operator) will be responsible for all parking permit, revenue, and enforcement controls. To assist with this responsibility, the university could consider investing in a parking permit control system. This system could be integrated with parking enforcement to form a complete parking facility management package. Most permit systems also offer the ability to sell permits online.

PARKING-RELATED SAFETY AND SECURITY

The UWT Campus Safety and Security department currently provides a number of parking-related security services that help promote a safe environment. Campus Safety and Security provides regular patrols of campus grounds, parking enforcement, safety escort (when requested), and coordinates efforts with the City of Tacoma police department. In addition, the department also provides safety/security related information and training to the campus community. These services are consistent with, and in some cases exceed, safety/security services provided by similarly situated university campuses.

A common concern on many campuses is the need to improve security and lighting in parking lots and on pedestrian paths to/from parking areas. This is especially true in urban environments. There are basically two types of parking facility security options: passive security and active security. Passive security refers to designing a facility to create a secure environment, without the need for an active human security response. This typically includes eliminating potential hiding places, appropriate lighting levels, low-level landscaping around the parking facility perimeter, etc. These elements promote a secure environment. Active security refers to the addition of systems that require a human response, such as panic alarms, closed-circuit television, etc. While passive security creates an environment that deters criminal activity, sometimes additional steps are necessary to further discourage crime or to improve perceived facility security.

All parking facilities should embody the concepts of Crime Prevention through Environmental Design (or CPTED). According to the National Crime Prevention Institute, CPTED is "... the proper design and effective use of the built environment which may lead to a reduction in the fear and incidence of crime, and an improvement of the quality of life." Parking facilities and pedestrian paths to/from the facilities should be properly landscaped, lines of sight should be unobstructed, potential hiding places should be eliminated, and adequate lighting should be provided. The City of Tacoma Police Department should be able to provide a CPTED review of campus parking facilities and provide additional security design recommendations.

Several active security methods could be included in campus parking facilities to improve real and perceived security. A common first step would be to provide call boxes in campus parking areas. These devices would generate a loud noise when activated, and could also incorporate a pulsating light to indicate where help is needed. Several types of alarm systems are available including wireless systems with intercom features. The intercoms could provide a voice connection directly to Campus Safety and
Security in the event of an emergency. Ideally, the alarms should be placed within a 100 to 150 foot walking distance from anywhere in the parking area. Other active security measures, such as closed-circuit television, could also be included in the future. The cost of additional emergency call boxes for campus parking lots is estimated at $40,000 (or 8 new pedestal mounted emergency call boxes for existing lots at $5,000 each) and included in the parking system financial pro forma in 2013. Costs will vary depending on the type of call box selected.

Parking facility lighting should be sufficient to help avoid vehicle accidents, provide visibility of pedestrian hazards, deter criminal activity, and meet parking industry lighting standards. A minimum horizontal illuminance of 0.5 foot-candles (measured on the parking surface, without any shadowing effect from parking vehicles, trees, etc.) is recommended for enhanced security in parking lots by the Illuminating Engineering Society of North America (IESNA RP-20-98). The recommended minimum vertical illuminance (measured at 5.0’ above the parking surface) is also 0.5 foot-candles. In order to reduce the amount of light scatter, fixtures that direct light downward onto the parking lot (cutoff luminaire) are recommended. In order to determine if lighting is sufficient in parking areas and pedestrian pathways, it is recommended that the university conduct parking-facility specific and larger campus lighting studies in the future.

PARKING ENFORCEMENT

The success of any parking program requires effective enforcement. Regulations are intended to produce parking patterns that utilize the campus parking inventory efficiently, and this will only happen if permit regulations, meter payments, time restrictions, and other rules are enforced with sufficient frequency so that drivers see an advantage to parking legally.

Currently, parking enforcement is provided by UWT in UWT-operated lots and Diamond Parking in other lots. Parking enforcement in UWT-operated lots is provided by Campus Safety and Security patrol staff as part of their assigned duties. Parking citations issued in all UWT lots are handwritten.

Building an effective enforcement program requires making many critical strategic decisions that can greatly impact a program’s success and ability to adapt with changing conditions. The following subsections summarize recommended parking enforcement program improvements.

Responsibility for Parking Enforcement

Placement of enforcement within the public safety department is typical of many campuses, especially smaller colleges and universities. This strategy can have a number of advantages:

- Reliance on an existing command structure.
- Use of existing communications networks.
- Availability for emergency duties, such as traffic control, as needed.
- Greater respect for parking enforcement officers as members of the security organization.

However, there can also sometimes be disadvantages:

- Second class status, with enforcement not viewed as “real” security officer work.
Lack of available time or resources to dedicate specifically to effective parking enforcement.

Separation from the larger parking management program, including failure to relate enforcement activities to other parking-related goals.

Public safety departments are not often experienced in managing the “backend” collection programs necessary to achieve high citation closure rates.

It is recommended that the responsibility for parking enforcement should rest within a vertically-organized department responsible for the campus parking and transportation program. As suggested previously, placing all enforcement responsibilities within a single organizational structure (instead of between two entities) would increase the likelihood that enforcement goals and performance are aligned with overall parking system goals, as well as facilitate the coordination of all parking-related resources. Parking enforcement could be provided directly by the PMO or outsourced to an experienced parking services provider.

Instead of only enforcing parking regulations or assisting with traffic direction, the parking enforcement officers should also provide visitors and campus community members with information and directions, as well as provide a level of additional security in and between parking facilities. This will improve perceived security on campus and will help improve overall customer service.

Benefits of this approach could include:

- Directly linking enforcement activities and personnel to the larger parking mission.
- Greater likelihood that performance will be evaluated in conjunction with parking goals and actual parking dynamics.
- Devotion of all enforcement officer hours to parking-related duties (enforcement and customer service).
- Citation fines and penalties become one component of a single accounts receivable system managed by the PMO (or the parking services provider).
- Improved operational efficiencies and reduced costs.

**Parking Enforcement Goals, Technologies, and Staffing**

If the parking plan is to be successful, it is essential that enforcement activity not be driven by anecdotal evidence or become a response to the loudest voices. Rather, there must be a consistent thread running through the larger goals of the program, the policies established and strategies used to achieve those goals, the regulations which govern their application, the application of enforcement to achieve the goals, and how success is evaluated. That common thread is data, collected at regular intervals, on occupancy, turnover, violation rates, and capture rates, and the collection of direct parking revenues and citation fines.

To be most useful, industry “standards” should be adapted to local conditions and needs. The following standards are presented as possible starting points for setting goals for the campus parking enforcement program:

- Overall occupancy rate in campus visitor areas: 85-92%;
- Overtime violation rate: 10-15%;
- Overtime violation capture rate: 25-35%;
- Permit violation capture rate: 30-35%;
• Average duration of stay in time limited spaces: 70-120% of time posted limits;
• Citation fine collection rate 85% or greater.
• Citation voids: 2% or less.

Ideally, the program’s goals and policies would be developed through a formalized process led by the PMO, but also incorporating input from the campus community. Following this model has a number of key benefits:

• It allows enforcement activity to be directly linked to clear, non-monetary goals.
• It moves discussion from “what is happening” to what should be happening and how to move things in the proper direction.
• It provides the university with specific data to evaluate complaints from students, faculty, and staff.
• It supports better-informed decisions regarding the number of enforcement personnel needed and how/where they should be deployed.

In our experience, the existence of hard data and analysis often produces greater support for enforcement and other management strategies. For this reason, it is recommended that the PMO have sufficient resources to conduct such analyses on a regular basis. This can be done by using students, parking staff, a contracted parking services provider, contracted consultants, or some combination thereof.

One issue that often arises during the discussion of parking enforcement is the fear that increased parking enforcement will discourage people from visiting campus, or will unfairly inconvenience those that do visit. In order to help mitigate this fear, an approach that reduces the impact on campus visitors and increases the penalties on continual parking policy violators is recommended (if allowed by local and state statutes). This is typically achieved through the use of an escalating fine structure. For example, the first ticket for a specific offense received within a certain timeframe (e.g., every six months or per year) is an automatic warning. The second ticket received within the set timeframe would result in a fine, perhaps $10 to $25. The third ticket received for the same offense within the set timeframe would result in a higher fine, perhaps $15 to $30. The fine would continue to escalate to a set maximum fine to discourage breaking the same regulation. This would reduce the impact on visitors, as it is less likely they will continually break the rules. However, the penalties will continue to grow for habitual violators abusing the parking regulations.

Because so many decisions remain to be made concerning campus parking operations and management, it may not be practical to make specific recommendations regarding which parking enforcement technology the university should pursue at this time (if any). Decisions regarding the amount of parking to provide on campus, organizational structure, outsourcing, etc. could materially impact the type and amount of technology needed and the level of sophistication needed to integrate those technologies and strategies. However, the use of updated computerized parking enforcement equipment is recommended as soon as it is financially feasible. Preliminary technology cost estimates, issues, and recommendations would include:

• Purchasing updated handheld citation issuance computers and printers. The cost of handheld enforcement computers range between $4,000 and $7,000 per unit (including software, depending on the features selected). There may or may not be annual software subscription fees as well.
• Parking system software that provides both citation management and parking permit management capabilities. This would allow for citation data to be automatically uploaded to university systems instead of having to manually enter ticket information into tracking software.
The software should also be Internet enabled to provide for remote system access, provide the ability to pay for parking citations and permits online, and provide for online citation appeals. The software is typically sold on a multi-year subscription basis. Estimated annual subscription costs could range from $9,000 to $12,000 per year (depending on the number of concurrent users that access the back-end software at any one time).

- Additional assistance will be needed to install and implement the new system. This would include installation, training, data migration, and interfaces with accounting software. The prices for these services will vary depending on various circumstances but could be approximately $25,000.

- The total costs for a complete parking enforcement and permit system would be estimated to range between approximately $46,000 and $58,000 (assuming three handheld computers and printers are purchased, and depending on desired features). These costs are included in the parking system financial pro forma in 2015.

- In order to select the most appropriate system, the university should develop a set of desired capabilities (or a formal set of equipment specifications) and conduct a formal request for proposals process.

With respect to staffing, a basic parking enforcement operation would need at least one full-time parking enforcement officer (or two part-time positions) for daytime hours, one full-time administrative position (full-time position for community questions, necessary data entry, ticket tracking, collections, etc.), one part-time appeals officer, and additional part-time enforcement staff as needed to provide adequate coverage (e.g., to provide at least one enforcement officer during evening hours until approximately 10:00 p.m. each weeknight). These positions (except the parking appeals officer) could be outsourced to a qualified service provider.

**Administration of the Adjudication Process**

Adjudication is an important aspect of parking enforcement. Even the best enforcement programs issue some citations for which the vehicle owner is not ultimately liable. Therefore it is critical that the campus community have a fair process by which they can contest a citation. In truth, a sound, fair adjudication process helps validate the entire enforcement effort.

Ideally, citation recipients wishing to contest a fine should be offered an administrative review by email, regular mail, or by telephone prior to more formal action being required. PMO staff that is not involved in providing field enforcement services would be authorized to dismiss certain citations based on specific documentary evidence (such as a valid disabled placard). If the citation is upheld and the recipient remains unsatisfied, he or she could be required to post the fine and have a hearing before a higher level appeals officer or appeals board. If the citation is upheld and the recipient is still unhappy, he or she can pay a fee and schedule a hearing in higher level court (as appropriate). At the last two stages, all posted fines and fees would be returned if the citation is dismissed.

**Collection of Fines and Penalties**

As mentioned previously, revenue should not be the primary goal of parking enforcement. While this is true, parking managers must also do everything practical to collect all fines and penalties once imposed on violators. Citations lose their deterrent value if the university collects only a small percentage of the citations for which the vehicle owner is found liable. Fortunately, the collection tools and supporting technology available to campuses have improved in recent years, and the university can employ additional tactics (some of which are already used by UWT):

- **Imposition of late penalties.** If citations remain unpaid or uncontested for a certain amount of time, the fine amount is increased. However, the longer one has to make up his or her mind
about a parking citation, the greater the chance it will be forgotten or ignored. A 10-day window is typically ample and fair (the current UWT window is 20 days).

- **Noticing.** Notices (invoices) could be sent to parking violators concerning outstanding parking tickets.
- **Permit Non-Renewal.** Vehicle owners should be required to satisfy all outstanding parking citation debt before renewing or purchasing his or her parking permit.
- **Restrict Students from Registering for Classes.** Students should be required to satisfy all outstanding parking citation debt before registering for classes.
- **Withholding Diplomas and Transcripts.** Students should be required to satisfy all outstanding parking citation debt before being given diplomas or official copies of transcripts.
- **Employee Reprimands and Wage Withholding.** If legally possible, employees with outstanding parking fines could receive administrative reprimands and/or wages garnishments until fines/debts are paid.
- **Booting/Towing.** Vehicles found with a certain number of outstanding parking citations (perhaps three or more) could be immobilized (booted) and/or towed. While booting and towing programs can be very effective, they can also be labor intensive (since enforcement staff must also be assigned to release the boot once the debt is paid). In addition, if the owners of booted vehicles do not come forward within a reasonable period of time (usually 24 to 48 hours) the university must be prepared to tow the vehicles to a secure storage location. Many campuses contract out this service to a tow vendor who provides both towing and storage services.
  - It is recommended that the university consider utilizing a consistent booting/towing program, even if it were operated only a few days each week. This would not only provide some direct revenue from the booted/towed vehicles, but would also generate publicity that would cause other scofflaws to pay voluntarily. In addition, booting/towing can help stop individuals from incurring more citation debt than they can effectively manage.
- **Credit Bureau Reporting.** Some parking systems are now reporting outstanding parking fines to one or more of the national credit reporting agencies. Some campuses would consider this tactic too harsh, and its use can lead to numerous complaints. It is important that the parking system obtain the informed consent and support of university officials before starting such a program.
- **Use of Collection Agencies.** The university could contract with a collection firm specializing in parking fines. Such firms know the issues associated with parking citations, and have programming in place to accept vehicle-based referrals and report payments for application to the correct plate/citation. If the university opts for additional collection services, collection fees could be passed to the violator.

**VISITOR AND SPECIAL EVENT PARKING**

The UWT campus hosts a significant number of special events per year. These events range from student, faculty, and/or staff oriented events with little or no impact on campus parking to large externally-focused events (e.g., community events and recruitment events). The number of campus events has increased significantly in recent years, although the level of growth has slowed in the past year.

According to information provided by UWT, the campus hosted approximately 420 special events in 2010-2011 ranging in size from 10-20 attendees to nearly 500 guests. The number of events by type for 2010-2011 was as follows:

- **Campus-Oriented Events (Events for Students, Faculty, and/or Staff)**
- Number of Events: 241 (57.4% of campus events)
  - Campus-Community Events (Events with Mixed Attendance)
    - Number of Events: 74 (17.6% of campus events)
  - Conference Events (Events for Primarily Off-Campus Participants)
    - Number of Events: 64 (15.2% of campus events)
  - Recruitment Events (Events for Perspective Students and Families)
    - Number of Events: 41 (9.8% of campus events)

The campus-oriented events can have minimal impacts on campus parking, if any, as many attendees are already parked on or near campus. However, approximately 43% of campus events are externally-focused and can have a significant impact on study area parking demand. Based on attendance estimates for externally-focused events provided by UWT, estimated event attendance levels as a percentage of reported events are as follows:

- 1-100 Attendees: 54.7%
- 251-400 Attendees: 10.7%
- 100-150 Attendees: 10.7%
- 400+ Attendees: 6.6%
- 151-250 Attendees: 17.3%

The lack of available visitor parking was one of the concerns raised during the public input meetings. Existing hourly parking areas currently serve both campus community members (e.g., faculty, staff, and students) and campus visitors. This means that hourly spaces, especially those in the most convenient part of campus, are frequently filled with non-visitors. Campus visitors are typically required to park on-street or in off-campus private/public parking facilities.

Campus visitor and event parking concerns often include: faculty, staff, and students parking in visitor areas; lack of available short-term loading spaces; and securing sufficient parking for weekday campus events. Providing visitors with positive campus experiences can have a profound impact on the University’s success in meeting institutional goals. The following outline details the recommended strategies for dealing with visitor and special event parkers:

- All special event parking arrangements should be made through the PMO (or through the contracted parking operator). This would include requests for space reservations, special parking passes, and coordination with nearby private and public parking facilities. Parking requests would be handled on a case-by-case basis as space permits. Individual campus departments should not be authorized to reserve parking spaces or produce parking permits.
- The PMO (or the contracted parking operator) would be responsible for any barricading or signage needs related to special event parking. If spaces are reserved for event attendees, or if barricading or signage is deployed, the PMO should be reimbursed by the department/entity sponsoring the event for the use of the parking spaces and staff time to put out and remove barricades/signs.
- If not done already, departments and organizations that regularly hold special events should conduct monthly coordination meetings that include PMO representatives to coordinate events and parking needs. This would provide the PMO with the ability to produce monthly event parking calendars that can be posted throughout campus, broadcast to campus community members via email or campus CCTV, and/or posted to the campus website. This would help make community members aware of upcoming parking challenges.
The PMO should be in regular contact with nearby owners of public and private parking facilities, as well as private parking operators, to request accommodations for special events when needed. According to information provided by UWT, this need may occur 25 or more times per year.

Simple event parking maps should be developed that can be issued to event sponsors. These maps would highlight the location of nearby parking resources (both UWT lots and other public/private on and off street spaces), current parking rates, hours of operation, basic parking policies and regulations, and the availability of other transportation options. This information should also be published on the UWT website.

To the greatest extent possible, large-scale campus special events should not be scheduled during peak periods of parking demand (e.g., Monday through Thursday from 8:00 a.m. to 4:00 p.m. when school is in session). This will minimize conflicts between the user groups, as well as reduce the number of times each year that campus community members are displaced.

In the future, as new parking resources are developed, consider strategies such as increasing hourly parking rates or adjusting time limits in core transient parking facilities (e.g., a portion of the Cragle Lot) to discourage all day parking by campus community members and provide more predictable visitor parking. Those displaced by this policy would park in new facilities located further from the campus core.

PARKING PRICES

Current parking prices at UWT appear to be well below existing market rates. While this can be a great benefit to members of the campus community, low prices do have negative impacts on the parking system and the utilization of other modes of transportation including (but not limited to):

- Low parking prices encourage people to drive to campus, instead of using another form of transportation. This increases the amount of land dedicated to campus parking, as well as parking-related construction costs (e.g., creates the need to construct additional parking supplies).
- Low parking prices limit the parking system’s ability to fund on-going expenses and parking-related construction projects. Including debt service, the current parking system generated an average net loss of approximately $122,000. Higher revenues are needed to fully support all parking and transportation related expenses – both now and in the future.
- Existing parking prices are not sufficient to support the development of additional UWT parking resources, purchase new equipment when needed, or adequately fund system administrative needs. As parking demands increase in the future, it is likely that new parking facilities will be needed. This would include surface lots and potential parking structures. These facilities cannot be constructed without raising parking rates or significant subsidies from general university funds.
- If campus parking costs are subsidized by general campus funds, people that do not drive to campus are helping pay for other people’s parking. Parking subsidies would be necessary if the costs related to future parking facilities are not directly funded by user fees. In addition, general university funds that should be used for the educational mission of UWT would be used for parking instead if subsidies are continued (or needed in the future).
- Increases in single-occupancy vehicle traffic creates additional pollution (noise and air), vehicular traffic, and is not conducive to a pedestrian-oriented campus.

Current parking permit prices at UWT range from $50.00 to $150.00 per quarter. Current parking market rates for monthly parking range from $36.00 and $100.00 per month ($108.00 to $300.00 per quarter). Thus, UWT parking permit prices are approximately 50% of current market rates. Unfortunately, this is
not sustainable unless a significant number of campus community members shift to alternative modes of transportation to reduce future parking construction needs.

In order to fund anticipated parking system expenses (both now and in the future), it is recommended to increase parking prices (including permits and hourly parking) 20% in 2012, 15% in 2013, 10% each year in 2014 through 2020, and 5% in 2021. Improvements in parking enforcement efficiency, coupled with periodic annual fine increases, should help increase enforcement revenues at a similar rate. If rates were increased at this level, quarterly parking permit prices would range from approximately $129.00 for evening parking in WT31 to approximately $386.00 for parking in the Pinkerton Lot in 2021. The average daytime parking permit price in 2021 would be approximately $257.00 per quarter – or $43.00 less than the highest estimated current market rate. The primary objectives of increasing rates is to fund necessary parking system expenses, encourage better transportation choices, and distribute costs throughout the system to the greatest extent possible to keep rates for everyone as low as possible (see the parking system pro forma on page 46 for more information).

Tables 14 and 15 illustrate potential parking permit prices and transient rates if prices are increased as previously described. It is assumed that final prices will be rounded to the nearest $.25 or $1.00 as prices are increased.
TABLE 14. POTENTIAL QUARTERLY PERMIT RATES

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<td>$188.23</td>
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<td>$86.83</td>
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<td><strong>Average Prices</strong></td>
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Carl Walker, 2012
## TABLE 15. POTENTIAL HOURLY AND DAILY PARKING RATES

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<td>$12.86</td>
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<td>$1.84</td>
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<td>$2.22</td>
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<tr>
<td>WT 32 - 0-4 Hours</td>
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<td>$2.76</td>
<td>$3.04</td>
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<td>$4.45</td>
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<tr>
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<tr>
<td>WT 32 - Evening</td>
<td>$2.00</td>
<td>$2.40</td>
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<td>$3.67</td>
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<td>$4.45</td>
<td>$4.89</td>
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<tr>
<td>WT 44 - 0-2 Hours</td>
<td>$2.00</td>
<td>$2.40</td>
<td>$2.76</td>
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<td>WT 61 - 0-2 Hours</td>
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<td>$8.07</td>
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Carl Walker, 2012
PARKING-RELATED SIGNAGE

Currently, parking-related signage at UWT consists of lot identification signage, parking regulation and notification signage, individual space signs, and directional signage. Some of the signage appears to be in very good condition, incorporates the UWT logo, and correctly identifies the parking lot number. Other signs also show signs of wear and exposure to the elements, do not incorporate the UWT logo, and do not appear to correctly identify the parking location (they use a different identifier than the campus parking map).

In order to better direct people to available parking, UWT should provide adequate wayfinding signage to locate parking facilities, as well as notify people of parking facility regulations. Ideally, parking signage should be part of a larger campus wayfinding system. Uniform lot identification signs (like those used in the Cragle Lot or WT32) should be located in each parking lot that provides a name for the lot, who can park there, as well as any specific restrictions. For example, signage should be located on Pacific Avenue to direct people to appropriate parking lots or on-street supplies. Then, signage in each parking lot would identify the parking lot (using the same lot name as shown on the campus parking map), as well as any necessary restrictions (e.g., “Permit Parking Only Monday – Thursday 7:00 a.m. to 4:00 p.m.). Parking signage should be simple to read and match the basic design of other wayfinding signage on campus (the existing signage in the UWT lots, shown above, are a great start).

Parking lot signage should be focused on UWT, not the parking operator. While it is customary to note who manages or operates the lot on entry signage, lot signage should match UWT standards. Lot signage that only notes the parking operator, or otherwise makes the lot look like a private lot should be removed.

MARKETING AND COMMUNICATIONS

While the current UWT parking system is not overly complex, a breakdown in communications can foster a perception of parking challenges. Parking communications and marketing refer to two key issues. First, communicating parking policies, regulations and services to parking customers (e.g., faculty, staff, students, and visitors). Second, communicating parking system issues, challenges and improvements to campus administration and community stakeholders.

Communicating parking policies and regulations to customer groups is typically done through the use of parking maps, the UWT website, and new student and new faculty/staff orientation sessions. One-page parking maps should be created to show the locations of available/potential parking supplies (both UWT and available public/private supplies), provide important campus parking policies and regulations, present safety/security information, provide contact information for questions and provide other campus transportation information. These maps would be available at university offices, student facilities, and in new student information packets. The map would also be available for download from the university website. Other university marketing materials should also include parking information (where appropriate). Parking and transportation information should also be provided in appropriate university publications (e.g., class catalogs) and presented during orientation sessions.

Improving communications with campus administration and stakeholders would be accomplished through periodic parking-specific input meetings (perhaps twice per year), sponsorship of student group(s) focused on alternative transportation, annual parking system reports, and parking staff involvement in appropriate campus organizations (e.g., faculty/staff senate and Associated Students of UWT). All of
these options provide opportunities for the parking system to provide information concerning campus parking conditions to stakeholders, gain valuable public input, and provide some education concerning parking operations, management, costs, and transportation choices.

Based on input received during the public input process, it appears that some members of the campus community may not be aware of available transportation alternatives. Promoting the awareness of campus transportation options is key to changing travel behavior. Before TDM strategies can be effective, people have to know they exist and understand how to use them.

The university already provides a significant amount of parking and transportation information on its website. The current website provides detailed information concerning a number of transportation options, as well as the ability to register for ride sharing. However, some people may not be aware that this information exists. The marketing and communication strategies described below are intended to raise awareness of these alternatives.

- **Sponsorship of Student Groups Focused on Alternative Transportation**
  
  Student groups consisted of students interested in promoting alternative transportation can be a liaison to the larger student body and form a core advocacy group. Many campuses offer event funding resources, a staff contact, and meeting space to facilitate such groups.

- **Increased promotions at Campus Orientations, Meetings, and Events**
  
  Depending on the types of meetings/events held on campus and the number of people in attendance, it may be cost effective to promote TDM programs at campus events, or increase emphasis where such information is already provided. Some likely events include:
  
  - New student orientations
  - New faculty/staff orientations
  - Prospective student meetings
  - Parent meetings/events
  - University department meetings and orientations

- **Transportation Options Packets**
  
  This informational packet would contain information on the parking and transportation options in the UWT area and any TDM programs. Hardcopy brochure-style maps could provide information and links to transportation alternatives, as well as compare parking costs and challenges to the benefits of choosing alternative forms of transportation. Packets would be distributed mainly to new students and employees, and occasionally to frequent campus visitors and event sponsors. Packets could also contain one or more free-ride passes for mass transit to help encourage people to try available services.

Annual ongoing parking-related marketing and communications costs are estimated at $7.00 per space (based on the current inventory of 612 university spaces). The impact of costs related to enhanced parking-related marketing and communications is included in the projected UWT parking system financial pro forma starting in 2013.
INCORPORATING PARKING AND TRANSPORTATION

The concept of integrating transportation and parking elements as part of the larger strategic vision for UWT would support the goals outlined in the Campus Master Plan Update. However, the success of TDM strategies may be somewhat limited by existing conditions and customer expectations. At least initially, TDM strategies may have a limited impact on parking demands. It is anticipated that the PMO will be responsible for exploring appropriate TDM strategies with existing TDM staff (within the staffing levels defined in this report) in order to increase community awareness and encourage the use of alternative forms of transportation.

The university currently provides a significant amount of information and services related to improved mode choices. UWT currently provides, either directly or in partnership with outside entities, the following services: subsidized transit passes to faculty, staff, and students (U-PASS program); carpool matching services; trip planning; bicycle parking; TDM information, an informative transportation website; student and employee transportation coordinators; and carsharing services (Zipcar).

The university should review the applicability of several key TDM elements that are needed to improve the utilization of alternative forms of transportation (or trip reduction) as outlined below:

- **Provide clear transportation choices for the campus community.** As campus parking management changes in the future (e.g., improved parking enforcement, increased utilization, and increased parking rates/fees/fines) other transportation options will become more attractive. TDM options could include (but not be limited to):
  - **Faculty/Staff Strategies** – These strategies are primarily focused on reducing the number of single-occupancy trips to campus. Possible strategies could include:
    - **Personalized Transportation Services** (if not already done). Provide employees the opportunity to have transportation options (including transit routes, carpool programs, etc.) tailored to their commute needs provided by UWT transportation staff.
    - **Transit Incentives for First-time Users.** Special transit campaigns can be used to introduce faculty and staff members who do not currently use an alternative form of transportation. A typical campaign might include a one-month incentive program where the participant is provided a one month transit pass, enrolled in prize drawings, and given discounts or rewards to local retailers for reaching certain milestones using transit or other alternative forms of transportation.
    - **Ensure Adequacy of Bike Storage and Changing Rooms/Shower at Worksites.** Changing rooms and showers are provided in the Science and GWP buildings, with lockers provided in the Science and MAT buildings. Ensure that the facilities are adequate today and include them in new campus developments.
  - **Ridesharing Strategies**
    - Due to the auto-dominated nature of the campus community, carpooling could be the most realistic option for people to access the campus without driving alone. The following strategies are intended to increase carpooling in the short and long term.
• ** Preferential Carpool Parking Spaces.** Dedicate reserved parking spaces closest to building entrances/elevators or other conveniences for carpoolers. Also, parking rates/fees could be less for carpools. To ensure the spaces are used efficiently, the number of spaces provided should be dependent on demand – adjusting as necessary. These spaces will also require sufficient enforcement to ensure the spaces are not used by unauthorized parkers and that the parkers are truly carpooling.

• **Individualized Marketing Campaign Specific to Carpooling and Transit.** Individualized marketing campaigns provide information on alternative transportation options that are individualized to the recipient. Participants generally indicate interest in specific transportation modes and programs and applicable information is provided to them either electronically, through the mail, or in person. These programs use survey instruments to identify individuals who are most likely to use alternative modes of transportation and focus marketing efforts on those individuals.

  o Bicycling Strategies
    ▪ Bicycling strategies include basic improvements such as ensuring sufficient bike parking is provided, as well as more sophisticated strategies such as implementing bikesharing programs. These strategies are summarized below:

• **Install Sufficient Bicycle Parking.** Ensure sufficient bike parking is installed at each building or within short walks of groups of buildings. This could include outside racks as well as more secure bike lockers. If areas are identified where people are chaining their bicycles to improper structures (e.g., lamp posts or fences), additional parking is warranted. This should include covered options.

• **Bikesharing Program** (perhaps in cooperation with the City of Tacoma). Local bikesharing programs are emerging in the United States as a possible form of public transportation to link large demand generators with neighborhoods and mixed uses areas nearby. The elements of modern bikesharing systems include:

  ▪ **User accountability.** Users must register online to checkout a bike and are charged for overtime use, as well as charged the full price of the bike plus an administrative fee if they don’t return it.

  ▪ **Liability Insurance.** This is still a big concern for many campuses, but insurance programs are realizing a new market exists.

  ▪ **Location.** Station density should be no more than 330 yards apart. This ensures that users have a bike available at another station and that they can drop off bikes if one station is full. As few as two stations could serve the campus core.
- **Staggered fee system.** Typically bikesharing programs only charge after the first 30 minutes. This incentivizes people to use the bikes for short trips and not overnight, etc. It also frees up the bikes so many people can use them.

- **Creative sponsorship.** Typically local business, advertising agencies, or other private entities are large contributors to bikesharing programs to help defray the long term costs.

- Similar to carsharing programs, bikesharing programs can be very successful at universities with denser, more urban environments as well as at universities with higher parking fees and/or restrictions on student vehicles. Success may be limited at UWT due to high levels of vehicle ownership, few residential students, and the prevailing climate and topography. However, the university should investigate this option in the future, particularly once the Prairie Line Trail and other local bikeways are constructed.

- **Over time, work to institute market rate pay parking** for all visitors, faculty/staff, and students to improve the utilization and turnover of existing parking supplies, encourage the use of alternative modes of transportation, and generate funds that can be used to properly fund ongoing operations, TDM strategies, future parking-related construction projects, etc.

- **Consider providing charging stations for electric vehicles with reserved parking spaces.** As electric vehicles grow in popularity, there may be demand for charging stations. Universities across the country are incorporating limited numbers of charging stations (and associated spaces) in both existing and new parking lots/structures. The number of spaces to provide in the future would depend on the quantifiable demand for charging station access, or could be included as part of an electric vehicle program for university vehicles. It is recommended that UWT start with providing two charging stations in a location that provides hourly parking location (e.g., Court 17 (where electrical conduit is already available) and two charging stations in a primarily permit parking lot (e.g., WT31, near the new Tioga Library), and that all applicable parking policies and fees remain in effect. This would provide charging stations for both transient and longer-term parkers. If demand warrants, additional spaces/stations could be provided. The costs associated with providing charging stations are included in the parking system financial pro forma starting in 2013 (assumed costs are $7,500 per station, not including site work and conduit, and on-going annual electricity costs of $3,000).

- **Ensure both interior and adjacent streets and sidewalks adequately serve the needs of pedestrians, transit users, bicyclists, and vehicles with the focus on serving pedestrians first.** This element can be supported by:
  - The creation of safe, attractive, shaded, and inviting pedestrian linkages to connect adjacent neighborhoods campus destinations, and parking facilities. In addition, ensure crosswalk light timing is appropriate to allow pedestrians to cross safely.
  - Where necessary, using traffic calming strategies such as speed humps, lower vehicle speed limits, on-street parking, etc. (in cooperation with, and with approval from, the City of Tacoma).
Examine how campus linkages can be created to future on and off street bikeways. The current City of Tacoma Mobility Master Plan includes a bicycle pathway on Fawcett Avenue as one of the Top 4 projects, and additional paths, including the Prairie Line Trail, could be provided in the future.

Ensuring all pedestrian and bicycle paths are cleared of snow and ice when needed, and treated to minimize slipping.

Providing amenities such as improved lighting, signage, street furniture, landscaping, etc. in public right-of-ways to support and encourage pedestrian activity.

Sufficient bicycle racks, lockers or other bicycle friendly facilities should be provided on campus.

- Developing, managing, and operating parking as an essential component of campus infrastructure and reducing parking demands over time. This concept can be supported by:
  - Distributing system costs throughout the campus community at a level that can support the funding of future parking resources, improved operations/management, campus shuttles, and TDM strategies.
  - Ensuring all parking resources are efficiently and effectively designed and managed.
  - Maximizing parking utilization by monitoring space utilization, duration, and turnover. Encourage the turnover of short-term parking resources by monitoring activities, communicating with the campus community, as well as through other means such as parking enforcement, appropriately pricing the parking, time limits, etc.
  - Incorporating ground floor commercial activity into parking facility designs (where appropriate) if/when a parking structure is developed in the future.
  - Properly maintaining parking lots (e.g. surfaces, landscaping, lighting, signage, etc.)

- Modifying the identity of campus to make it more understandable and attractive to new and infrequent users. This element is supported by:
  - Actively promoting campus parking and transportation programs including parking availability/locations and alternative transportation options. This can be done using printed materials and through the university’s parking website.
  - Improving campus informational and directional (wayfinding) signage with a special emphasis on available parking resources.
  - Marketing TDM options and communicating the health and environmental benefits of alternative forms of transportation. Marketing strategies could include TDM information on parking maps, additional information on the parking website, advertisements in campus newspapers, information in new student/employee packets, etc.

Initially, it is recommended that the University pursue only those strategies that will have a suitable impact or will be the most likely to be cost effective. These strategies would likely include:

- Nurturing student active transportation groups;
- Personalized transportation services;
- Educational and marketing programs for existing transportation options;
- Ensuring sufficient bicycle parking and accessibility is provided;
- Working to instituting market rate pay parking for all user groups; and,
• Improving the management of the parking system.

Other strategies can be explored, but may not be able to be successfully implemented until certain conditions improve. Potential transportation system improvements/changes that would positively impact the use of alternative forms of transportation would include:

• Improved transit routes, frequencies, and longer operating hours;
• Increased transit provider participation in the U-PASS program (for example, Intercity Transit);
• Increased parking and fuel costs;
• Reductions/changes in non-university controlled parking resources;
• Increased residential accommodations for students; and,
• New bicycle paths in and around campus.

PARKING SYSTEM FINANCIAL PRO FORMA

Figure 8 illustrates the possible financial impacts of the recommendations included in this study (based on the timeframes detailed in each section). The pro forma provides a 10-year projection for parking system revenues and expenses. The project team cannot guarantee that financial projections developed for this report will be realized as actual financial performance will be determined by many factors including: the pace of future campus development projects, fluctuations in campus parking demands, the timing of strategy implementation, parking pricing strategies used by the university, managerial decisions made by UWT, and other decisions made by municipal, county, state, and federal government officials.
### Figure 8. Ten Year Projection of Parking System Revenues and Expenses

<table>
<thead>
<tr>
<th>Expenses (1)</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Projected</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parking Permits (2)</strong></td>
<td>$117,588</td>
<td>$93,971</td>
<td>$175,850</td>
<td>$211,020</td>
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<tr>
<td><strong>Hourly Parking</strong></td>
<td>$200,660</td>
<td>$180,064</td>
<td>$172,540</td>
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<td><strong>Departmental Permits</strong></td>
<td>$1,450</td>
<td>$1,300</td>
<td>$2,450</td>
<td>$2,940</td>
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<tr>
<td><strong>Parking Citations (3)</strong></td>
<td>$26,154</td>
<td>$21,741</td>
<td>$20,490</td>
<td>$22,543</td>
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<tr>
<td><strong>Revenue from New UWT Parking Lots (5)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Revenue from New UWT Parking Struct. (6)</strong></td>
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<td></td>
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<tr>
<td><strong>Total Revenue</strong></td>
<td>$389,684</td>
<td>$350,775</td>
<td>$456,740</td>
<td>$535,328</td>
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</table>

<table>
<thead>
<tr>
<th>Expenses (1)</th>
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<th>2010</th>
<th>2011</th>
<th>Projected</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parking Operations (7)</strong></td>
<td>$179,605</td>
<td>$187,077</td>
<td>$213,589</td>
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<tr>
<td><strong>U-PASS</strong></td>
<td>$144,325</td>
<td>$162,680</td>
<td>$176,506</td>
<td>$181,801</td>
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<td><strong>Parking Coordinator and P/T Admin. (9)</strong></td>
<td>$76,900</td>
<td>$79,207</td>
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<td><strong>Parking and TDM Marketing (10)</strong></td>
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<td><strong>Emergency Call Boxes in Parking Lots (11)</strong></td>
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<td>$56,840</td>
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<tr>
<td><strong>Multi-space Meter Equipment (13)</strong></td>
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<td><strong>New Parking Lot Operating Costs (15)</strong></td>
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<td><strong>New Parking Lot Debt Service (16)</strong></td>
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<td>$121,516</td>
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<td><strong>New Parking Structure Operating Costs (17)</strong></td>
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<td>$231,750</td>
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<tr>
<td><strong>New Parking Structure Debt Service (18)</strong></td>
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<tr>
<td><strong>Total Expenses</strong></td>
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<table>
<thead>
<tr>
<th>Net Income</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Projected</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Net Income</strong></td>
<td>-$103,732</td>
<td>-$169,129</td>
<td>-$93,850</td>
<td>-$34,186</td>
</tr>
</tbody>
</table>

**Notes:**
1. All revenues except U-PASS and Parking Citations are increased 20% in 2012, 15% in 2013, 10% in 2014-2020, and 5% in 2021 to reflect increases in rates.
2. Includes permit revenue from both Diamond lots and UWT lots.
3. Parking Citation revenues are increased 10% per year to reflect improvements in efficiency/effectiveness, increases in parking supplies, and periodic fine adjustments.
4. U-PASS revenues are increased 5% per year to reflect future rate increases.
5. Revenues are estimated based on projected parking revenues for the existing UWT parking lots on a per space basis for each applicable year.
6. Revenues are estimated based on projected parking revenues for the existing UWT parking lots on a per space basis for each applicable year.
7. New parking system expenses except debt service are increased 3% per year.
8. Includes day-to-day parking operations and enforcement costs. Projected costs are reduced by 10% in 2013 due to estimated impact of outsourcing all operations.
9. Debt service for the Court 17 Parking Structure is estimated based on 2009-2011 data provided by UWT.
10. The impact of actual staffing costs will likely be lower than those shown. Some university staff is already providing some parking services, so expenses in other departments would likely be reduced as parking is consolidated into one department.
11. Annual parking and transportation marketing and communications costs are estimated at $7.00 per space (using current UWT parking inventories of 612 spaces).
12. Assumes 8 new call boxes at $5,000 each in 2013, future call boxes of new facilities, and estimated annual operations and maintenance costs of $1,600 in the first year.
13. Parking enforcement equipment for improved operations. Includes handheld citation devices, printers, software, and installation, on-going software fees, etc.
14. Estimated cost to replace the existing multi-space meters (assumes 5 machines and associated equipment).
15. Costs related to electric vehicle charging stations are estimated at $7,500 per station (4 stations) and $3,000 for electricity in Year 1. Electricity cost are increase 3% per year thereafter.
16. Assumes and on-going operating expenses using existing operating methodologies. Includes on-going operating expenses using existing operating methodologies, adjusted to reflect structure costs (based on per space costs in Parking Operations category).
17. Debt service projection assumes terms of 30 years at 5%.
18. Assumes and on-going operating expenses using existing operating methodologies, adjusted to reflect structure costs (based on per space costs in Parking Operations category).
19. Debt service projection assumes terms of 30 years at 5% for the first parking structure. The two other possible structures occur outside of the pro forma timeframe.
CHAPTER 6. RECOMMENDATIONS SUMMARY AND ACTION PLAN

As current UWT parking supplies are already near full utilization, anticipated levels of future campus population growth could create significant parking issues. In order to meet the future parking and transportation needs of the UWT community, several strategies will need to be implemented that will improve the utilization of existing parking supplies (both UWT and other private/public parking spaces), increase the use of alternative forms of transportation, improve parking system management and financial performance, and develop new parking facilities.

The following subsections summarize and prioritize the recommendations included in this report (shown in the recommended order of priority). The following action plan outlines the strategies necessary to meet UWT's future parking and transportation needs. Page number references refer to locations in the report where additional information can be found.

SHORT-TERM (NEXT THREE YEARS)

- Work to improve the utilization of existing parking resources (page 29):
  - Increase parking permit oversells in WT61 and WT40 to 115% and 125%, respectively.
  - Work with parking operators in the Tacoma Dome area to secure off-site parking for UWT faculty, staff, and students. UWT should try to arrange for the use of at least 350 spaces during weekdays. The parking should be provided for a lower price than on-campus parking.
  - Work with the City of Tacoma to improve the utilization of available off-street public parking spaces near UWT. This could include daily parking and/or monthly/quarterly parking arrangements. Parking adjacent to the convention center (both surface and structure spaces) and nearby cultural venues could be included.
  - Work with the City of Tacoma to improve the utilization of available on-street parking spaces by increasing parking time limits in both free and pay parking spaces that are not located adjacent to significant commercial areas. Explore alternatives to sell permits for parking on select blocks with underutilized time-restricted parking.
  - Clearly communicate the respective limitations of parking in off-campus parking facilities to all those that use the parking. This would include clearly noting limitations on permit applications, the UWT website, campus parking maps, new student and employee orientation materials, etc.
  - UWT should communicate the availability of all on-campus and off-campus parking resources through all appropriate channels (parking and transportation website, parking maps, parking/transportation related brochures, etc.).
  - UWT should closely coordinate parking and event activities with off-site parking facility owners to help communicate any changes in parking availabilities to the campus community. Parking availability update options would include notices on the UWT website, email notifications, text message, and campus CCTV announcements.
  - Work with the City of Tacoma to implement additional time limits or pay parking on streets surrounding campus, as well as improve traffic conditions (e.g., either implement one-way traffic on Court D or allow parking on only one side of the street). The goal should be to better align on-street and off-street parking rates to encourage appropriate parking behaviors.
• Work to increase the utilization of alternative forms of transportation (pages 33 and 73):
  
  o Improve the marketing and communication of campus transportation choices. This would include providing presentations and information packets to new/prospective students and new employees, developing new transportation awareness campaigns and materials, providing information for alternative forms of transportation on campus parking maps, etc. Establish a budget for marketing campus parking and transportation options.

  o Work with the City of Tacoma to improve pedestrian and bicycle access to campus. This could include improved pedestrian crossings (improved pavement markings, signs, warning lights, etc.), new/improved bicycle paths, and other campus connections. Continue to support development of the Prairie Line Trail and other local bikeways.

  o Provide improved accommodations for bicycles on campus. This could include additional covered bicycle racks near primary destinations, bicycle lockers, enclosed bicycle storage, and/or changing and shower facilities.

  o Designate carpool parking spaces in prime parking locations on campus. These spaces would require a valid carpool parking permit, and only one permit would be issued per carpool.

  o Expand transportation demand management strategies to include alternative work and class schedules and transit incentives for first-time users.

  o Monitor the success of campus transportation initiatives to adjust approaches and update parking demand projections.

• Increase campus parking rates to more closely match current market rates and fully support campus parking and transportation expenses. Based on anticipated parking demands and parking system needs, it is estimated that parking rates (permits, transient rates, and possibly citation fines) would need to increase 20% in 2012, 15% in 2013, 10% each year in 2014 through 2020, and 5% in 2021 (pages 35, 66, and 75).

• Regularly monitor accessible parking space utilization and adjust supplies and locations as needed to meet the needs of physically-challenged community members (page 57).

• Using recent parking lot signage as a starting point, ensure every UWT parking location has entry signage that clearly identifies the location (using the same name as shown on the campus parking map), lot restrictions, and hours of operation (page 71).

• Work with the campus community to develop a set of parking and transportation guiding principles (page 46).

• Work to create a unified organizational structure for campus parking management, including transportation in the future if appropriate (page 50). This would include placing all parking responsibilities within one department and hiring additional parking management staff.

• Outsource all day-to-day campus parking operations to a qualified parking services provider (page 56).

• Adjust parking permit sales strategies to make parking more convenient and predictable for the UWT community (page 58). Unify all parking permit sales within one department. Provide students with the ability to purchase parking passes online, as well as over the phone. Provide existing parking permit holders with the ability to renew their parking passes before sales open to the general community.

• Review current campus parking facility safety and security issues with local law enforcement and campus security staff (page 59). Apply CPTED principles to all campus parking facilities. Provide emergency call boxes in all existing and future campus parking facilities.
• Work to improve campus parking enforcement (page 60). This would include developing a single parking enforcement organization (potentially outsourcing enforcement to an experience service provider), setting enforcement program goals and metrics, and determining appropriate collection methodologies.

• Through the designated PMO, work to coordinate the special event parking needs of the campus community (page 64). This would include providing parking coordination through one department, coordinating needs with the owners/operators of adjacent parking resources to the greatest extent possible, developing special event parking informational materials, and improving the predictability of visitor parking.

• Purchase electric vehicle charging stations for up to four parking spaces initially (page 75). This would provide vehicle charging capabilities for two transient spaces and two permit spaces. More stations could be added if demand dictates. It is assumed that the initial stations would be purchased and installed by 2013.

• Review short-term activities and results to adjust parking and transportation projections and action items.

MID-TERM (YEARS FOUR THROUGH SIX)

• Design and construct new on-campus surface parking lots, (page 37) or enter into formal agreements to lease an equivalent number of spaces from municipal or other operators:
  ○ Design and construct a new campus parking lot on the northeast corner of Market Street and 19th Street (Lot 5). The parking lot should provide approximately 101 parking spaces and should be open by 2018.
  ○ Lease arrangements could include spaces in Tacoma-owned facilities such as the A Street Garage, Pacific Plaza, or the Convention Center.

• Purchase handheld citation issuance computers and back-office tracking software for the campus parking enforcement program by 2015 (page 62).

• Purchase new multi-space parking meters to replace existing units in 2016 (page 57). Purchase one new multi-space parking meters for the new Lot 5 when it is ready to open (assuming the new lot will provide transient parking).

• UWT should remain an active participant in the planning and development process for the South Downtown Subarea (page 36). This should help the university identify any opportunities for shared parking resources.

• Review mid-term activities and results to adjust parking and transportation projections and action items.

LONG-TERM (AFTER YEAR SIX)

• Design and construct new on-campus parking facilities (page 37), or enter into formal agreements to lease an equivalent number of spaces from municipal or other operators:
  ○ Design and construct four new campus parking lots as follows:
    ▪ Lot 1 would be located on the northeast corner of Tacoma Avenue and 19th Street. The parking lot should provide approximately 101 parking spaces and should be open by 2019.
    ▪ Lot 2 would be located on the on the southeast corner of Market Street and 19th Street. The parking lot should provide approximately 54 parking spaces and
should be open by 2019.

- Lot 3 would be located on the southwest corner of Fawcett Avenue and 19th Street. The parking lot should provide approximately 56 parking spaces and should be open by 2019.

- Lot 4 would be located on the south side of Fawcett Avenue (between 19th Street and 21st Street). The parking lot should provide approximately 36 parking spaces and should be open by 2019.

- Design and construct three new campus parking structures as follows, or enter into formal agreements to lease an equivalent number of spaces from municipal or other operators:
  - Parking Structure #1 would provide 500 spaces and should be open by 2020.
  - Parking Structure #2 would provide 500 spaces and should be open by 2022.
  - Parking Structure #3 would provide 500 spaces and should be open by 2024.
  - The design and construction timeframe for each structure would be approximately 18-24 months. Therefore, sufficient time should be provided to allow each facility to open on schedule.

- Purchase new multi-space parking meters for the new surface parking lots (Lots 1, 2, 3, and 4) and parking structures (assuming transient parking is provided in each location). It is assumed that one meter would be needed for each surface lot and two meters would be needed for each parking structure (only a portion of each structure may provide transient parking).

- As parking demands increase, and nearby land is developed, UWT should investigate the need and feasibility of installing parking access control equipment in campus parking facilities.

- In coordination with the City of Tacoma, investigate opportunities for a bike-sharing program (page 73).

- Review long-term activities and results to adjust parking and transportation projections and action items.
APPENDIX A:
ELECTRONIC SURVEY RESULTS
### Statistics for 2011 Transportation and Parking Survey

**Total submissions: 318**

#### Multiple choice - multiple answers (check)

**Question**
Which of the following best describes you? (select all that apply)

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<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I am a full-time student</td>
<td>215</td>
<td>67.61%</td>
</tr>
<tr>
<td>2</td>
<td>I am a part-time student</td>
<td>32</td>
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</tr>
<tr>
<td>3</td>
<td>I am a faculty member</td>
<td>26</td>
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</tr>
<tr>
<td>4</td>
<td>I am a full- or part-time lecturer</td>
<td>2</td>
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</tr>
<tr>
<td>5</td>
<td>I am a permanent staff member</td>
<td>46</td>
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<tr>
<td>6</td>
<td>I am a temporary staff member</td>
<td>8</td>
<td>2.52%</td>
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#### Matrix - one answer per row (button)

**Question**
For the current academic quarter, how do you USUALLY travel to UW Tacoma? Please answer for each day of the week.

**Row 1**
**Monday**

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Drive alone</td>
<td>184</td>
<td>57.86%</td>
</tr>
<tr>
<td>2</td>
<td>Carpool/Vanpool</td>
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<td>5.97%</td>
</tr>
<tr>
<td>3</td>
<td>Bus/Mass Transit</td>
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<tr>
<td>4</td>
<td>Bicycle</td>
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<tr>
<td>5</td>
<td>Walk</td>
<td>5</td>
<td>1.57%</td>
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<td>6</td>
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<td>7</td>
<td>I don't usually go to campus on this day</td>
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**Row 2**
**Tuesday**

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<tr>
<td>7</td>
<td>I don't usually go to campus on this day</td>
<td>64</td>
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*Calculated using numeric values*

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<tr>
<td>Mode</td>
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<tr>
<td>Min/Max</td>
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<tr>
<td>Standard deviation</td>
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</table>

*Response statistics*  

| Row 1 Mean | 2.65 |
| Row 1 Median| 1.00 |
| Row 1 Mode | 1    |
| Row 1 Min/Max| 1/7  |
| Row 1 Standard deviation | 2.38 |

| Row 2 Mean | 2.29 |
| Row 2 Median| 1.00 |
| Row 2 Mode | 1    |
| Row 2 Min/Max| 1/7  |
| Row 2 Standard deviation | 2.10 |

<p>| Row 3 Mean | 2.63 |
| Row 3 Median| 1.00 |
| Row 3 Mode | 1    |
| Row 3 Min/Max| 1/7  |
| Row 3 Standard deviation | 2.33 |</p>
<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Drive alone</td>
<td>200</td>
<td>62.89%</td>
</tr>
<tr>
<td>2</td>
<td>Carpool/Vanpool</td>
<td>20</td>
<td>6.29%</td>
</tr>
<tr>
<td>3</td>
<td>Bus/Mass Transit</td>
<td>45</td>
<td>14.15%</td>
</tr>
<tr>
<td>4</td>
<td>Bicycle</td>
<td>3</td>
<td>0.94%</td>
</tr>
<tr>
<td>5</td>
<td>Walk</td>
<td>4</td>
<td>1.26%</td>
</tr>
<tr>
<td>6</td>
<td>Other</td>
<td>2</td>
<td>0.63%</td>
</tr>
<tr>
<td>7</td>
<td>I don't usually go to campus on this day</td>
<td>44</td>
<td>13.84%</td>
</tr>
</tbody>
</table>

**Row 3**

Wednesday

Total responses (N): 318  
Did not respond: 0

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Drive alone</td>
<td>182</td>
<td>57.23%</td>
</tr>
<tr>
<td>2</td>
<td>Carpool/Vanpool</td>
<td>18</td>
<td>5.66%</td>
</tr>
<tr>
<td>3</td>
<td>Bus/Mass Transit</td>
<td>48</td>
<td>15.09%</td>
</tr>
<tr>
<td>4</td>
<td>Bicycle</td>
<td>1</td>
<td>0.31%</td>
</tr>
<tr>
<td>5</td>
<td>Walk</td>
<td>5</td>
<td>1.57%</td>
</tr>
<tr>
<td>6</td>
<td>Other</td>
<td>3</td>
<td>0.94%</td>
</tr>
<tr>
<td>7</td>
<td>I don't usually go to campus on this day</td>
<td>61</td>
<td>19.18%</td>
</tr>
</tbody>
</table>

**Row 4**

Thursday

Total responses (N): 318  
Did not respond: 0

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Drive alone</td>
<td>199</td>
<td>62.58%</td>
</tr>
<tr>
<td>2</td>
<td>Carpool/Vanpool</td>
<td>16</td>
<td>5.03%</td>
</tr>
<tr>
<td>3</td>
<td>Bus/Mass Transit</td>
<td>45</td>
<td>14.15%</td>
</tr>
<tr>
<td>4</td>
<td>Bicycle</td>
<td>2</td>
<td>0.63%</td>
</tr>
<tr>
<td>5</td>
<td>Walk</td>
<td>6</td>
<td>1.89%</td>
</tr>
<tr>
<td>6</td>
<td>Other</td>
<td>4</td>
<td>1.26%</td>
</tr>
<tr>
<td>7</td>
<td>I don't usually go to campus on this day</td>
<td>46</td>
<td>14.47%</td>
</tr>
</tbody>
</table>

**Row 5**

Friday

Total responses (N): 318  
Did not respond: 0

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Drive alone</td>
<td>75</td>
<td>23.58%</td>
</tr>
<tr>
<td>2</td>
<td>Carpool/Vanpool</td>
<td>9</td>
<td>2.83%</td>
</tr>
<tr>
<td>Numeric value</td>
<td>Answer</td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------------------</td>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td>1</td>
<td>Drive alone</td>
<td>25</td>
<td>7.86%</td>
</tr>
<tr>
<td>2</td>
<td>Carpool/Vanpool</td>
<td>3</td>
<td>0.94%</td>
</tr>
<tr>
<td>3</td>
<td>Bus/Mass Transit</td>
<td>2</td>
<td>0.63%</td>
</tr>
<tr>
<td>4</td>
<td>Bicycle</td>
<td>1</td>
<td>0.31%</td>
</tr>
<tr>
<td>5</td>
<td>Walk</td>
<td>1</td>
<td>0.31%</td>
</tr>
<tr>
<td>6</td>
<td>Other</td>
<td>2</td>
<td>0.63%</td>
</tr>
<tr>
<td>7</td>
<td>I don't usually go to campus on this day</td>
<td>284</td>
<td>89.31%</td>
</tr>
</tbody>
</table>

**Saturday**

Total responses (N): 318  Did not respond: 0

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Drive alone</td>
<td>12</td>
<td>3.77%</td>
</tr>
<tr>
<td>2</td>
<td>Carpool/Vanpool</td>
<td>1</td>
<td>0.31%</td>
</tr>
<tr>
<td>3</td>
<td>Bus/Mass Transit</td>
<td>1</td>
<td>0.31%</td>
</tr>
<tr>
<td>4</td>
<td>Bicycle</td>
<td>1</td>
<td>0.31%</td>
</tr>
<tr>
<td>5</td>
<td>Walk</td>
<td>1</td>
<td>0.31%</td>
</tr>
<tr>
<td>6</td>
<td>Other</td>
<td>2</td>
<td>0.63%</td>
</tr>
<tr>
<td>7</td>
<td>I don't usually go to campus on this day</td>
<td>300</td>
<td>94.34%</td>
</tr>
</tbody>
</table>

**Sunday**

Total responses (N): 318  Did not respond: 0

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Drive alone</td>
<td>235</td>
<td>73.90%</td>
</tr>
<tr>
<td>2</td>
<td>Carpool/Vanpool</td>
<td>20</td>
<td>6.29%</td>
</tr>
</tbody>
</table>

Multiple choice - one answer (button)

**Question**

Based on your answers to Question #2 above, what is the MOST COMMON way that you travel to the UW Tacoma campus?

Response statistics*

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>1.57</td>
</tr>
<tr>
<td>Median</td>
<td>1.00</td>
</tr>
<tr>
<td>Mode</td>
<td>1</td>
</tr>
<tr>
<td>Min/Max</td>
<td>1/6</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>1.12</td>
</tr>
</tbody>
</table>
Matrix - one answer per row (button)

Question

You indicated on the previous question that you usually drive alone or carpool when traveling to campus. Please tell us HOW OFTEN YOU USE THE FOLLOWING PARKING OPTIONS.

Row 1
Use a permit to park in a UWT lot or garage

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Always</td>
<td>59</td>
<td>25.76%</td>
</tr>
<tr>
<td>2</td>
<td>Usually</td>
<td>13</td>
<td>5.68%</td>
</tr>
<tr>
<td>3</td>
<td>Rarely</td>
<td>10</td>
<td>4.37%</td>
</tr>
<tr>
<td>4</td>
<td>Never</td>
<td>147</td>
<td>64.19%</td>
</tr>
</tbody>
</table>

Row 2
Pay by the hour/day to park in a UWT lot or garage

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Always</td>
<td>21</td>
<td>9.38%</td>
</tr>
<tr>
<td>2</td>
<td>Usually</td>
<td>31</td>
<td>13.84%</td>
</tr>
<tr>
<td>3</td>
<td>Rarely</td>
<td>66</td>
<td>29.46%</td>
</tr>
<tr>
<td>4</td>
<td>Never</td>
<td>106</td>
<td>47.32%</td>
</tr>
</tbody>
</table>

Row 3
Park in a private lot or garage near campus (e.g. the Convention Center)

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Always</td>
<td>1</td>
<td>0.49%</td>
</tr>
<tr>
<td>2</td>
<td>Usually</td>
<td>6</td>
<td>2.93%</td>
</tr>
<tr>
<td>3</td>
<td>Rarely</td>
<td>13</td>
<td>6.34%</td>
</tr>
<tr>
<td>4</td>
<td>Never</td>
<td>185</td>
<td>90.24%</td>
</tr>
</tbody>
</table>

Row 4
Use free street parking near campus

Response statistics*

<table>
<thead>
<tr>
<th>Row 1</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Min/Max</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.07</td>
<td>4.00</td>
<td>4</td>
<td>1/4</td>
<td>1.32</td>
</tr>
<tr>
<td>Row 2</td>
<td>Mean</td>
<td>Median</td>
<td>Mode</td>
<td>Min/Max</td>
<td>Standard deviation</td>
</tr>
<tr>
<td></td>
<td>3.15</td>
<td>3.00</td>
<td>4</td>
<td>1/4</td>
<td>0.98</td>
</tr>
<tr>
<td>Row 3</td>
<td>Mean</td>
<td>Median</td>
<td>Mode</td>
<td>Min/Max</td>
<td>Standard deviation</td>
</tr>
<tr>
<td></td>
<td>3.86</td>
<td>4.00</td>
<td>4</td>
<td>1/4</td>
<td>0.45</td>
</tr>
<tr>
<td>Row 4</td>
<td>Mean</td>
<td>Median</td>
<td>Mode</td>
<td>Min/Max</td>
<td>Standard deviation</td>
</tr>
<tr>
<td></td>
<td>2.83</td>
<td>3.00</td>
<td>4</td>
<td>1/4</td>
<td>1.21</td>
</tr>
<tr>
<td>Row 5</td>
<td>Mean</td>
<td>Median</td>
<td>Mode</td>
<td>Min/Max</td>
<td>Standard deviation</td>
</tr>
<tr>
<td></td>
<td>3.35</td>
<td>4.00</td>
<td>4</td>
<td>1/4</td>
<td>0.85</td>
</tr>
<tr>
<td>Row 6</td>
<td>Mean</td>
<td>Median</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.15</td>
<td>4.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

https://catalyst.uw.edu/webq/results/bmauk/148957
### Row 5
Use metered street parking near campus

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Always</td>
<td>47</td>
<td>21.76%</td>
</tr>
<tr>
<td>2</td>
<td>Usually</td>
<td>38</td>
<td>17.59%</td>
</tr>
<tr>
<td>3</td>
<td>Rarely</td>
<td>35</td>
<td>16.20%</td>
</tr>
<tr>
<td>4</td>
<td>Never</td>
<td>96</td>
<td>44.44%</td>
</tr>
</tbody>
</table>

### Row 6
Use free parking at the Tacoma Dome station and take the LINK

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Always</td>
<td>9</td>
<td>4.15%</td>
</tr>
<tr>
<td>2</td>
<td>Usually</td>
<td>26</td>
<td>11.98%</td>
</tr>
<tr>
<td>3</td>
<td>Rarely</td>
<td>63</td>
<td>29.03%</td>
</tr>
<tr>
<td>4</td>
<td>Never</td>
<td>119</td>
<td>54.84%</td>
</tr>
</tbody>
</table>

### Row 7
Pay to park at a private lot near the Tacoma Dome station and take the LINK

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Always</td>
<td>1</td>
<td>0.48%</td>
</tr>
<tr>
<td>2</td>
<td>Usually</td>
<td>1</td>
<td>0.48%</td>
</tr>
<tr>
<td>3</td>
<td>Rarely</td>
<td>3</td>
<td>1.44%</td>
</tr>
<tr>
<td>4</td>
<td>Never</td>
<td>204</td>
<td>97.61%</td>
</tr>
</tbody>
</table>

Multiple choice - multiple answers (check)

**Question**

You indicated on the previous question that you usually travel to campus by means other than driving alone or carpooling. For those time that you DO drive to campus,
where do you park?

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>None of these--I never drive to campus</td>
<td>17</td>
<td>26.98%</td>
</tr>
<tr>
<td>2</td>
<td>UWT lot or garage</td>
<td>9</td>
<td>14.29%</td>
</tr>
<tr>
<td>3</td>
<td>Private lot or garage near campus (e.g. the Convention Center)</td>
<td>5</td>
<td>7.94%</td>
</tr>
<tr>
<td>4</td>
<td>Free street parking near campus</td>
<td>16</td>
<td>25.40%</td>
</tr>
<tr>
<td>5</td>
<td>Metered street parking near campus</td>
<td>10</td>
<td>15.87%</td>
</tr>
<tr>
<td>6</td>
<td>Free parking at the Tacoma Dome Station</td>
<td>19</td>
<td>30.16%</td>
</tr>
<tr>
<td>7</td>
<td>Private lot near the Tacoma Dome Station</td>
<td>0</td>
<td>0.00%</td>
</tr>
<tr>
<td>8</td>
<td>Other:</td>
<td>2</td>
<td>3.17%</td>
</tr>
</tbody>
</table>

Matrix - one answer per row (button)

**Question**

If additional revenue were available to support programs such as those listed above, please indicate how much you agree/disagree with the following statements about HOW TO USE THE ADDITIONAL REVENUE.

**Row 1**
Reduce the price of U-PASS*

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Strongly Agree</td>
<td>86</td>
<td>27.74%</td>
</tr>
<tr>
<td>2</td>
<td>Agree</td>
<td>62</td>
<td>20.00%</td>
</tr>
<tr>
<td>3</td>
<td>Neutral</td>
<td>104</td>
<td>33.55%</td>
</tr>
<tr>
<td>4</td>
<td>Disagree</td>
<td>21</td>
<td>6.77%</td>
</tr>
<tr>
<td>5</td>
<td>Strongly Disagree</td>
<td>37</td>
<td>11.94%</td>
</tr>
</tbody>
</table>

**Row 2**
Improve bicycle facilities

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Strongly Agree</td>
<td>23</td>
<td>7.47%</td>
</tr>
<tr>
<td>2</td>
<td>Agree</td>
<td>74</td>
<td>24.03%</td>
</tr>
<tr>
<td>3</td>
<td>Neutral</td>
<td>143</td>
<td>46.43%</td>
</tr>
</tbody>
</table>

**Row 3**

**Row 4**
<table>
<thead>
<tr>
<th>Row</th>
<th>Question</th>
<th>Total responses (N): 307</th>
<th>Did not respond: 11</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Improve carpool/vanpool system</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Numeric value</td>
<td>Answer</td>
<td>Frequency</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Strongly Agree</td>
<td>35</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Agree</td>
<td>84</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Neutral</td>
<td>138</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>Disagree</td>
<td>28</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>Strongly Disagree</td>
<td>22</td>
</tr>
<tr>
<td>4</td>
<td>Increase parking space availability</td>
<td>Total responses (N): 316</td>
<td>Did not respond: 2</td>
</tr>
<tr>
<td></td>
<td>Numeric value</td>
<td>Answer</td>
<td>Frequency</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Strongly Agree</td>
<td>212</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Agree</td>
<td>49</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Neutral</td>
<td>34</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>Disagree</td>
<td>11</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>Strongly Disagree</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>Fund academic and student support programs</td>
<td>Total responses (N): 307</td>
<td>Did not respond: 11</td>
</tr>
<tr>
<td></td>
<td>Numeric value</td>
<td>Answer</td>
<td>Frequency</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Strongly Agree</td>
<td>86</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Agree</td>
<td>89</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Neutral</td>
<td>87</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>Disagree</td>
<td>16</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>Strongly Disagree</td>
<td>29</td>
</tr>
<tr>
<td>6</td>
<td>Improve security in campus parking lots</td>
<td>Total responses (N): 307</td>
<td>Did not respond: 11</td>
</tr>
<tr>
<td></td>
<td>Numeric value</td>
<td>Answer</td>
<td>Frequency</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>Strongly Agree</td>
<td>73</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Agree</td>
<td>89</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Neutral</td>
<td>109</td>
</tr>
</tbody>
</table>
Long response

Question

If you have any other ideas about how additional parking revenue could be used, please enter them in the box below.

Total responses (N): 308 Did not respond: 10

Multiple choice - one answer (button)

Question

Do you anticipate purchasing a UW Tacoma parking pass at some point in the future?

Total responses (N): 318 Did not respond: 0

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yes</td>
<td>107</td>
<td>33.65%</td>
</tr>
<tr>
<td>2</td>
<td>No</td>
<td>136</td>
<td>42.77%</td>
</tr>
<tr>
<td>3</td>
<td>Maybe</td>
<td>75</td>
<td>23.58%</td>
</tr>
</tbody>
</table>

Response statistics*

Mean 1.90
Median 2.00
Mode 2
Min/Max 1/3
Standard deviation 0.75

Matrix - one answer per row (button)

Question

Quarterly permit prices for UW Tacoma lots range currently from $52 to $150. If prices for quarterly parking permits were increased to support programs such as those mentioned above, how would the following price changes affect your decision to purchase a permit?

Row 1
$15 price increase

Total responses (N): 182 Did not respond: 0

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No Effect</td>
<td>57</td>
<td>31.32%</td>
</tr>
<tr>
<td>2</td>
<td>Somewhat less likely to buy a permit</td>
<td>57</td>
<td>31.32%</td>
</tr>
<tr>
<td>3</td>
<td>Much less likely to buy a permit</td>
<td>32</td>
<td>17.58%</td>
</tr>
<tr>
<td>4</td>
<td>Would not buy a permit</td>
<td>36</td>
<td>19.78%</td>
</tr>
</tbody>
</table>

Response statistics*

Row1
Mean 2.26
Median 2.00
Mode 1, 2
Min/Max 1/4
Standard deviation 1.10

Row2
Mean 3.13
Median 3.00
Mode 4
Min/Max 1/4
Standard deviation 0.97

Row3
Mean 3.56
Median 4.00
Mode 4
Min/Max 1/4

Statistics are not calculated for this question type.
### Question

**Assuming that a price increase caused you to NOT purchase a quarterly parking permit, please indicate how often you would use the following methods to travel to campus.**

#### Row 1
**Bicycle or walk**

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Always</td>
<td>2</td>
<td>1.23%</td>
</tr>
<tr>
<td>2</td>
<td>Often</td>
<td>3</td>
<td>1.84%</td>
</tr>
<tr>
<td>3</td>
<td>Sometimes</td>
<td>3</td>
<td>1.84%</td>
</tr>
<tr>
<td>4</td>
<td>Rarely</td>
<td>9</td>
<td>5.52%</td>
</tr>
<tr>
<td>5</td>
<td>Never</td>
<td>146</td>
<td>89.57%</td>
</tr>
</tbody>
</table>

#### Row 2
**Take the bus from home or work**

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Always</td>
<td>5</td>
<td>3.03%</td>
</tr>
</tbody>
</table>

### Row 3
**$45 price increase**

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No Effect</td>
<td>10</td>
<td>5.52%</td>
</tr>
<tr>
<td>2</td>
<td>Somewhat less likely to buy a permit</td>
<td>7</td>
<td>3.87%</td>
</tr>
<tr>
<td>3</td>
<td>Much less likely to buy a permit</td>
<td>35</td>
<td>19.34%</td>
</tr>
<tr>
<td>4</td>
<td>Would not buy a permit</td>
<td>129</td>
<td>71.27%</td>
</tr>
</tbody>
</table>

### Response statistics*

<table>
<thead>
<tr>
<th>Row 1</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Min/Max</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4.80</td>
<td>5.00</td>
<td>5</td>
<td>1/5</td>
<td>0.67</td>
</tr>
<tr>
<td>Row 2</td>
<td>Mean</td>
<td>Median</td>
<td>Mode</td>
<td>Min/Max</td>
<td>Standard deviation</td>
</tr>
<tr>
<td></td>
<td>4.22</td>
<td>5.00</td>
<td>5</td>
<td>1/5</td>
<td>1.11</td>
</tr>
<tr>
<td>Row 3</td>
<td>Mean</td>
<td>Median</td>
<td>Mode</td>
<td>Min/Max</td>
<td>Standard deviation</td>
</tr>
<tr>
<td></td>
<td>3.90</td>
<td>4.00</td>
<td>5</td>
<td>1/5</td>
<td>1.27</td>
</tr>
</tbody>
</table>

*Standard deviation**
<table>
<thead>
<tr>
<th>Row 3</th>
<th>Carpool/Vanpool</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total responses (N): 162</strong></td>
<td>Did not respond: 20</td>
</tr>
<tr>
<td><strong>Numeric value</strong></td>
<td><strong>Answer</strong></td>
</tr>
<tr>
<td>1</td>
<td>Always</td>
</tr>
<tr>
<td>2</td>
<td>Often</td>
</tr>
<tr>
<td>3</td>
<td>Sometimes</td>
</tr>
<tr>
<td>4</td>
<td>Rarely</td>
</tr>
<tr>
<td>5</td>
<td>Never</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Row 4</th>
<th>Drive and take the bus from a Park and Ride lot</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total responses (N): 164</strong></td>
<td>Did not respond: 18</td>
</tr>
<tr>
<td><strong>Numeric value</strong></td>
<td><strong>Answer</strong></td>
</tr>
<tr>
<td>1</td>
<td>Always</td>
</tr>
<tr>
<td>2</td>
<td>Often</td>
</tr>
<tr>
<td>3</td>
<td>Sometimes</td>
</tr>
<tr>
<td>4</td>
<td>Rarely</td>
</tr>
<tr>
<td>5</td>
<td>Never</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Row 5</th>
<th>Drive and park at or near Tacoma Dome and take the LINK</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total responses (N): 170</strong></td>
<td>Did not respond: 12</td>
</tr>
<tr>
<td><strong>Numeric value</strong></td>
<td><strong>Answer</strong></td>
</tr>
<tr>
<td>1</td>
<td>Always</td>
</tr>
<tr>
<td>2</td>
<td>Often</td>
</tr>
<tr>
<td>3</td>
<td>Sometimes</td>
</tr>
<tr>
<td>4</td>
<td>Rarely</td>
</tr>
<tr>
<td>5</td>
<td>Never</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Row 6</th>
<th>Drive and pay for hourly/daily parking at a UWT lot</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total responses (N): 167</strong></td>
<td>Did not respond: 15</td>
</tr>
<tr>
<td><strong>Numeric value</strong></td>
<td><strong>Answer</strong></td>
</tr>
<tr>
<td>1</td>
<td>Always</td>
</tr>
<tr>
<td>Numeric value</td>
<td>Answer</td>
</tr>
<tr>
<td>---------------</td>
<td>------------</td>
</tr>
<tr>
<td>1</td>
<td>Always</td>
</tr>
<tr>
<td>2</td>
<td>Often</td>
</tr>
<tr>
<td>3</td>
<td>Sometimes</td>
</tr>
<tr>
<td>4</td>
<td>Rarely</td>
</tr>
<tr>
<td>5</td>
<td>Never</td>
</tr>
</tbody>
</table>

### Row 7
Drive and pay for hourly/daily parking at a private lot near campus

Total responses (N): 166
Did not respond: 16

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Always</td>
<td>5</td>
<td>3.01%</td>
</tr>
<tr>
<td>2</td>
<td>Often</td>
<td>23</td>
<td>13.86%</td>
</tr>
<tr>
<td>3</td>
<td>Sometimes</td>
<td>36</td>
<td>21.69%</td>
</tr>
<tr>
<td>4</td>
<td>Rarely</td>
<td>33</td>
<td>19.88%</td>
</tr>
<tr>
<td>5</td>
<td>Never</td>
<td>69</td>
<td>41.57%</td>
</tr>
</tbody>
</table>

### Row 8
Drive and pay for metered street parking near campus

Total responses (N): 166
Did not respond: 16

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Always</td>
<td>39</td>
<td>23.35%</td>
</tr>
<tr>
<td>2</td>
<td>Often</td>
<td>47</td>
<td>28.14%</td>
</tr>
<tr>
<td>3</td>
<td>Sometimes</td>
<td>30</td>
<td>17.96%</td>
</tr>
<tr>
<td>4</td>
<td>Rarely</td>
<td>21</td>
<td>12.57%</td>
</tr>
<tr>
<td>5</td>
<td>Never</td>
<td>30</td>
<td>17.96%</td>
</tr>
</tbody>
</table>

### Row 9
Drive and use free street parking near campus

Total responses (N): 167
Did not respond: 15

<table>
<thead>
<tr>
<th>Numeric value</th>
<th>Answer</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Always</td>
<td>39</td>
<td>23.35%</td>
</tr>
<tr>
<td>2</td>
<td>Often</td>
<td>47</td>
<td>28.14%</td>
</tr>
<tr>
<td>3</td>
<td>Sometimes</td>
<td>30</td>
<td>17.96%</td>
</tr>
<tr>
<td>4</td>
<td>Rarely</td>
<td>21</td>
<td>12.57%</td>
</tr>
<tr>
<td>5</td>
<td>Never</td>
<td>30</td>
<td>17.96%</td>
</tr>
</tbody>
</table>

Long response

*Question*

Do you have any other ideas or thoughts about transportation and parking at UW Tacoma? If so, please share them in the box below.

Statistics are not calculated for this question type.
APPENDIX B:
PARKING DEMAND MODEL
Total number of FTE equivalent students

Online-based students. These increase parking demand from faculty and staff only

Residential students. Assumes 0.41 Spaces/bed, and that spaces in WT40 will be used for initial demand.

Faculty and Staff Ratios. Should be adjusted for future planning scenarios to reflect lower rates. Use total, not FTE numbers.

Outputs of excess residential parking demand and adjustment to staff ratio to reflect less staff needs for online students.

Current permit spaces. Balance of lot spaces are assumed hourly

Additional hourly or daily off-street spaces available for UWT campus members

Spaces available at Tacoma Dome Sound Transit Commuter Garage for UWT (assumed from current surveys)

Free and unlimited street spaces between 15th – 25th and Tacoma-Pacific and % available for UWT

Metered or hourly restricted spaces near campus. Assumes restrictions end at 6:00 PM and % available for UWT

Non-automotive mode share adjustments

Figure B1. Model Inputs

Basic Input
- Traditional FTE Enrollment: 3234

Campus Settings
- Online-based students: 0
- Residential Students: 0

Faculty/Student Ratio. Current = 225/3662
- Faculty Ratio Adjusted by Online Students: 0.0614
- Staff/Student Ratio. Current = 353/3662
- Staff Ratio Adjusted by Online Students: 0.0964

Residential Student Parking Needs (in excess of WT40): 0

Advanced Inputs

Off-Street Parking Settings
- UWT Permit-Only Spaces: 390
- Additional Hourly/Daily Spaces: 350
- Tacoma Dome Free Spaces for UWT (assumed)

On-Street Parking Settings
- Free Street Parking Spaces: 780
- Assumed % Available for UWT: 85%
- Metered Spaces Near Campus: 250
- Other Short Term Spaces Near Campus: 155
- Assumed % Available for UWT: 60%

Non-Motorized Settings
- Transit Mode Share: 15%
- Walk/Bike Mode Share: 3.5%
- Carpool Rate: 6.0%
With 10% increase in FTE students and all other variables held constant, free street parking near campus will generally be unavailable for core hours of the day.

With 10% increase in FTE students and all other variables held constant, UWT lot utilization would increase, but some permit-only spaces would remain vacant.
Figure B2b. Model Utilization Outputs (example including 10% campus growth)

With 10% increase in FTE students and all other variables held constant, the model predicts the number of spaces that cannot be met under current supply and mode split.

In the campus survey, 3% of students and 4% of faculty indicated that they always or usually parked in a private lot near campus. This percentage was included in the model and provided as an output to check for reasonableness.