PORTLAND COMMUNITY COLLEGE

Transportation Study

Final Report

December 2007

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Executive Summary

Introduction

This study provides Portland Community College (PCC) with direction for the College's shuttle, parking and Transportation Demand Management (TDM) services and activities. The study focuses on services provided by Parking and Transportation Services (PTS) in support of College goals related to the provision of cost effective access to quality education. The report reviews the demand for transportation to, and between, PCC campus and center locations. It also details the current alternatives to single occupant automobile travel as well as the existing parking resources. It concludes with a set of alternative strategies for meeting future transportation needs and offers actions to carry out future strategies. The study was conducted between November 2006 and October 2007. During this period, a number of findings and recommendations were incorporated in PTS planning activities for the 2007/08 academic year.

PTS services and programs respond to the transportation needs of students and staff and help the College meet a number of goals related to providing convenient and affordable access to educational services and to reducing reliance on Single Occupant Vehicle (SOV) travel. These goals are enumerated in various Board policies, City of Portland Transportation Demand Management (TDM) requirements and State of Oregon Employee Commute Options (ECO) rules. The pay parking program, PCC shuttle and discounted transit passes are essential PTS programs that support these goals. PTS has additional initiatives in support of the College's Sustainability Initiative. These include efforts to operate shuttles on biodiesel, use "smart cars" for administrative needs and investigate electric car charging stations.

The study primarily focuses on travel to, and parking at the three primary campus locations – Sylvania (SW Portland), Cascade (N Portland) and Rock Creek (NE Portland/Washington County) as well as the Southeast Center (SE Portland). These facilities draw students from their immediate communities, but student schedules and specialized classes create the need for travel across the district. Approximately 22 percent of students attend more than one PCC facility.[1]

Recent enrollment trends indicate that the Rock Creek and Cascade campuses are growing the fastest. These campuses tend to enroll students from their immediate geographic areas while the Sylvania Campus tends to have students from a wider distribution. All facilities attract some students from across the region.

[1] WRFSCR 4th Week Extracts, Office of Institutional Effectiveness, 10/23/2006

Initial Study Findings

Student and Employee Home Locations

A review of student and employee home addresses (provided by Institutional Effectiveness) shows concentrations of students and staff in:

- North Portland (south and east of Cascade Campus)
- Inner Southeast Portland
- Downtown Portland
- Inner Northwest Portland
- Small pockets northeast and southeast of Sylvania Campus
- Pockets along Sunset Corridor (Hwy 26)
- Pockets along Scholls Ferry in SW Beaverton/Tigard

Identified Trip Needs

The on-line survey conducted for the study asked respondents to identify all of their travel requirements to and from PCC locations (from others locations such as home or work) as well as between PCC campuses and centers.

Intercampus travel, as defined by the demand for trips originating at one PCC campus/center and terminating at another, is required much less frequently than travel to/from other locations. The following groupings identify the most frequently cited trip origins and destinations:

- Greatest number of trips
  - Other Location to Sylvania
- High number of trips
  - Other Location to Cascade
  - Other Location to Rock Creek
  - Sylvania to Other Location
- Moderate number of trips
  - Cascade to Other Location
  - Cascade to Sylvania
  - PSU to Sylvania
  - Rock Creek to Other Location
  - Other Location to SE Center
  - SE Center to Sylvania
  - Sylvania to PSU

Intercampus and Cross-Region Travel

While intercampus travel needs during a single day may not be extensive, cross-region travel on specific days may be substantial. Cross-region trips are those traveling long distances from one

extent of the PCC service district to another. According to the survey, the following intercampus travel needs are often required:

- Cascade to Sylvania
- PSU to Sylvania
- Rock Creek to Sylvania
- SE Center to Sylvania

In addition, four of the top twenty trip origins/destinations from other locations to PCC campuses/centers involve cross-region travel. These account for seven percent of all trips originating at non-PCC locations. These include a number of Washington County locations to the Sylvania Campus.

Transportation Options

TriMet

TriMet serves each of the PCC campuses and centers to varying degrees.

- Cascade – Frequent bus service to downtown and along Killingsworth/82nd
- Rock Creek – Local bus service to Beaverton Transit Center and Max stations
- Southeast - Frequent bus service to downtown and along Killingsworth/82nd
- Sylvania – Frequent (weekdays) bus service to downtown and local service to Lake Oswego and Beaverton Transit Center

Travel times for cross-region trips and travel to Rock Creek on TriMet are lengthy relative to automobile travel.

Current TriMet fares are $65 per month for two zones and $76 per month for all zones. In recent years, (PTS) provided $16 subsidies toward up to 4,300 monthly passes. These were issued on a first come, first served basis to students and employees.

For the 2007/08 academic year TriMet is offering colleges and universities a term pass to all students (no limit on availability) for $193. This represents a slight savings for two-zone transit users and a moderate savings for all-zone travelers. Starting in the Fall 2007 term, PTS is moving the $70,000 budgeted for TriMet passes toward discounted term passes and offering a limited number of them to students for $150.

PCC Shuttle

During the 2005/06 academic year, PTS operated three routes. During the year, the Blue line was modified for the winter term to provide direct Rock Creek to Sylvania service. Relative to the Fall 06 term, ridership on the Winter Term Blue Line increased 67 percent. The other two lines experienced lower levels of ridership which is not atypical as fall terms traditionally see the highest ridership on shuttle services.

Figure ES-1 Recent Shuttle Ridership Levels

	Fall 06	Winter 07	Percent Change
Green Line: Cascade/PSU/Sylvania	16,457	14,185	-14%
Yellow Line: SE/Hawthorne/PSU/Sylvania	12,972	11,557	-11%
Blue Line: Rock Creek/PSU(Fall only)/Sylvania	4,660	7,766	67%

PTS acquired two new full-sized vehicles and instituted a fourth shuttle route for the 2007/08 academic year. The new configuration added the Orange Line between the Sylvania Campus and PSU while eliminating the PSU stop from the Green and Yellow lines. This provides direct travel between Sylvania and both the Cascade Campus and the Southeast Center. It also reduced the number of busses stopping at PSU.

Mode Share

Figure ES-2 highlight student and staff trip mode choice based on the on-line survey results. Cascade Campus users have the greatest use on non-SOV options. And students rely on these options to a greater extent than employees.

Figure ES-2 Mode Splits

All Respondents	Shuttle	TriMet	SOV	Motor-cycle	Carpool	Bike	Walk	Sample Size
Cascade Campus	7%	23%	50%	1%	4%	10%	7%	272
Rock Creek Campus	8%	16%	61%	2%	11%	1%	1%	280
Southeast Center	10%	18%	61%	2%	6%	0%	2%	49
Sylvania Campus	21%	17%	51%	1%	6%	1%	2%	746
All Respondents/All Locations	15%	18%	54%	1%	7%	3%	3%	1,390
Faculty/Staff	**Shuttle**	**TriMet**	**SOV**	**Motor-cycle**	**Carpool**	**Bike**	**Walk**	**Sample Size**
Cascade Campus	5%	9%	73%	0%	3%	7%	3%	75
Rock Creek Campus	3%	4%	82%	3%	6%	1%	0%	68
Southeast Center	5%	5%	89%	0%	0%	0%	0%	19
Sylvania Campus	8%	8%	71%	2%	7%	2%	2%	215
All Faculty/Staff	6%	7%	76%	1%	5%	3%	2%	415

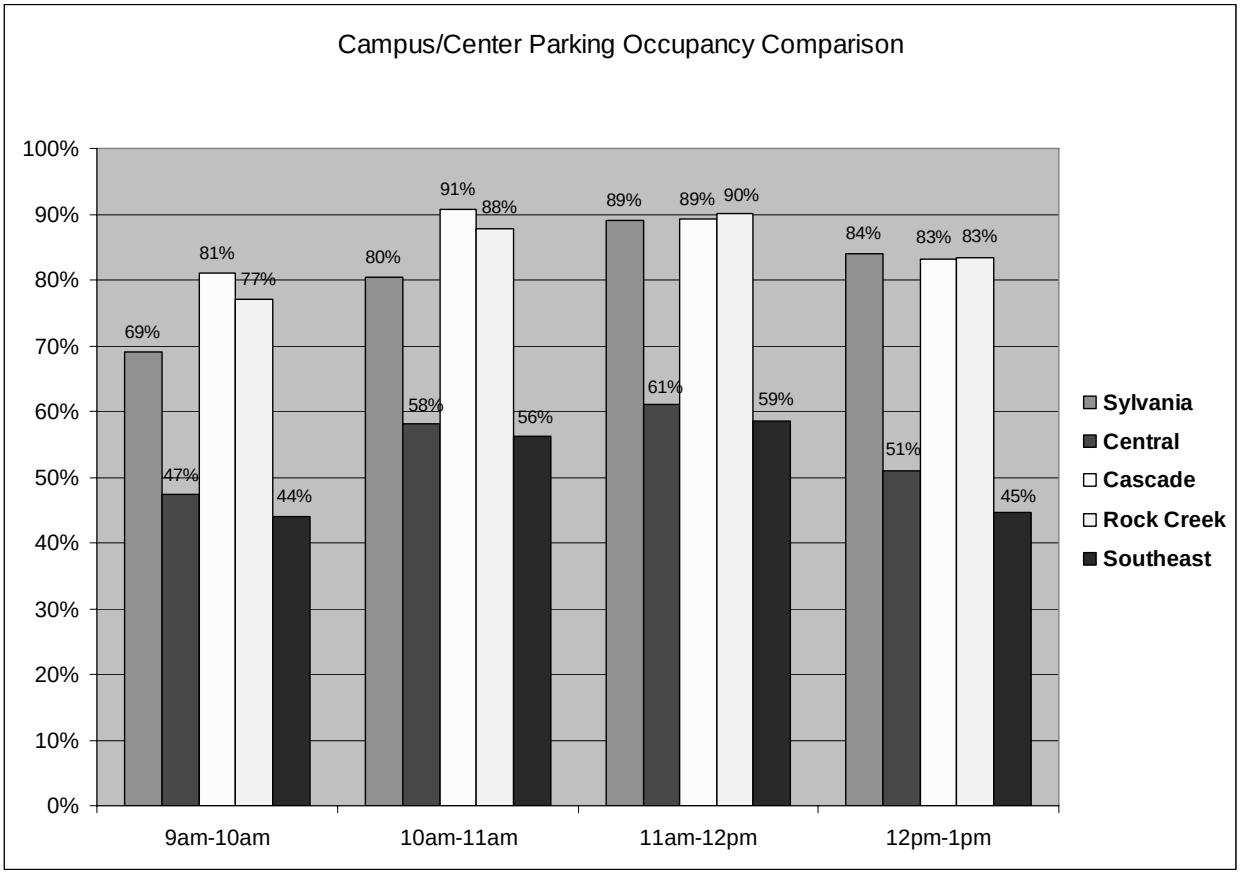
All Students	Shuttle	TriMet	SOV	Motor-cycle	Carpool	Bike	Walk	Sample Size
Cascade Campus	7%	28%	41%	1%	4%	10%	8%	191
Rock Creek Campus	9%	21%	55%	1%	12%	1%	1%	207
Southeast Center	13%	27%	43%	3%	10%	0%	3%	30
Sylvania Campus	26%	21%	44%	1%	6%	1%	2%	519
All Students	18%	23%	45%	1%	7%	3%	3%	950

Note: Results for some categories may not total 100% due to rounding

Parking Lot Occupancy Levels

This study included an inventory of available parking at the PCC campuses and Southeast Center. Data were collected on Tuesday and Thursday mornings between April 17th and April 26th 2006 (weeks three and four of the term). Cascade, and to a lesser degree Rock Creek and Sylvania, experience high occupancy levels during the mid morning. Current plans include the expansion of parking at Cascade by 54 spaces (church property in northwest corner of lot) and by 36 spaces (spaces behind Paragon Club).

Figure ES-3 Parking Occupancy Levels by Location



Travel Behavior and Opinions

This study included an on-line survey of students, faculty and staff to ascertain data on their travel behavior and their opinions on parking and transportation options. Survey responses were solicited over a two-week period ending March 23rd 2007. An email solicitation and follow up email were sent to all employees and enrolled students. 1,322 respondents participated in the survey. Faculty and staff had the greatest level of participation with 34 percent (421 out of 1,242 based on Fall 06 full-time staff) taking part. Only four percent of all students (899 out of 23,827 registered Fall 06 Credit students) provided their inputs. This rate is closer to eight percent when looking at just full-time students (662 out of 8,661 based on Fall 06 enrollment).

Major findings include:

- 70% claim TriMet is available and 66% have used it if available
- 38% claim a PCC Shuttle is available and almost 80% have used it if available
- More than half of shuttle riders take other modes to reach it
  - Drive to PCC campus/center in order to board (15%)
  - Transfer from TriMet or Streetcar (over 20%)
  - Bike (8%)

- If shuttle were not available, riders are split among their options
  - Use TriMet (40%)
  - Drive alone (34%)
  - Not attend/work at PCC (14%)
- Reasons For not using TriMet include
  - Long travel times
  - Long waits for buses
  - Need car for other reasons
  - Feel most comfortable driving their own car
- Reasons for not using PCC Shuttle include
  - Long waits for shuttles
  - Shuttle does not go where they live
  - Need car for other reasons
- Employees are more sensitive to long travel times and waits
- Safety concerns while bicycling to PCC are greatest barriers to bike commuting
- Respondents are more likely to ride public transportation if they can rely on high quality service to PCC in terms of high frequency of service and short travel times
- The cost to drive is becoming a consideration when thinking about using public transportation
- There is more support than opposition for the ideas of a student fee that would go directly to subsidize new shuttle routes or lower the cost of using TriMet services (the average response for students is equal to that for faculty/staff for this statement)
- Respondents do not feel they know how to find potential carpool partners
- Respondents do not feel that parking fees at PCC are unaffordable

Transportation-Related Goals and Strategies

The study outlines a set of transportation strategies available to Portland Community College (PCC) and relates these actions back to goals defined by the College. The array of goals is derived from various PCC policies including Board of Directors Goals, Board Policies, PCC Mission Statement and Transportation Demand Management plans. The potential strategies build upon current PCC programs and address the findings of the Transportation Study to date. Most of these strategies relate to programs provided by Parking and Transportation Services (PTS).

Parking and Transportation Services Goals

The following goals are directly impacted by the investment in transportation services and/or policies set forth by the College.

> **Improve Access:** From a transportation point of view, access can refer to the facilitation of student travel to PCC campus and center locations.

Reduce Reliance on Single Occupant Vehicle (SOV) Travel: By reducing student and employee dependence on (SOV) travel, PCC benefits in terms of: reduced need to expand parking capacity and realizing associated costs savings; compliance with state and city programs and regulations that seek to minimize vehicle miles traveled and/or parking requirements; and support for college's role in "moving toward sustainability" as part of the formal Sustainability Initiative.

Maintain Affordability: PCC strives to retain the College as a low-cost provider of higher education. This is of special concern when considering that over 40 percent of students receive some form of financial aid.

PTS Financial Integrity: PCC Parking and Transportation Services is funded from parking permit fees and parking enforcement revenue. Costs for shuttle services and public transportation subsidies, along with costs to maintain and operate parking facilities, are solely covered by these revenues. To sustain PTS operations, future revenue sources and cost containment approaches need to guarantee that ample operating funds and reserves are available.

Recommended Strategies

The following strategies are available to PCC to meet the above goals. The table in Figure ES-4 highlights each strategy in terms of

- A description of the strategy;
- Its ability to achieve the previously defined goals; and
- A recommended implementation "action," indicating whether the strategy should be:
  - Pursued in the short-term (next 1-2 years)
  - Conducted on an on-going basis
  - Explored to resolve open issues (including stakeholder buy-in)
  - Monitored for potential future action
  - Considered unviable

Figure ES-4 Potential PTS Strategies

	Ability to Meet Goals				Action
	Improve Access	**Reduce SOV Travel**	**Maintain Affordability**	**PTS Financial Integrity**	
Shuttle-Related Strategies					
1. Focus shuttles on intercampus travel	○	○	○	●	Implement as part of Strategy #3
2. Provide shuttle service to areas not served by TriMet	●	●	○	⊗	Not Currently Viable
3. Provide shuttle service in regional corridors where TriMet doesn't have convenient and timely service	●	●	⊗	●	Implement in Short-Term (Explore elimination of Orange Line)
4. Expand service to address weekend and summer needs	●	○	○	⊗	Not Currently Viable
5. Coordinate shuttle schedules with class schedules	○	●	○	○	On-going
6. Connect SE Center with new I-205 light rail station	●	●	○	○	Not Currently Viable
TriMet Supportive Strategies					
7. Expand TriMet subsidy program	○	●	●	⊗	Implement in Short-Term
8. Enable employees to use pre-tax payroll deductions for TriMet fares	○	●	○	○	Implement in Short-Term
9. Provide employee incentives to use transportation options	○	●	○	⊗	Explore

Key for Ability to Achieve Goal			
Very Good/Strong	●	Poor	○
Moderate	●	Adverse Impact on Goal	⊗

	Ability to Meet Goals				Action
	Improve Access	**Reduce SOV Travel**	**Maintain Affordability**	**PTS Financial Integrity**	
Pricing Strategies					
10. Increase parking permit fees	○	●	⊗	●	Explore (with short-term inflation adjustments)
11. Charge nominal fare for shuttle usage	○	○	○	◉	Not Currently Viable
12. Institute transportation fee	○	●	⊗	●	Explore
Land Use and Development Strategies					
13. Site new facilities on high-capacity transit	◉	●	○	○	On-going
14. Relocate staff relocation to free up parking	○	◉	○	◉	Monitor
15. Add parking capacity to address spillover	◉	⊗	○	⊗	Monitor
Bicycle and Pedestrian Strategies					
16. Provide additional secure/covered bike parking	○	○	○	○	On-going
17. Provide additional amenities and incentives for bike commuters	○	○	○	○	Explore
18. Highlight preferred bike commute routes to campus/center locations.	○	○	○	○	Implement in Short-Term
Other Strategies					
19. Increase promotion of transportation options	○	○	○	○	On-going
20. Investigate vanpool opportunities	○	○	○	○	Not Currently Viable

Key for Ability to Achieve Goal			
Very Good/Strong	●	Poor	○
Moderate	◉	Adverse Impact on Goal	⊗

In the long term, opportunities exist for PTS to expand services and/or address significant cost increases. But additional revenues need to be identified and realized in order to provide future levels of service. Future revenue must be ambitious in that they should be increased over what they are today. Additional revenues are required to maintain current operations and to further encourage the use of transportation options. Future costs may include:

- Meeting rising costs;
- Providing adequate reserves for vehicles replacement and unexpected expenses;
- Providing for increased transit subsidies;
- Providing for shuttle route expansion
- Providing for increased marketing activities including promotions

Long-term plans should address how any increased revenues will be utilized. The benefits of new, or expanded services, need to be quantified and correlated with specific revenue increases in order to gain support for the revenue increasing strategies. Strategies 10 (Increase parking permit fees) and 12 (Institute transportation fee) have the greatest potential to increase PTS revenues but are the most controversial as they rely on small fee increases to either those parking on campus or to all students. Survey results indicate that more than half of the students may support such increases while less than a quarter of the students would oppose such increases. As seen at other city/community colleges, fee increases may be waived for students participating in appropriate financial aid programs. The possible implementation of these strategies will require the exploration of their policy impacts, buy-in from the Board and student groups, and the ability to maintain long-term affordability for those on constrained budgets.

Comprehensive Transportation Plan

PTS should update 1992 Transportation Demand Management (TDM) Plan to provide a comprehensive transportation plan to guide the delivery of parking and transportation services at PCC. PTS will benefit from a current document that presents short- and long-range plans. In addition to documenting internal goals, constraints and actions, the plan should address any planning requirements from other organizations or agencies. This may include TDM directives from the City of Portland, State of Oregon Employee Commute Options (ECO) program etc.

The 1992 plan provides a background on transportation issues as of 1991 and presents goals for reducing reliance on SOV travel and increasing use of transit, ridesharing and bicycle commuting. Much has changed in the last 15 years including implementation of the plan-recommended pay parking system and the institution of the PCC shuttle system. An update to the plan should address a broad spectrum of PTS activities, many of which extend beyond what are typically considered TDM approaches. Therefore the plan title should be updated as well to reflect the comprehensive set of transportation issues addressed.

Finalization of the update is dependent on decisions regarding short- and long-term strategies and actions. While the update could be used to define potential options for future programs and services, it should focus on “approved” actions where possible. Discussions of future scenarios should include plans for resolving open issues and deciding on final approaches.

Plan Attributes

A formal comprehensive plan is suggested as a means to document existing services and future courses of action and should provide the following benefits:

- Define goals for PTS;
- Define action items;
- Define timelines for action items;
- Define PTS budgetary requirements;
- Communicate goals and action items within PCC;
- Track progress toward goals and action items; and
- Address planning requirements for external entities.

The following plan elements should be included in a comprehensive transportation plan:

- Shuttle service
- Parking management
- Capital investments
- Marketing program
- TDM program
- Sustainable transportation initiatives

Plan Monitoring and Evaluation

PTS should continually review and evaluate transportation and parking programs. This will involve the setting of performance goals and the collection of data to measure operations against these goals. Adherence to these goals should indicate whether or not things are working or if remedial actions may be needed. These goals should be quantitative where feasible (such as percent of students using transit or percent of parking space utilized). Other should use objective pass/fail tests so that there is no ambiguity as to whether or not something is working (such as shuttle on-time performance).

To be effective in monitoring operations, performance goals must rely on data that are easy to ascertain and process. Data collection and reporting should not be burdensome to avoid long lags between review cycles. Similarly evaluation procedures should be objective in nature, avoiding any subjective use of data or results.

Some of the required data will be available from normal operations including shuttle ridership, permit and pass sales and financial results. Other data needs may necessitate sporadic data collection efforts including student and staff surveys and parking capacity surveys.

Chapter 1. Introduction

Scope and Purpose of Plan

This study provides Portland Community College (PCC) with direction for the College's shuttle, parking and Transportation Demand Management (TDM) services and activities. The study focuses on services provided by Parking and Transportation Services (PTS) in support of College goals related to the provision of cost effective access to quality education. The report reviews the demand for transportation to, and between, PCC campus and center locations. It also details the current alternatives to single occupant automobile travel as well as the existing parking resources. It concludes with a set of alternative strategies for meeting future transportation needs and offers actions to carry out future strategies. The study was conducted between November 2006 and October 2007. During this period, a number of findings and recommendations were incorporated in PTS planning activities for the 2007/08 academic year.

Planning Context

This section highlights language in college plans and policies that may offer guidance for Parking and Transportation Services. It also highlights two tax programs that can have a bearing on PTS programs and services.

Educational Master Plan

The Educational Master Plan: Strategic Directions And Action Areas (December 2002) calls for expanded access for students through enhanced public transportation (Facilities Key Area/Strategic Direction 2/Action Areas). This is part of an overall strategy to explore alternate delivery systems to meet changing community needs. The EMP also acknowledges both a sensitivity to students' ability to pay and the cost of operations when setting fees, including parking fees (Student Access and Development Key Area/Strategic Direction 2/Action Areas). This is part of an overall strategy to retain the College as a low-cost provider of higher education.

Board Policies

Board Policy B 602 (Parking at College Facilities) highlights a parking program goal to encourage a reduction in the use of single occupancy vehicles. This policy specifies the use of parking fees and the provision of alternate transportation options in meeting this goal.

Transportation Demand Management Plans

Transportation Demand Management (TDM) Plans detail the College's programs in place to reduce the demand for single occupant automobile travel to the campuses and centers. In addition to reducing the need for parking at PCC locations, these programs support City of Portland and State of Oregon goals related to congestion reduction, air quality improvement and parking management.

A TDM Plan for the Cascade Campus was updated in November 2002 in response to an Impact Mitigation Plan (IMP) for the recent development at this campus. In their approval of the IMP, the City of Portland required an update to the TDM plan. In addition to the TDM elements, PCC created a Transportation Task Force to work with the NE Portland communities to address

parking overflow issues. Parking and Transportation Services also increased parking enforcement efforts on neighborhood streets surrounding the Cascade Campus.

The TDM Plan highlights that the College provides employees at the Cascade Campus with access to Flexcar shared cars to encourage an alternative to driving alone. The hope was that more employees with take transit or carpool if they had access to Flexcar vehicles for midday errands. The Flexcar program was terminated at the start of the Fall 07 term. College rules prohibit the use of college funds for what can be construed as a non-college activities or benefits. The use of Flexcar for personal errands has been called into question in relation to these rules. At the same time, the Flexcar benefit created a significant expense for PTS, and most of those using shared vehicles during the day still drove personal vehicles to the campus each day.

The Cascade Campus TDM programs include:

- Fee-based parking for PCC students, employees and visitors
- Subsidized TriMet fares
- PCC Shuttle
- Bicycle and pedestrian improvements
- Reduced parking fees for student carpools
- Compressed school-weeks
- Distance Learning
- On-line and telephone registration
- Promotion of transportation options

A college-wide TDM Plan was developed in 1992. This plan laid the groundwork for the PCC pay parking system. The plan details specific goals and associated recommendations for:

- A reduction in single occupant vehicle trips (20% by 1997)
  - Via a pay parking system
- An increase use of transit, carpools and bicycling
  - Via discounted transit passes and reduced parking fees for carpool participants
- Improved parking circulation
- A reduction in auto/pedestrian conflicts on PCC facilities and in neighboring communities
- A reduction of peak-period traffic impacts

Employee Commute Options - ECO

Under the Oregon Department of Environmental Quality (DEQ) Employee Commute Options (ECO) program, employers with more than 100 employees must provide commute alternatives to employees designed to reduce the number of cars driven to work in Portland and surrounding areas.

Employers must provide commute options that have the potential to reduce employee commute auto trips by 10% within three years of its baseline survey. Employers must continue to provide commute options that have the potential to achieve and maintain the reduced auto trip rate.

Options are available for alternative emission reduction measures, credits for past actions, and exemptions.

PCC is required to periodically survey employees regarding their mode of travel to work. The drive-alone mode share is measured against a goal of 81%. Based on the 2006 survey results, DEQ has credited the PCC trip reduction programs, indicating the College is in compliance with the ECO rule.]

Federal and State Tax Programs

The following programs are relevant when considering PTS services and programs. The federal commuter tax benefit law permits PCC staff to pay for parking with pre-tax dollars and is available to allow similar savings for transit users. And in Oregon, the Business Energy Tax Credit system may be able to help fund services that can show a reduction in energy use.

Commuter Tax Benefits

The federal tax code allows employers to provide tax-free transit, vanpool and parking benefits to their employees. These "qualified transportation fringe" benefits can be deducted from corporate gross income for purposes of taxation when paid for by an employer. In addition, both the employer and employee save on taxes since neither pays federal income or payroll taxes on these benefits – up to a the current limit of $110 per month for transit and vanpool benefits and $215 for qualified parking..

The employer can cover the full cost of the qualified transportation fringe benefit or the employer can allow employees to reserve income on a pre-tax basis to cover the costs of a qualified transportation fringe benefit or the employer and employee can share the costs of the benefit. In the first case, the employer could pay the entire cost (up to the $110 monthly limit) of a vanpool seat or transit pass allowing the employee to ride for free. In the second scenario, the employer would deduct the value of the transit benefit or parking fee from the employees paycheck before taxes and dedicate the funds toward the applicable benefit. Third-party companies are available to administer the transaction for vanpools and transit, so employers only need to set up a payroll deduction and the third party procures the fare instrument for the employee. Or the employer can contribute towards a partial subsidy, requiring the employee to make up the difference. This may be the case when the total benefit value exceeds the federal limit (in which case all of the employee contribution is made post payroll taxes) or when the employer cannot fully subsidize the benefit (in which case the employee contribution is pre-tax to the point where both the employer and employee contributions reach the limit). PCC currently provides payroll deductions for employee parking permit fee, allowing faculty and staff to pay for the permits pre-tax and realize a discount equal to their tax rate.

Business Energy Tax Credit

In Oregon, entities who invest in transportation projects that reduce miles traveled in Oregon may be eligible for a Business Energy Tax Credit (BETC). The tax credit is 35% of eligible project costs and is filed over five years. For projects with eligible costs of $20,000 or less, the tax credit may be taken in one year. Unused credits can be carried forward up to eight years. Tax credits are potentially available for purchasing vehicles for vanpooling, vehicles for transporting riders (either employees or visitors) or vanpool/bus service fee. Other incentives that encourage employees to use transit, carpool, or vanpool may be eligible for a tax credit.

A tax credit recipient must have an Oregon tax liability or partner with another entity that can provide a lump-sum cash payment in return for a transfer of the tax credit via the BETC Pass-through Option. The Oregon Department of Energy determines the rate that is used to calculate the cash payment. It should be noted that finding pass-through partners may be difficult at times.

Organization of Report

The remaining chapters of this report are structured as follows:

- **Chapter 2** provides some additional background information about PCC campus and center locations along with some data on student enrollment and specialized classes at these facilities.
- **Chapter 3** summarizes student and staff travel needs based on college data and survey results.
- **Chapter 4** reviews the transportation alternatives available to students and staff and examines each option's mode share.
- **Chapter 5** details the PCC parking program and presents the results of a parking occupancy survey.
- **Chapter 6** presents the survey results detailing student and staff travel behavior and their opinions on transportation issues.
- **Chapter 7** identifies a set of goals for PTS and provides a set potential strategies for meeting these goals.
- **Chapter 8** recommends which strategies PTS should move forward with and outlines short- and long-term actions.
- **Chapter 9** discusses the development and maintenance of a comprehensive transportation plan where PTS can capture all planning elements related to PTS operations.
- **Chapter 10** outlines a series of performance measurement metrics and analysis concepts.

Chapter 2. Campuses and Centers

This chapter describes the various campuses and centers where Portland Community College (PCC) delivers educational programs. It also presents data on the students, faculty and staff at these locations.

The PCC service district includes the school districts of Portland, Sauvie Island and Riverdale in Multnomah County; Lake Oswego in Clackamas County; St. Helens, Scappoose and Vernonia in Columbia County; Newberg in Yamhill County; and all of Washington County. PCC operates three large, comprehensive campuses and five smaller education centers across the district. Figure 2-1 highlights the general location and type of development for the Rock Creek, Sylvania and Cascade campuses as well as the Southeast Center, the largest of education centers. The development type parameter indicates whether the facility is an "enclosed" campus or integrated within an adjacent neighborhood. Being integrated into neighborhoods, the Cascade Campus and Southeast Center are more prone to parking spillover problems where students and staff may attempt to park on local streets to avoid congested parking lots or paying for parking permits. Parking management strategies and enforcement are required to control spillover. The map in Figure 2-2 shows the locations of these facilities.

Figure 2-1 Campus Characteristics

	Rock Creek Campus	Sylvania Campus	Cascade Campus	Southeast Center
Location	NW Portland/Washington County	SW Portland	N Portland	SE Portland
Distance from downtown Portland (miles)	9.6	6.3	2.7	4.6
Development Type	Campus	Campus	Neighborhood	Neighborhood

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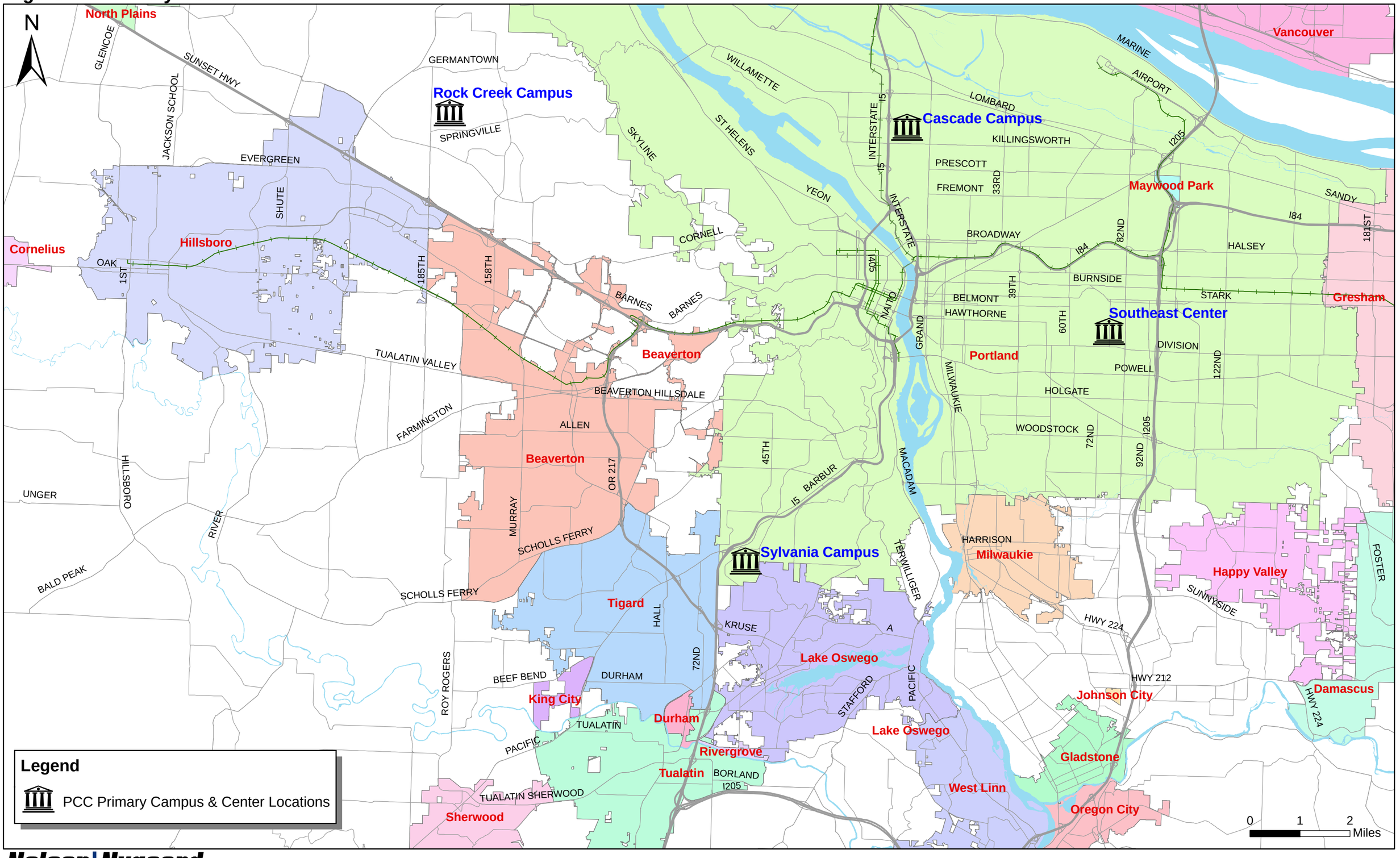
Figure 2-2 Primary PCC Facilities



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College and Campus Attendance

Over 1.3 million college-age residents live within the 1,500-squaremile district. More than 22,000 credit and over 39,000 non-credit students took classes at PCC facilities in the fall of 2005.[1] The student body, along with over 3,600 full- and part-time faculty and staff, generate thousands of daily trips to and from PCC locations. Figure 2-3 shows enrollment by campus. Southeast Center enrollment is included under the Extended Learning Campus along with the three main workforce training centers. The headcount provides a count of the total number of students who attend PCC at some point during the term. Full-time-equivalent (FTE) represents effective number of students attending full-time for a full academic year.

Figure 2-3 Enrollment by Facility (Fall Term 2005)

	College-wide	Sylvania Campus	Cascade Campus	Rock Creek Campus	Extended Learning
Credit Headcount					
Full-time	8,369	3,152	1,056	1,426	217
Half-time	8,225	4,396	2,176	2,377	516
Part-time	7,686	5,399	3,541	3,768	1,631
Total Headcount	24,280	12,947	6,773	7,571	2,364
On-Campus Credit FTE	5,476	2,568	1,190	1,395	301
Headcount by Class Time					
Day	57%	64%	55%	55%	44%
Evening	34%	31%	36%	36%	28%
Weekend	9%	5%	8%	9%	28%

Source: Office of Institutional Effectiveness, eFactbook 2005-06
Note: On-Campus FTE includes and on-campus and on-campus/distant learning hybrid students

College enrollment reached a record high in 2002-03 academic year. State funding declined significantly in 2003-04 and the definition of "reimbursable" courses was revised/restricted, resulting in a sharp drop in enrollment. Since then enrollment has leveled off with the Cascade and Rock Creek campuses showing moderate growth over the last five years.

[1] PCC Institutional Effectiveness office, 2005-60 Fact Book

Figure 2-4 Trends in PCC Enrollment

Five Year Trends in Annual FTE Enrollment			
	02-03 to 06-07	04-05 to 06-07	05-06 to 06-07
College	-11.70%	-1.70%	0.90%
Sylvania	-6.90%	1.10%	-1.60%
Cascade	-2.30%	3.80%	4.10%
Rock Creek	-1.00%	5.50%	3.40%

Source: Office of Institutional Effectiveness

Campus Specializations

Approximately 22% of students attend more than one PCC facility . Scheduling conflicts and varied student work schedules may account for some multi-campus attendance, but a large part is due to program specializations. A number of academic specializations are concentrated in one of the three primary campuses. Students enrolled in these programs can take their general education classes at the facility near their home or worksite, but are required to travel for specialized classes. Figure 2-5 shows some of the specialized courses exclusively offered at the three campuses.

Figure 2-5 Campus Specializations

Sylvania Campus	Cascade Campus	Rock Creek Campus
• Architectural Drafting • Automotive Technology • Civil/Mechanical Eng • Computer Information Systems • Dental Assisting • Dental Hygiene • Dental Lab Technology • Early Childhood Education • Electronic Engineering • Engineering/Transfer • Foods & Nutrition • Graphic Design • Industrial Drafting • Interior Design • Machine Technology • Nursing Programs • Publishing • Radiography • Real Estate	• 911 Emergency Dispatch • Alcohol and Drug Counselor • Apprenticeship • Criminal Justice • Education/Library Media • Emergency Medical Technician • Emergency Medical Technology • Fire Protection Technology • Health Information Management • Medical Assisting • Medical Lab Technology • Multimedia • Ophthalmic Medical Technician • Paralegal • Professional Music • Trade Extension	• Auto Body/Collision • Aviation Maintenance Technology • Aviation Science • Biotechnology • Building Construction Technology • Diesel Technology • Environmental Studies • Horticulture • Landscape Technology • Microelectronics • Veterinary Technology • Welding Technology

Figure 2-6 details student resident locations by their primary campus. Rock Creek and Cascade students tend to live near their primary campus while the Sylvania Campus tends to have students from a wider distribution across the district. All facilities attract some students from across the region. Comparing the 2004/05 and 2005/06 academic years shows Cascade and Rock Creek campuses drawing even more from their local areas in the more recent year.

Figure 2-6 Student Residency by Campus

Distribution of Students by the PCC District Service Area in which they Reside	2004-2005			2005-2006		
	Sylvania	Cascade	Rock Creek	Sylvania	Cascade	Rock Creek
Upper North/Northeast Portland	5.4%	18.7%	4.2%	5.9%	20.2%	4.2%
Inner City/Holladay Park	8.0%	10.6%	3.2%	7.3%	11.3%	3.0%
Central East County	6.3%	9.5%	2.8%	6.0%	9.8%	2.6%
Southeast Portland	9.1%	8.9%	3.5%	8.5%	10.2%	3.2%
Lake Oswego/SW Portland	12.0%	4.4%	2.7%	12.1%	4.3%	2.4%
Downtown/Inner NW/Inner SW Portland	4.9%	3.6%	2.0%	5.0%	4.0%	2.0%
Outer SW Portland/Beaverton	8.2%	4.2%	7.3%	7.9%	4.5%	8.2%
Aloha/Farmington	10.5%	8.1%	22.9%	11.6%	7.3%	24.3%
Tigard/Tualatin/King City	14.4%	5.4%	3.7%	14.4%	5.9%	3.5%
Hillsboro/Forest Grove	7.8%	7.3%	25.8%	7.6%	7.7%	25.1%
Yamhill County/Sherwood	3.8%	1.8%	1.7%	4.0%	1.7%	1.6%
Rock Creek/West District	0.7%	1.2%	2.6%	0.7%	0.6%	2.9%
Columbia County/Hwy 30 Corridor	1.7%	2.2%	4.7%	1.6%	1.6%	4.6%
Outer Northwest/St. Johns	3.6%	3.3%	10.7%	3.7%	3.2%	10.2%
Washington State	3.7%	10.9%	2.2%	3.7%	7.9%	2.2%

Source: Office of Institutional Effectiveness
Note: Data for SE Center were not disaggregated from Extended Learning Campus data

Chapter 3. Student and Faculty/Staff Travel Needs

This chapter presents attributes related to PCC student and employee commute patterns. The demand for travel is primarily based on student/staff home and/or non-PCC work locations in conjunction with their class/work schedules.

Home Locations

The map in Figure 3-1 presents the concentration of student and employee home locations as specified by PCC Institutional Effectiveness. Public transportation and shared ride programs (e.g. carpools and vanpools) are more effective when serving such large numbers of commuters over small geographic areas. High densities of PCC commuters can be found in:

- North Portland (south and east of Cascade Campus)
- Inner Southeast Portland
- Downtown Portland
- Inner Northwest Portland
- Small pockets northeast and southeast of Sylvania Campus
- Pockets along Sunset Corridor (Hwy 26)
- Pockets along Scholls Ferry in SW Beaverton/Tigard

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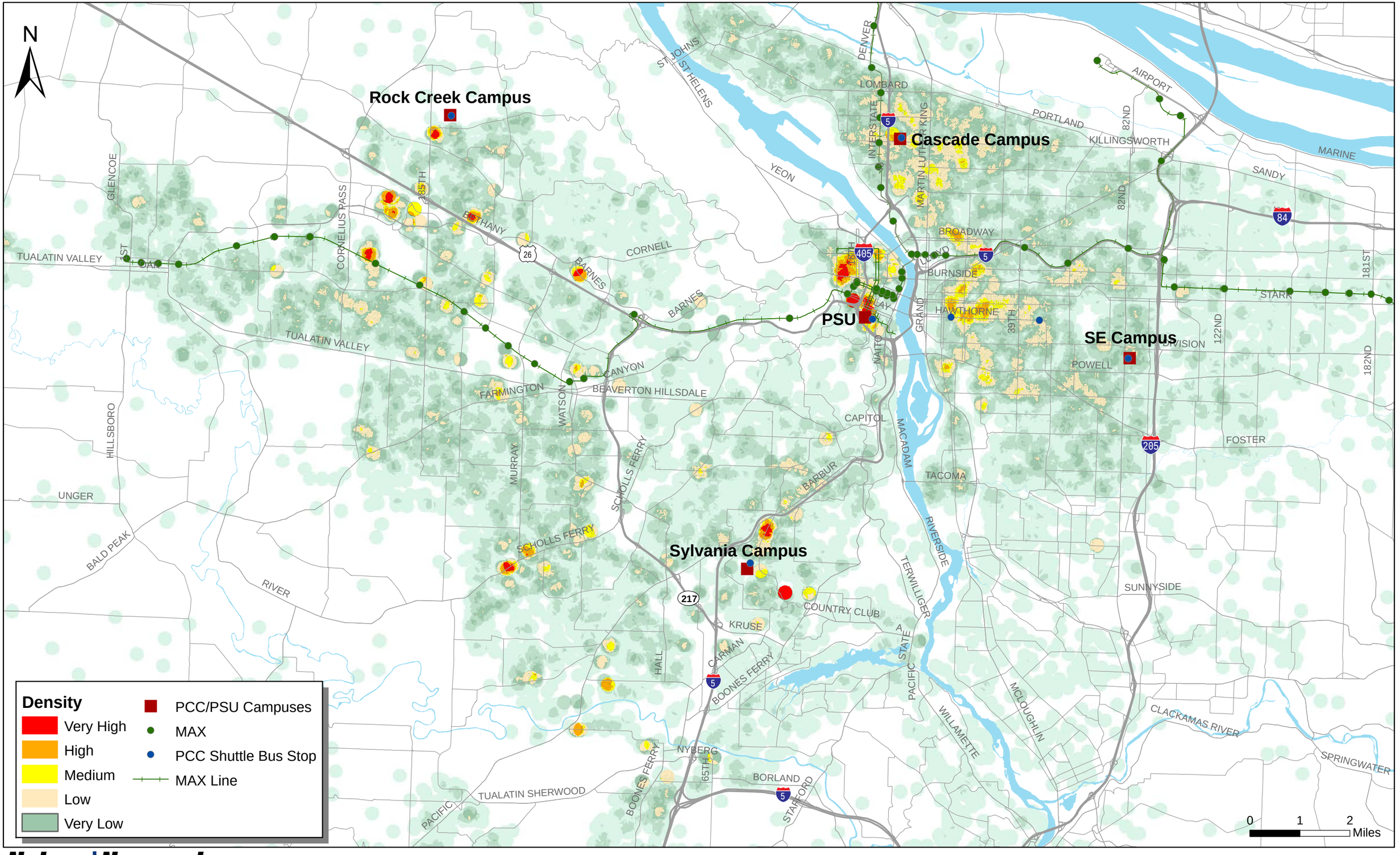
Figure 3-1 Staff and Student Resident Densities



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Trip Identification

This section attempts to determine which campus commuters travel to. In general, students tend to live near their primary campus, but work situations and specialty classes can create cross-region trips for many students and staff.

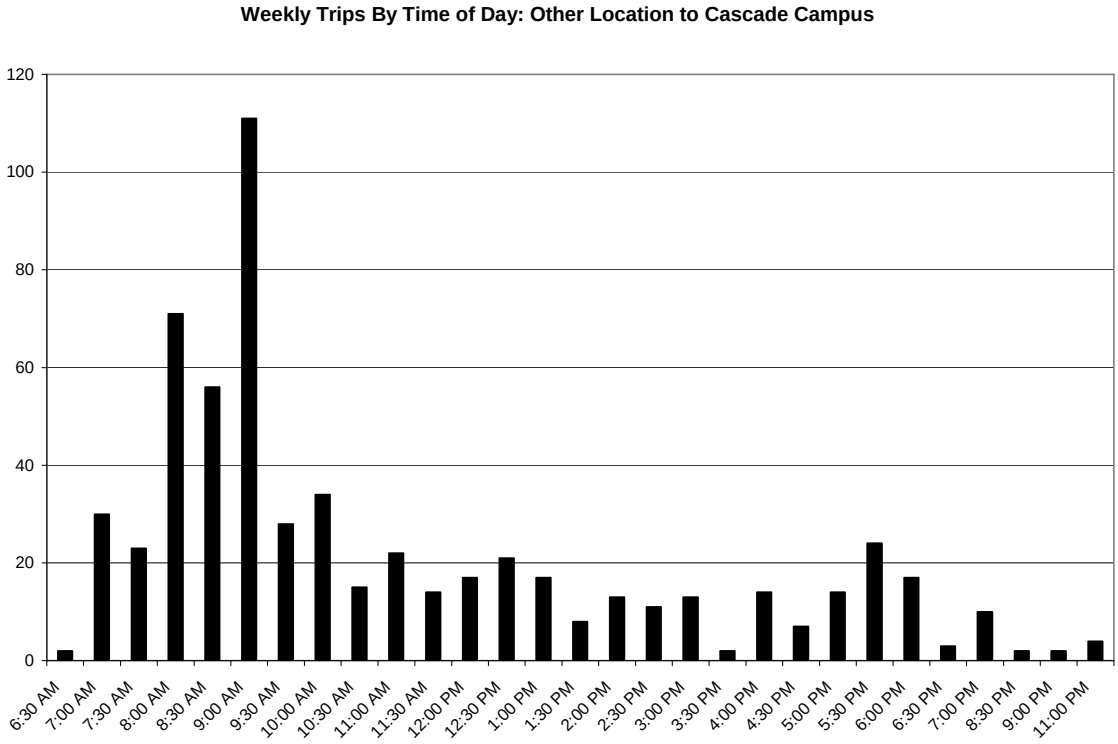
The March 2007 on-line survey (see subsequent section for details) provided data on student- and staff-commute trips to the PCC campus and center locations. Survey respondents were asked to detail each one-way trip they make to PCC, from both non-PCC locations and from other campuses/centers, during a typical week. The series of graphs presented in Figure 3-2 illustrate the weekly travel needs (independent of mode) to each of the major PCC locations. The greatest number of trips, from both non-PCC locations as well as from campus facilities, start or terminate at the Sylvania Campus.

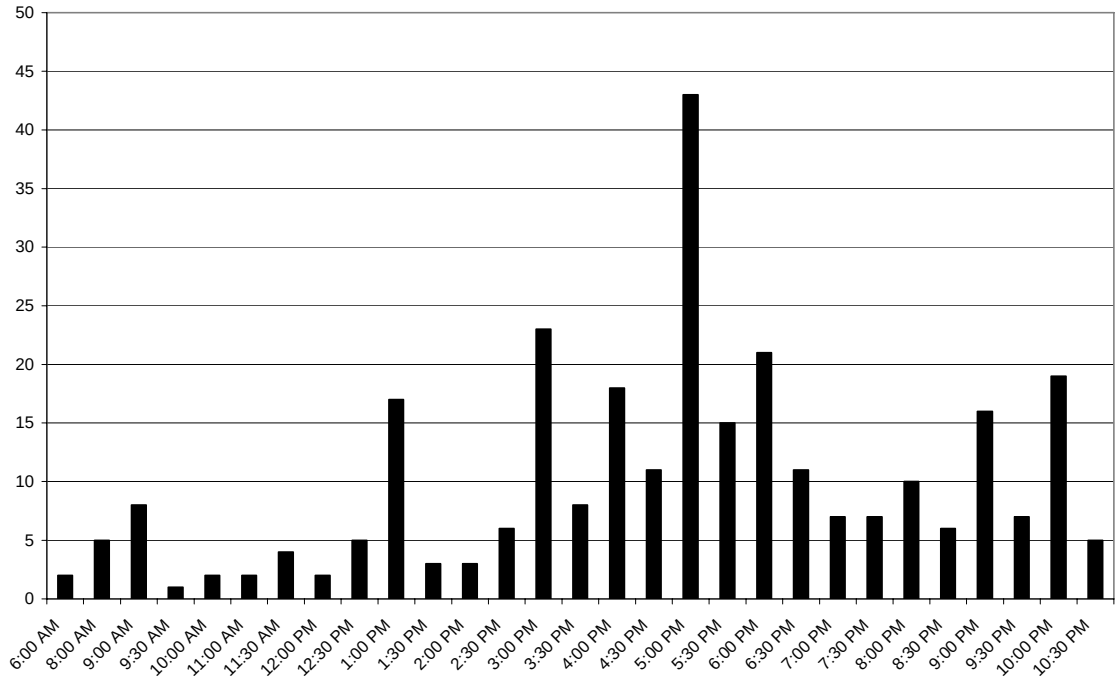
The numbers presented represent trip requirements for the 1,300 survey participants. These are useful when considering relative demand for travel between geographic locations at specific times. The total demand is on the order of 10 times greater based on a survey response approaching 10%. Note that these graphs use different vertical scales based on maximum reported number of trips for each origin-destination pair. The following list indicates which origin-destinations generate the most trips and the maximum vertical scale used on their respective graphs.

- Greatest number of trips (350 max)
  - Other Location to Sylvania
- High number of trips (120 max)
  - Other Location to Cascade
  - Other Location to Rock Creek
  - Sylvania to Other Location
- Moderate number of trips (50 max)
  - Cascade to Other Location
  - Cascade to Sylvania
  - PSU to Sylvania
  - Rock Creek to Other Location
  - Other Location to SE Center
  - SE Center to Sylvania
  - Sylvania to PSU
- Low number of trips (14 max)
  - All others

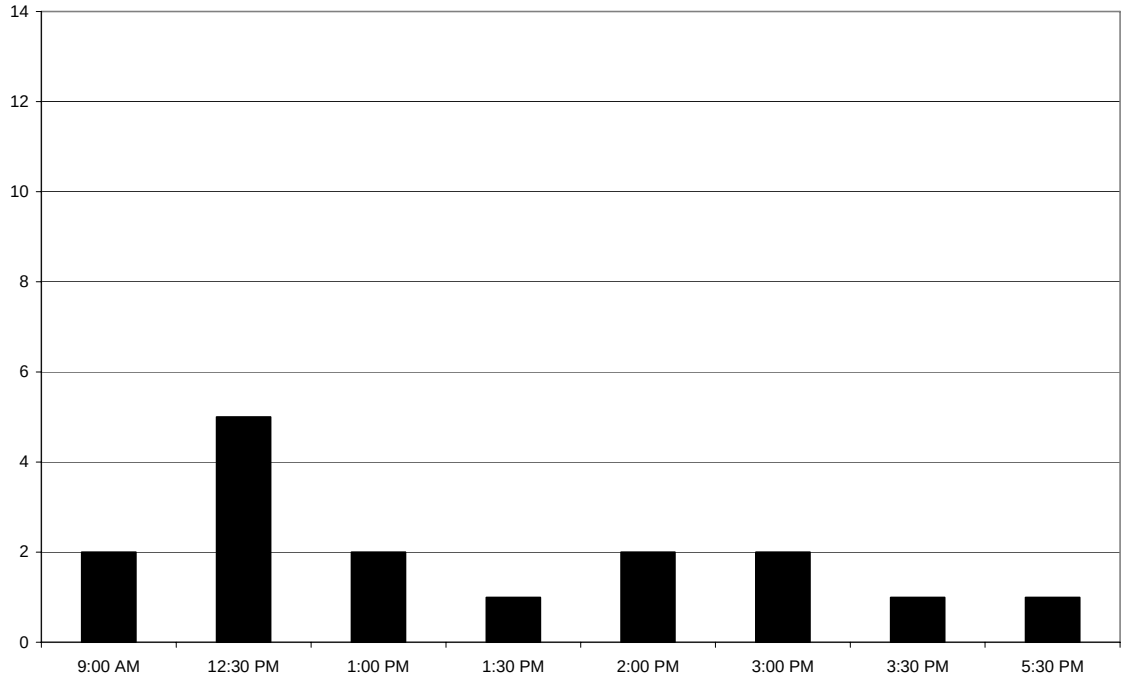
It should also be noted that some respondents have indicated inter-campus travel when really traveling from a non-PCC location. These are likely trips to meet the PCC shuttle, such as the large number of trips from PSU to Sylvania at 6:30 am.

Figure 3-2 Identified Trips by Location and Time of Day

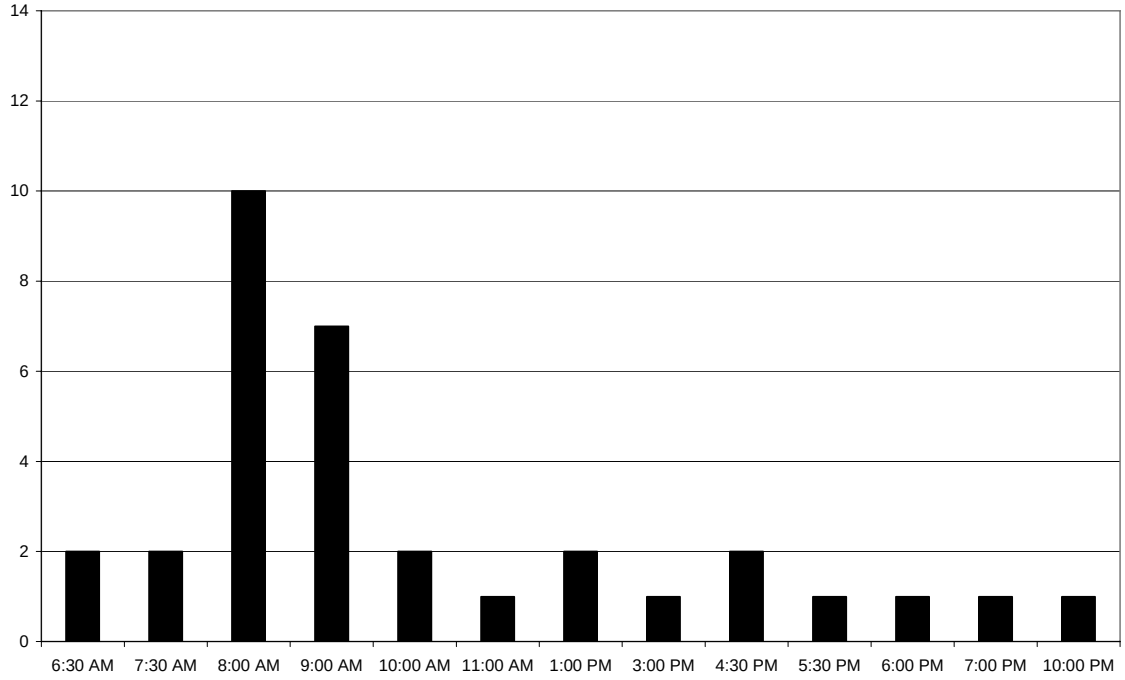




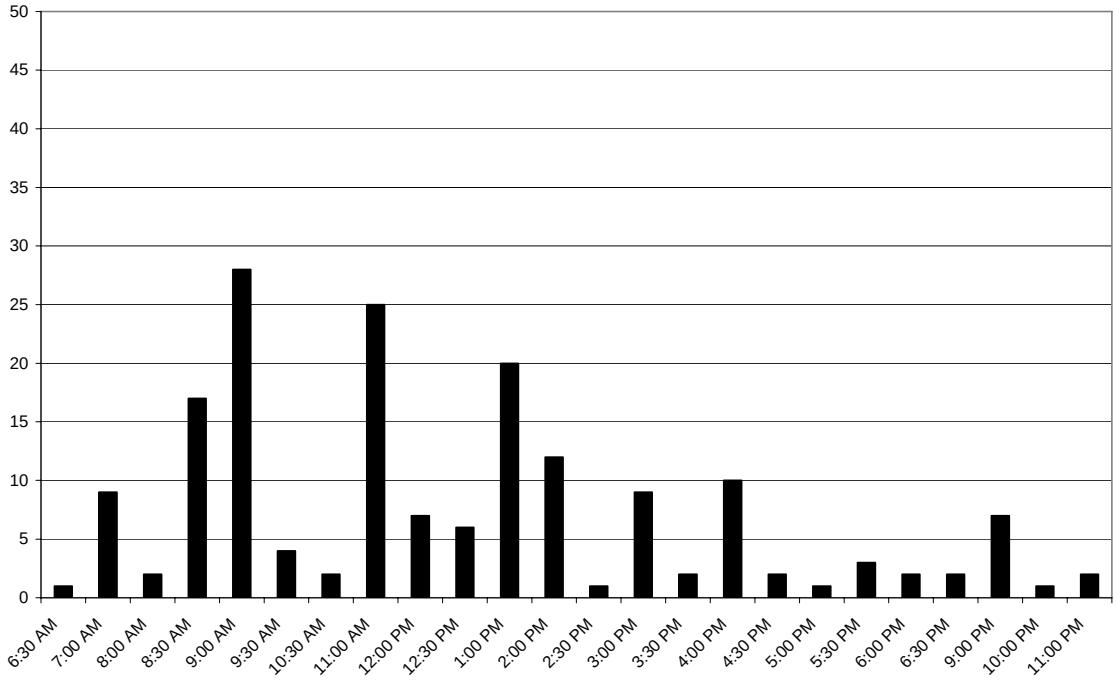
Weekly Trips By Time of Day: Cascade Campus to PSU



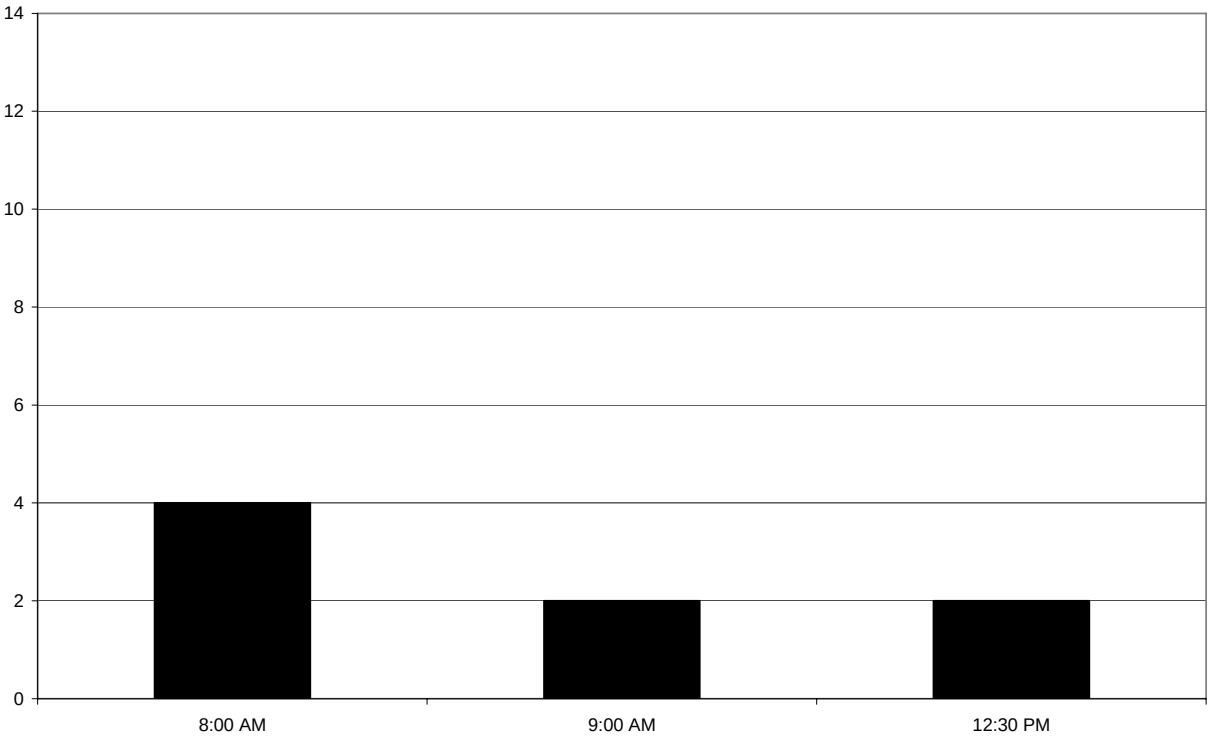
Weekly Trips By Time of Day: Cascade Campus to Rock Creek Campus



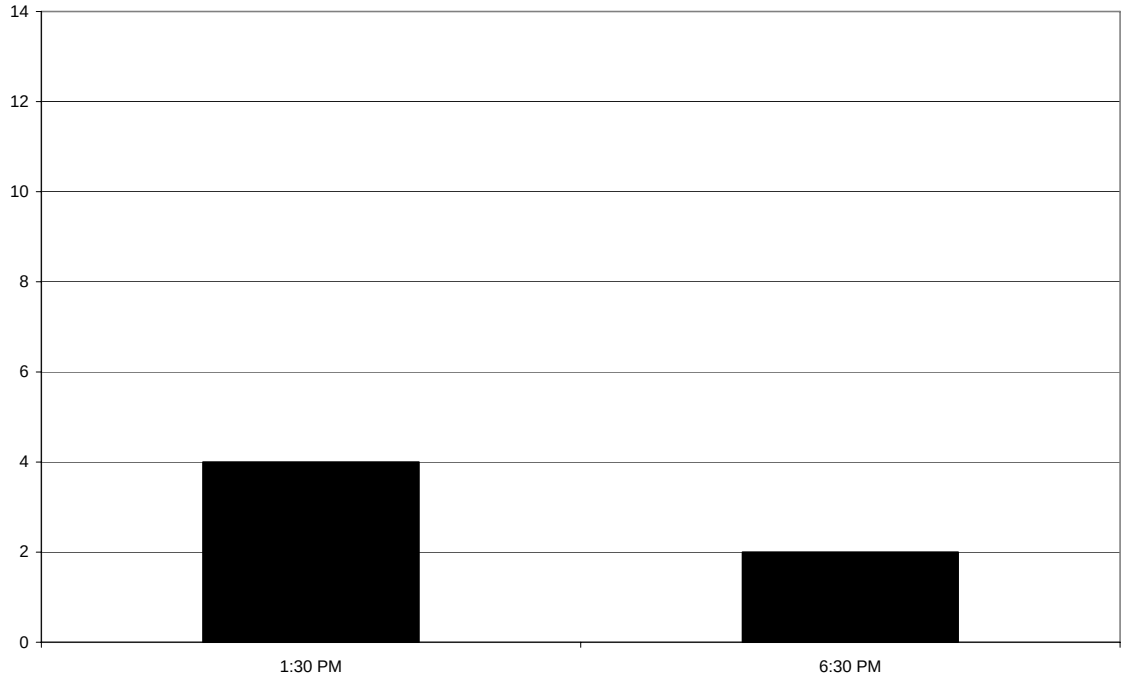
Weekly Trips By Time of Day: Cascade Campus to Sylvania Campus



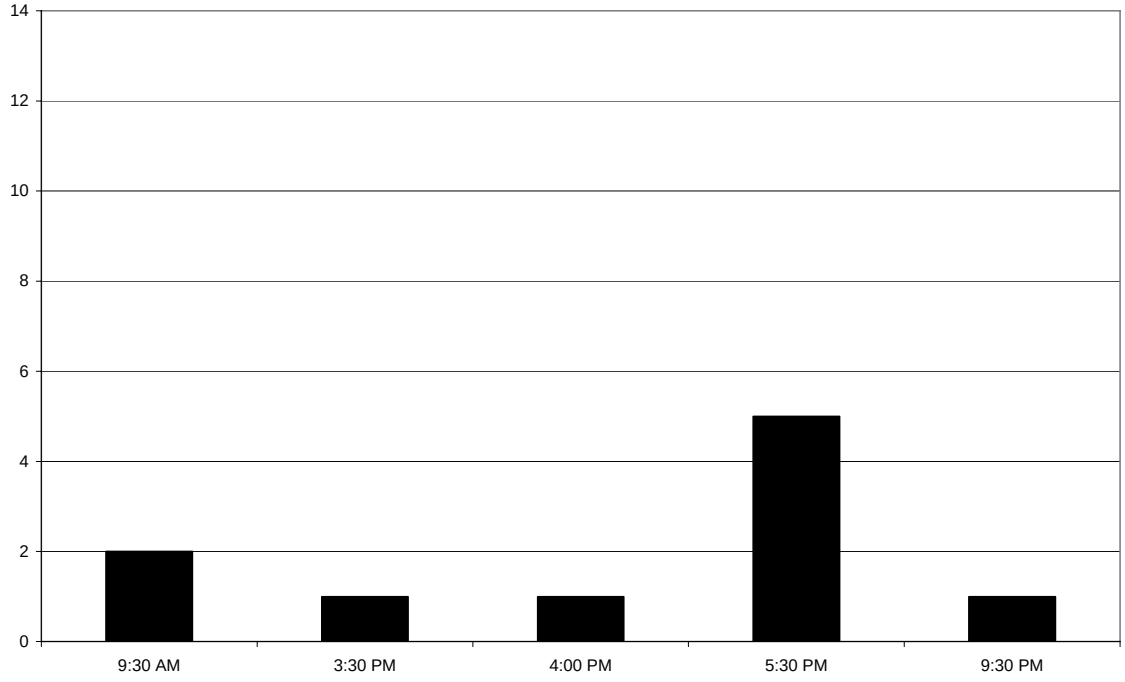
Weekly Trips By Time of Day: Other Location to PSU



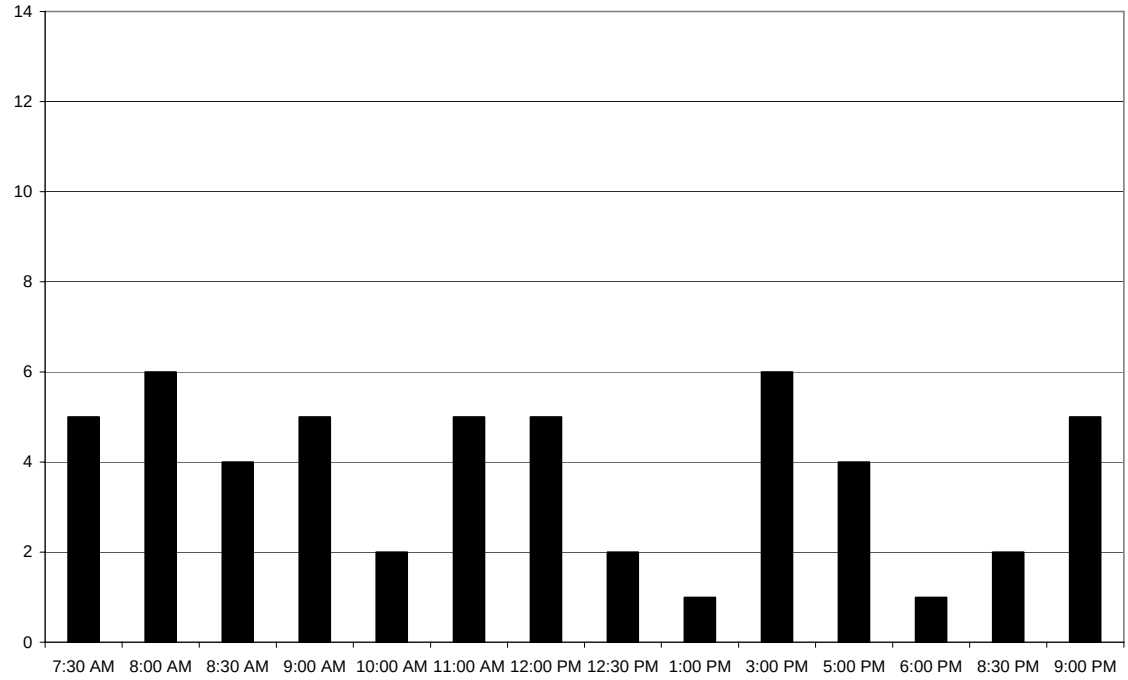
Weekly Trips By Time of Day: PSU to Other Location



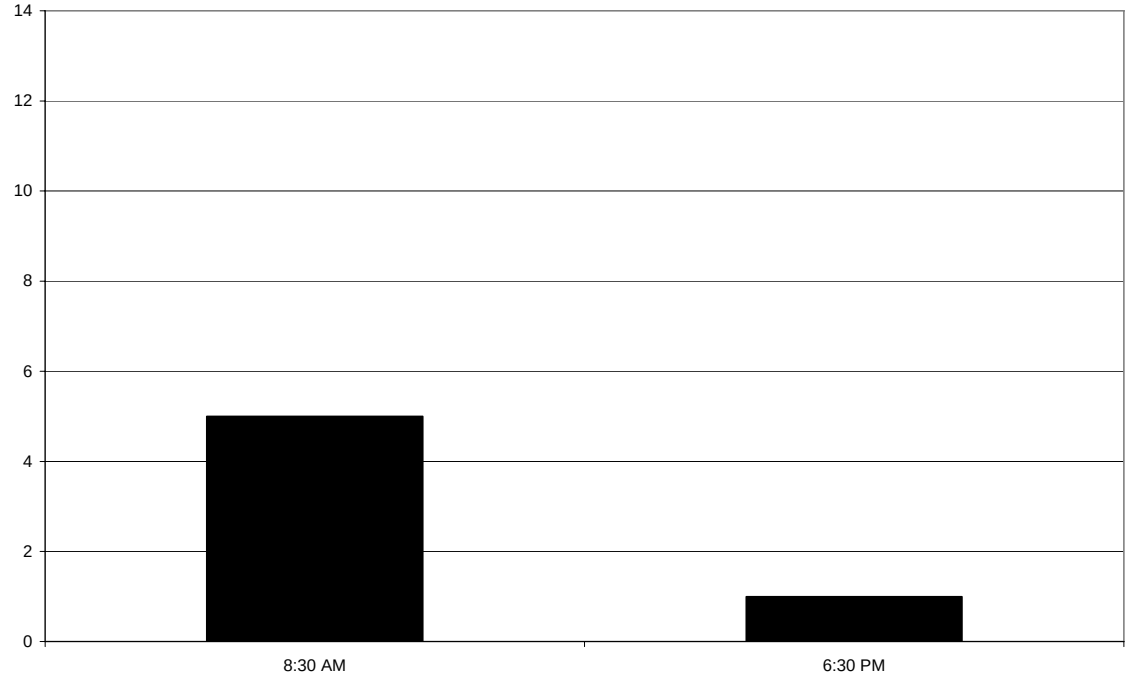
Weekly Trips By Time of Day: PSU to Cascade Campus



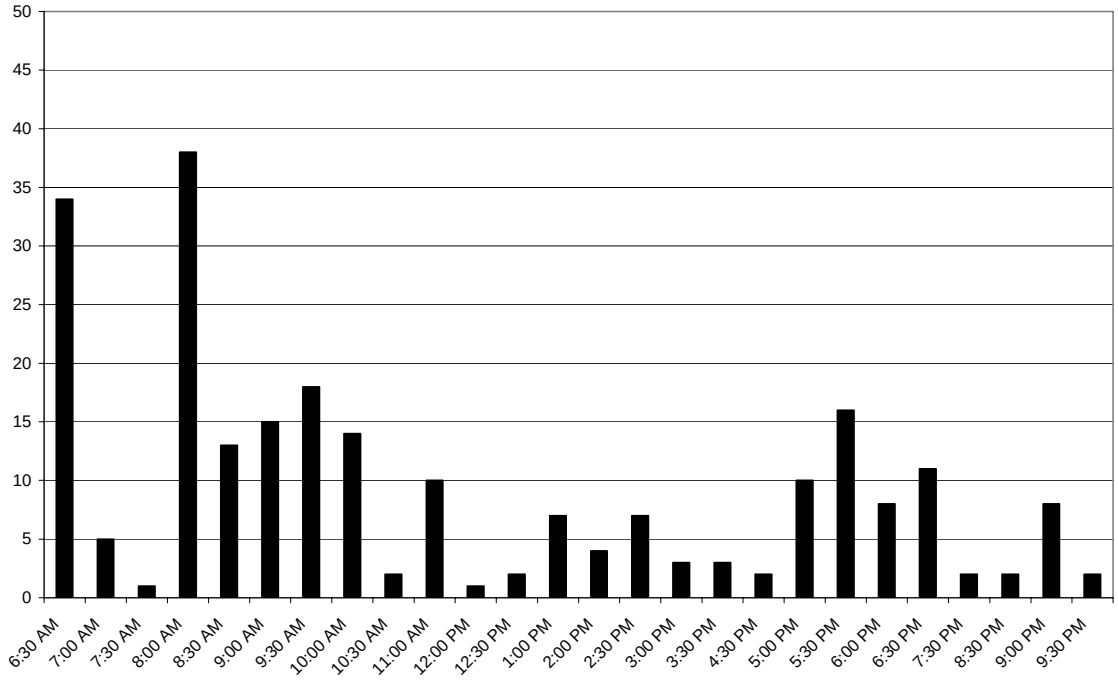
Weekly Trips By Time of Day: PSU to Rock Creek Campus



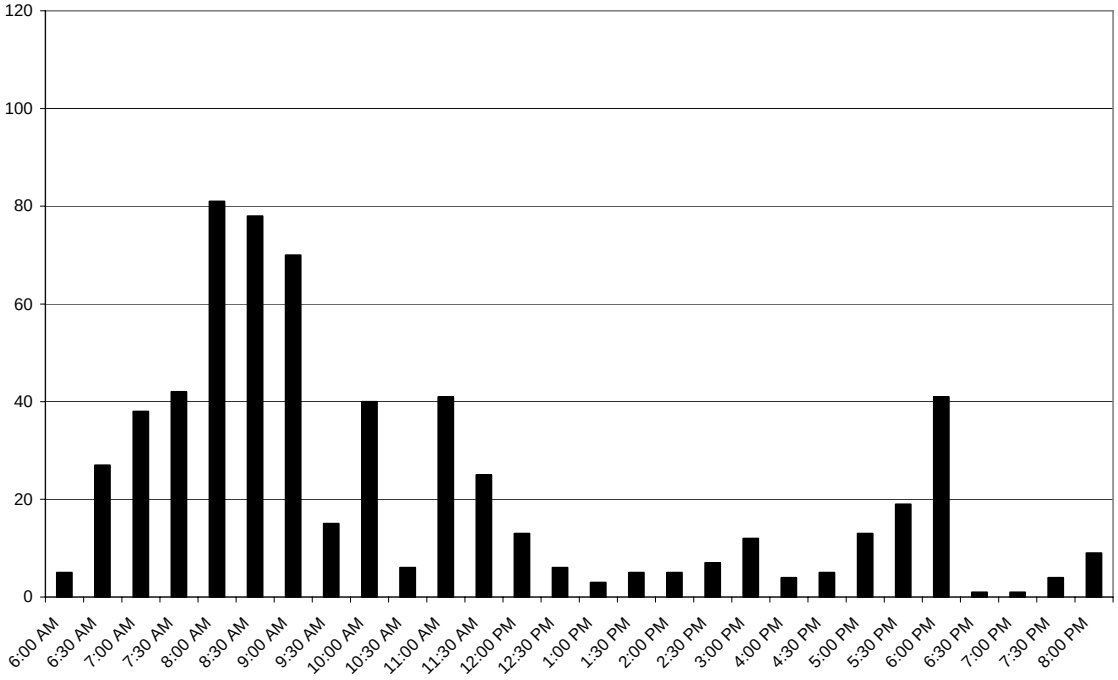
Weekly Trips By Time of Day: PSU to SE Center



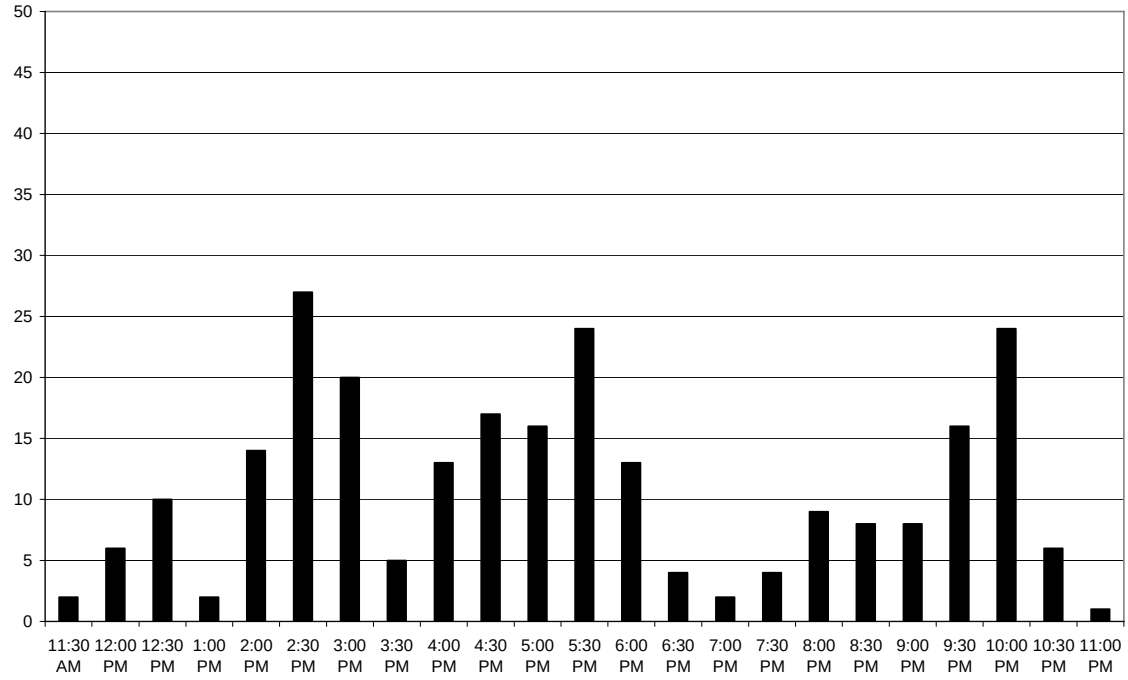
Weekly Trips By Time of Day: PSU to Sylvania Campus



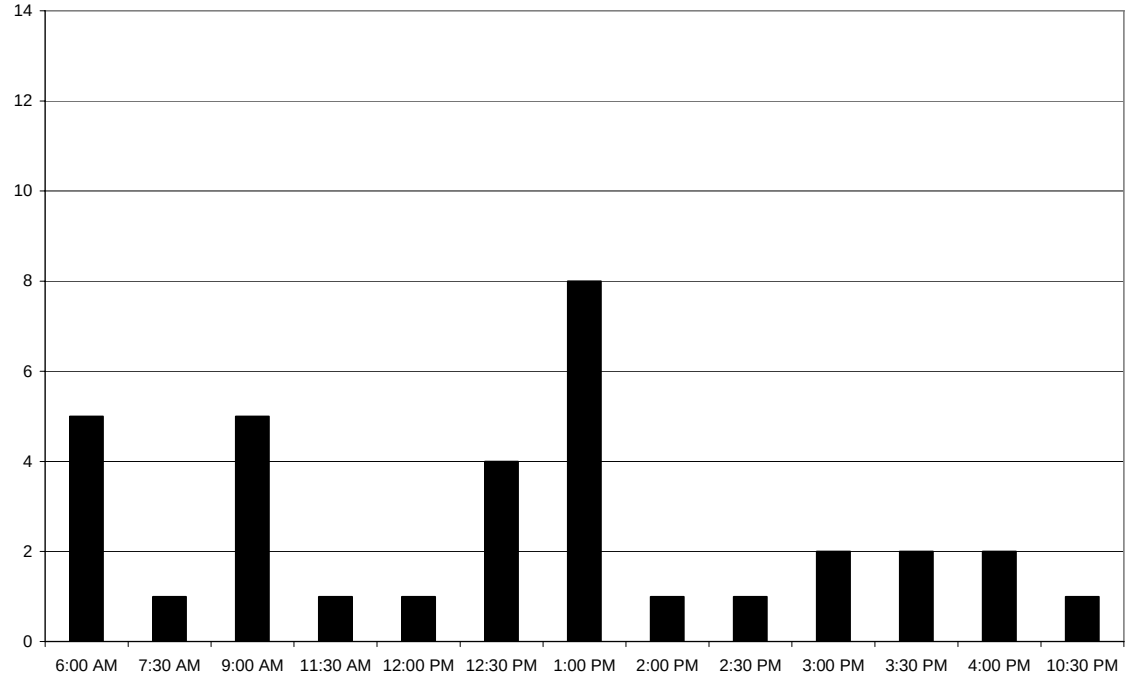
Weekly Trips By Time of Day: Other Location to Rock Creek Campus



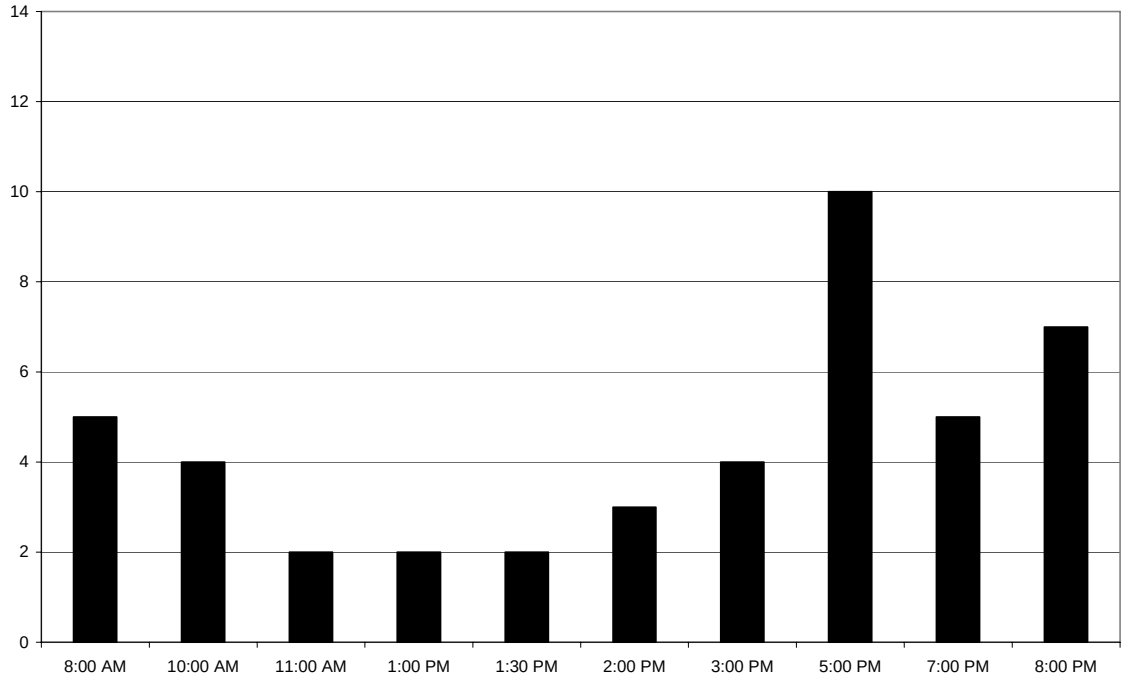
Weekly Trips By Time of Day: Rock Creek Campus to Other Location



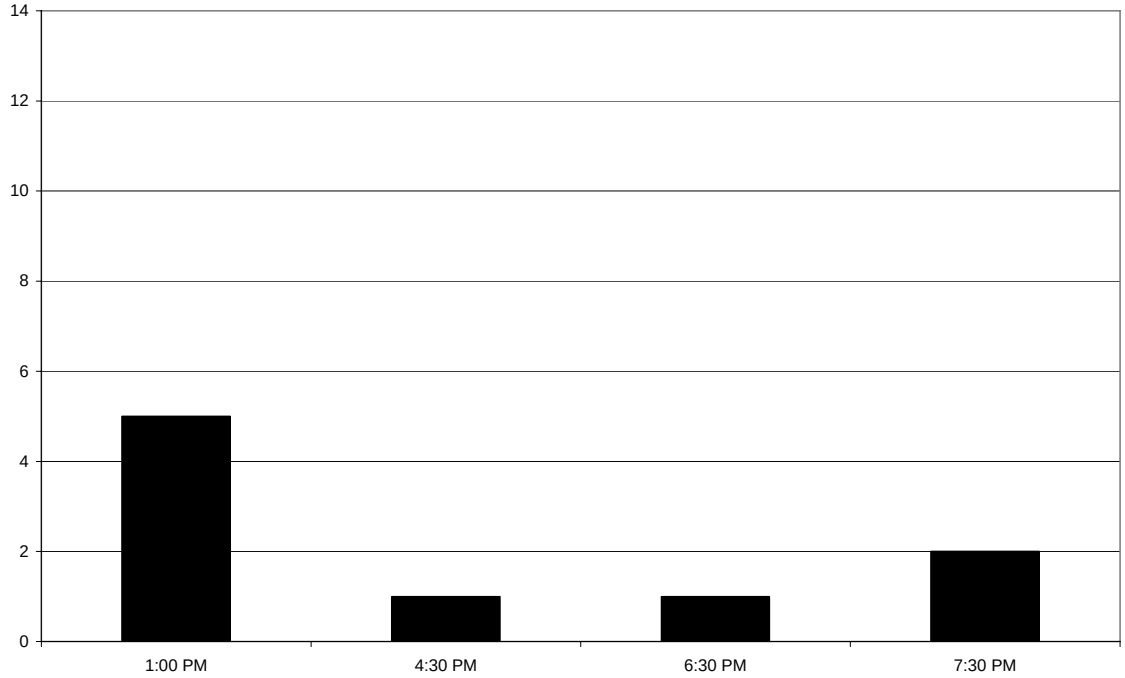
Weekly Trips By Time of Day: Rock Creek Campus to Cascade Campus



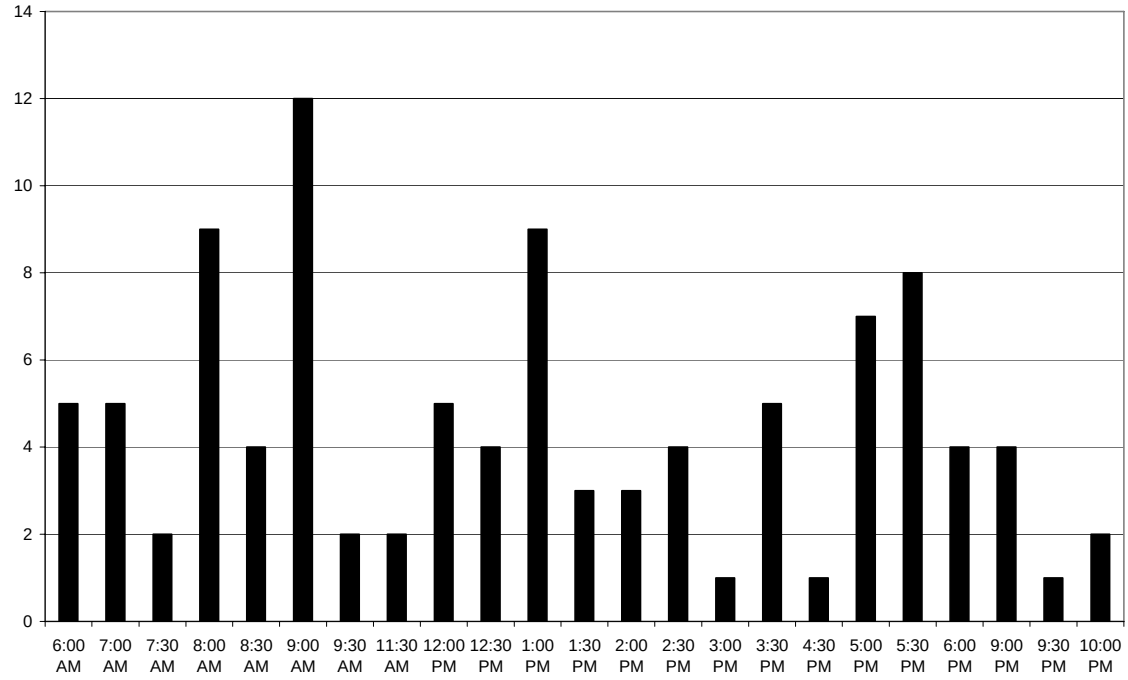
Weekly Trips By Time of Day: Rock Creek Campus to PSU



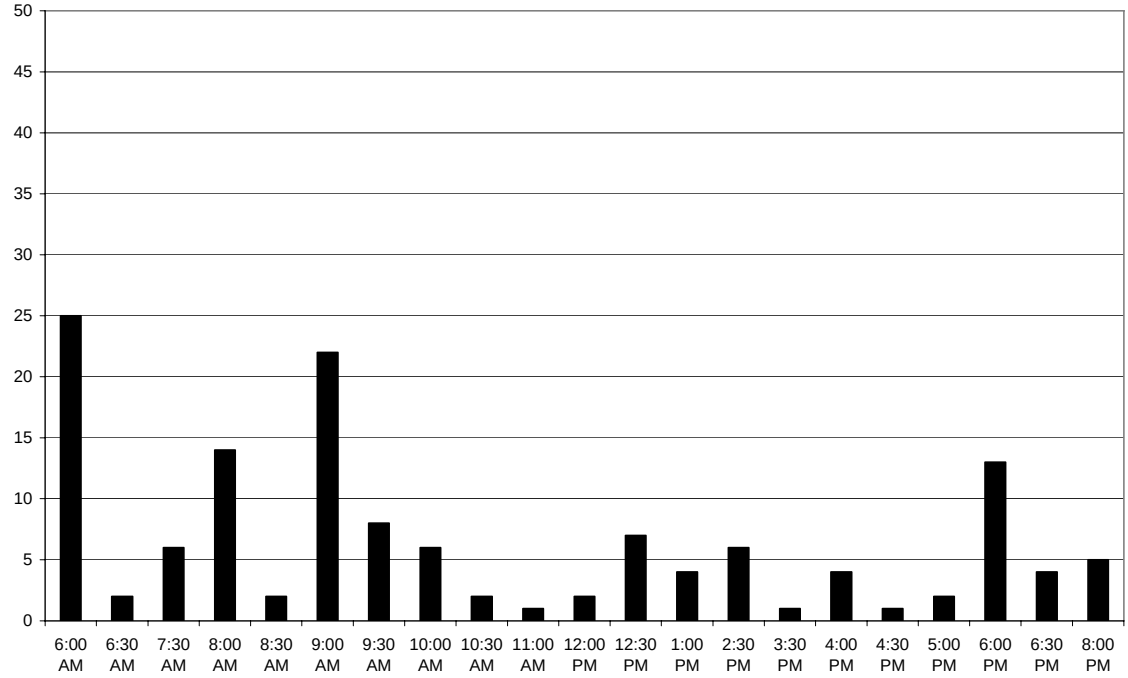
Weekly Trips By Time of Day: Rock Creek Campus to SE Center



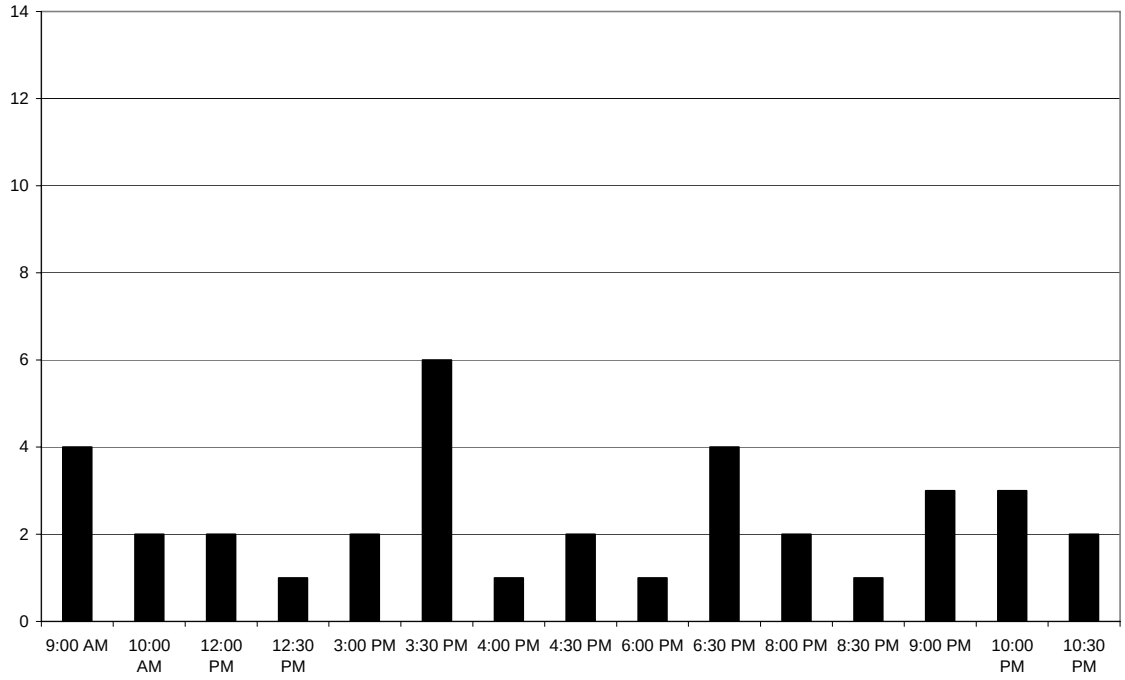
Weekly Trips By Time of Day: Rock Creek Campus to Sylvania Campus



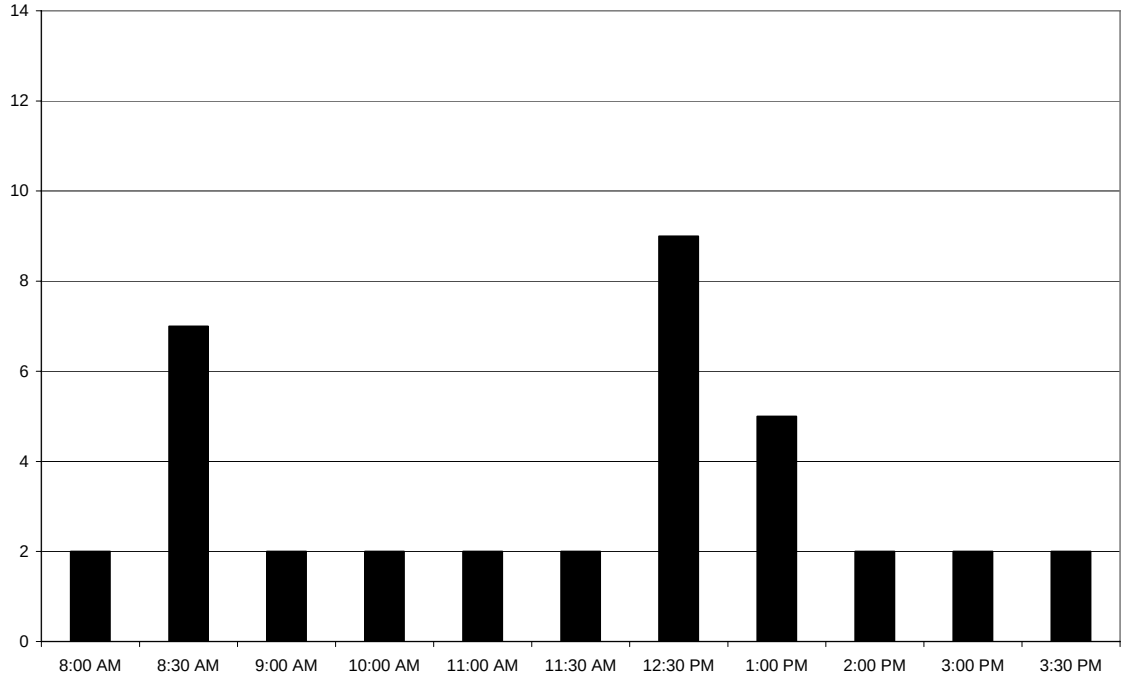
Weekly Trips By Time of Day: Other Location to SE Center



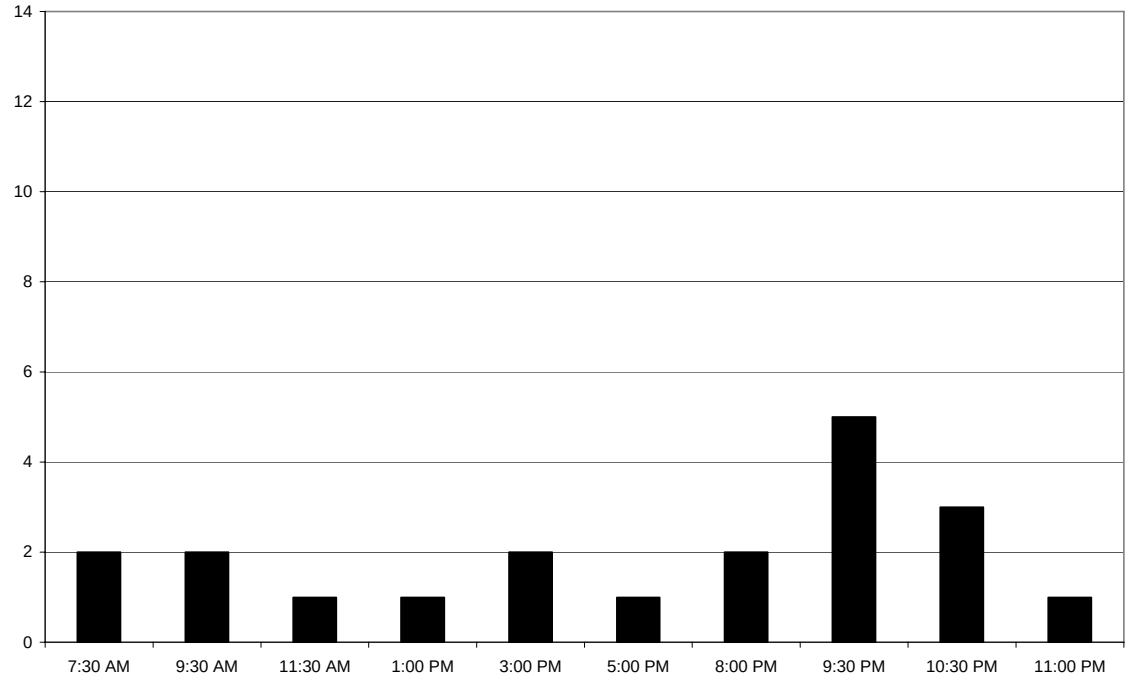
Weekly Trips By Time of Day: SE Center to Other Location



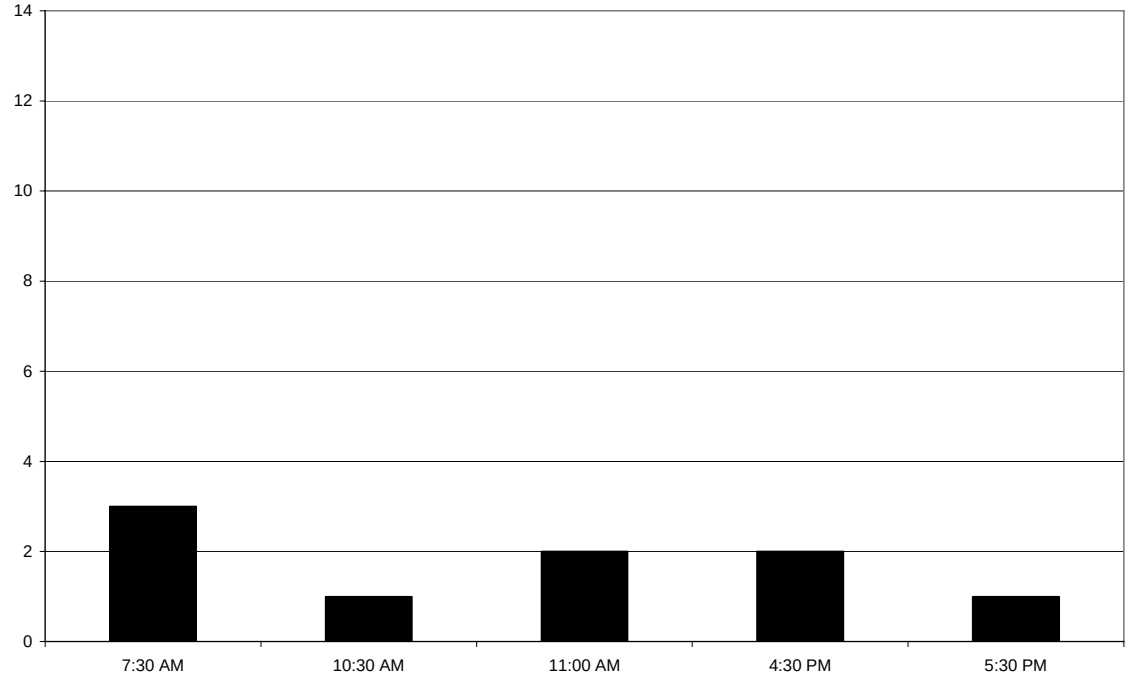
Weekly Trips By Time of Day: SE Center to Cascade Campus



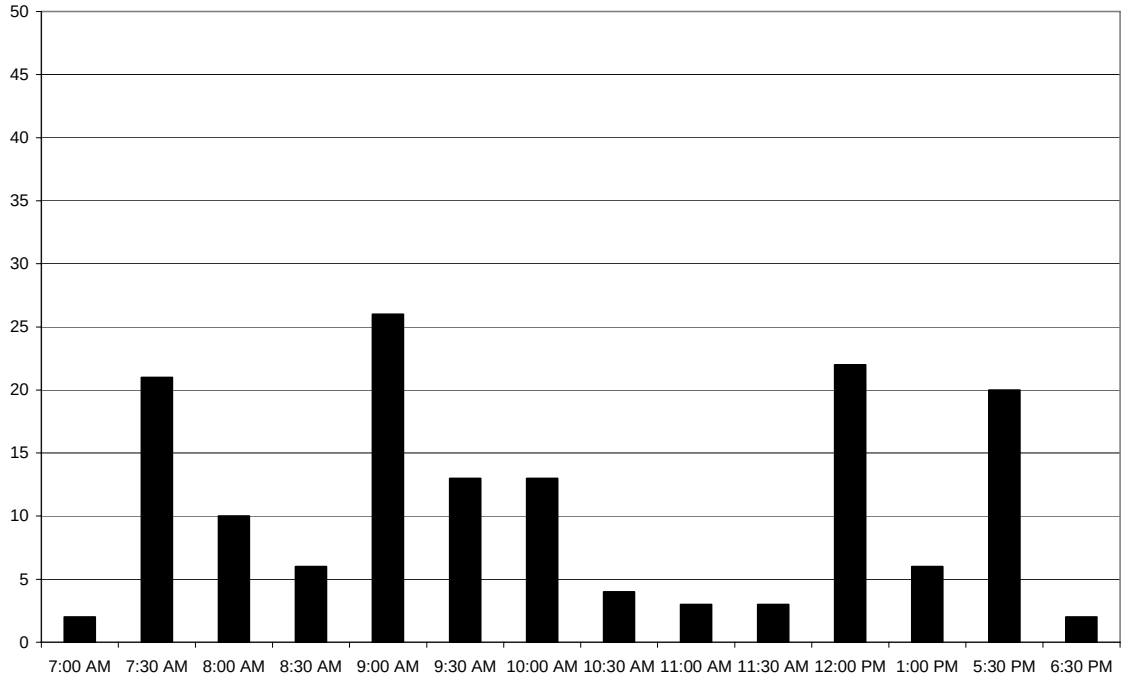
Weekly Trips By Time of Day: SE Center to PSU



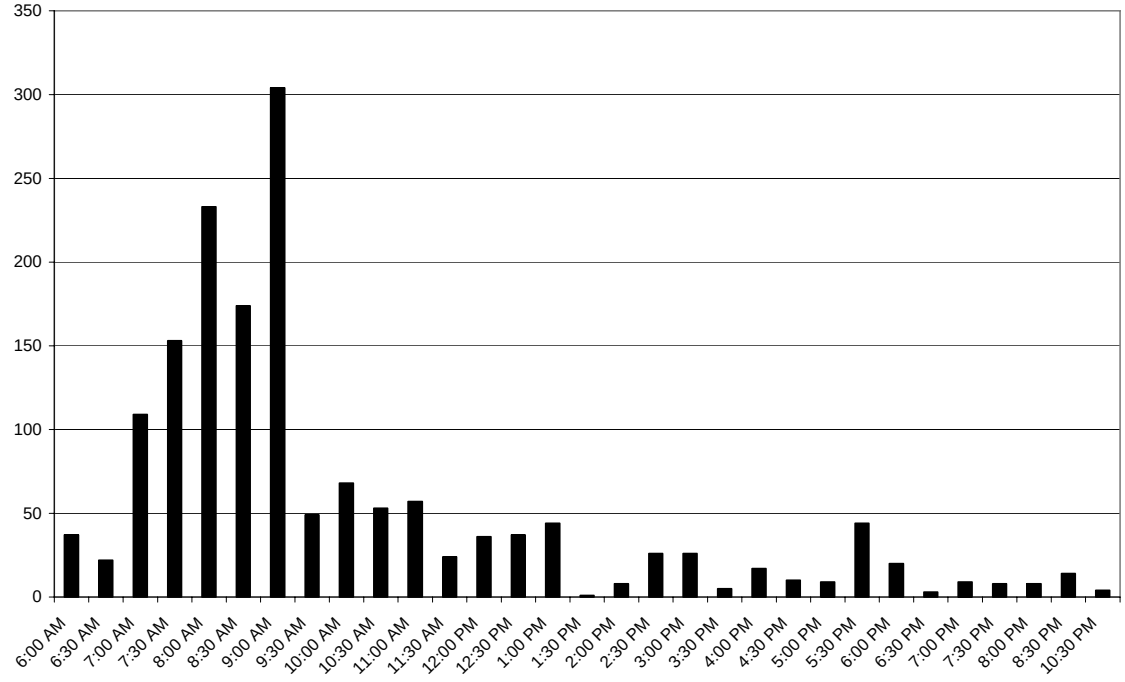
Weekly Trips By Time of Day: SE Center to Rock Creek Campus



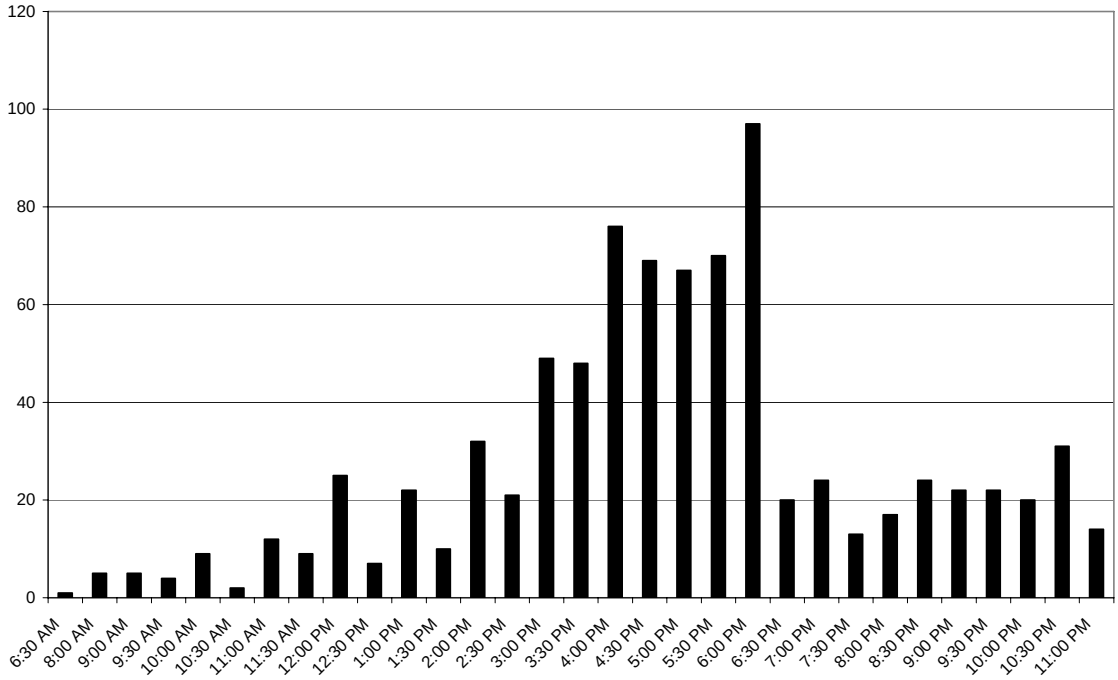
Weekly Trips By Time of Day: SE Center to Sylvania Campus



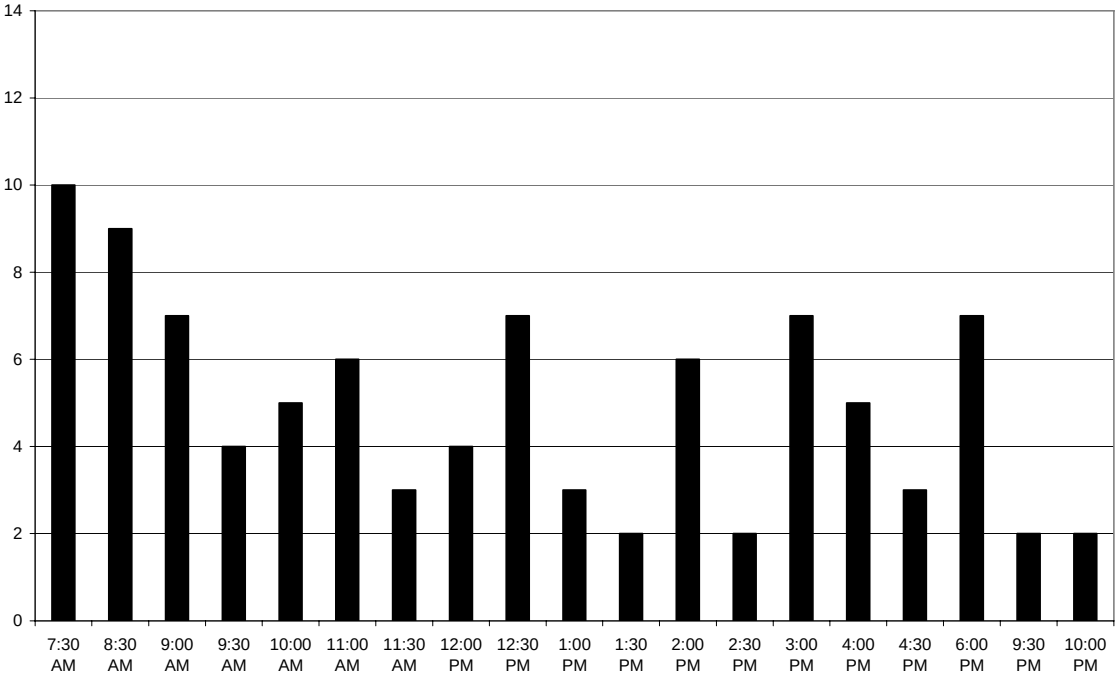
Weekly Trips By Time of Day: Other Location to Sylvania Campus



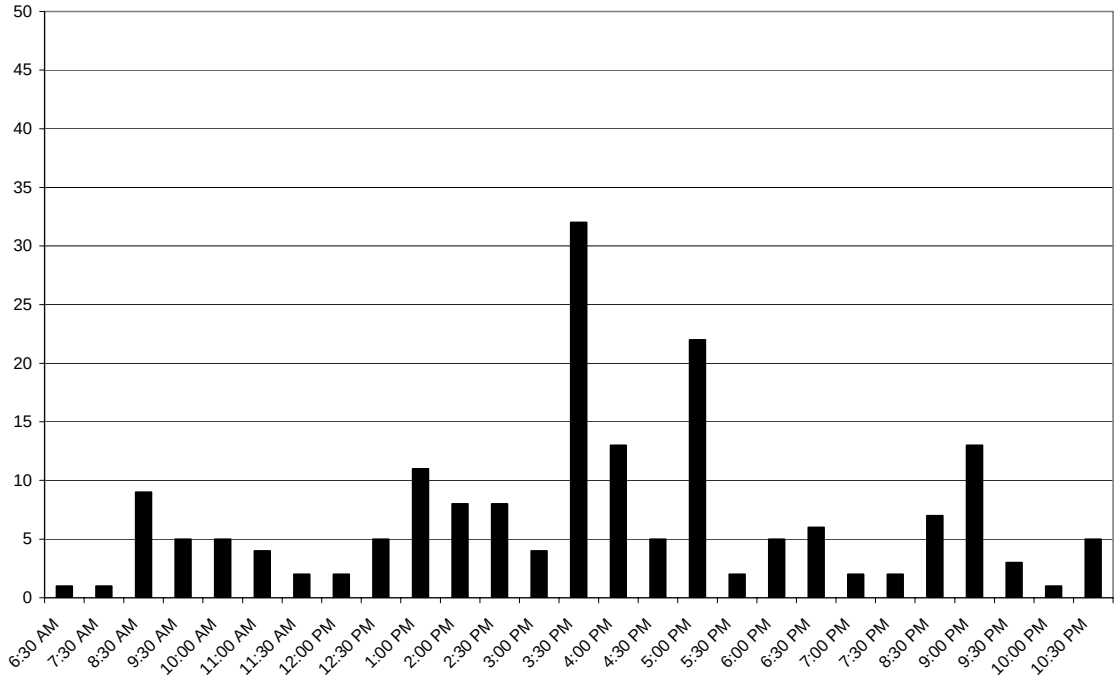
Weekly Trips By Time of Day: Sylvania Campus to Other Location



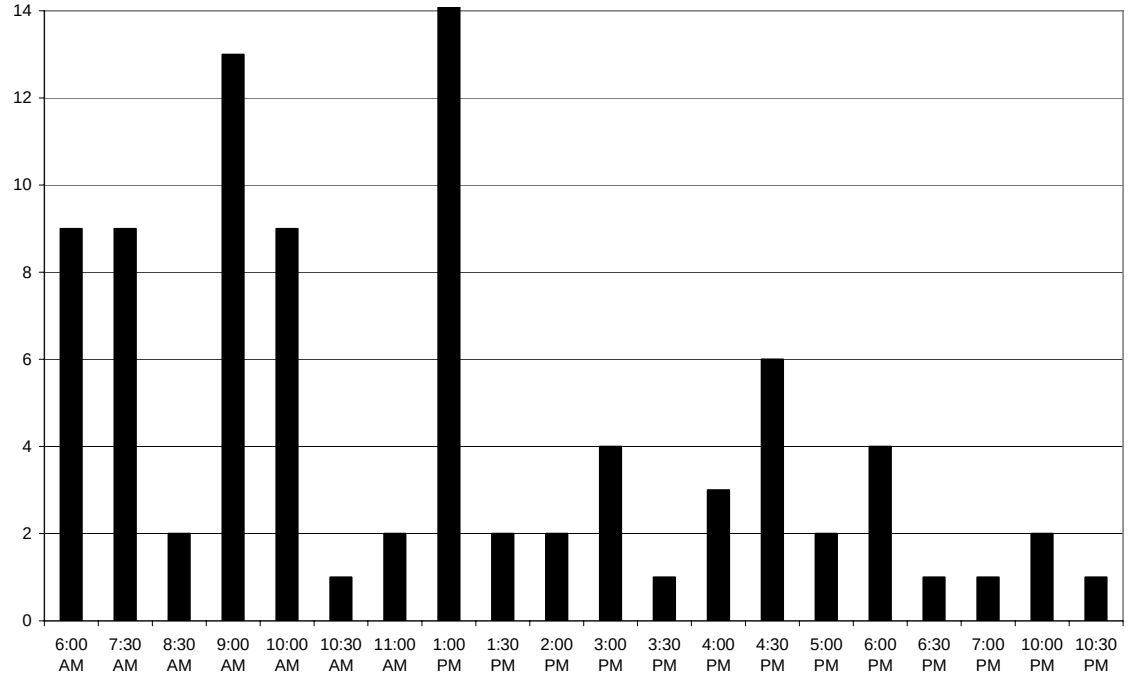
Weekly Trips By Time of Day: Sylvania Campus to Cascade Campus



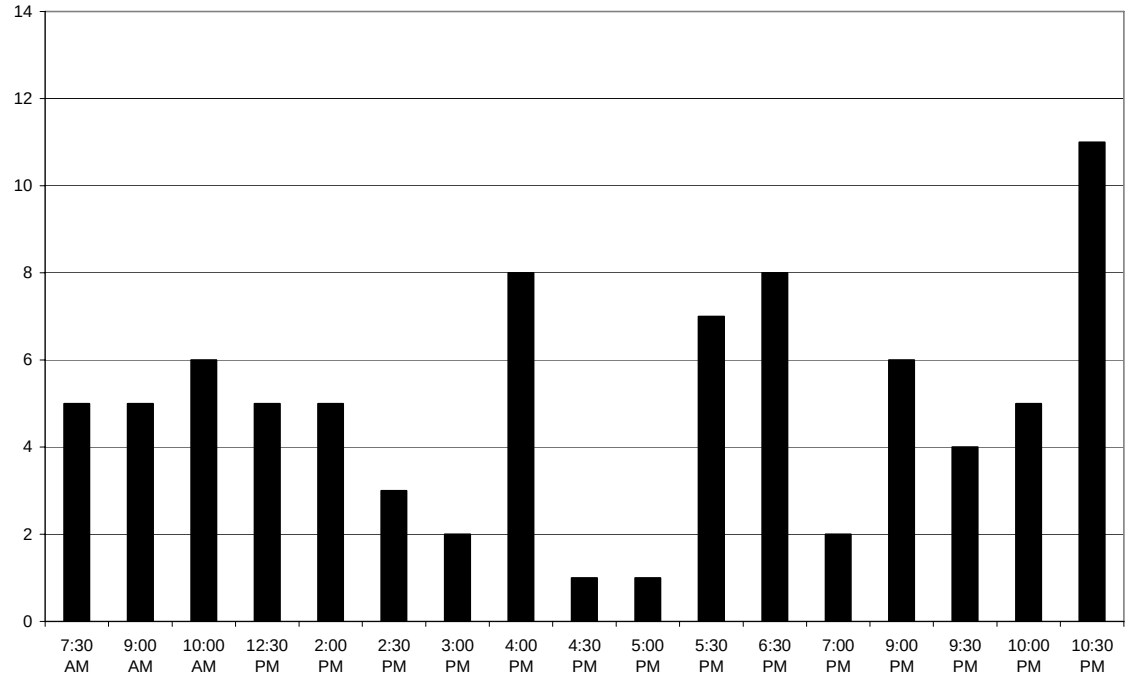
Weekly Trips By Time of Day: Sylvania Campus to PSU



Weekly Trips By Time of Day: Sylvania Campus to Rock Creek Campus



Weekly Trips By Time of Day: Sylvania Campus to SE Center



The survey also provided information on where respondents originate their trips when traveling from non-PCC locations to PCC campuses and centers. The following table highlights those origin-destination (O-D) pairs generating the most weekly trips. While over 200 zip codes were cited, these 20 account for almost 45% of all trips from non-PCC locations. In addition, four of the top twenty trip origins/destinations from other locations to PCC campuses/centers involve cross-region travel. Cross-region trips are those traveling long distances from one extent of the PCC service district to another. These account for 8%[1] of all trips originating at non-PCC locations. And while the inner-SE Portland to Sylvania Campus trips may not be considered cross-region trips, travel is complicated by limited bridge crossings and transit trips are further complicated by requirements to transfer in downtown Portland.

Figure 3-3 Originating Zip Code for Top Non-PCC Location O-D Pairs

Rank	Origin	General Location	Destination	Weekly Trips
1	97219	Portland - SW (SW 25th & SW Huber)	Sylvania	133
2	97214	Portland - SE (SE 20th & SE Belmont)	Sylvania	108
3	97206	Portland - SE (SE 52nd & SE Woodstock)	Sylvania	95
4	97223	Tigard (Hall & OR 217)	Sylvania	93
5	97006	Aloha (SW 185th & Walker)	Rock Creek	91
6	97202	Portland - SE (SE Bybee & McLoughlin)	Sylvania	91
7	97007	Aloha (SW 190th & Farmington)	Rock Creek	84
8	97007	Aloha (SW 190th & Farmington)	Sylvania	80
9	97217	Portland N (N Portland & Interstate)	Cascade	68
10	97211	Portland - NE (NE Killingsworth & NE 20th)	Cascade	64
11	97035	Lake Oswego (Kruse Way & Boones Ferry)	Sylvania	64
12	97124	Hillsboro (NW 242nd & US 26)	Rock Creek	61
13	97008	Beaverton (Hall & Denny)	Sylvania	53
14	97229	Portland – NW (Saltzman & Thompson)	Rock Creek	51
15	97203	Portland – N (N Portland & Columbia)	Cascade	48
16	97123	Hillsboro (Farmington & OR 219)	Rock Creek	45
17	97062	Tualatin	Sylvania	45
18	97005	Beaverton (Hall & Farmington)	Sylvania	44
19	97213	Portland – NE (NE 60th & Sandy)	Cascade	42
20	97006	Aloha (SW 185th & Walker)	Sylvania	41

[1] The following O-D pairs represent one-way trips of greater than 10 miles and are considered cross-region trips: 97206-Sylvania, 97007-Sylvania, 97123-Rock Creek and 97006-Sylvania

Chapter 4. Transportation Alternatives

As indicated earlier, PCC, local governments and the state of Oregon have an interest in providing options to traveling alone in an automobile. This section details the primary alternative to single occupant vehicle (SOV) travel to PCC locations. The following map highlights the two "public transportation" options – TriMet and the PCC Shuttle along with the high density student and employee home locations.

TriMet

TriMet serves each of the PCC campuses as well as the Southeast Center. Other centers have varying levels of bus/MAX service. Most TriMet lines are radial routes that serve corridors anchored in downtown Portland. The Sylvania, Cascade and Southeast locations have direct service to downtown Portland. A cross-town route (not serving downtown Portland) connects North Portland to Clackamas Town center, with both the Cascade Campus and Southeast Center along the way. In addition, the Sylvania and Rock Creek Campuses have service to the Beaverton Transit Center.

The other center locations also have some access to TriMet service. The Central Portland Workforce Training Center is accessible from a number of TriMet lines crossing the Hawthorne Bridge. The Hillsboro Education Center is near the Max Station in Hillsboro. The Washington County Workforce Training Center is near bus service on NW 185th connecting to the Beaverton Transit Center or MAX service. The Portland Metropolitan Workforce Training Center is near frequent, cross-town bus service on Killingsworth and NE 42nd.

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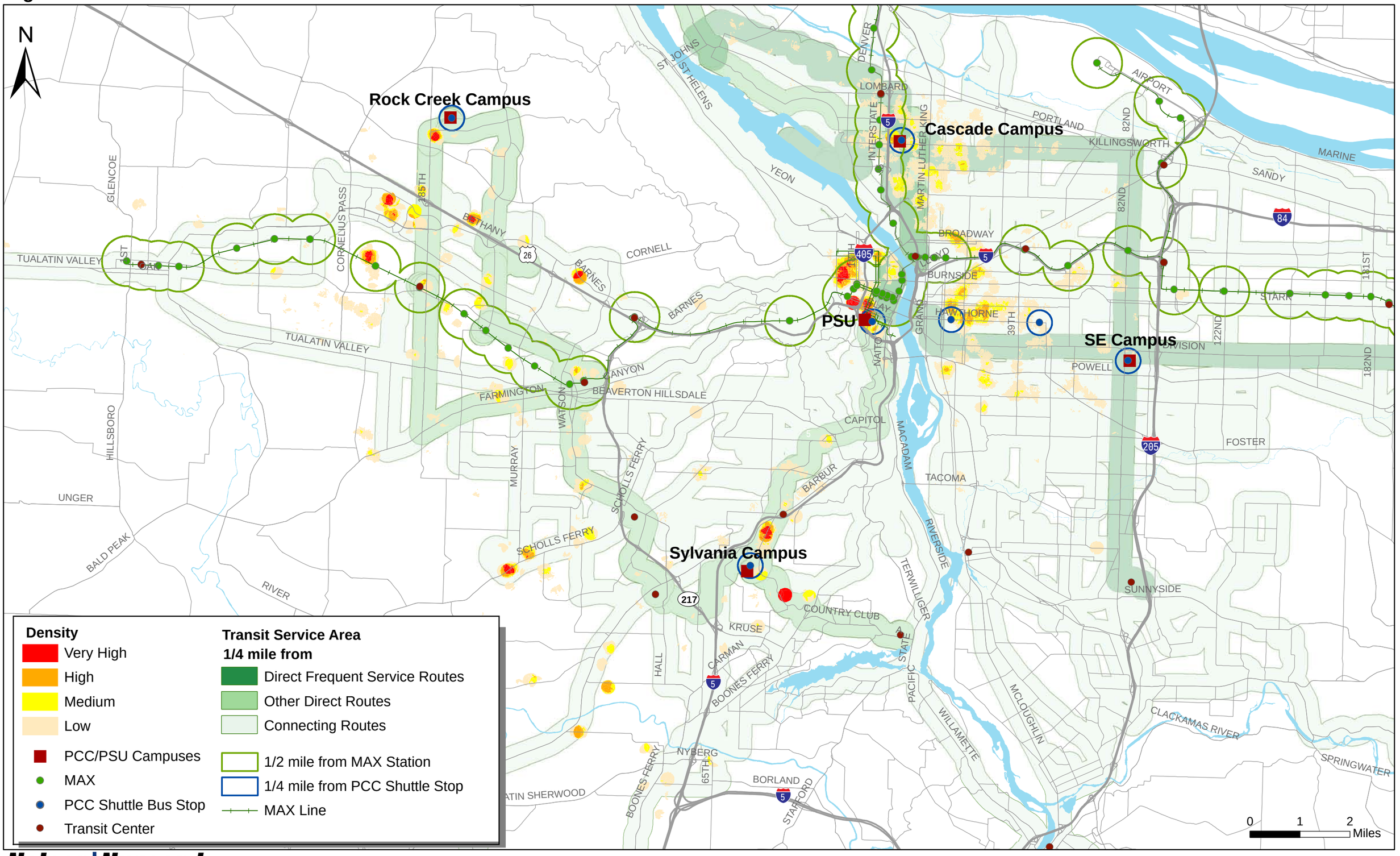
Figure 4-1 Transit Access



Density
- Very High
- High
- Medium
- Low

- PCC/PSU Campuses
- MAX
- PCC Shuttle Bus Stop
- Transit Center

Transit Service Area
1/4 mile from
- Direct Frequent Service Routes
- Other Direct Routes
- Connecting Routes

- 1/2 mile from MAX Station
- 1/4 mile from PCC Shuttle Stop
- MAX Line

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consulting associates

As indicated in the previous map, connections to other TriMet lines can connect the PCC locations to most of the region. However these connections can greatly increase the travel time when using transit. On the average, one can assume a wait time equal to one-half of a bus's frequency when transferring. In addition, connections will likely result in indirect routing (not making a straight line between an origin and final destination) adding to travel time. And finally, connections add to the number of stops along the way, further adding to the travel time. An analysis at the end of the Transportation Alternatives section attempts to show these impacts for travel to PCC locations.

The following table summarizes the bus service to the campuses and the Southeast Center.

Figure 4-2 TriMet Service to PCC Campus Locations

Campus Served	Bus Line	Route Description	Major Transit Connections	Weekdays		Saturdays		Travel Time (5:00 pm)
				Span of Service	Frequency of Service	Span of Service	Frequency of Service	
Cascade	72 - Killingsworth/82nd Ave	Swan Island to Clackamas Town Center via Killingsworth/82nd Ave	Killingsworth St Max Sta, NE82nd Ave Max Sta, Clackamas Town Center TC	5:30 am – 12:45 am	15-min	5:30 am – 12:45 am	15-min	34 min to NE 82nd Max Sta
	4 - Fessenden	St. Johns to Portland CBD via Albina Continues as 4 – Division to SE Center	Rose Quarter TC, Downtown Transit Mall	5:15 am – 1:45 am	15-min	5:15 am – 1:45 am	15-min	20 min to Portland CBD 37 min to St. Johns
	44 – Mocks Crest	St. Johns to Portland CBD via N. Williams/ N. Vancouver. Continues as 44 - Capitol Hwy to Sylvania Campus	Rose Quarter TC, Downtown Transit Mall	6:00 am – 9:45 pm	30-min	7:00 am – 9:45 pm	30-min	20 min to Portland CBD 12 min to Univ of Portland
Rock Creek	52 - Farmington/185th Ave	Rock Creek Campus to Beaverton TC via NW 185th/Farmington	Willow Cr Max Sta, Beaverton TC	5:15 am – 10:15 pm	20-min	5:45 am – 9:15 pm	30-min	48 min to Beaverton TC
	67 - Jenkins/158th Ave	Rock Creek Campus to Beaverton TC via 158th/Jenkins	Merlo Rd Max Sta, Beaverton TC	6:00 am – 10:30 pm	45-min	6:15 am – 10:30 pm	90-min	38 min to Beaverton TC

Campus Served	Bus Line	Route Description	Major Transit Connections	Weekdays		Saturdays		Travel Time (5:00 pm)
				Span of Service	Frequency of Service	Span of Service	Frequency of Service	
Southeast Center	4 - Division	Portland CBD to Gresham TC via Division	Downtown Transit Mall, Gresham TC	5:00 am – 12:45 am	15-min	5:00 am – 12:45 am	15-min	25 min to Portland CBD
	72 - Killingsworth/82nd Ave	Swan Island to Clackamas Town Center via Killingsworth/82nd Ave	Killingworth St Max Sta, NE82nd Ave Max Sta, Clackamas Town Center TC	5:30 am – 12:45 am	15-min	5:30 am – 12:45 am	15-min	12 min to NE 82nd Max Sta
Sylvania	44 - Capitol Hwy	Sylvania to Portland CBD via Capitol Hwy/Barbur	Downtown Transit Mall	5:30 am – 10:00 pm	15-min (7am-6pm)/30-min	6:45 am – 9:15 pm	30-min	32 min to Portland CBD
	78 - Beaverton/Lake Oswego	Beaverton TC to Lake Oswego CBD via Hall/County Club Rd	Beaverton TC, Tigard TC, Lake Oswego TC	6:15 am – 11:15 pm	30-min	6:15 am – 9:15 pm	30-min	13 min to Lake O 50 min to Beaverton TC

TriMet is constructing a new light rail line that will operate along I-205, connecting Clackamas Town Center to the Gateway Transit Center. It will operate as the Green MAX line starting in September 2009. The SE Center is only about 0.5 mile from the line's new Division Station.

Fares

Transit commuters to PCC will likely be procuring a monthly pass. These cost $76 for an All-Zone pass or $65 for a Two-Zone pass. Annual passes are available and offer one month free for the year. One-half month, and seven-day passes are also available for infrequent riders. Reduced fares are available for students 17 and under (Youth/Student) as well as seniors over 65 and people with disabilities (Honored Citizens).

Figure 4-3 TriMet Fare Structure

Fare Type	2-Hr Tickets		7-Day Pass	½-Month Pass	Monthly Pass	Annual Pass
	1 Ticket	10 Tickets				
All Zones	$2.05	$20.50	$20.50	$39.00	$76.00	$836.00
2 Zones	$1.75	$17.50	$17.00	$33.50	$65.00	$715.00
1 Zone	$1.75	$17.00	—	—	—	—
Honored Citizen	$0.85	$8.50	—	$12.00	$23.00	$253.00
Youth/ Student	$1.40	$14.00	—	$12.50	$24.00	—

PCC Subsidized TriMet Passes

PCC encourages the use of TriMet by offering subsidized TriMet passes to both students and employees. Parking and Transportation Services budgeted $70,000 toward 4,375 $16 subsidies (or 25% of 2-zone monthly pass) for the 06-07 school year. The subsidized passes are sold at College bookstores and are allocated (both geographically and per month) based on expected demand. The following table shows the sales of subsidized passes for February 2007 in the various bookstores. Records also show that roughly 60% of pass sales are for two-zone fares.

Figure 4-4 Sample Subsidized TriMet Pass Sales (Feb 07)

Location	Subsidized Pass Sales	Percent by Location
Sylvania	225	45%
Cascade	148	30%
Rock Creek	75	15%
Southeast	47	9%

TriMet Select Term Pass

TriMet has instituted two new pass programs for local colleges. The first offers reduced price passes for an entire college term. Once a college participates in the program, enrolled students would have the opportunity to purchase, from the College, passes at a discounted rate. TriMet charges a blended all-/two-zone rate (based on current TriMet pass sales) then discounts them similar to what it does for annual passes (roughly 10%). For 2007/08 Select Term passes cost $193. This compares with three monthly passes costing $195 or $228 – a greater savings for all-zone riders. Funds currently used to subsidize TriMet pass could be used to further lower the cost of Select Term Passes. PSU provided these term passes, branded as FlexPasses, and sold the subsidized passes for $150 during the 2006/07 academic year.

Starting with the Fall 2007 term, PTS is transitioning from subsidized monthly passes to the Select Term passes. With available funds, these will be subsidized and sold to students for $150 per term on a first-come, first-served basis.

TriMet Universal Term Pass

As another option, colleges can provide passes to all students under the Universal Pass program. In this case, the College has to provide TriMet with fare revenues equal to what their students currently generate. Then this cost is divided by all students, regardless whether they typically ride transit or not, resulting in a significant savings per person. TriMet estimates that they received $3.5 million in fares from PCC students in 2006. This is based on annual fare surveys and includes college-base trips along with other trips made on the TriMet system. This cost is prohibitive for PCC unless all students contribute toward the cost of the program.

Many large universities and some community/city colleges charge student fees to cover the cost of providing free transit service to students and sometimes employees. For example, Santa Barbara City College charges all students $18 or $19 per semester (based on course load) for a Transportation Bus Fee. In return, all students can ride MTD, the local transit agency, for free by just showing their student ID. Similarly, South Seattle Community College charges a $10 per quarter Transportation Management Program (TMP) fee. In return, students can purchase a $72 per quarter pass for King County Metro (roughly 66% off of typical $72 per month pass). Employees at South Seattle Community College can also pay the TMP fee in return for a free pass on King County Metro. This is in response to the state of Washington Commute Trip Reduction (CTR) law which is similar to the Oregon ECO rule. Employees purchasing parking permits pay the TMP fee and can receive the bus pass.

PCC Shuttles

Since 1993, PCC has offered free shuttle service between campus locations. The program is funded by parking permit fees and citation revenues. The intercampus routes provide over 3,300 weekly trips to students and employees. The following sections detail shuttle operations.

Routes

For the 2006/07 academic year, there were three primary routes. This was down from five in recent years due to a limited number of reliable shuttle buses. The routes were:

- Green Line: Cascade / PSU / Sylvania
- Yellow Line: Southeast / Hawthorne / PSU / Sylvania
- Blue Line: Rock Creek / Sylvania / PSU Shuttle

PCC Parking and Transportation Services has responded to rider inputs, modifying shuttle service on a short-term basis. This has been especially true since the transition from five to three routes in an effort to optimize service. The following table shows service changes during the 06/07 school year. The recent changes reflect the addition of direct Rock Creek to Sylvania service at the sacrifice of dedicated Sylvania to PSU (and connecting) service.

Figure 4-5 PCC Shuttle Routes and Level of Service

		Term	
		Winter/Spring 07	Fall 06
Green Line	Routing	Cascade/PSU/Sylvania	Cascade/PSU/Sylvania
	Daily (M-TH) Trips	12	14
Yellow Line	Routing	Southeast/Hawthorne/PSU/Sylvania	Southeast/Hawthorne/PSU/Sylvania
	Daily (M-TH) Trips	8	10
Blue Line	Routing	Rock Creek/Sylvania/PSU	Rock Creek/PSU
	Daily (M-TH) Trips	9	13
PSU/Sylvania Trips		24	19

The following table details shuttle hours of operation, indicating the earliest arrival time and latest departure time as the primary PCC locations.

Figure 4-6 PCC Shuttle Hours of Operation – Spring 2007

		Green Line	Yellow Line	Blue Line
Cascade	Earliest Arrival	7:10 AM		
	Latest Departure	9:35 PM		
Rock Creek	Earliest Arrival			7:05 AM
	Latest Departure			9:20 PM
Southeast	Earliest Arrival		8:25 AM	
	Latest Departure		9:20 PM	
Sylvania	Earliest Arrival	6:40 AM	7:45 AM	6:40 AM
	Latest Departure	10:00 PM	10:00 PM	10:00 PM

Note: Latest departure times are for Monday –Thursday service, Friday service terminates in the 6:00 pm hour.

Sylvania Overflow Lot Van

Parking and Transportation Services also funds and operates a shuttle van between the overflow parking lot located Lot is located at the Mountain Park Church (McNary Parkway and Jefferson Parkway), about one mile from campus. Parking is free in the overflow lot and the shuttle operates Monday through Thursday, every 15 minutes from 7:30 am to 6:00 pm. Not all riders on the shuttle park in the overflow lot as some walk to the shuttle stop from nearby apartments. Ridership on the shuttle is the heaviest early in each term when the demand for parking is the greatest. Overflow shuttle ridership averages over 200 riders a day at the start of a term but drops off sharply after that, averaging 80-90 people a day for the rest of term.

Columbia County Rider Shuttle

PCC helps fund a shuttle operated by Columbia County Transit which help bring students to the Rock Creek Campus. This service makes four trips a day from St. Helens/Scappoose to Rock Creek and the Willow Creek transit center. Fares are $4 per one-way trip ($3 for seniors, people with disabilities and students).

Ridership

The following table presents the Fall 06 ridership on the three intercampus routes. The Green and Yellow lines have the highest overall ridership. Monday through Thursday ridership accounts for over 90% of weekly boarding on all routes. A significant number of passengers board at the PSU stop, heading to Sylvania. This may be PSU students, PCC students/employees living/working downtown or a combination of both. Yellow line boarding along Hawthorne is also substantial. Their PCC status and final destinations cannot be ascertained from the data.

Figure 4-7 PCC Intercampus Shuttle Ridership by Line and Stop

Line and Stops	Mon	Tue	Wed	Thu	Fri	Weekly Total		Average Boardings per trip
GREEN LINE (Cascade/PSU/Sylvania)								
1. Cascade	86	99	82	100	33	400	25%	6.0
2. PSU	89	83	88	99	33	392	25%	5.9
3. Sylvania	143	151	155	171	47	667	42%	14.2
4. PSU	26	28	26	26	7	113	7%	2.4
Total Boardings	344	361	351	396	120	1572	100%	6.9
Percent of Week	22%	23%	22%	25%	8%			
YELLOW LINE (Southeast/Hawthorne/PSU/Sylvania)								
1. SE	67	50	57	48	28	250	19%	5.3
2. Hawthorne/47th	25	24	25	25	15	114	9%	2.7
3. Hawthorne/16th	14	26	30	17	11	98	7%	2.3
4. PSU	53	44	53	48	18	216	16%	4.5
5. SY	130	112	138	131	50	561	42%	13.4
6. PSU	7	7	9	8	0	31	2%	0.9
7. Hawthorne/15th	12	36	0	1	0	49	4%	1.2
8. Hawthorne/47th	3	1	0	0	1	5	0%	0.1
Total Boardings	311	300	312	278	123	1324	100%	3.9
Percent of Week	23%	23%	24%	21%	9%			
BLUE LINE (Rock Creek/PSU)								
1. Rock Creek	50	58	52	48	16	224	51%	3.6
2. PSU	46	52	54	43	20	215	49%	3.5
Total Boardings	96	110	106	91	36	439	100%	3.5
Percent of Week	22%	25%	24%	21%	8%			

Source: PCC shuttle boarding data for week for Oct 9, 2006

The following graphs detail boarding activity over the day. While the Green line shows distinctive peak periods, the Yellow and Blue lines are relatively consistent during the midday. The 9:15 am and early afternoons run of the Green line stands out as low ridership trips

Figure 4-8 Fall 06 Green Line (Cascade/PSU/Sylvania) Daily Boarding by Time of Day

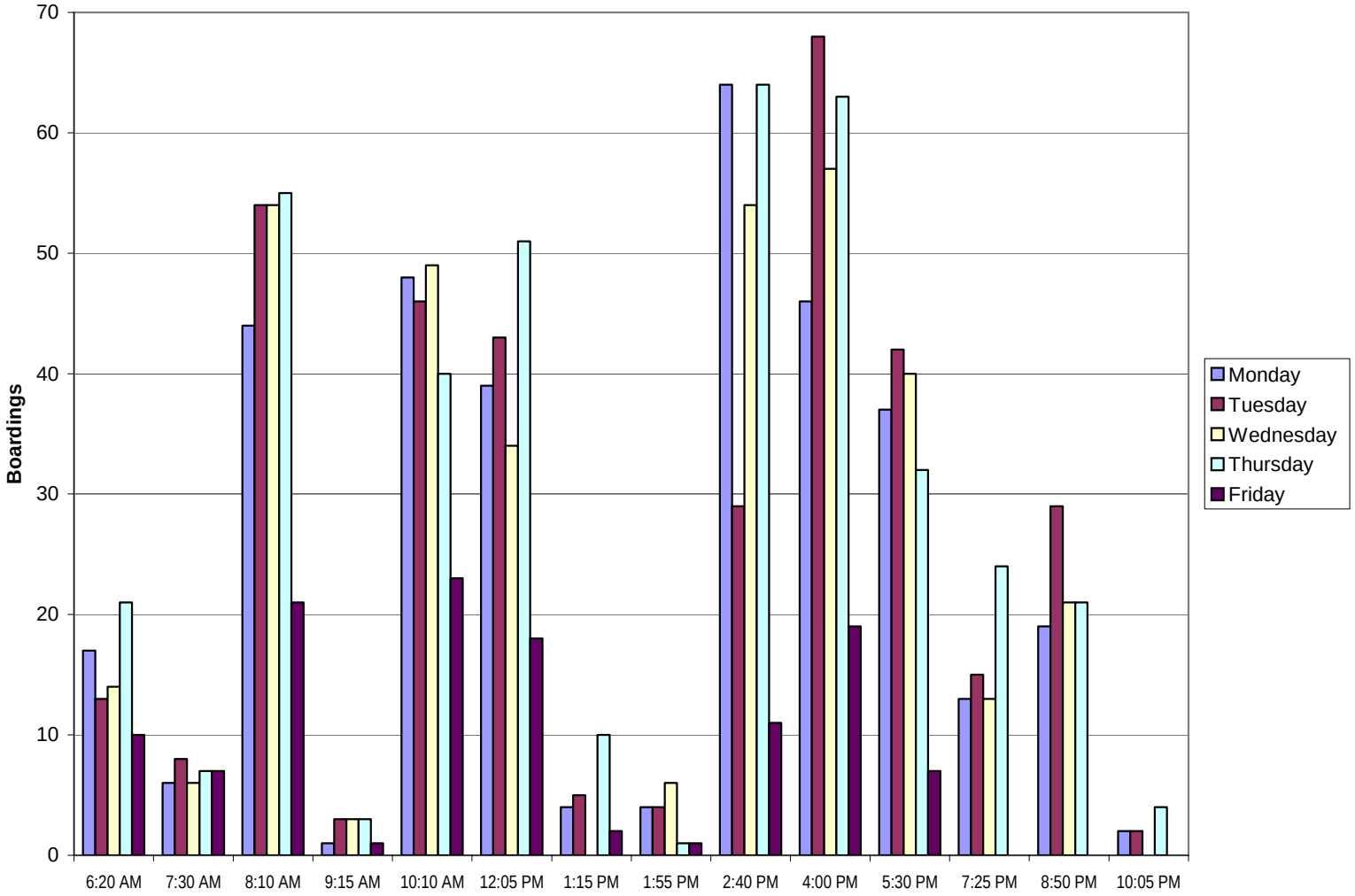


Figure 4-9 Fall 06 Yellow Line (Southeast/Hawthorne/PSU/Sylvania) Daily Boarding by Time of Day

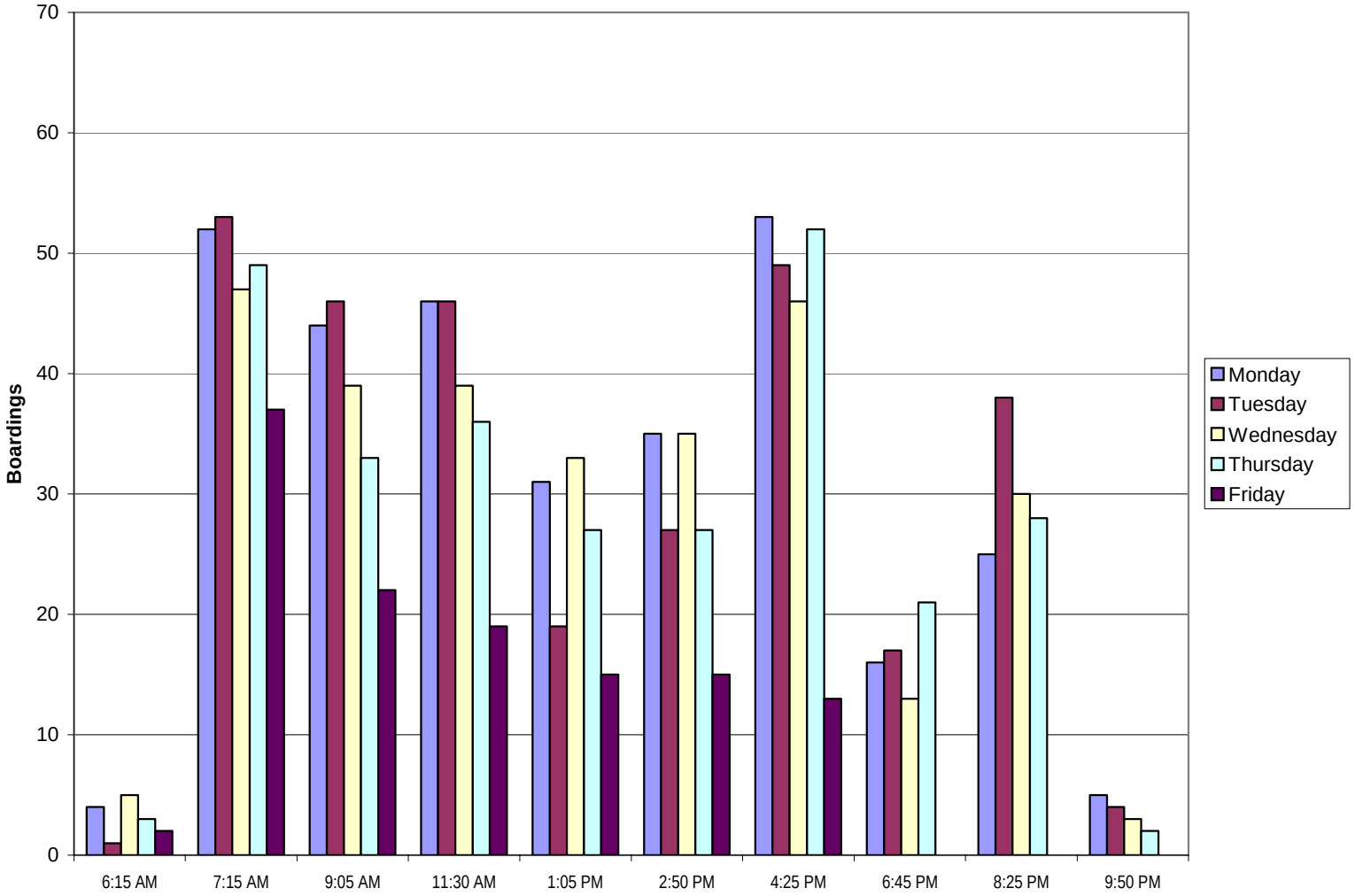
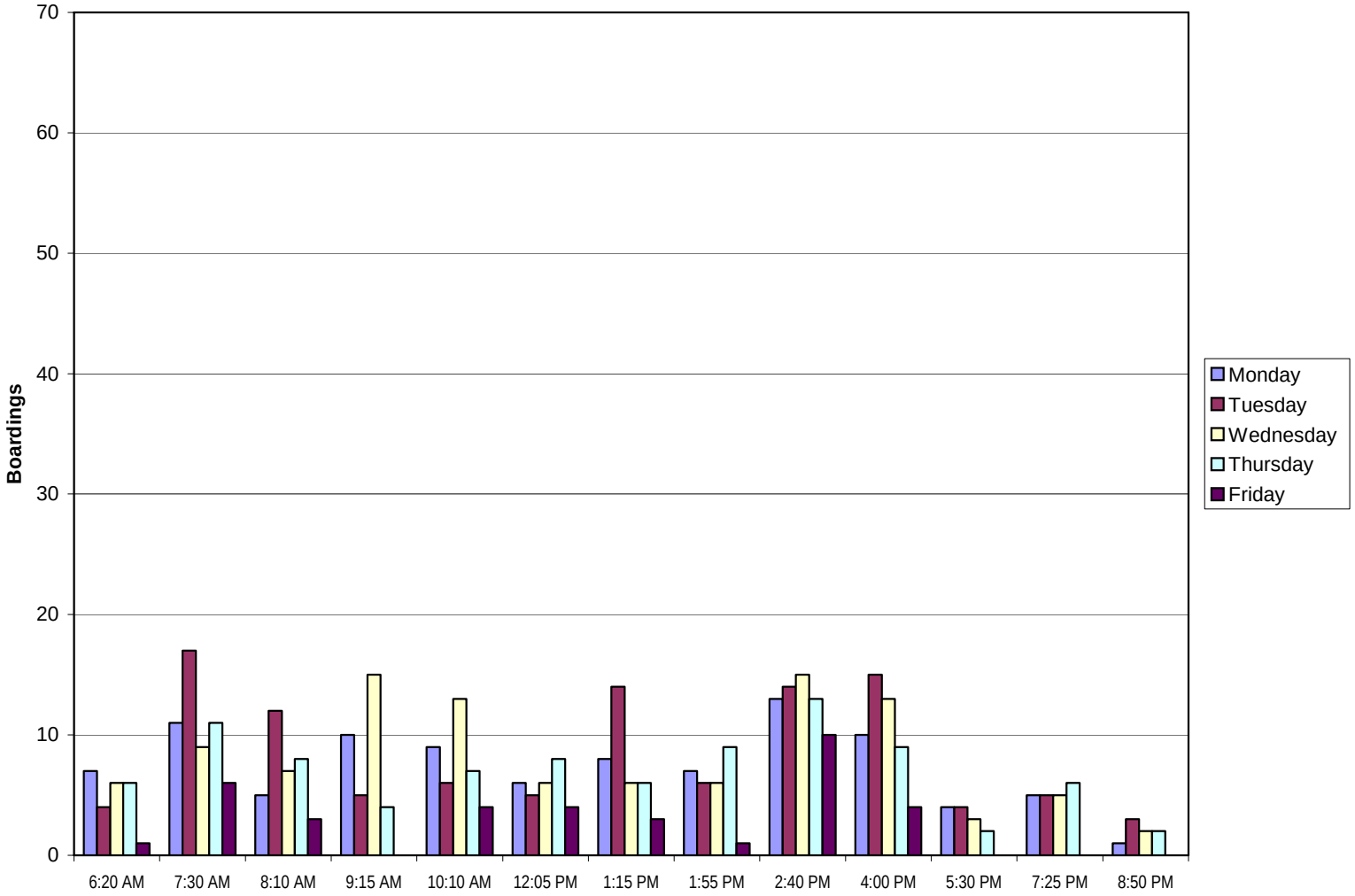


Figure 4-10 Fall 06 Blue Line (Rock Creek/PSU) Daily Boarding by Time of Day



Operating Budget

Parking and Transportation Services expends about $600,000 per year to operate the intercampus and overflow lot shuttles. This represents 30% of the total $2.0 million PTS budget. Fuel and wages/benefits account for most of these costs. The remaining 70% of the PTS budget goes toward parking lot maintenance, parking enforcement, administration and reserves.[1] The marginal cost to operate a shuttle route is about $710.00 a day per bus (two shifts). Revenues are solely derived from parking permits sales and enforcement fees.

Figure 4-11 PCC Shuttle Expenses

Expense	Estimated Annual Budget
Fuel	$214,000
Other Materials and Services	$35,000
Salary and Benefits	$349,000
Total	$598,000

Based on 05/06 and 06/07 expenses for three intercampus shuttles and Sylvania overflow lot shuttle.

Fleet

As described earlier, recent operations were limited to three routes based on the available fleet. Two new vehicles have been procured for the 2007/08 academic year. The following table indicates that the four main vehicles available for the current shuttles are relatively new and/or low mileage and adequate spares are available.

Figure 4-12 Parking and Transportation Services Fleet

Vehicle Information	Campus	Capacity	Spring 2007 Mileage
1999 Ford E350 XL SD	SYL	15	44153.1
2004 Blue Bird Bus	SE/SYL	45	30073.9
2004 Blue Bird Bus	SE/SYL	45	23489.2
2002 E350 XL SD EXT	SYL	15	68285.1
1998 Ford Aerotech	RC/SYL	21	134,853
2005 Chevy Aerotech	CA/SYL	24	
2004 Chevy Aerotech	RC/SYL	34	
2007 Chevy Aerotech	SYL/PSU	35	
2005 International Bus	CA/SYL	28	

[1] Examples of recent non-shuttle costs include $10,000 to repair storm water drains in a Sylvania parking lot, $160,000 to build a new diesel storage area at Rock Creek in order to reclaim parking areas used by the diesel program and the budgeting of $300,000 to add additional parking at Cascade.

Fall 07 Changes

With the addition of two new full-sized vehicles, PTS instituted a fourth shuttle route for the 2007/08 academic year. The new configuration added the Orange Line between the Sylvania Campus and PSU while eliminating the PSU stop from the Green and Yellow lines. This provides direct travel between Sylvania and both the Cascade Campus and the Southeast Center. It also reduced the number of buses stopping at PSU.

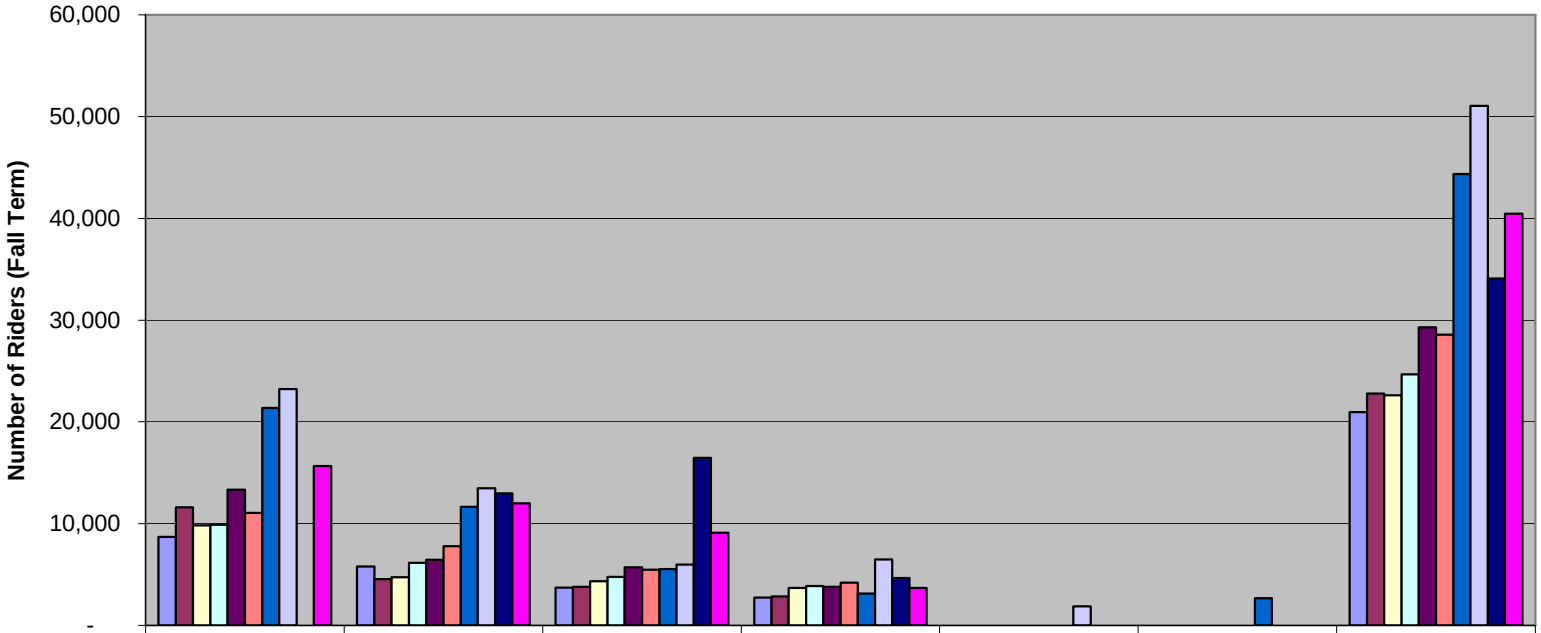
Figure 4-13 Shuttle Route Changes for 2007/08

		Term	
		Fall 07	Winter/Spring 07
Green Line	Routing	Cascade/Sylvania	Cascade/PSU/Sylvania
	Daily (M-TH) Trips	12	14
Yellow Line	Routing	Southeast/Hawthorne/Sylvania	Southeast/Hawthorne/PSU/Sylvania
	Daily (M-TH) Trips	9	10
Blue Line	Routing	Rock Creek/Sylvania	Rock Creek/PSU
	Daily (M-TH) Trips	11	13
Orange Line	Routing	Sylvania / PSU	Not Available
	Daily (M-TH) Trips	15	
PSU/Sylvania Trips		15	24

PTS also limited operation of the Sylvania overflow lot to first three weeks of the term. Historically, this service has only been in demand at the start of each term when parking can be constrained on campus. In addition, operators have indicated that the number of students walking from apartments near the Mountain Park Church has been in decline, possibly in response to rent increases. The overflow shuttle has cost PTS on the order of $69,000 per year for operator salary and benefits, fuel and parking lot rent. PTS was able to renegotiate parking lot rental terms with the church and as a result only pays for the weeks it is in use. Operators will be redeployed to other PTS programs starting the fourth week of the term.

The following figure shows ridership trends over the last ten years. In general, shuttle usage has continued to grow through the 2005/06 academic year. The loss in 2006/07 was primarily in response to the loss of two routes. The recent changes in Fall 07 have recovered a large portion of the lost ridership.

Figure 4-14 Ridership Trends



	Sylvania	South East	Cascade	Rock Creek	CA/SE	CA/PSU/RC	Totals
1998	8,695	5,800	3,724	2,730	-	-	20,949
1999	11,610	4,548	3,783	2,848	-	-	22,789
2000	9,834	4,735	4,349	3,691	-	-	22,609
2001	9,887	6,160	4,758	3,868	-	-	24,673
2002	13,322	6,466	5,710	3,807	-	-	29,305
2003	11,065	7,789	5,495	4,210	-	-	28,559
2004	21,354	11,662	5,555	3,127	-	2,675	44,373
2005	23,227	13,478	5,985	6,477	1,893	-	51,060
2006	-	12,972	16,457	4,660	-	-	34,089
2007	15,661	11,996	9,110	3,683	-	-	40,450

Carpool

A number of students and employees currently carpool to PCC locations. Reasons for carpooling can range from cost savings and avoiding roadway and/or parking congestion to not having other modes of travel. According to both the recent ECO survey and the on-line survey conducted for this study, 5% of employees carpool. Students share rides at a slightly higher rate (7%) according to the on-line survey. PCC actively encourages students to carpool by offering reduced parking fees for carpools. Both students and employees can utilize regional ride-matching programs, such as carpoolmatchnw.org sponsored by Metro, the City of Portland and regional transit providers. The Carpooling link on the PCC Parking and Transportation Services webpage currently directs interested parties to find potential passengers or drivers to the carpoolmatchnw.org page.

Many employers and colleges/universities encourage employees and student to carpool with additional incentives. Those in Washington and Oregon may do so to comply with the CTR or ECO laws requiring their employees to use alternatives to driving alone. These incentives can be non-financial, such as preferred parking near their final destination, or financial. As an example, South Seattle Community College offers employees (those working 50% or more of fulltime status) who carpool (or otherwise do not drive) $30 vouchers on a quarterly basis. These vouchers are good for purchases at REI, a local carwash, a local gas station, AAA, Flexcar, YMCA, and the Bookstore. Vouchers are not available to transit users who obtain a transit pass from the College. The $10 TMP fee and parking revenues support the voucher program. South Seattle Community Colleges makes Flexcar vehicles available for employees who carpool, walk, bike, or take transit to work and may need to go to a meeting, or for a personal use up to four hours. per day during normal business hours. This benefit is only available to employees working 50% or more of a full-time schedule.

Mode Comparisons

While alternatives to driving are available to many students and employees, the distribution of both campus/center locations and individual trip origins/destinations can make these alternatives infeasible for many. Trip chaining requirements as well as personal preferences also lead to high SOV use.

The following tables show how TriMet and PCC Shuttle service compare with driving for trips between the top origin-destination pairs. The “TriMet + Shuttle” entries represent travel times when riding TriMet for the first leg of a trip and transferring to a PCC shuttle in order to complete the trip. Driving provides a significant time savings in a number of these cases.

Figure 4-15 Time Comparisons: Top Originating Zip Code-Campus Pairs

Origin-Destination	Travel mode	Travel Time (min.)	Difference from Driving Time (min.)
97129-Sylvania	Drive	5	
	TriMet	11	6
	Shuttle	N/A	N/A
	TriMet + Shuttle	N/A	N/A
97214-Sylvania	Drive	17	
	TriMet	59	42
	Shuttle	N/A	N/A
	TriMet + Shuttle	73	56
97206-Sylvania	Drive	22	
	TriMet	86	64
	Shuttle	N/A	NA
	TriMet + Shuttle	99	77
97223-Sylvania	Drive	17	
	TriMet	48	31
	Shuttle	N/A	N/A
	TriMet + Shuttle	72	55
97006-Rock Creek	Drive	6	
	TriMet	24	18
	Shuttle	N/A	N/A
	TriMet + Shuttle	N/A	N/A
97217-Cascade	Drive	4	
	TriMet	16	12
	Shuttle	N/A	N/A
	TriMet + Shuttle	N/A	N/A
97007-Rock Creek	Drive	12	
	TriMet	41	29
	Shuttle	N/A	N/A
	TriMet + Shuttle	N/A	N/A
97202-Sylvania	Drive	17	
	TriMet	64	47
	Shuttle	N/A	NA
	TriMet + Shuttle	72	55
97007-Sylvania	Drive	20	
	TriMet	75	55
	Shuttle	N/A	N/A
	TriMet + Shuttle	N/A	N/A
97035-Sylvania	Drive	9	
	TriMet	49	40
	Shuttle	N/A	N/A
	TriMet + Shuttle	N/A	N/A
97211-Cascade	Drive	5	
	TriMet	11	6
	Shuttle	N/A	N/A
	TriMet + Shuttle	N/A	N/A

Note: includes wait times equal to one-half of bus headways when transferring

Figure 4-16 Time Comparisons: Intercampus Travel

Origin	Travel Mode	Travel Time (minutes) to Destination			
		Sylvania	Cascade	Rock Creek	SE Center
Sylvania	Drive				
	TriMet				
	Shuttle				
	TriMet / Shuttle				
Cascade	Drive	16			
	TriMet	55			
	Shuttle	34			
	TriMet / Shuttle	N/A			
Rock Creek	Drive	22	21		
	TriMet	96	100		
	Shuttle	30	117		
	TriMet / Shuttle	N/A	138		
SE Center	Drive	22	16	30	
	TriMet	83	37	95	
	Shuttle	48	100	137	
	TriMet / Shuttle	N/A	119	91	
PSU	Drive	11	9	18	15
	TriMet	27	30	76	43
	Shuttle	20	13	46	28
	TriMet / Shuttle	N/A	N/A	N/A	N/A

The following table summarizes the mode splits based on on-line survey responses. Except for the Rock Creek Campus, students drive alone less than half the time. Students carpool to Rock Creek at the highest levels. And the Cascade Campus sees the greatest use of transit and biking for both students and employees, helping this location realize the lowest SOV mode share.

Figure 4-17 Mode Split

All Respondents	Shuttle	TriMet	SOV	Motor-cycle	Carpool	Bike	Walk	Sample Size
Cascade Campus	7%	23%	50%	1%	4%	10%	7%	272
Rock Creek Campus	8%	16%	61%	2%	11%	1%	1%	280
Southeast Center	10%	18%	61%	2%	6%	0%	2%	49
Sylvania Campus	21%	17%	51%	1%	6%	1%	2%	746
All Respondents/All Locations	15%	18%	54%	1%	7%	3%	3%	1,390

Faculty/Staff	Shuttle	TriMet	SOV	Motor-cycle	Carpool	Bike	Walk	Sample Size
Cascade Campus	5%	9%	73%	0%	3%	7%	3%	75
Rock Creek Campus	3%	4%	82%	3%	6%	1%	0%	68
Southeast Center	5%	5%	89%	0%	0%	0%	0%	19
Sylvania Campus	8%	8%	71%	2%	7%	2%	2%	215
All Faculty/Staff	6%	7%	76%	1%	5%	3%	2%	415
All Students	**Shuttle**	**TriMet**	**SOV**	**Motor-cycle**	**Carpool**	**Bike**	**Walk**	**Sample Size**
Cascade Campus	7%	28%	41%	1%	4%	10%	8%	191
Rock Creek Campus	9%	21%	55%	1%	12%	1%	1%	207
Southeast Center	13%	27%	43%	3%	10%	0%	3%	30
Sylvania Campus	26%	21%	44%	1%	6%	1%	2%	519
All Students	18%	23%	45%	1%	7%	3%	3%	950

Note: Results for some categories may not total 100% due to rounding

Chapter 5. Parking Options

PCC Parking and Transportation Services cites its mission as mitigating existing traffic and parking challenges. It also strives to support the College's goal to reduce single occupant vehicle ridership and to encourage all members of the PCC community to use alternative forms of transportation such. The fee-based parking permit system lowers the demand on-campus parking. The conflicting goal to minimize overall costs to student limits the ability for parking fees to discourage automobile use. The following table details current student parking permit fees. Faculty and staff pay $100 per year before payroll taxes (see discussion of federal commuter benefits in Chapter 1).

Figure 5-1 One-Term Student Parking Permit Fees

Type of Permit	Price
All-Day Permit	$33.00
Evening-Only Permit (valid 4 p.m.–10 p.m.)	$24.00
Carpool Permit, two people	$16.00
Carpool Permit, three or more people	FREE
Monthly, All-Day Permit	$15.00
One-Day, All-Day Permit	$3.00
Seniors (62 and older students)	50% off term or monthly permits

A quick review of west coast city and community colleges shows that student parking fees range from free to $186 on an annual basis. Many are similar to PCC, around $100 per year. South Seattle Community College is at the high end, charging $46.50 per quarter for full time students. A number of California city colleges provide discounts for students requiring financial assistance. For example, Sacramento and Santa Barbara City Colleges charge $30 per semester but lower this to $20 for students in a formal financial assistance program.

The following table summarizes permits sales for the Winter 2007 term. Overall, 12,274 permits allow parking during the day. This is about 2.5 times the number of spaces available, yielding a presence factor of 0.4. The presence factor is the ratio of permits on campus at a given time relative to the total number of permits issued. A factor of 0.4 is low but not unusual for community colleges where students and employees maintain irregular schedules.

Figure 5-2 Winter Term 2007 Parking Permit Sales

Type of Permit	Quantity Sold
P/T Faculty Permits	576
Casual Staff Permits	110
Student Carpool Permits	423
All Day Permits	9,936
Evening Only Permits	2,961
2007 Annual Staff Permits	1,229

Capacity Data

This study included an inventory of available parking at the PCC campuses and Southeast Center. Data were collected on Tuesday and Thursday mornings between April 17 and April 26, 2007 (weeks three and four of the term). The following sections summarize the findings from this inventory including the capacity and hourly occupancy levels at each location. Surveyors also provided a count of bicycle facilities at each location.

Parking occupancy is defined by a ratio of parking spaces occupied over the number of parking spaces available. At 100% occupancy, all available parking spaces are full. At 90% occupancy, parkers may begin to have difficulty finding parking close to their destination. At 60% occupancy or lower, parking is typically available within a short walk to their final destination. A peak-hour occupancy of 85% is typically considered optimal in terms of a trade-off between driver convenience and efficient use of parking resources for retail parking systems where customers have choice with respect to where they shop. This level is often used as a not-to-exceed standard when determining whether there is a need for additional capacity or a reduction in demand.

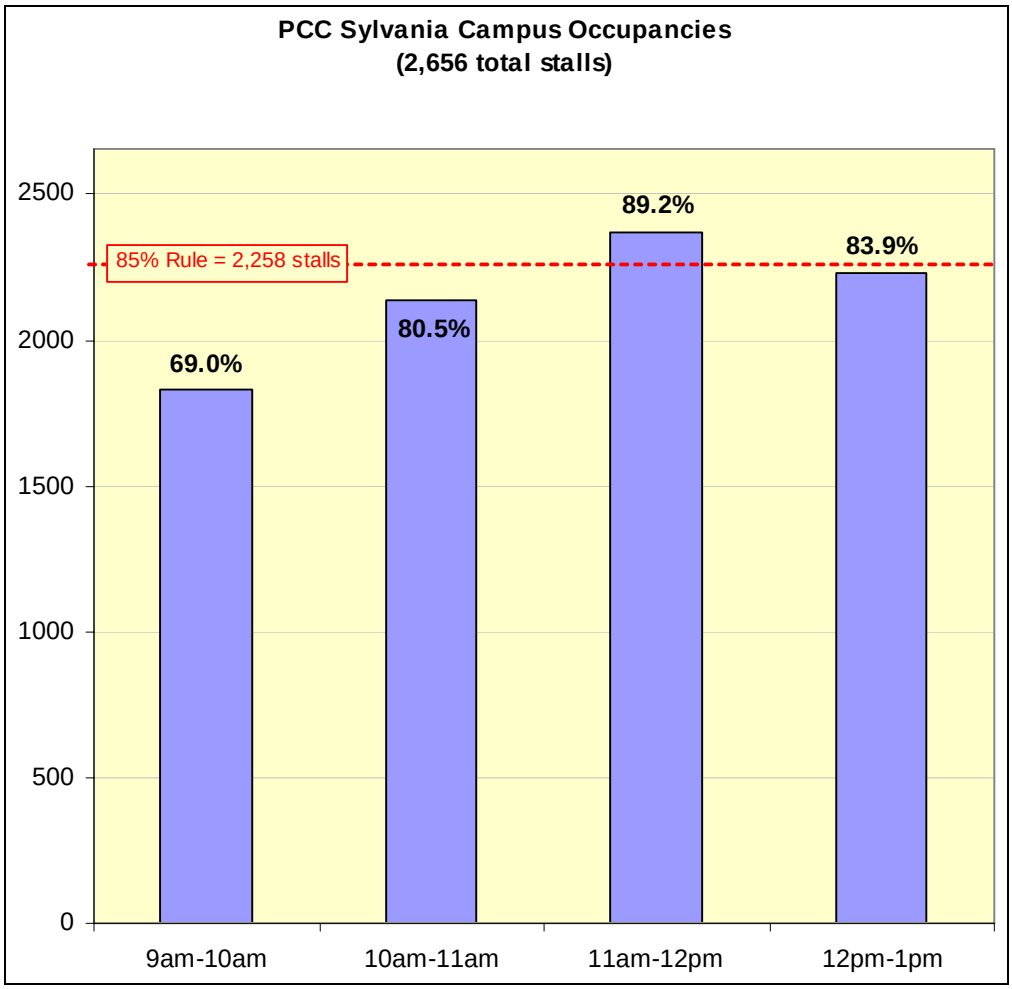
Sylvania

The staff parking supply at Sylvania is highly impacted in all current locations. The student/general parking supply is also highly utilized particularly in lots closest to campus buildings. The remaining available stalls are primarily located along the access road surrounding campus with the highest number available closest to the entrance on SW Lesser Road.

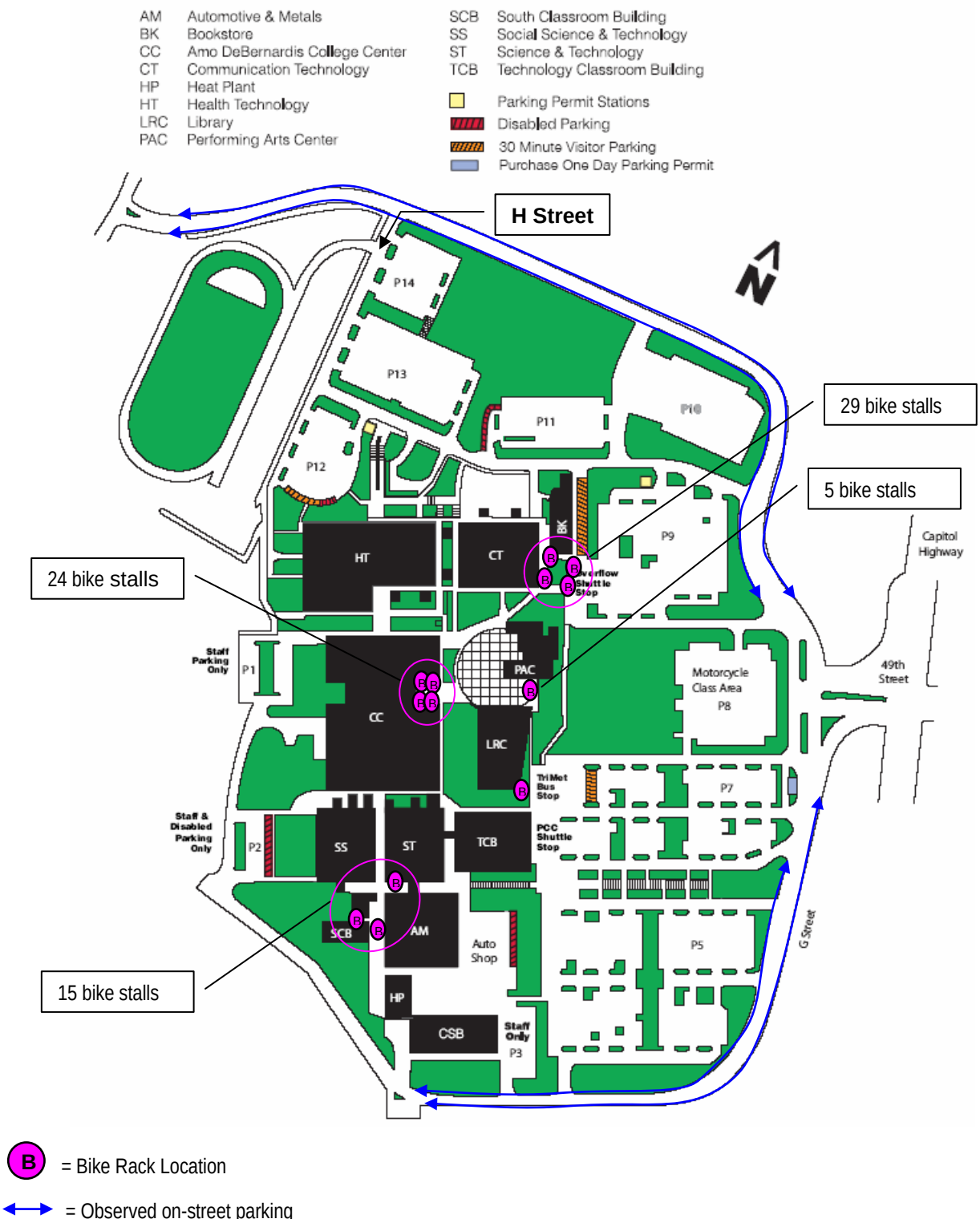
Figure 5-3 Sylvania Campus Parking Inventory

Sylvania Lot IDs	# Stalls	9am-10am	10am-11am	11am-12pm	12pm-1pm	Lot Notes: Stalls designated for each use category
P1	63	58	63	63	59	Staff: ALL ADA: 1
P2	23	14	15	19	20	Staff: ALL ADA: 10
P3	39	25	33	36	32	Staff: ALL
Access Road G St. (Staff Area) south side of campus	18	14	16	17	16	Staff: ALL
Access Rd G St. (S. of Main Entry)	86	14	22	77	70	
Access Rd G St. (N. of Main Entry up to H St.)	133	15	24	29	33	
Access Rd G St. (W. of H St.)	79	3	8	17	14	
P5	528	426	507	523	464	ADA:6
P6	173	147	166	169	164	Staff: 146 Visitor: 6 Time Limited: 14 ADA: 7
P7	210	177	204	203	192	
P8	221	131	166	211	194	
P9	363	308	319	343	307	Staff: 35 Time Limited: 16 ADA: 10
P10	172	55	79	132	136	
P11	130	100	120	121	119	Staff: ALL ADA: 11
P12	105	94	103	100	104	Staff: 12 Time Limited: 6 ADA: 2
P13	214	214	214	212	208	
P14	99	38	79	96	97	
TOTAL	2656	1833	2138	2368	2229	

Sylvania Lot IDs	# Stalls	9am-10am	10am-11am	11am-12pm	12pm-1pm	Lot Notes: Stalls designated for each use category
Occupancy		69.0%	80.5%	89.2%	83.9%	
Available Stalls		823	518	288	427	
Additional Parking Information -- Breakouts by Category						
Student/General Parking	2210	1475	1725	1943	1819	
Occupancy		66.7%	78.1%	87.9%	82.3%	
Available Stalls		735	485	267	391	
Staff Only Parking	428	344	397	408	394	
Occupancy		80.4%	92.8%	95.3%	92.1%	
Available Stalls		84	31	20	34	



On-Street and Bike Parking
Sylvania Campus

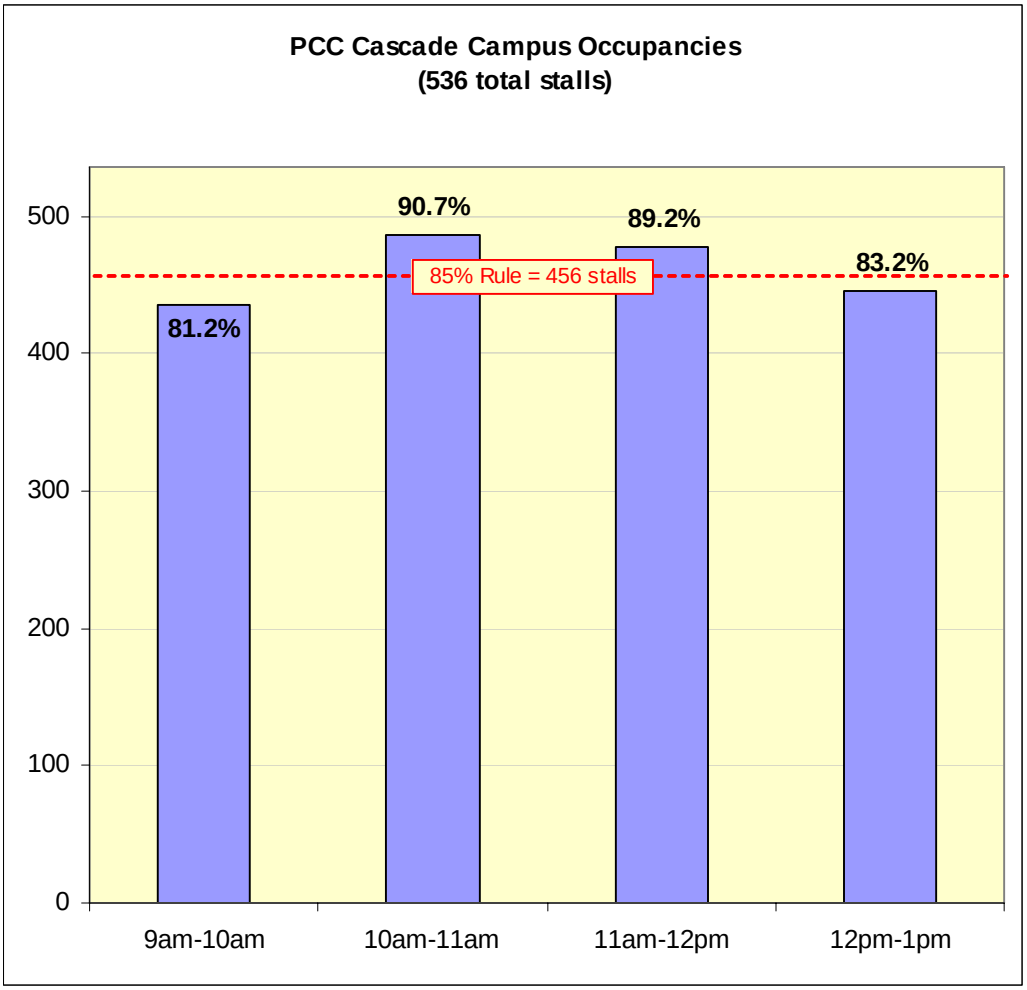


Cascade

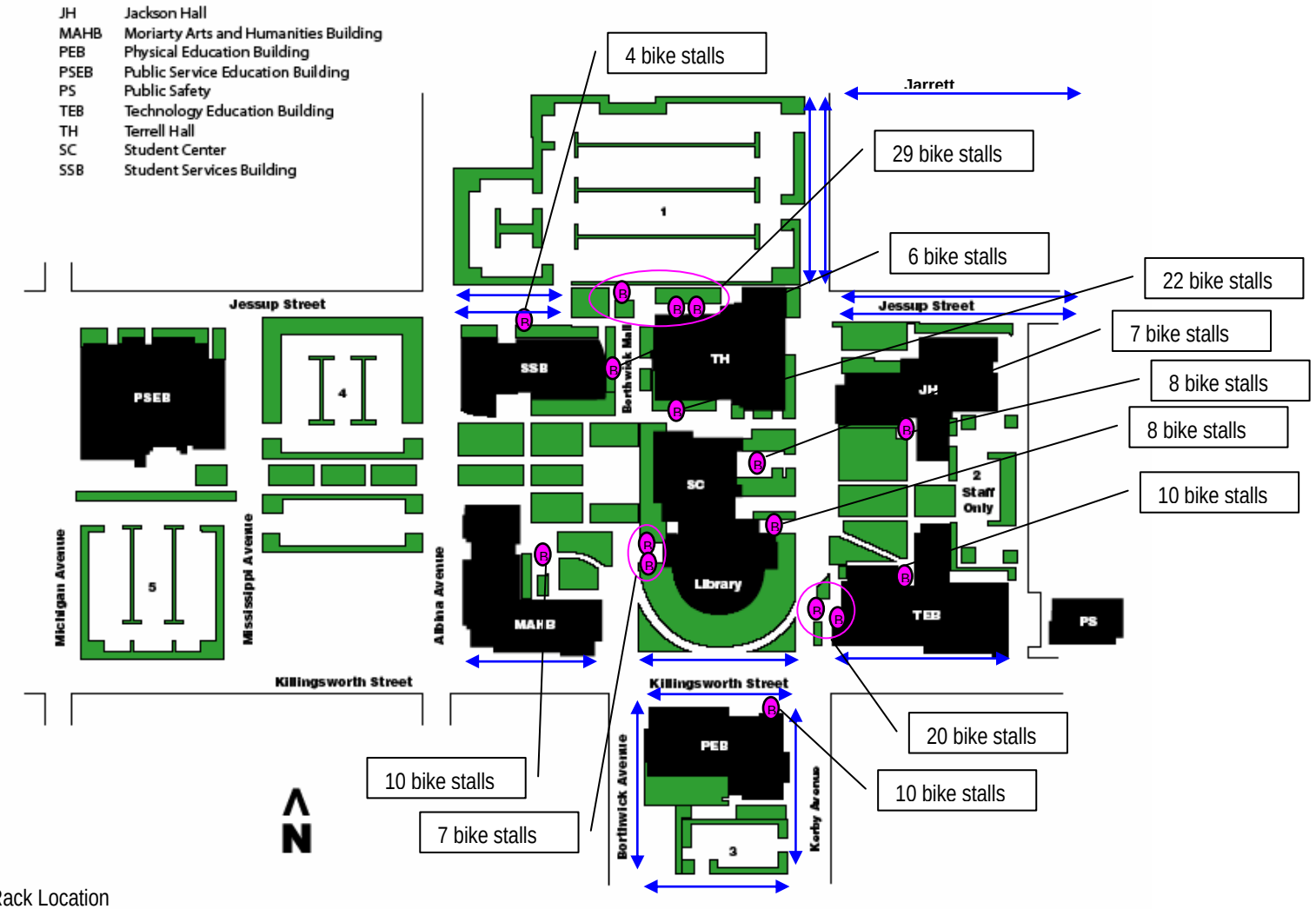
Overall, the Cascade Campus is constrained with respect to parking, but Lot P5 remained less than 80% occupied at the peak. Street parking around campus was very well utilized throughout the survey period and approximately 70% of vehicles had some sort of PCC hangtag or identifier. It was observed that a large percentage of students arrive on bikes (more so than any other PCC facility), evidenced by the large number of racks on campus. Current plans include the expansion of Lot 1 by 54 spaces (church property in northwest corner of lot) and Lot 4 by 36 spaces (spaces behind Paragon Club).

Figure 5-4 Cascade Campus Parking Inventory

Cascade Lot IDs	# Stalls	9am-10am	10am-11am	11am-12pm	12pm-1pm	Lot Notes: Stalls designated for each use category
P1	271	260	266	245	247	Time Limited: 4 (30 min) ADA: 16
P2	43	39	37	38	38	Staff: ALL ADA: 4
P3	20	19	19	20	14	Staff: ALL ADA: 2
P4	110	84	106	102	75	ADA: 6
P5	92	33	58	73	72	ADA: 4
TOTAL	536	435	486	478	446	
Occupancy		81.2%	90.7%	89.2%	83.2%	
Available Stalls		101	50	58	90	
Additional Parking Information						
Street Parking south side of campus adjacent to PCC facilities only	62	57	55	53	52	
Street Parking north side of campus adjacent to PCC facilities only	71	68	67	65	50	


PCC Cascade Campus Occupancies
(536 total stalls)
500
400
300
200
100
0
90.7%
89.2%
83.2%
81.2%
85% Rule = 456 stalls
9am-10am
10am-11am
11am-12pm
12pm-1pm

Off-Street and Bike Parking
Cascade Campus

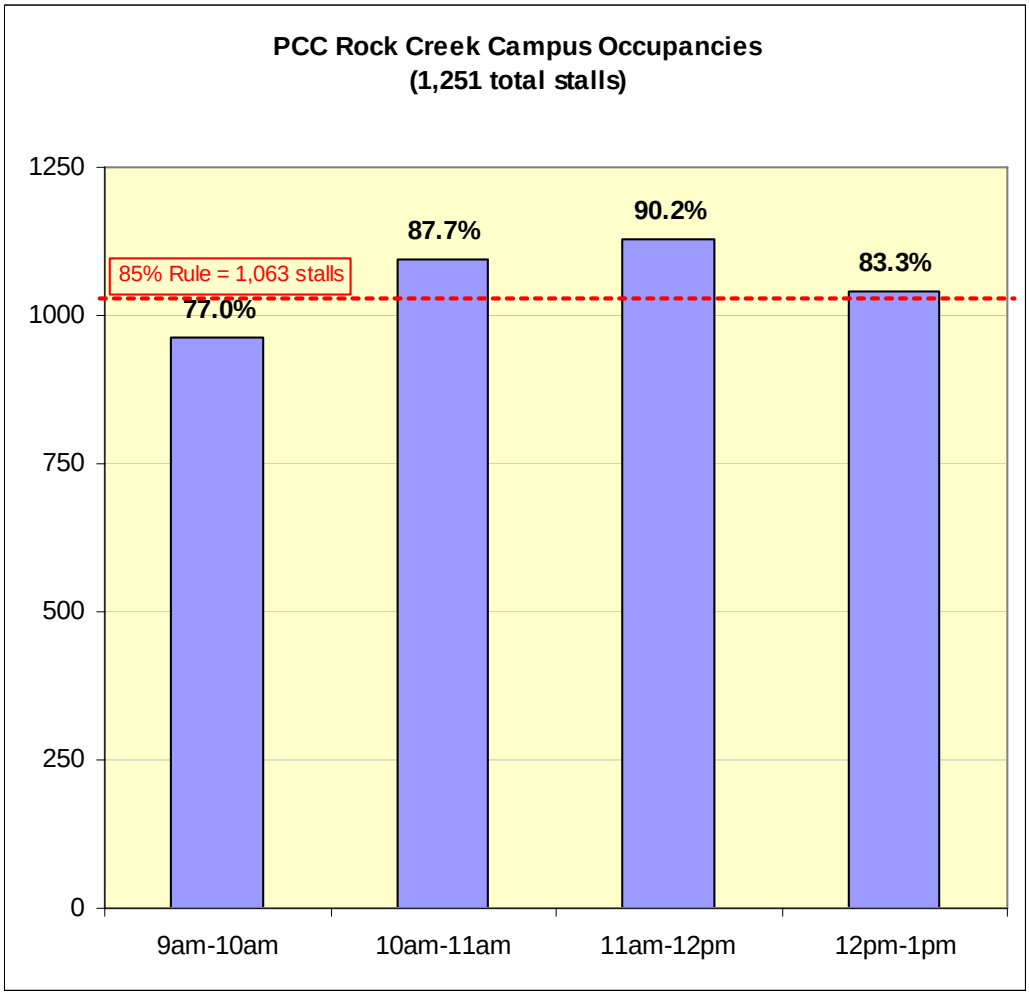


Rock Creek

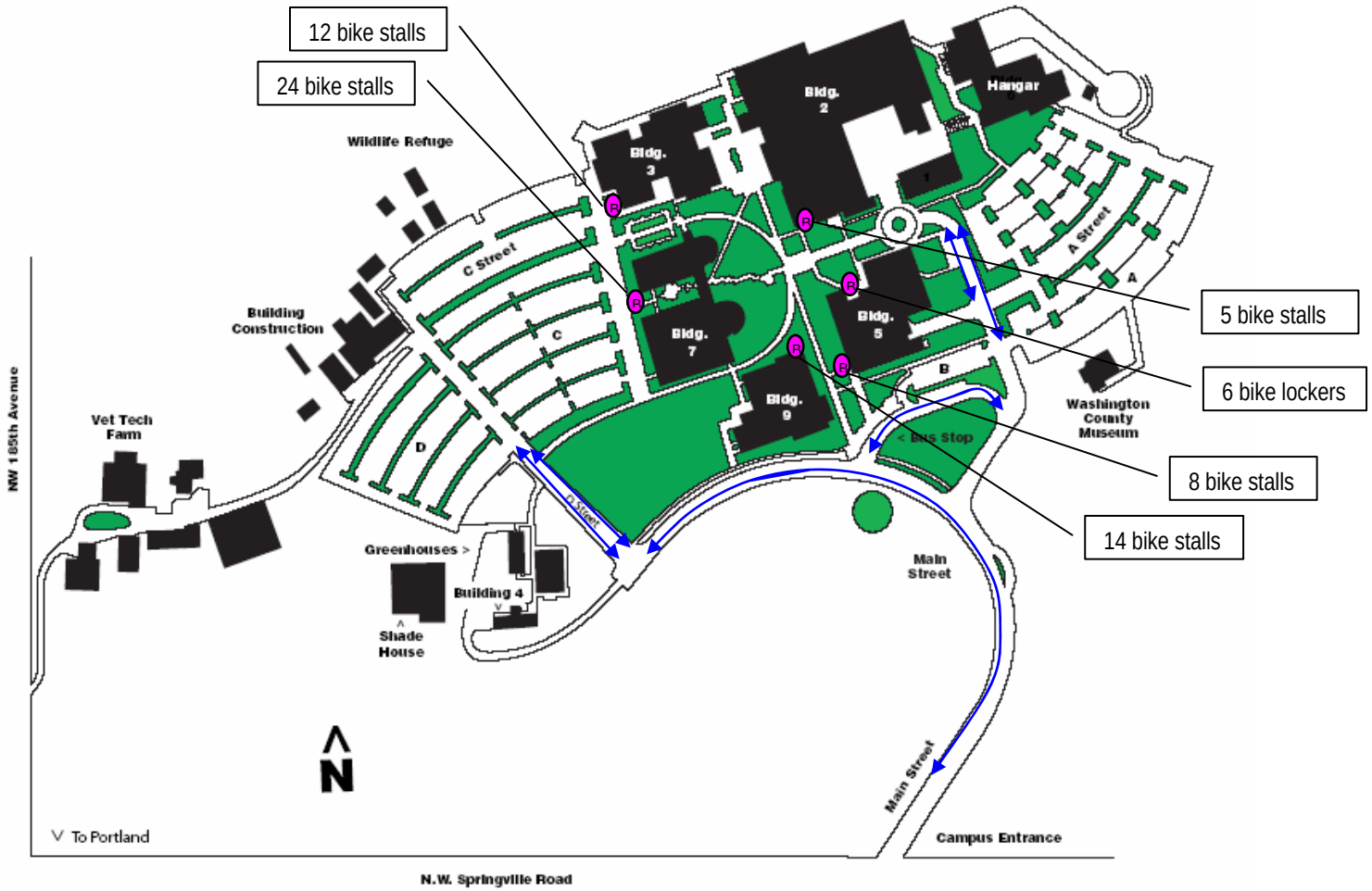
Despite high occupancy numbers there are still 123 stalls available in the peak hour, not including the informal Ring Road street parking near the campus entry. The Ring Road (24 stalls) is what could be considered informal parking, there is no street striping for the stalls, but the curb is not painted and therefore available to students. PTS is working with the Tualatin Hills Park and Recreation District to share 225 nearby spaces. PCC would have access to these Monday through Friday from 7 am until 5 pm, provided there are no special events taking place.

Figure 5-5 Rock Creek Campus Parking Inventory

Rock Creek Lot IDs	# Stalls	9am-10am	10am-11am	11am-12pm	12pm-1pm	Lot Notes: Stalls designated for each use category
A	351	342	335	333	295	Staff: 35 ADA: 4
B	41	27	25	26	25	Staff: 12 Visitor: 8 (30 min) Time Limited: 13 (30 min) ADA: 8
C	478	409	471	452	457	Staff: 136 ADA: 14
D	278	97	181	217	186	
Ring Road (including D St.)	103	88	85	100	79	ADA: 5
TOTAL	1251	963	1097	1128	1042	
Occupancy		77.0%	87.7%	90.2%	83.3%	
Available Stalls		288	154	123	209	
Additional Parking Information						
Ring Road (entry gate to stop sign on Main St.)	24	0	3	4	3	


PCC Rock Creek Campus Occupancies
(1,251 total stalls)
1250
1000
750
500
250
0
85% Rule = 1,063 stalls
77.0%
87.7%
90.2%
83.3%
9am-10am
10am-11am
11am-12pm
12pm-1pm

Off-Street and Bike Parking
Rock Creek Campus



= Bike Rack Location

= Observed on-street parking

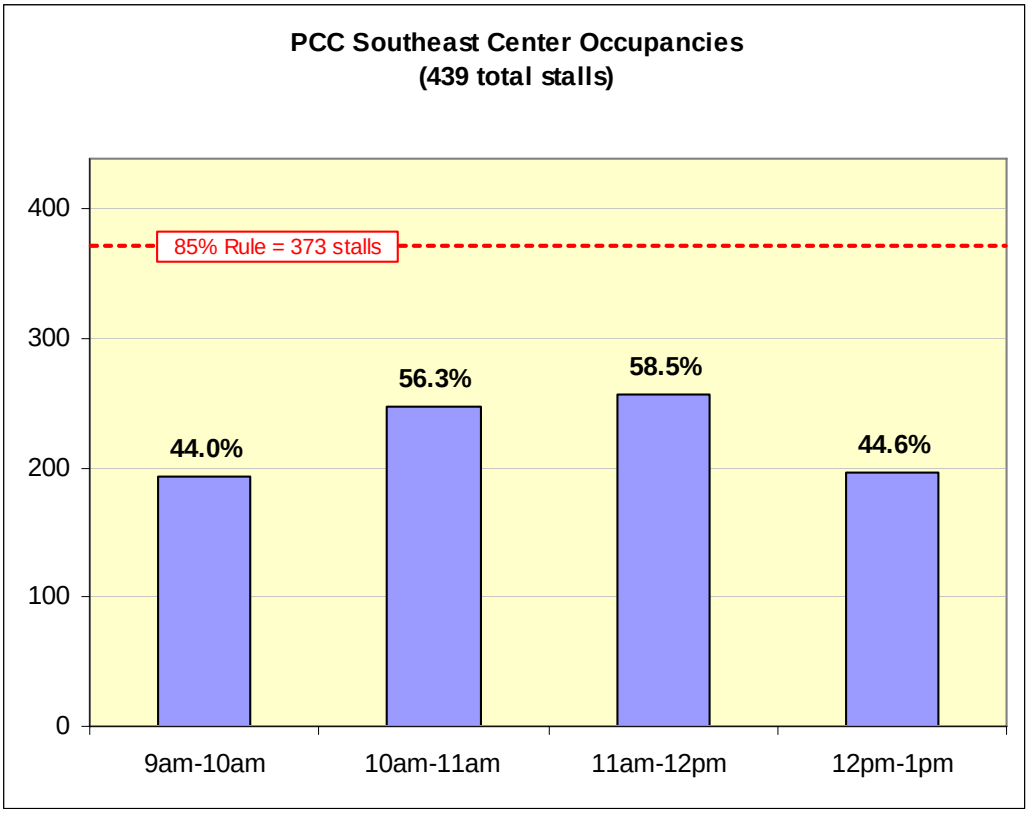
Southeast Center

This center had an over abundance of staff parking when compared to other locations. Even at peak use, only 50% of these stalls were occupied. No students were observed parking on-street in the neighborhood to the west.

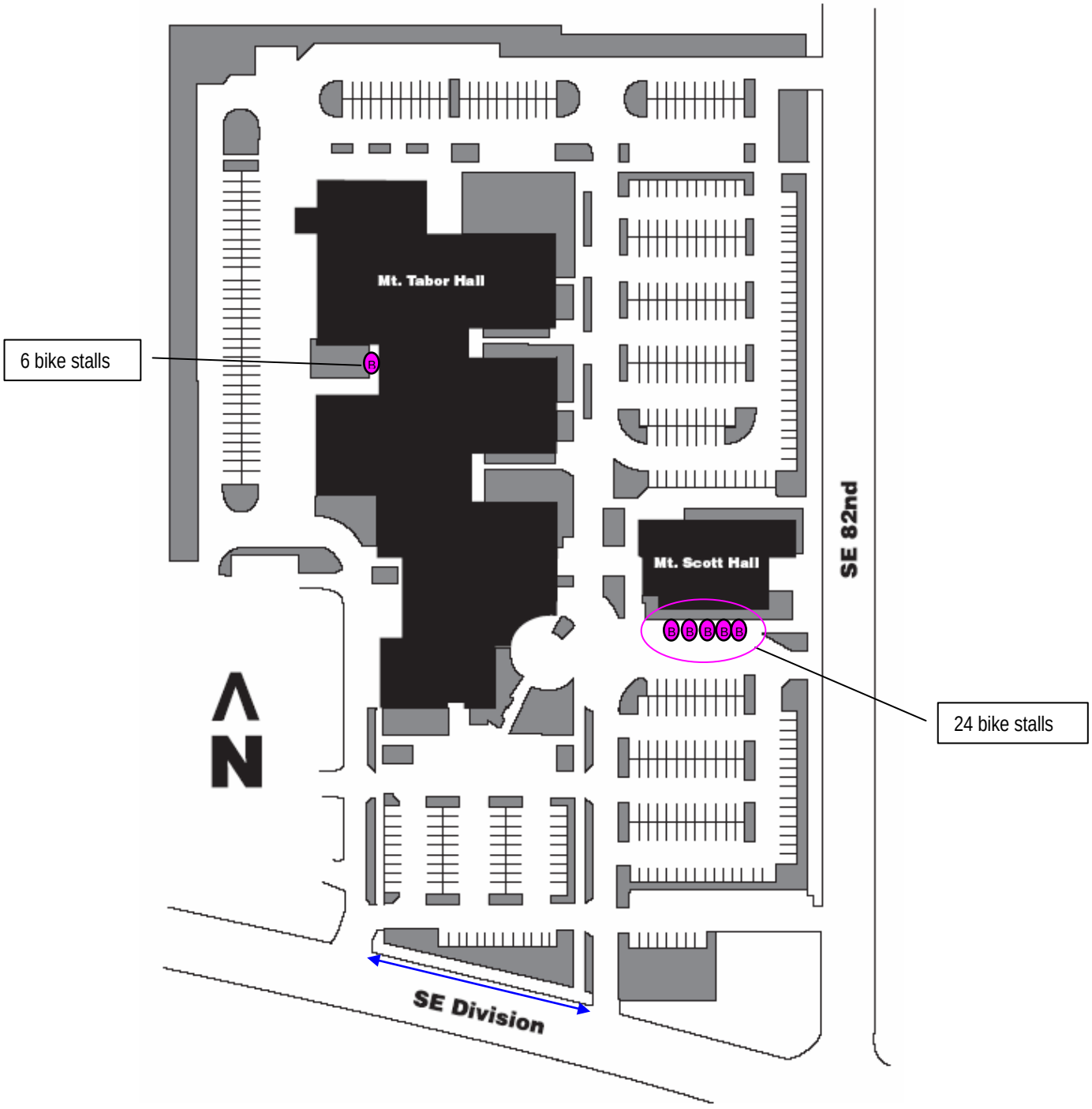
Figure 5-6 Southeast Center Parking Inventory

Southeast Lot IDs	# Stalls	9am-10am	10am-11am	11am-12pm	12pm-1pm	Lot Notes: Stalls designated for each use category
General Parking	439	193	247	257	196	Staff: 64 Visitor: 13 (30 min.) Time Limited: 4 (5 min) ADA: 17
Occupancy		44.0%	56.3%	58.5%	44.6%	
Available Stalls		246	192	182	243	
Additional Parking Information						
Motorcycle	5*	1	1	1	0	
Carpool Only	5*	0	3	4	3	
Legin Restaurant	39*	4	10	10	9	
Bank of the West	21*	5	6	8	7	
Street Parking (along Division)	12*	12	10	10	10	

* these stalls were not included in the 439 total listed above


PCC Southeast Center Occupancies
(439 total stalls)
400
300
200
100
0
85% Rule = 373 stalls
44.0%
56.3%
58.5%
44.6%
9am-10am
10am-11am
11am-12pm
12pm-1pm

Off-Street and Bike Parking
Southeast Center



Central Portland Workforce Training Center

Of all the campuses this facility had the most under utilized parking system during the survey period.

Figure 5-7 Central Portland Center Parking Inventory

Central Portland Lot IDs	# Stalls	9am-10am	10am-11am	11am-12pm	12pm-1pm	Lot Notes: Stalls designated for each use category
P1	177	84	103	108	90	Staff: 4 ADA: 8
Occupancy		47.5%	58.2%	61.0%	50.8%	
Available Stalls		93	74	69	87	

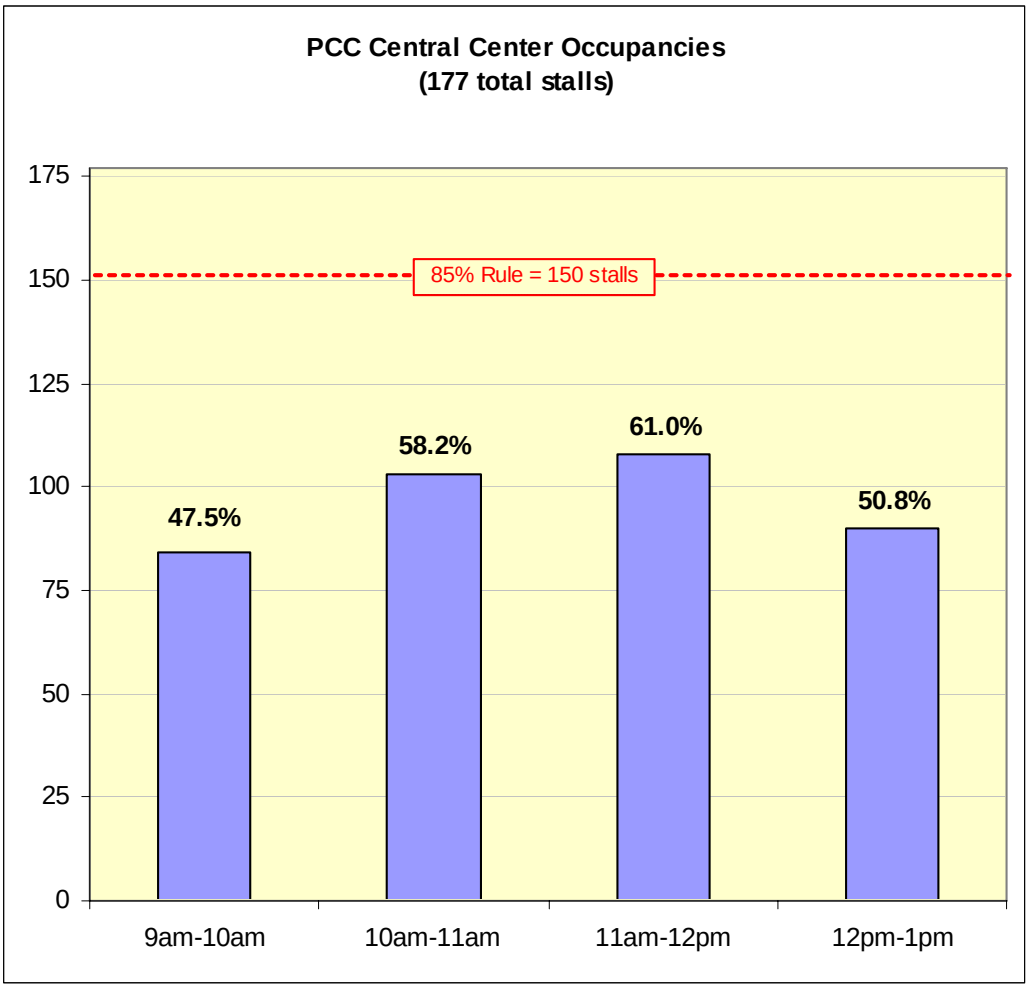
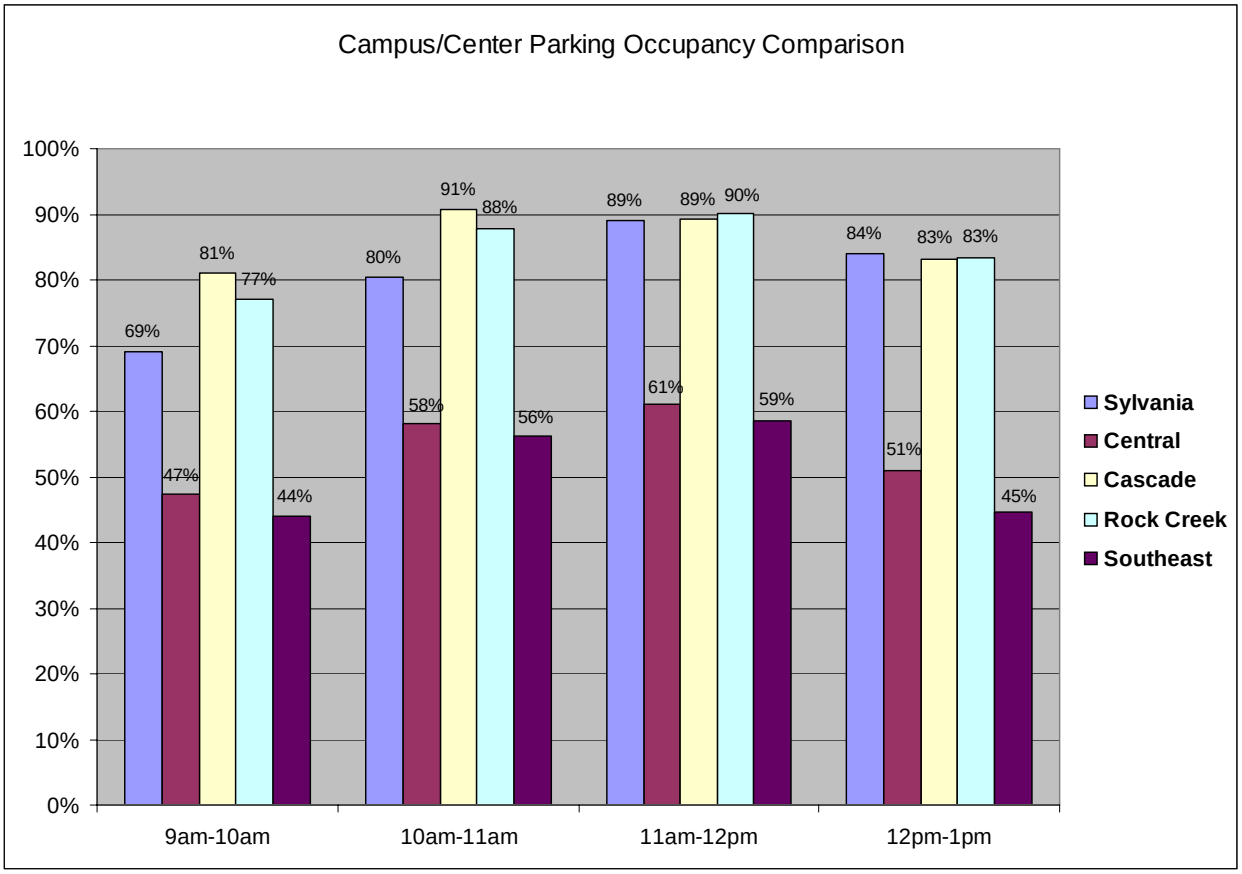


Figure 5-8 summarizes the parking survey data showing that utilization peaks between 10 am and noon the Cascade and Rock Creek campuses having the greatest use of parking resources.

Figure 5-8 Parking Occupancy Levels by Location



Chapter 6. Travel Behavior and Opinions

This study included an on-line survey of students, faculty and staff to ascertain data on their travel behavior and their opinions on parking and transportation options. Survey responses were solicited over a two-week period ending March 23rd 2007. An email solicitation and follow up email were sent to all employees and enrolled students. 1,322 respondents participated in the survey. Faculty and staff had the greatest level of participation with 34% (421 out of 1,242 based on Fall 06 full-time staff) taking part. Only 4% of all students (899 out of 23,827 registered Fall 06 Credit students) provided their inputs. This rate is closer to 8% when looking at just full-time students (662 out of 8,661 based on Fall 06 enrollment).

The survey inquired into respondents' mode of travel to PCC locations and these results are presented in the Transportation Alternatives section of this chapter. Similarly, the survey solicited information regarding participants' travel patterns and these findings are highlighted in the Student and Faculty/Staff Travel Needs section.

Figure 6-1 On-Line Survey Respondents

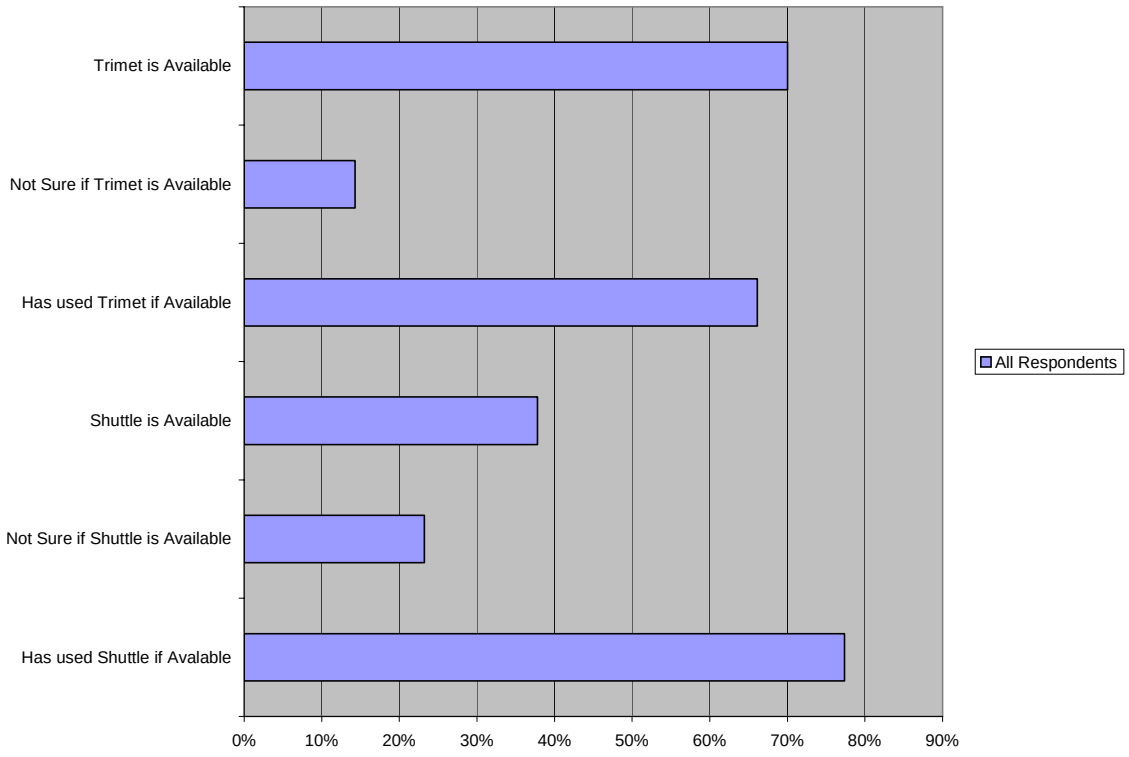
Respondent Attribute	
Faculty/Staff	415
Full-Time Students	662
Part-Time Students	219
Other	26
Attend PSU	114
Primary Campus	
Sylvania Campus	53.9%
Rock Creek Campus	20.3%
Cascade Campus	19.1%
Southeast Center	3.6%
Washington County Workforce Training Center	1.6%
Portland Metropolitan Workforce Training Center	0.8%
Hillsboro Education Center	0.5%
Central Portland Workforce Training Center	0.2%

Use of TriMet and PCC Shuttle

Of the 1,322 respondents, 361 (27%) use TriMet for an average of 5.0 one-way trips per week. Shuttle users numbered 282 (21%) and averaged 5.6 one-way trips per week. One-fifth of shuttle riders report that they transfer between shuttle routes to complete their trip.

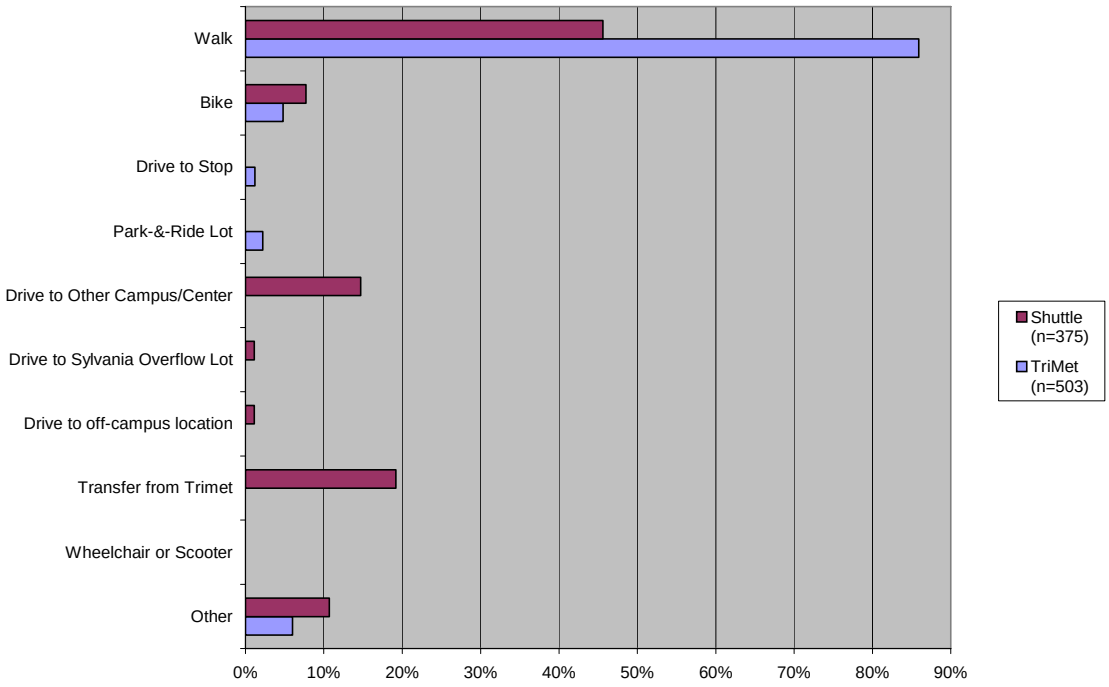
The following graph illustrates that 70% of respondents indicate that they could take TriMet to PCC and two-thirds of them have used it at some time. More than 10% of the survey participants cannot say whether or not that TriMet is an option. Only 38% claim that a PCC Shuttle is an option for them, but almost 80% of those served by the shuttle have used it. Twenty-three percent of all respondents are not sure if a shuttle is available to them.

Figure 6-2 Access to TriMet and Shuttles



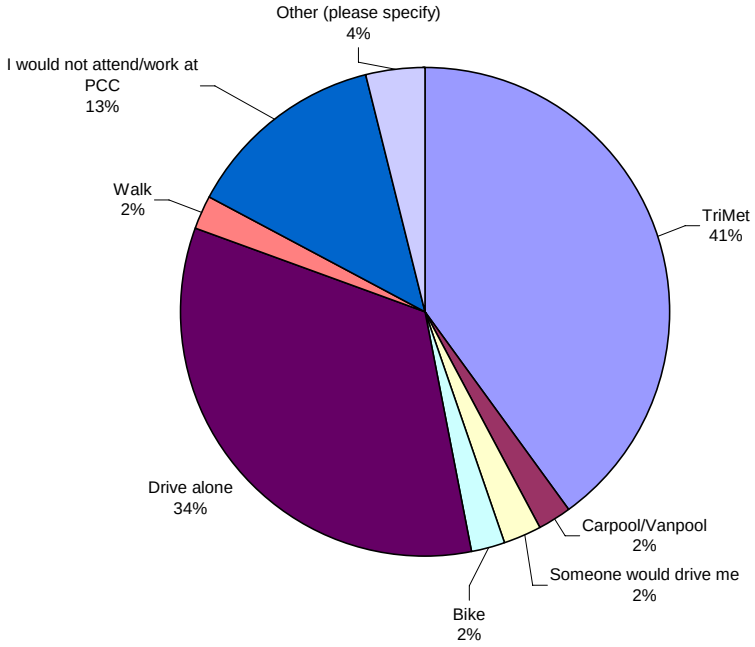
Most TriMet and shuttle riders walk to their bus or shuttle stop. Shuttle riders have additional means for accessing their bus. Just fewer than 20% transfer from TriMet and almost 15% drive to another campus where they board the shuttle for the final leg of their trip. Other means for getting to the bus include getting dropped off or carpooling to bus/shuttle stop. A number of shuttle riders take the Portland Streetcar and TriMet users also take the streetcar or MAX to connect with buses serving the campuses/centers.

Figure 6-3 Travel to Bus or Shuttle Stop



When asked what they would do if the shuttle were not available, three-fourths of the respondents (n=416) said they will either take TriMet or would drive alone. The 34% that would drive alone would both increase vehicle trips to PCC locations and increase the demand for parking. The 2% that would get a ride from someone else (as opposed to carpooling) would also add additional vehicle trips. Thirteen percent of the shuttle users claim they could not attend or work at PCC if the shuttle were not available.

Figure 6-4 Alternative is Shuttle Were Not Available

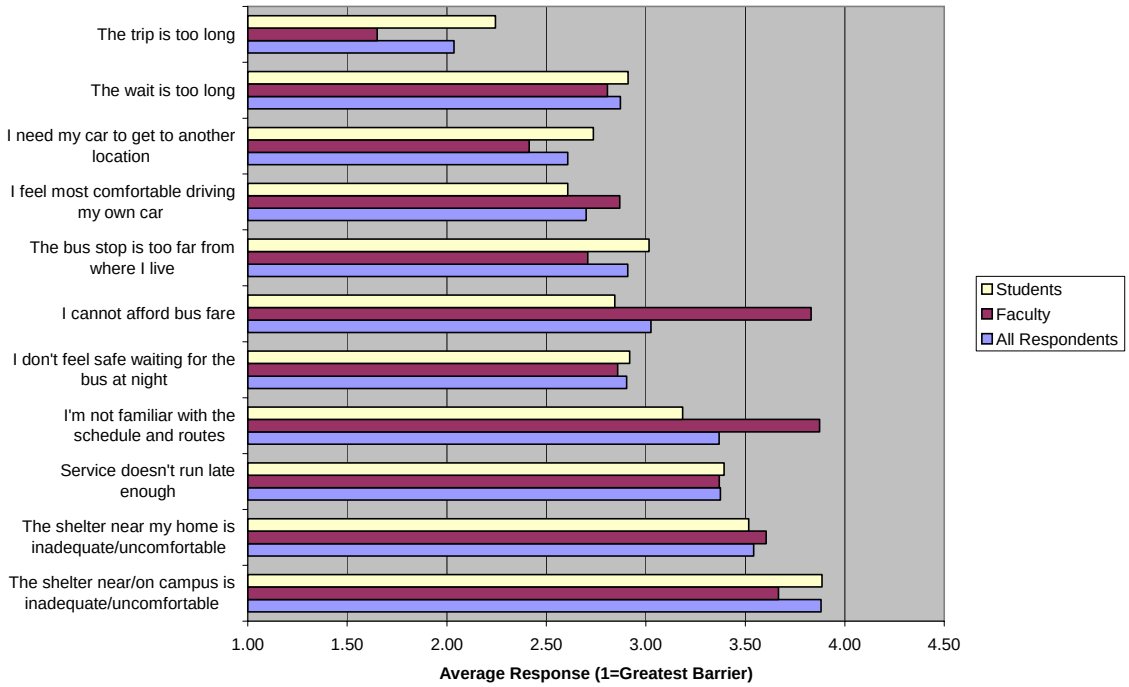


Survey participants were asked why they do not regularly use TriMet or a PCC shuttle. Long travel times and excessive waits for buses or connections are the primary barriers to using TriMet. Faculty/Staff have the greatest sensitivity to lengthy travel times on public transportation. All respondents, particularly employees feel they need to drive in order to have access to their automobile during the day. And the comfort level of driving their own car is another major reason for not using public transportation, especially among Rock Creek respondents.

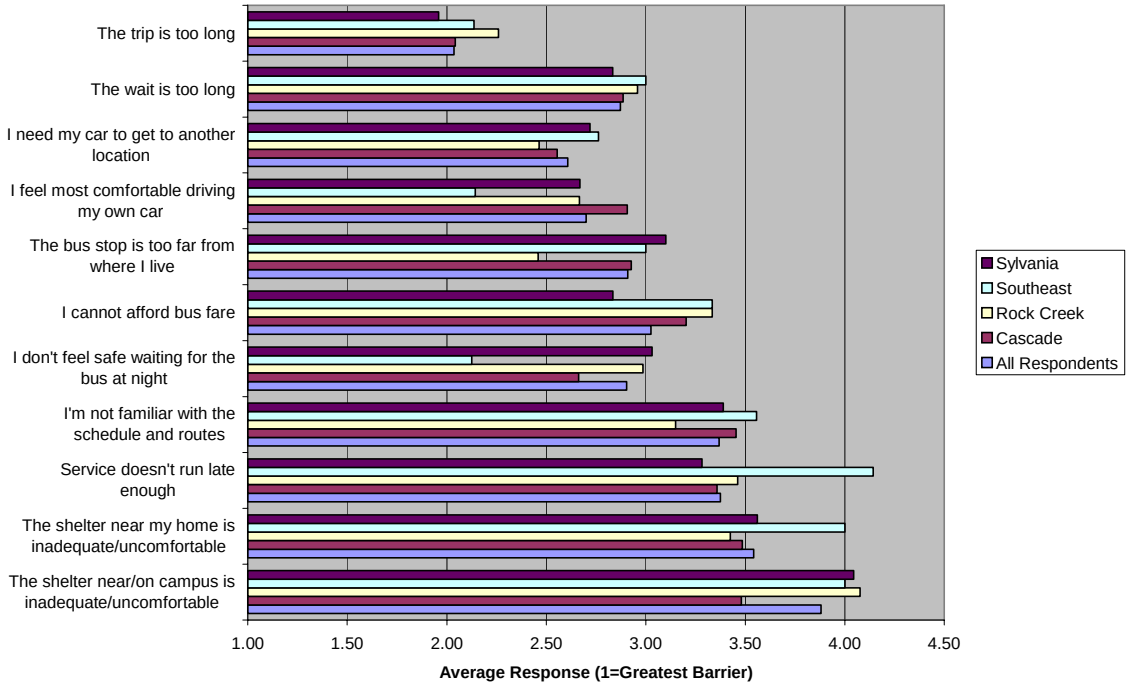
Figure 6-5 Barriers to Using TriMet

Barriers to Using TriMet	Responses	Avg. Response (1=Greatest Barrier)
The trip is too long	709	2.04
The wait is too long	585	2.87
I need my car to get to another location	512	2.61
I feel most comfortable driving my own car	407	2.70
The bus stop is too far from where I live	365	2.91
I cannot afford bus fare	345	3.03
I don't feel safe waiting for the bus at night	320	2.90
I'm not familiar with the schedule and routes	269	3.37
The shelter near my home is inadequate/uncomfortable	203	3.54
Service doesn't run late enough	203	3.37
The shelter near/on campus is inadequate/uncomfortable	92	3.88

Barriers to Using TriMet



Barriers to Using TriMet by Campus

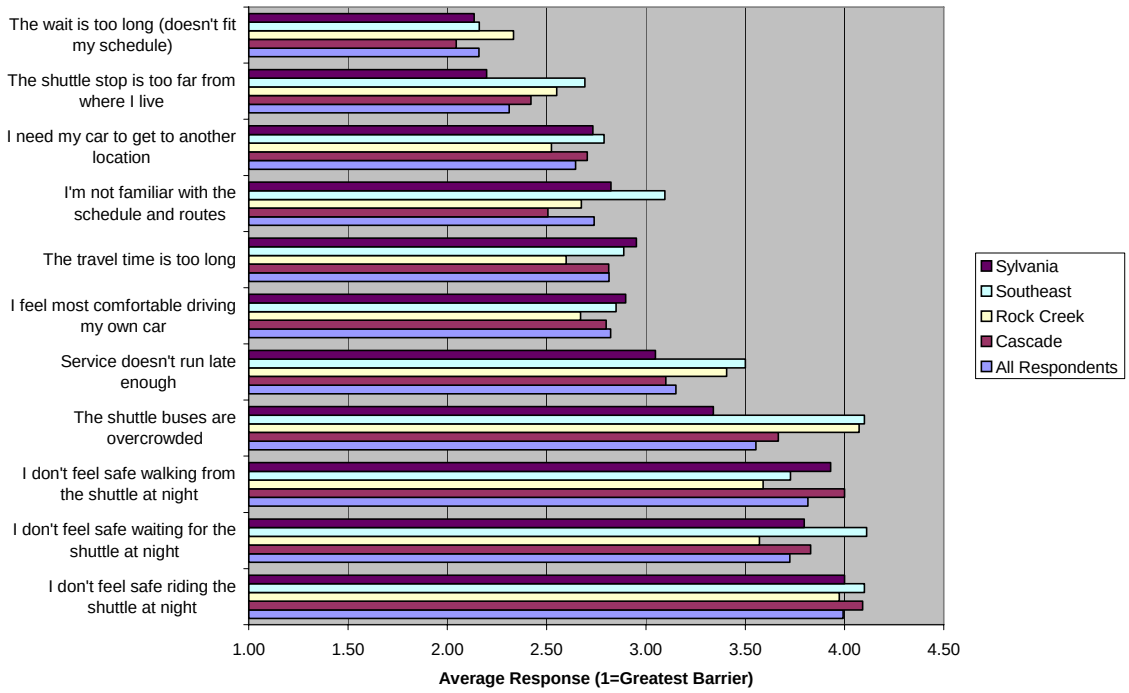


Respondents cite waiting for shuttles and not living near a shuttle stop as the primary reasons for not regularly using the shuttle service. Faculty and staff reiterate the need for their car during the day and also feel trips on the shuttle are too long. Not being familiar with shuttle routes and schedules, especially among students, is a reason for not using the service.

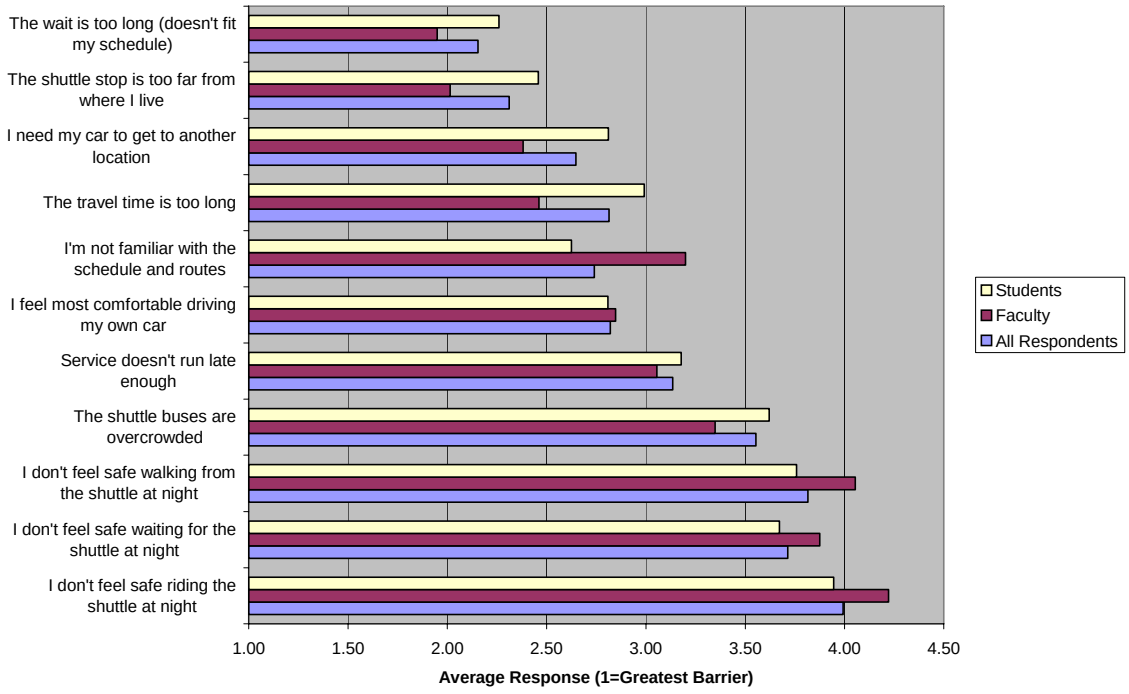
Figure 6-6 Barriers to Using Shuttle

Barriers to Using Shuttle	Responses	Avg. Response (1=Greatest Barrier)
The wait is too long (doesn't fit my schedule)	566	2.15
The shuttle stop is too far from where I live	441	2.31
I need my car to get to another location	435	2.65
The travel time is too long	398	2.81
I'm not familiar with the schedule and routes	377	2.74
I feel most comfortable driving my own car	354	2.82
Service doesn't run late enough	251	3.14
The shuttle buses are overcrowded	215	3.55
I don't feel safe walking from the shuttle at night	168	3.82
I don't feel safe waiting for the shuttle at night	161	3.71
I don't feel safe riding the shuttle at night	139	3.99

Barriers to Using Shuttle by Campus



Barriers to Using Shuttle

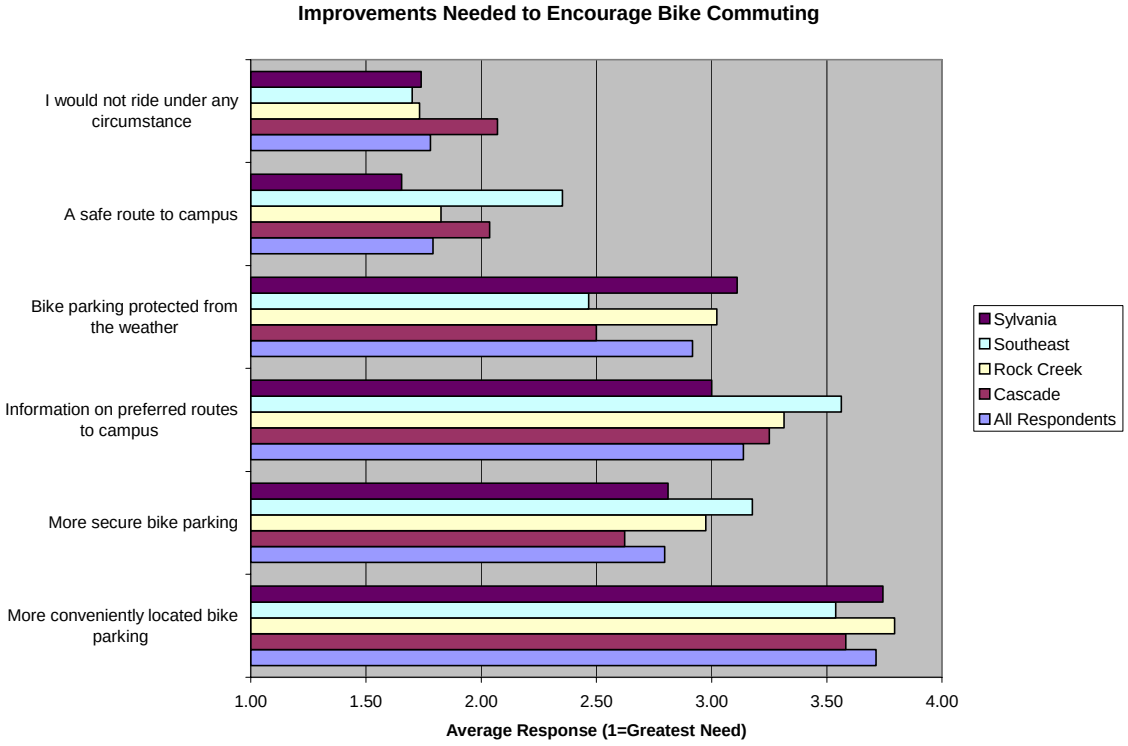


Bicycle Commuting

When asked what is needed for respondents to bike commute more often, most of those willing to explore this option say a safe route to campus is required.

Figure 6-7 Improvements Needed to Encourage Bicycle Commuting

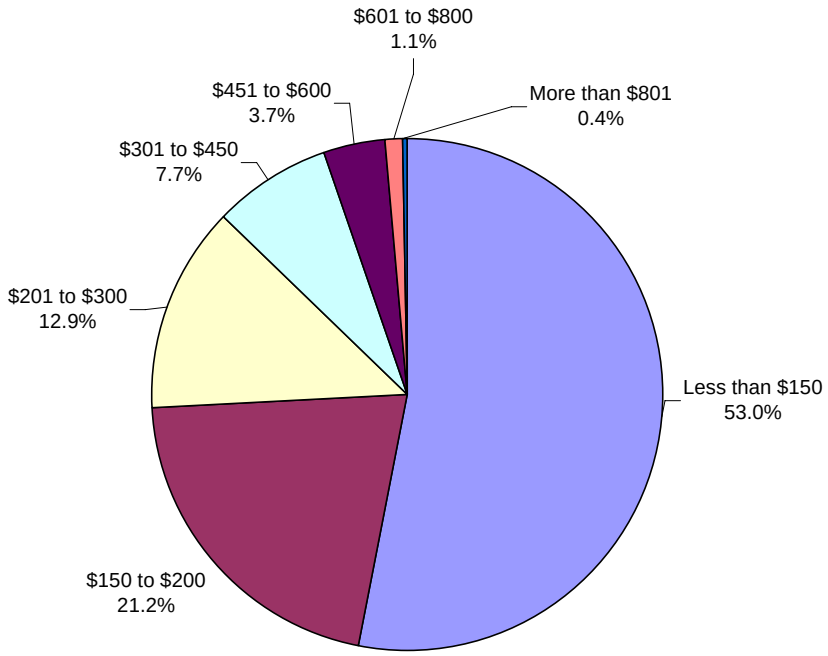
Improvements Needed to Encourage Bike Commuting	Responses	Avg. Response (1=Greatest Need)
I would not ride under any circumstance	598	1.78
A safe route to campus	538	1.79
Bike parking protected from the weather	446	2.92
Information on preferred routes to campus	435	3.14
More secure bike parking	427	2.80
More conveniently located bike parking	363	3.71



Transportation Costs

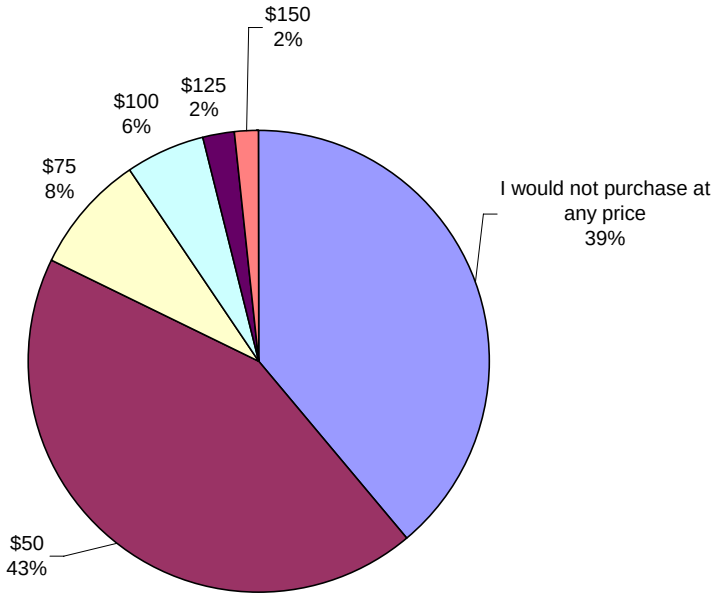
A majority of respondents (n=1082) estimate their monthly transportation costs at less than $150. One-third feel it costs them between $150 and $300. To put this in prospective, a 10-mile round trip commute four days a week for four weeks can cost $84 using the latest AAA estimate of $0.522 per mile. Gasoline alone for this commute would be $21 at $3.00 per gallon with a 23 mpg car.

Figure 6-8 Estimated Monthly Transportation Costs



While over one-third of respondents (n=1079) claim they would not be interested in discounted TriMet passes, most of the others feel $50 per term is the most they would pay for it.

Figure 6-9 Most Willing to Pay for Subsidized TriMet Term Pass



General Opinions

The following table lists a series of transportation related statements and respondent's level of agreement with the statement. They are sorted in order of declining level of agreement. with a score of 3.0 representing neither agreement or disagreement with the statement. Findings from these statements include:

- Agreement that they are more likely to ride public transportation if they can rely on high quality service to PCC in terms of high frequency of service and short travel times
- The cost to drive is becoming a consideration when thinking about using public transportation
- There is more support than opposition for the ideas of a student fee that would go directly to subsidize new shuttle routes or lower the cost of using TriMet services (the average response for students is equal to that for faculty/staff for this statement)
- The need to make other trips during the day makes respondents rely on their personal automobile
- Respondents do not feel they know how to find potential carpool partners
- Respondents do not feel that parking fees at PCC are unaffordable

Figure 6-10 General Transportation Opinions

Statement	Number of Responses					Average Response (1=Strongly Agree)
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	
If I needed to make a trip on the bus today I would know where to get route and schedule information.	544	256	55	65	84	1.89
I would be more likely to ride the bus if it ran every 15 minutes or better.	370	253	192	86	80	2.24
I would take public transportation if the travel time to my destination took no more than 30 percent longer than driving.	240	284	225	117	111	2.56
The cost of owning maintaining driving and parking an automobile is at or approaching the point where I'm interested in public transportation.	267	249	217	159	115	2.61
I would support a small student fee that would go directly to subsidize new shuttle routes or lower the cost of using TriMet services.	229	299	218	106	144	2.64
I drive to campus because I make a variety of trips to different destinations each day.	237	244	218	147	135	2.69
The cost of owning maintaining driving and parking an automobile is at or approaching the point where I'm interested in carpooling.	201	220	330	151	109	2.75
Traffic congestion is at or approaching the point where I'm interested in public transportation.	233	210	248	171	127	2.75

Statement	Number of Responses					Average Response (1=Strongly Agree)
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	
I would support a small increase in parking fees if funds went directly to subsidize new shuttle routes or lower the cost of using TriMet services.	266	219	170	167	167	2.75
I can drive to campus but am interested in public transportation or carpooling to minimize negative impact on the environment even if my travel time increases.	216	218	239	176	122	2.76
I am willing to take public transportation only if I don't have to transfer between buses.	175	246	268	156	130	2.82
Traffic congestion is at or approaching the point where I'm interested in carpooling.	164	222	331	174	103	2.83
Parking shortage on campus is at or approaching the point where I'm interested in public transportation.	199	177	277	197	132	2.88
The cost to park at campus is at or approaching the point where I'm interested in public transportation.	167	128	298	220	173	3.11
The cost to park at campus is at or approaching the point where I'm interested in carpooling.	125	139	337	227	153	3.15
Less expensive parking permits are enough of an incentive for me to look for car pool opportunities.	68	152	385	220	143	3.23
When considering public transportation comfort on the bus is more important to me than travel time or frequency of service.	50	109	296	378	154	3.48
I know how to go about finding car pool partners for my trip to the PCC campus.	60	133	184	359	245	3.61
I drive to campus but cannot afford a parking permit	63	60	224	290	349	3.81

Open-Ended Question Responses

A total of 624 responses were received for the open-ended question seeking general comments. Many comments address the respondents' concerns and issues regarding on-campus parking availability as well as the reliability and affordability of the PCC shuttle services and TriMet service.

Many respondents stated why they are not able to use alternative modes of transportation. The most common reasons include a necessity to make several trips each day (to drop-off/pick-up children, taking classes at more than one locations, etc.). Also a long travel time and not having convenient access to transit system are other common reasons.

Parking

Nearly 10% of all comments addressed the issue of lack of parking spaces on Campus (57 responses). Of which, 12 comments were made specifically on a poor parking condition on

Sylvania Campus, followed by 9 comments made on Cascade Campus. Also the cost of parking is the second common concern expressed by the respondents – parking permits are too expensive or parking should be provided free given the high tuition and fees students are currently paying. Some argue that a parking space should be guaranteed for those with permits. Also some requested a subsidized parking permit or designated parking spaces for on-campus employees, because they are required to travel between campuses for meetings, and they need a reliable and fast travel, which is the main constraint for them to use alternative modes of transportation. Other concerns / issues addressed here include:

- Need streets lights or security guards at parking facilities
- Maintain parking facilities, including ticket machines and general maintenance (e.g. keep them clean)
- Parking spaces are too narrow. Some cars are parked between spaces, occupying two spaces, and they should be ticketed.
- Parking facilities should open every day and year round.
- Create more parking spaces for motorcycles
- A lack of on-campus parking spaces has caused parking overflow into nearby residential areas.
- Disabled parking spaces (except on Sylvania Campus) are not labeled

Shuttle service

Nearly 100 respondents are requesting increasing service frequency or changing the schedules so that they reflect class schedules. The current shuttle schedules do not meet some respondents' needs to travel to/from campuses in the early morning (before 9 am) or late evening (after 9:45 pm). Also many respondents stated that they would use a shuttle service more often if there were more direct intercampus shuttle services (without stopping at PSU). Overall, a highest share of the comments is made on the shuttle service to/from Rock Creek Campus, where more frequent services is often requested.

The service change that took place in 2006/07 made shuttle service less convenient for some users. Also some argue shuttle service should remain free, while nearly the same number of respondents commented that they would pay a small fee for an improved shuttle service.

Other issues/concerns expressed include the followings:

- More bike racks on shuttles
- Shuttle schedules/services are confusing
- Some drivers are not friendly
- Should run on weekends
- Should run during summer term

Transit

A large number of respondents stated they do not use transit because they do not have a convenient access to transit system. Many are required to transfer buses several times to get to

a campus. Driving to campus is significantly faster and more convenient for them, and for some of them, driving is the only option they have.

For those who rely on transit, the biggest concern is the high cost of transit passes. Over forty respondents stated that a transit pass is not affordable and should be more subsidized. Also seven comments stated a term-based pass would be useful.

Bicycle

Eight respondents requested installing more secure bicycle parking and other bicycle related facilities such as rockers and showers. Also some argue that PCC should develop an outreach program that encourages students/staff to commute by bike and provides incentives to bike commuters.

Carpool

The respondents commented that PCC should develop a carpool matching program. In fact finding a match is one of the most common reasons why the respondents do not carpool. Some respondents also mentioned the PCC should develop an outreach program that distributes carpool information and provides incentives to carpoolers.

Other

Other comments include PCC should install a Flexcar program on campuses for staff/faculty members who need to travel between campuses for meetings or other business trips.

Appendix A presents the frequency of responses per the above categories

Previous Surveys

A previous survey conducted for Parking and Transportation Services in June 2006 provides some additional insights into student and employee travel characteristics and preferences. Close to 700 respondents indicated that:

- Ninety-seven percent are aware of the PCC shuttle service. This combined with the recent results indicates that almost everyone knows the service exists, but many have not been exposed to details regarding where and when shuttles operate.
- Greater than one-half of those surveyed indicated they are likely to ride a shuttle that originates downtown and travels to their campus/center.
- More that one-half of the respondents advocate for keeping shuttles free.
- Thirty-nine percent of those surveyed last year indicate that they drive to one location and take the shuttle to another. This is roughly twice the number as responded similarly in the current survey.
- When asked about preference for new shuttle routes, respondents provided a variety on origin-destination pairs, but direct service between campuses/centers was a popular request. Service from Rock Creek directly to both Sylvania and Cascade was frequently cited

A November 2006 commuter survey by Rock Creek students highlighted concerns with Winter 06 route and schedule changes. The ability for shuttles to coordinate with class schedules is an issue raised in all three surveys.

Chapter 7. Strategies

Introduction

This chapter presents a set of transportation strategies available to Portland Community College (PCC) and relates these actions back to goals defined by the College. The array of goals is derived from various PCC policies including Board of Directors Goals, Board Policies, PCC Mission Statement and Transportation Demand Management plans. The potential strategies build upon current PCC programs and address the findings of the Transportation Study to date. Most of these strategies relate to programs provided by Parking and Transportation Services (PTS).

Transportation-Related Goals

The following goals are directly impacted by the investment in transportation services and/or policies set forth by the College.

Improve Access: The provision of access to educational opportunities is central to a number of PCC policies and directives. From a transportation point of view, access can refer to the facilitation of student travel to PCC campus and center locations. Alternatively it can refer to the location of new campus and center locations to maximize the number of students that can easily and economically attend the facility. Distance learning options may also deliver educational services without the requirement to travel and therefore improve accessibility. In a general sense, access to PCC services is improved when potential barriers to attending are minimized. These can be financial as well as physical barriers and may include: cost of travel; cost of parking; need for a personal automobile; availability of public transportation options; or physical designs the limit travel for student using mobility devices. When reviewing potential strategies, this study focuses on non-financials aspects of accessibility as this analysis independently tracks an affordability goal.

Reduce Reliance on Single Occupant Vehicle (SOV) Travel: By reducing student and employee dependence on (SOV) travel, PCC benefits in terms of: reduced need to expand parking capacity and realizing associated costs savings; compliance with state and city programs and regulations that seek to minimize vehicle miles traveled and/or parking requirements; and support for college's role in "moving toward sustainability" as part of the formal Sustainability Initiative. Reliance on SOV travel may be the result of a lack of options (real or perceived) for alternative modes and/or policies (including pricing) that promote driving alone.

Maintain Affordability: PCC strives to retain the College as a low-cost provider of higher education. This is of special concern when considering that over 40 percent of students receive some form of financial aid. The Board is also concerned with the aggregation of fees, adding on top of tuition, making PCC cost prohibitive for a number of potential students.

PTS Financial Integrity: PCC Parking and Transportation Services is funded from parking permit fees and parking enforcement revenue. Costs for shuttle services and public transportation subsidies, along with costs to maintain and operate parking facilities, are solely covered by these revenues. To sustain PTS operations, future revenue sources and cost containment approaches need to guarantee that ample operating funds and reserves are available.

Potential Transportation-Related Strategies

The following strategies are available to PCC to meet the above goals. Potential strategies are based in study findings including best practices at other colleges and survey inputs as well as from PCC capital plans and other proposals/plans previously considered by PTS.

Subsequent tables evaluate each strategy in terms of its ability to achieve the previously defined goals, its inherent strengths and weaknesses as well as some revenue and expense impacts.

Shuttle-Related Strategies

- Focus shuttles on intercampus travel
- Provide shuttle service to areas not served by TriMet
- Provide shuttle service in regional corridors where TriMet doesn't have convenient and timely service
- Expand service to address weekend and summer needs
- Coordinate shuttle schedules with class schedules
- Connect SE Center with new I-205 light rail station

TriMet Supportive Strategies

- Expand TriMet subsidy program
- Enable employees to use pre-tax payroll deductions for TriMet fares
- Provide employee incentives to use transportation options

Pricing Strategies

- Increase parking permit fees
- Charge nominal fare for shuttle usage
- Institute transportation fee

Land Use and Development Strategies

- Site new facilities on high-capacity transit
- Relocate staff relocation to free up parking
- Add parking capacity to address spillover

Bicycle and Pedestrian Strategies

- Provide additional secure/covered bike parking
- Provide additional amenities and incentives for bike commuters
- Highlight preferred bike commute routes to campus/center locations.

Other Strategies

- Increase promotion of transportation options
- Investigate vanpool opportunities

The following keys are used to indicate the level to which each strategy achieves a particular goal. These are itemized in the following tables, one for each strategy.

Ability to Achieve Goal	
Very Good / Strong	●
Moderate	●
Poor	○
Adverse Impact on Goal	⊗

Figure 7-1 Potential PTS Strategies

1. Focus Shuttles on Intercampus Travel	
Description: This strategy focuses PTS shuttle services on meeting intercampus travel needs. Under this scenario, shuttles would only serve stops at the primary campus/center locations. Current stops at PSU and along Hawthorne may be eliminated to reduce travel time between PCC locations and improve reliability (schedule adherence).	
Goal Achievement:	
○ Improve Access ○ Reduce SOV Travel ○ Maintain Affordability ● PTS Financial Integrity	
Strengths • Improved operating efficiencies of shuttle routes • Limits scope of shuttle service, constraining operations and costs • Potential to increase frequency of shuttle operations if non-campus routes are eliminated	Weaknesses • Intercampus travel is only a small part of overall transportation needs of students and employees
Revenue Impacts • None	Cost Impacts • Shuttle expansion costs are limited as service would be limited to intercampus routes • Potential savings from elimination of non-campus routes

2. Provide shuttle service to areas not served by TriMet	
Description: This strategy focuses PTS shuttles services in locations not served by TriMet. Many of the dense residential areas within the district are currently served by TriMet to some level. This approach would design shuttle routes to fill in underserved markets. There are concentrations of students and staff, without direct or indirect TriMet connections to PCC facilities, in Tualatin as well as in unincorporated Washington County at: east of Hillsboro (north of TV Hwy); north of Farmington Road between SW 198th and 209th and near Beef Bend Rd west of Tigard.	
Goal Achievement:	
● Improve Access ● Reduce SOV Travel ○ Maintain Affordability ⊗ PTS Financial Integrity	
Strengths • Directly addresses areas without access to PCC without an automobile	Weaknesses • Costs likely to greatly exceed benefits • May create network of indirect service, increasing travel times to PCC locations • Underserved markets represent small portion of student and employment population • Opens PTS up to ongoing requests for service expansion
Revenue Impacts • None	Cost Impacts • May be significant if extra buses and drivers are required to travel to underserved markets. Each additional route will cost roughly $710 per day to operate

3. Provide shuttle service in regional corridors where TriMet doesn't have convenient and timely service

Description:

This strategy focuses shuttle service in corridors where TriMet does not provide direct, quick service to PCC facilities. In this scenario, PCC shuttle routes would link campuses/center locations with major student/staff originating locations that TriMet connects to using infrequent service or with one or more transfers or ,resulting in excessively long travel times. TriMet effectively links the Sylvania, Cascade and SE facilities to downtown Portland as well as inner SW, SE and NE Portland. Conversely, travel to the Rock Creek Campus and cross-region trips can be inefficient using TriMet.

Under this strategy, some current shuttle routes would be considered for elimination. For example, the PCC shuttle between downtown and the Sylvania Campus duplicates TriMet Line 44 service but is only marginally faster (25 versus 28 minutes for am trips from PSU to the Sylvania Campus). Any cost savings realized by eliminating duplicative service could be put into increased service on remaining routes which should attract additional riders.

This scenario relies on TriMet service where available. Some students used to shuttle service would realize an increase in costs when required to pay TriMet fares. This could be offset with greater subsidizes for bus passes.

Goal Achievement:

● Improve Access ● Reduce SOV Travel ⊗ Maintain Affordability ● PTS Financial Integrity

Strengths	Weaknesses
• Shuttle buses can reduce travel time relative to multi-leg transit connections, and reduce automobile use • Corridors relying on TriMet service will have more frequent evening, weekend and summer service • Potential to increase frequency of shuttle operations if overlapping (with TriMet) routes are eliminated	• Increases costs for students shifting from free shuttle to TriMet • Increase in costs of TriMet relative to free shuttle may increase use of SOV travel for cost sensitive riders • Shifts parking demand between campuses and can potentially create large "park-&-ride" demands at originating campuses.
Revenue Impacts	**Cost Impacts**
• None	• Reduces cost if parallel (to TriMet) shuttle service is eliminated (Roughly $100,000 per shuttle route cost reduction possible if parallel shuttle service can be eliminated)

4. Expand shuttle service to address weekend and summer needs	
Description: This strategy would add shuttle service for weekend and summer classes. While service during these periods is often requested, attendance is much lower at these times. Only a couple of survey respondents indicated that this was a priority when asked about shuttle and transportation issues. At roughly $710 per day per route an 11-week summer term would require over $100,000 to operate three shuttle routes (assuming 4.5 days of service per week). Similarly adding Saturday service would require about $20,000 for three shuttle routes (assuming 75% of weekday service level).	
Goal Achievement:	
● Improve Access ○ Reduce SOV Travel ○ Maintain Affordability ⊗ PTS Financial Integrity	
Strengths • Will provide a small reduction in automobile use	Weaknesses • Summer and weekends represent low-demand periods • Parking is not limited at these times (eliminating an incentive to find alternatives to driving)
Revenue Impacts • None	Cost Impacts • Significant operating costs to add additional shuttle service

5. Coordinate shuttle schedules with class schedules	
Description: This strategy institutes ongoing coordination between shuttle schedules and class schedules. Since PCC shuttles operate infrequently over the day, it is important that they be timed to match demand. Most shuttle-related survey comments expressed the need to better match class schedules. The length of shuttle routes and varied class schedules make it difficult to match schedules at both ends.	
Goal Achievement:	
○ Improve Access ● Reduce SOV Travel ○ Maintain Affordability ○ PTS Financial Integrity	
Strengths • Matching shuttle schedules to peak class times maximizes ridership • Consistent shuttle schedules facilitate comfort with service and results in ridership growth	Weaknesses • Success based on complex set of independent factors
Revenue Impacts • None	Cost Impacts • None

6. Connect SE Center with new I-205 light rail station	
Description: This strategy connects with the Green MAX light rail line operating along I-205 that will open in September 2009. The SE Center is only about 0.5 mile from the new Division Station on the I-205 Green Max line. This line will connect Clackamas Town Center to the Gateway Transit Center. This new service will serve areas in NE Portland near the NE 60th Ave and E 102nd Ave Max stations that have high concentrations of PCC students and staff. Currently these locations can connect with the TriMet Line 72 that provides frequent service in the parallel SE 82nd corridor. TriMet is just starting to plan for the restructuring of bus routes to coordinate with the new light rail service. PCC may want to consider shuttle service to the Max station if the TriMet Line 4 does not provide frequent connections between the station and the SE Center. Possible PCC service could take the form of extending the Yellow Shuttle to the Max Station.	
Goal Achievement:	
● Improve Access ● Reduce SOV Travel ○ Maintain Affordability ○ PTS Financial Integrity	
Strengths • Light rail may attract new riders unwilling to use bus service	Weaknesses • May cause scheduling problems for PCC Yellow Shuttle if extended to station.
Revenue Impacts • None	Cost Impacts • TBD

7. Expand TriMet subsidy program	
Description: PCC currently subsidizes the purchase of TriMet monthly passes with $16 discounts for the first 4,375 student/staff buyers. PTS is considering moving the subsidy into term passes for students. The term passes provide additional, but small, savings to all-zone riders. Deeper discounts will be required to move additional automobile drivers and/or shuttle patrons onto TriMet buses. It may be desirable to move some shuttle riders onto TriMet when parallel services exist (see strategy 3). Survey results indicate the deep discounts relative to base fares would be required to make a majority of students and staff interested in bus passes. Some additional funding may be available if Flexcar can not long be offered to Cascade Campus staff and these funds are put into TriMet pass subsidies. Strategies 10 through 12 offer possible revenue sources that could be available to further subsidize the passes.	
Goal Achievement:	
○ Improve Access ● Reduce SOV Travel ● Maintain Affordability ⊗ PTS Financial Integrity	
Strengths • Encourages use of TriMet and decrease SOV travel to PCC locations • Pass holders are also likely to try public transportation for non-PCC trips, helping with regional transportation goals.	Weaknesses • Requires direct subsidy by PTS
Revenue Impacts • None	Cost Impacts • Significant and based on level of subsidy by PTS

8. Enable employees to use pre-tax payroll deductions for TriMet fares	
Description: Currently, PCC employees can also obtain subsidized TriMet monthly passes. A transition to Student Term passes would eliminate this small benefit for some employees. At the same time, PCC offers employees the ability to pay for parking permits via pre-tax payroll deductions. This strategy would offer equivalent tax benefits to employees that purchase TriMet passes. Current IRS rules allow up to $110 per month of pre-tax employee transit benefits. Outside companies are available to provide tax-advantaged spending accounts for employees. These would allow PCC to direct payroll deductions to the third party company, who would in turn, allow the employee to purchase TriMet passes, saving PCC the administrative efforts to manage the purchase of bus passes.	
Goal Achievement:	
○ Improve Access ● Reduce SOV Travel N/A Maintain Affordability ○ PTS Financial Integrity	
Strengths • Using pre-tax dollars for transit results in a discount roughly equal to an employee's tax rate, further encouraging the use of public transportation	Weaknesses • Would require the set up of payroll deductions and purchase of TriMet fare media (later part can be facilitated by outside company)
Revenue Impacts • None	Cost Impacts • Some administrative costs and/or service fees from tax-advantaged spending account management firm.

9. Provide employee incentives to use transportation options	
Description: This strategy rewards employees for not driving to a campus/center location. In return for not buying a parking permit, the program could offer employees further discounts on transit passes, discounts at PCC bookstores, gas rebates to cover carpool expenses, or discounts at local stores to cover bike or walking commute costs. The reward could also come in the form of a small number of day parking permits to cover a limited number of situations where the employee has to drive to work.	
Goal Achievement:	
○ Improve Access ● Reduce SOV Travel ○ Maintain Affordability ⊗ PTS Financial Integrity	
Strengths • Provides a financial incentive to seek alternative to driving alone	Weaknesses • Increased administrative effort to make sure participating employees do not obtain parking permits or park on/near campus.
Revenue Impacts • None	Cost Impacts • Can be significant based the cost of incentives

10. Increase parking permit fees	
Description: PCC parking permits fees are extremely low when compared with the "market rate" for parking in areas that charge for parking. Parking fees are one of the best tools available to discourage excessive automobile use, but parking costs have to be significant for this approach to work. Or in economic terms, the demand of for parking is excessive if it is priced too low. When considering higher parking fees, PCC would need to consider a couple of potential consequences. First some students may not be able to afford the permits if increased significantly. Reduced parking fees for students on financial aid may be necessary. Also the spillover onto adjacent streets or into nearby parking lots may be an issue, especially at the Cascade Campus and SE Center. Part of the increased parking revenue could be applied to increased enforcement to address spillover issue. Additional revenues could be put toward parking operations costs, PCC shuttle services and/or TriMet fare subsidies. As an example, raising permits $12 per term (approaching fees charged by South Seattle Community College) could increase revenues over $400,000 while curbing demand a little. Small increases may not significantly reduce the demand for parking. A $12 increase still represents a $135 per year fee, less than the $160 monthly average for downtown parking. The PCC pre-tax parking benefit for employees will effectively reduce the impact of the increase by the employee's tax rate further limiting the incentives to take transportation options.	
Goal Achievement: ○ Improve Access ● Reduce SOV Travel ⊗ Maintain Affordability ● PTS Financial Integrity	
Strengths • Cost of parking can be greatest deterrent to driving • Reduced demand for parking due to increased costs may avert the need to expensive parking facility investments at all but the Cascade Campus • Parking fees seen as "user fee" and may be easier to implement than other revenue increasing strategies	Weaknesses • Significant increases may not be feasible due to a variety of concerns
Revenue Impacts • Volume of permit sales leverages small fee increase into significant revenue increases	Cost Impacts • None

11. Charge nominal fare for shuttle usage	
Description: Small fares to ride PCC shuttles have been suggested as a revenue source for PTS. Many survey respondents have also indicated acceptance of small fares for the shuttle. On the other hand, even small fares for the shuttle may create affordability problems for some students, create higher expectations for service levels and/or reduce ridership. Administering a fare would create additional work for PTS and the cost to implement may erode potential revenues. The use of a cash farebox on each bus would require equipment purchases, slow boarding times and require new cash counting procedures and facilities. Limiting the service only to students and staff who have paid for a quarterly pass (as indicated by a proof of payment sticker on the new Ids) would be more viable. The following examples place some bounds on the potential revenue from shuttle fares. Each assumes the charging of 50 cents per boarding (~1/4 of TriMet Fare). They also assume that the fare would be waived for one-third of the students who may be on financial aid. And neither addresses the potential for ridership decreases in response to a fare. Similarly, any costs to collect or manage fare media are not included. 1. Based on the current 3,300 weekly boarding, annual revenues of $36,000 can be expected. 2. Based on an 18% shuttle usage by 8,400 full-time students (making 5 trips per week per the survey), annual revenues of $81,700 can be expected. This equates to $27.5 per term per financially capable user.	
Goal Achievement: ○ Improve Access ○ Reduce SOV Travel ⊗ Maintain Affordability ● PTS Financial Integrity	
Strengths • Small fares may be accepted by most riders • Shuttle fares are seen as “user fee” and may be easier to implement than other revenue increasing strategies	Weaknesses • Fare collection and processing would require new procedures and supporting systems. • Possible loss in ridership
Revenue Impacts • Small fares could generate moderate income for PTS programs	Cost Impacts • Administrative costs to collect fares can reduce revenue potential

12. Institute transportation fee	
Description: General transportation fees are traditionally used, along with parking revenues, to fund a range of transportation solutions at universities and colleges across the county. Many large universities have fees approaching $200 per scholastic year. City/community colleges rely less on fees, but such fees are somewhat prevalent in the $10 per term range. This strategy would institute a small fee for all PCC students to address parking operations, shuttle services and other TDM programs including TriMet fare subsidies. Reduced or waived fees would be available for those with financial needs. Lower fees could also be assessed to part-time students. The following example provides a low-end estimate for a transportation fee's revenue generating capability. It assumes only the 8,400 full-time students pay the fee and that 33% of them are waived from paying the fee if receiving some form of financial aid. A $3 per term would generate $50,000 per year. Doubling the fee or assessing a small fee on part-time students could generate over $100,000 - roughly cover cost of one shuttle route or a 40% increase over the current TriMet pass subsidy.	
Goal Achievement:	
○ Improve Access ● Reduce SOV Travel ⊗ Maintain Affordability ● PTS Financial Integrity	
Strengths • Treats transportation costs, and contribution toward transportation solutions, as college-wide concern – spreading financial burden across entire student body.	Weaknesses • Even with relief for those on financial aid, there may be concerns with additional student fees. • Seen as general increase in cost of attending PCC, independent of use of PTS services
Revenue Impacts • Small fee has potential to generate significant revenues	Cost Impacts • None

13. Site new facilities on high-capacity transit	
Description: PCC has sought to develop new College facilities along MAX light rail to reduce its impacts on the regional transportation system. As seen with the Cascade Campus, siting a facility along high-quality bus service and in denser urban areas also limits the need for students and staff to travel by automobile.	
Goal Achievement:	
● Improve Access ● Reduce SOV Travel ○ Maintain Affordability ○ PTS Financial Integrity	
Strengths • Increases options for non-SOV travel • Reduces parking requirements, and therefore costs, at new facilities	Weaknesses • May limit choices when locating a new facility
Revenue Impacts • None	Cost Impacts • Based on the cost of land

14. Relocate staff relocation to free up parking	
Description: This strategy would relocate college-wide support staff to a common location to reduce parking and other facility demands at space-constrained campuses. Ideally, such common locations would be near high-quality transit service and denser population centers to increase the use of transportation options.	
Goal Achievement:	
○ Improve Access ● Reduce SOV Travel ○ Maintain Affordability ● PTS Financial Integrity	
Strengths • Addresses parking problems from a demand-side perspective, as opposed to increasing supply • Concentrations of employees may lead to Increased car/vanpool opportunities	Weaknesses • Some employees may have better transportation options to current location • Doesn't address need for district staff to travel to multiple campuses during the day
Revenue Impacts • None	Cost Impacts • Based on cost differential between source and target locations

15. Add parking capacity to address spillover	
Description: This strategy addresses parking capacity, and associated spillover, problems by adding parking capacity via additional surface or structured parking. Difficulties in finding a parking space can create a disincentive to drive. Conversely, easier access to parking will create incentive to drive to campus, contrary to other college goals and policies. The cost to add parking capacity is also significant issue for PCC. And both existing and proposed parking has an operating cost associated with it. This includes the cost to provide maintenance/cleaning, security, parking management and utilities and can be considerable on a per space basis. Capital funding and land used for parking could be deployed toward other college programs and needs. The development of parking facilities represents an opportunity cost, both in terms of financial resources used to construct and maintain parking lots and structures, as well as for the land used for them. The later concern can be offset with the design of mixed-use parking facilities where retail, commercial or educational space is provided on the lower floors of a parking facility. The cost of land is a major contributor. These costs vary widely in the region with downtown Portland around $150 - $200 per square foot, the Lloyd District between $85 -$115 per square foot and Hillsboro between $18 and $34 dollars per square foot. In addition, new parking facilities have hard construction (the brick and mortar) and, soft construction costs (engineering and planning). Nationally, the median hard cost for structured parking was $13,600 per space in 2006. In the Portland area, these non-land costs range from $22,000 per space and up based on the development. Surface parking costs between $5,000 and $8,000 to provide paving, landscaping, utilities etc.	
Goal Achievement:	
● Improve Access ⊗ Reduce SOV Travel ○ Maintain Affordability ⊗ PTS Financial Integrity	
Strengths • Reduces spillover affects when parking capacity is not available on campus • May provide access for auto-dependent students when parking is not available on campus	Weaknesses • Creates disincentive to seek transportation options • Takes resources (capital and land) away from other uses
Revenue Impacts • Marginal if additional parking permit fees exceed costs to maintain additional capacity.	Cost Impacts • Significant real and opportunity costs • Increased operations costs to maintain additional capacity

16. Provide additional secure/covered bike parking	
Description: Having safe and secure parking areas for bicycles is required to encourage students and staff to bike commute. PTS has been installing bike parking based on requests and the number of bike parking stalls sizable. The parking survey showed the following capacities by campus: • Sylvania 73 • Cascades 141 • Rock Creek 59 • Southeast Center 30 Only the Cascade Campus, with its 7% staff and 10% student bicycle mode shares may need more if work/class schedules create peak periods where demand exceeds supply .	
Goal Achievement:	
○ Improve Access ○ Reduce SOV Travel ○ Maintain Affordability ○ PTS Financial Integrity	
Strengths • Small investment compared to other transportation needs • Marginal increase in bike commuting may reduce demand for parking and shuttles seats at peak travel times	Weaknesses • Other issues, related to trip length, topography and route safety impact bicycle commuting to a greater degree.
Revenue Impacts • None	Cost Impacts • Minor for typical installations. Parking protected from the elements can be marginally higher.

17. Provide additional amenities and incentives for bike commuters	
Description: Many employers/building operators provide locker rooms and showers for bike commuters. The physical education facilities at PCC campuses/centers provide some opportunities for bicyclists.	
Goal Achievement:	
○ Improve Access ○ Reduce SOV Travel ○ Maintain Affordability ○ PTS Financial Integrity	
Strengths • Marginal increase in bike commuting may reduce demand for parking and shuttles seats at peak travel times • Share resources may be available to	Weaknesses • Other issues, related to trip length, topography and route safety impact bicycle commuting to a greater degree
Revenue Impacts • None	Cost Impacts • Significant to add new facilities for bike commuters • Potential for small costs to subsidize PE fees (see recommendations)

18. Highlight preferred bike commute routes to campus/center locations	
Description: The availability of convenient and safe routes to PCC facilities is the largest determinant of the level of bicycle commuting. While many of the impediments to bike travel are outside of PCC's control (i.e. difficult terrain, unsafe roads etc), resources exist that facilitate route planning for potential bicycle commuters. This strategy calls for PTS to make these resources available to students and staff and facilitate trip planning where possible. Potential resources include bike maps showing bike-friendly streets in the region, web-based maps showing bike routes overlaid on aerial photographs with topography detail and	
Goal Achievement:	
○ Improve Access ○ Reduce SOV Travel ○ Maintain Affordability ○ PTS Financial Integrity	
Strengths • Marginal increase in bike commuting may reduce demand for parking and shuttles seats at peak travel times	Weaknesses • Physical impediments (topography and road designs) likely to be greatest deterrents to bike commuting
Revenue Impacts • None	Cost Impacts • Minimal promotional costs

19. Increase promotion of transportation options	
Description: PTS provides parking and shuttle information, along with links to the regional carpool matching service, TriMet and the City of Portland bike page, at its webpage. Similar information is available at campus information centers. This strategy expands this outreach to educate students and staff about their transportation options and encourages them to explore these options. For example, survey results indicate that most students and staff are aware of the shuttle services, but did not know how to go about finding route and schedule information. In one sense, those who need information about options have been pulling the details they need, but this strategy pushes information toward those who can use, but do not need it.	
Goal Achievement:	
○ Improve Access ○ Reduce SOV Travel ○ Maintain Affordability ○ PTS Financial Integrity	
Strengths • May shift students and staff who have transportation options, but have not explored them	Weaknesses • None
Revenue Impacts • None	Cost Impacts • Small administrative cost to prepare promotional material

20. Investigate vanpool opportunities	
Description: Similar to carpools, organized vanpools can provide shared rides in markets not served by TriMet or PCC shuttles. Unlike carpools, vanpools do not rely on private vehicles and formally split fuel and insurance costs among participants. To effectively share these costs, vanpools need a large number of employees traveling from common locations at common times. The regional vanpool program, administered by Metro, requires participants: • Originate at least ten miles from the destination or travel through a congested corridor • maintain a minimum of five participants, including the driver, three or more days a week Vanpool fares are dependent on the number of participants per van and distance traveled. Monthly costs per rider, including fuel, can range from $60 to $95 for a 30-mile roundtrip. Like transit fares, vanpool costs can be paid using pre-tax "commuter benefit" dollars and/or subsidized by employees.	
Goal Achievement:	
○ Improve Access ○ Reduce SOV Travel ○ Maintain Affordability ○ PTS Financial Integrity	
Strengths • Cost savings for employees with long commutes • Provides transportation option for those without quality transit connection to campus.	Weaknesses • Varied work schedules limit potential • Most PCC employees commute less than ten miles to work,
Revenue Impacts • None	Cost Impacts • Small administrative cost to coordinate program

Chapter 8. Recommended Strategies

This chapter recommends several courses of action regarding the implementation of strategies outlined in Chapter 7. These actions range from the discounting of unviable strategies to the suggested immediate implementation of others. Implementation steps are provided for both short- and long-term timeframes.

Primary Shuttle Strategy

PCC should provide shuttle service in regional corridors where TriMet does not have convenient and timely service and provide connections that are competitive to automobile travel times. While the changes implemented for the Fall 07 term appear to refocus routes on intercampus service, they also facilitate cross-region connections that TriMet cannot effectively make. The Green, Yellow and Blue lines effectively connect the Sylvania Campus to northwest, north and southeast Portland. The trip need analysis presented in Chapter 3 highlights that the Sylvania Campus is the predominant cross-region destination for travel by students and staff.

The existing Orange Line duplicates TriMet Line 44 service between Sylvania and downtown Portland and should be reviewed for possible elimination. Line 44 is competitive with the Orange Line (only five minutes longer from PSU) and it provides 15-minute service during the day. And eliminating the Orange Line would free up over $100,000 annually that could be used for other PTS programs. However, two issues will need to be addressed before the Orange Line should be eliminated. First, TriMet fares can be burdensome to some students and they may be relying on the free shuttle to/from downtown. Efforts to subsidize TriMet fares should mitigate these burdens to some degree and the costs savings from the possible elimination of the Orange Line may help increase the amount of these subsidies and/or guarantee they are available to everyone who needs one. Secondly, the Line 44's capacity to absorb additional riders should be verified. During Fall 06, an average of 90 riders boarded the Green Line at PSU, headed for Sylvania. This represents over 18 percent of the daily Line 44 weekday boardings.[1]

Going forward, PTS should monitor ridership and passenger loads on the Green, Yellow and Blue lines to make sure they are well used and have adequate capacity. Additional trips may be necessary if passenger loads become excessive, but increasing the frequency on these lines will be expensive. The Rock Creek and Cascade campuses have been the fastest growing facilities. Future growth and specialized educational programs may create more of a demand for the "east-west" cross-region travel that currently takes one and two-thirds hours on TriMet. Future surveys should be used to monitor this demand, keeping in mind any new service is also expensive to provide. Demand for travel to/from Sherwood and Tualatin should also be reviewed over time. TriMet Line 12 serves Highway 99 through theses cities. Opportunities may exist to connect the Sylvania Campus to the Barbur Transit City in order to allow transfers to Sherwood/Tualatin as well as for additional trip to downtown and SW Portland.

[1] TriMet Spring 05 boarding analysis showed 491 weekday boardings at the Sylvania stop.

Unlikely Strategies

The following strategies are not viable for the foreseeable future. In general, the costs to implement them far exceed the potential benefits gained.

Provide shuttle service to areas not served by TriMet: Expanding shuttle service into low density areas will incur great costs and serve relatively few students and staff. There may be opportunities to identify shared rides via carpool or vanpools for those: in areas without public transportation; without access to an automobile; or simply seeking transportation options.

Expand service to address weekend and summer needs: This should not be an immediate priority due to the high costs relative to limited demand. Weekend and summer service may be worth considering if significant new revenue resources become available. Efforts to promote Friday evening through Sunday afternoon classes via “Weekend College” programs will need to be monitored. Currently the demand is not high, but this could change.

Connect SE Center with new I-205 light rail station: It is likely the Line 4 Division route will link the new light rail station to the SE Center and the shuttle route from there to Sylvania. PCC should maintain regular contact with TriMet to understand plans for the possible restructuring of bus service on SE 82nd and SE Division.

Charge nominal fare for shuttle usage: Shuttle fares should be viewed as a lower priority when looking for PTS revenue sources. While “user fee” are easier to institute relative to general fees, this approach generates minimal revenues, creates new administrative costs/burdens, may create affordability concerns and could lower shuttle ridership. Many of the transportation demand management efforts by PCC rely on moving students and staff from SOV usage to alternate modes, the shuttle system is a key component in the College’s TDM portfolio.

Investigate vanpool opportunities: This strategy should not be pursued in the near future. On occasion, PTS should work with the Metro VanPool's van providers to execute a ride match and determine potential vanpool markets at each of the campus locations. The use of pre-tax payroll deductions for vanpool fares should be explored to further encourage some van pools provided the concentrations of employees exist.

Immediate Implementation

The following set of strategies build upon current activities, do not entail major policy changes and should be implemented as soon as feasible. Two of these strategies focus on transit pass subsidies. The survey conducted for this study indicates that 70 percent of the respondents claim they can take TriMet to PCC. This number may be higher assuming a certain percentage has never explored using TriMet. And this number is much higher than the number that currently does use public transportation for PCC travel. While the cost of transit is cited as secondary to level of service concerns, experience across the county shows the public to be cost sensitive and any lowering of the cost will increase the use of this mode, especially if the cost to drive continues to increase.

Expand TriMet subsidy program: After reviewing the TriMet term pass program, PTS has initiated a transition from monthly pass subsidies to subsidized term passes. PTS should seek additional revenue sources to make deeper discounts available and/or guarantee availability to all students seeking subsidized passes. It will be important to understand if and how many students cannot purchase the new passes because of availability limits.

Enable employees to use pre-tax payroll deductions for TriMet fares: PCC should investigate opportunities to use a tax-advantaged spending account management firm (e.g. WageWorks, CommuterCheck) to offer employees the opportunity to purchase transit passes with pre-tax dollars. For example, someone in an 18 percent marginal tax bracket would realize an 18 percent savings on transit passes, or $125 for 9 monthly All-Zone passes. This benefit would counter the existing parking benefit and move some employees toward suing public transportation.

Highlight preferred bike commute routes to campus/center locations: PTS should expand its website and literature to direct potential bicyclists to maps available from local jurisdictions including Metro, City of Portland, Washington County and Tualatin Hills Park & Recreation District. The current PTS webpage points to the City of Portland page, but an annotated introduction to all the available resource may inform potential riders regarding the best resources for their particular situation. The Metro website also highlights access to a 3-D simulation of the regional bicycle network using Google© Earth (http://www.metro-region.org/article.cfm?articleid=15341). And on-line bike trip planner is available at http://tripplanner.bycycle.org/regions/portlandor that lets the user specify normal or safe routes when planning a trip. PTS should also promote bikes on transit for the trip segments where bicycling is not appropriate for typical riders.

Ongoing/Monitor

The following should be undertaken on a regular basis or in response to changes in demand for PTS programs and/or major capital investments by the College.

Coordinate shuttle schedules with class schedules: A focused effort should be made to match schedules for the peak travel windows in every academic year. PCC should avoid mid-year shuttle schedule changes to promote schedule consistency.

Site new facilities on high-capacity transit: PCC should follow through with this strategy, seeking locations well-served by transit and in close proximity to student and staff residences/activity centers.

Relocate staff relocation to free up parking: Any effort to consolidate staff should address transportation impacts and seek to increase the availability of non-SOV travel options in the aggregate.

Add parking capacity to address spillover: This strategy should be an action of last resort. All other strategies that could lower the demand for parking, or address spillover, should be undertaken prior to proceeding with parking expansion. These include efforts to increase the price of parking and strategies the increase the availability, or reduce the cost, of transportation options. The Cascade Campus has the highest occupancy rates of the four main campuses/centers. This coupled with the potential for parking spillover into the adjacent neighborhood may make parking supply considerations appropriate for the Cascade Campus. This campus already has the highest use of alternative modes and has been examining alternative to supply increases for some time.

Provide additional secure/covered bike parking: PTS should continue to monitor bicycle parking usage at each campus and expand capacity as needed. These facilities should be kept in well-traveled areas, with ample lighting and regular security patrols.

Increase promotion of transportation options: PTS should further explore tactics traditionally used to encourage the use of transportation options to large employee bases, but with a focus on individual needs. These approaches are often associated with "Social Marketing" and "Individualized Travel Behavior Change" and include:

- Presenting transportation options at new employee and student orientations;
- Inserts in class catalogs and student/employee communications;
- Regular transportation workshops or fairs to engage students and staff about their options and choices;
- Special promotions to reward behavior leading to the use of transportation options (e.g. contests, lotteries etc), especially for those trying an option for the first time;
- Campaigns to promote transportation options and related benefits including stress reduction, physical fitness, air quality improvement, global warming, energy consumption and congestion relief; and
- Transportation audits asking what students and staff need in terms of commutes and providing appropriate information

The College partners with the Westside Transportation Alliance (WTA), an association of businesses and public agencies in Washington County that promotes transportation options to regional businesses. This partnership should continue to foster the deployment of many of these tactics at all PCC locations.

Exploratory Strategies

The following strategies are good candidates for long-term actions but require short-term investigations in order to resolve open issues and/or gain support. Various aspects for these strategies will require further exploration to quantify final cost and revenue estimates and/or gain support from stakeholder groups.

Provide employee incentives to use transportation options: PTS should explore options for providing incentives and for administering the program. Administrative efforts will likely require the tracking of participant names, addresses and license plate numbers to check against permit sales. Potential rewards may require rulings regarding college ethics rules regarding the value and nature of the benefits. Future employee surveys should be used to help gauge the demand for such a program and to make sure it will attract enough current drivers, not just those currently using alternate modes.

Increase parking permit fees: PCC should examine the potential to increase parking fees to address increased costs as well as to manage demand for parking. Exploration of this strategy should include an investigation into possible reduced fees for those on financial aid. An implementation plan for any parking fee increase may need to address the perception that parking should be included in return for tuition payments as opposed to the allocation of a limited resource and subsidized permits are a benefit.

Institute transportation fee: PCC should examine, in detail, the potential to institute a small transportation fee, without placing a burden on students in need of financial aid.

Provide additional amenities and incentives for bike commuters: PTS should promote bicyclist access to PE facilities where available. Steps should be taken to make locker assignments for bike commuters on par with those taking a PE class. To encourage their use, transportation

funding may be used to subsidize locker room/towel fees. These steps may require regular bike commuters to register to participate in these programs and to monitor demand.

Short Term Actions

Short-Term Attributes

The short-term planning horizon is characterized by an immediate timeframe, stability with respect to services provided and limited options for change.

- The next one or two years: Short-term decisions and actions need to take place in the next couple of years.
- No new revenue sources or significant increases: For the short term, parking permit fees and enforcement fines will remain as the sole source of PTS revenues.
- No significant policy changes: Short-term action will have to conform with current college policies as some time would be needed to gain stakeholder acceptance and gain Board approval for substantial changes to fees or procedures.
- No substantial cost changes: Short-term cost for both operations and capital should be fairly well defined and stable.

Recommended Actions

In the short term, PTS should seek to implement the strategies identified in the Immediate Implementation section, namely:

- Expand TriMet subsidy program
- Enable employees to use pre-tax payroll deductions for TriMet fare
- Highlight preferred bike commute routes to campus/center locations:

In addition, PCC should look to set parking permit fees on an annual basis allowing it to keep up with escalating costs. Just keeping up with inflation would call for a $37 per term parking permit to maintain the value of the initial $25 permit from 1992.[2] The College has a history of infrequent increases, making it difficult to keep up with cost increases (administrative as well as maintenance) and resulting in the need for large changes when made. Parking fees should be reviewed annually and smaller increases should be process on a regular basis. While it is difficult to gain support for infrequent large increases, stakeholders may be more receptive to small “cost of living”/inflation-based increases. It is assumed that any restructuring of parking fees will be a longer-term action and the use annual assessments should be reviewed in the short term. While Board action will be required, annual adjustments should not be as controversial as large increases may be.

[2] (U.S. Bureau of Labor Statistics, Portland Consumer Price Index 1992-2007)

Long Term Actions

Long-Term Attributes

The long term can be characterized by the following:

- Two plus years into the future
- Likelihood of significant cost increases
- Potential for revenue increases
- Potential need for policy changes to achieve revenue increases

Recommended Actions

In the long term, opportunities exist for PTS to expand services and/or address significant cost increases. But additional revenues need to be identified and realized in order to provide future levels of service. The following sections discuss the actions needed to specify service delivery and revenue targets. They assume an iterative approach where service targets based on expected revenues and expected revenues based on ability to gain support for services provided using future revenues. This represents a balance between setting service targets for currently identified and/or easier reached targets; and financially unconstrained service plans. This can be thought of a analogous to the College seeking bond measures for capital improvements where a set of future expenditures are correlated to future revenue streams and efforts are made to gain support for acquiring the future funding based on expected benefits.

Develop Financial Goals

The first step is to define realistic, yet ambitious revenue levels for PTS operations. These revenue targets financially constrain future level of services offered.

Need for revenue expansion

Future revenue must be ambitious in that they should be increased over what they are today. Additional revenues are required to maintain current operations and to further encourage the use of transportation options. Future costs may include:

- Meeting rising costs;
- Providing adequate reserves for vehicles replacement and unexpected expenses;
- Providing for increased transit subsidies;
- Providing for shuttle route expansion
- Providing for increased marketing activities including promotions

Predict future costs

PTS will need to quantify future costs in order to develop revenue targets. These costs fall into two categories: 1) requisite expenses for administrative staff, maintenance and operations that are necessary to maintain a core set of services; and 2) flexible costs that vary based on a compilation of new or expanded service or program offerings. These future cost estimates can be thought of as building blocks that can be used to predict total costs for a variety of potential service scenarios.

Any future cost savings approaches should also be identified. These effectively reduce the level of future expenses that need to be covered by future revenues. For example, elimination of the

PSU/Downtown service can free up resources, but may require additional transit subsidies (along with their associated costs) to be in place first. Likewise, any contingency or reserve costs should be specified to cover major equipment replacements and/or emergencies.

Identify "achievable" revenue sources

This step identifies potential revenue sources that could be in place to finance the various services and programs detailed in the previous step. These funding opportunities should be achievable in future years, but should include aggressive strategies in order to maximize potential revenues.

A small transportation fee and parking permit increases offer the greatest potential for raising funds. While fee increases are never popular and raise a variety of concerns. The survey conducted for this study indicates that there is more general support than opposition to these strategies. Figure 8-1 highlights survey responses to questions about fees[3] to cover expanded PTS services. More than half of both students and staff would support a small transportation fee while only a quarter of each group would oppose it. Support for parking permit increases is also indicated but to a lesser degree.

Figure 8-1 Support for Transportation Fees

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Strongly Agree or Agree	Strongly Disagree or Disagree
	Respondents					Percentage	
All Respondents							
Support Fee	229	299	218	106	144	53%	25%
Support Parking Permit Increase	266	219	170	167	167	49%	34%
Cannot Afford Parking	63	60	224	290	349	12%	65%
Faculty and Staff							
Support Fee	145	212	140	95	89	52%	27%
Support Parking Permit Increase	82	101	51	55	51	54%	31%
Cannot Afford Parking	5	11	41	118	163	5%	83%
Students							
Support Fee	158	180	128	64	100	54%	26%
Support Parking Permit Increase	175	112	118	109	110	46%	35%
Cannot Afford Parking	57	48	179	167	175	17%	55%

[3] Specific questions asked respondents' support for the following statements: I would support a small increase in parking fees if funds went directly to subsidize new shuttle routes or lower the cost of using TriMet services; and I would support a small student fee that would go directly to subsidize new shuttle routes or lower the cost of using TriMet services.

PTS should identify net revenues when predicting future funding capabilities. Any administrative costs and/or lost revenues to address affordability protections should be subtracted out. All available funding sources should be included in any analysis. Operations will likely be covered by fees and enforcement revenues, but options like the Business Energy Tax Credits (BETC) from the state of Oregon should investigated as well.

Identify additional services available with increased revenues

This step prepares a set of service and/or program scenarios that would be available given varying revenue options. These can be used to offer a cost - benefits comparison for a variety of alternatives. Benefits should be specified against all applicable PTS goals and objectives including the reduction in single occupant automobile use, provision of adequate parking, controlling internal costs etc. PTS will likely want to review future scenarios with student groups and policy makers before identifying a preferred alternative.

Address stakeholder concerns regarding approach

Once a preferred alternative is developed, PTS will likely have to promote the chosen approach to gain acceptance and diffuse concerns, especially if fees are to be increased and/or existing service reduced. PTS will need to identify procedural, policy and political steps needed to overcome concerns and institute preferred direction

Chapter 9. Comprehensive Transportation Plan

This chapter discusses an update to the 1992 Transportation Demand Management (TDM) Plan to provide a comprehensive transportation plan to guide the delivery of parking and transportation services at PCC. PTS will benefit from a current document that presents short- and long-range plans. In addition to documenting internal goals, constraints and actions, the plan should address any planning requirements from other organizations or agencies. This may include TDM directives from the City of Portland, State of Oregon Employee Commute Options (ECO) program etc.

The 1992 plan provides a background on transportation issues as of 1991 and presents goals for reducing reliance on SOV travel and increasing use of transit, ridesharing and bicycle commuting. Much has changed in the last 15 years including implementation of the plan-recommended pay parking system and the institution of the PCC shuttle system. An update to the plan should address a broad spectrum of PTS activities, many of which extend beyond what are typically considered TDM approaches. Therefore the plan title should be updated as well to reflect the comprehensive set of transportation issues addressed.

Finalization of the update is dependent on decisions regarding short- and long-term strategies and actions. While the update could be used to define potential options for future programs and services, it should focus on “approved” actions where possible. Discussions of future scenarios should include plans for resolving open issues and deciding on final approaches.

Plan Attributes

A formal comprehensive plan is suggested as a means to document a range of existing services and future courses of action and should provide the following benefits:

- **Define goals for Parking and Transportation Services (PTS):** College and Board of Director goals are enumerated in various documents. Some of these upper level goals influence, but do not directly specify PTS goals. A comprehensive transportation plan provided the opportunity for PTS to specify its own goals for the delivery of transportation and parking services. Both short- and long-term goals along with facilitating objectives can be enumerated in the plan.
- **Define action items:** The plan should define future PTS actions needed to carry out its objectives. Action item can include the implementation of new services, changes to service levels or equipment use to deliver services, pilot programs and investigative studies.
- **Define timelines for action items:** Action items should have both start and end times to help maintain a focus on them and to facilitate their completion. For shorter-term actions, timelines may contain specific calendar dates. For longer-term items, timelines may me limited to expected commencement and completion years.
- **Define PTS budgetary requirements:** PTS maintains a biennial budget and five-year financial projections. These financial planning tools should be coordinated with the plan such that the budget financially constrains short-term activities and financial projects correlate with identified plan costs and revenues.

- **Communicate goals and action items within PCC:** PTS is an integral part of the PCC system for delivering educational services and needs to coordinate with other educational and administrative service organizations within the College. The comprehensive transportation plan should provide a consistent message to other departments and the Board of Directors regarding PTS plans and needs. Formal acceptance of the plan by the BOD can officially codify their buy-in.
- **Track progress toward goals and action items:** The plan should provide a means for regularly assessing the status of action items. By having a concise list of action items, budget requirements and completion dates, the plan offers a simple way to check-in on it status. The plan should provide the basis for any monitoring and evaluation steps as detailed in Chapter 10. The plan should be re-leased every five or six years to make sure it is current. During prior years, the plan should be updated as needed to reflect any substantive changes to goals or action items in order to reflect current PTS efforts and plans.
- **Address planning requirements for external entities:** The comprehensive transportation plan provides an opportunity to specify PTS actions that address requirements or mandates from external governmental agencies. PCC currently has an updated Transportation Demand Management (TDM) plan for the Cascade Campus in response to a City of Portland conditional approval for campus development. College-wide TDM efforts should be summarized on one place. Similarly, the state of Oregon Employee Commute Options (ECO) program specifies that large employers maintain a plan showing how it will manage the use of single occupant vehicles to worksites. The comprehensive plan allows the highlighting of PTS programs in meeting ECO goals.

The following sections highlight plan elements that may dictate the actual content and level of detail for the comprehensive transportation plan.

Financial Plan Elements

The following plan element should be addressed to describe the source and use of funding.

- **Short- and Long-Term Timeframes:** The plan should identify detailed costs and revenues for short-term actions and more general estimates for long-term goals and objectives. Specific dates should be provided for short-term financial transactions.
- **Revenue sources:** For each timeframe, the source of funding should be identified including those from fees, grants, tax credits etc.
- **Costs:** For each timeframe, costs should be allocated to individual cost centers. The marginal cost to provide transportation and parking services should be identified to aid in the review of services.

Shuttle Service Plan Elements

Details of current and future shuttle service operation should be detailed in the plan. These should include:

- **Current Service**: The plan should provide a detailed description of current operations including recent operating data for any parameters identified for monitoring purposes.
- **Service changes:** The plan should identify modifications to routes or schedules and specify the timing of changes. If changes are desired, but contingent on available funding or other changes, these should be highlighted indicating the desire to move

forward with such change when resources become available. This may be the case if excessive ridership causes capacity problems and the decision is made to add a bus to a route when funding becomes available.

- **Performance goals for monitoring purposes:** The plan should describe any operating goals that will be used to judge successful service by. Many of these are described in Chapter 10 and include ridership levels and on-time performance. It should also be noted if these goals are to be used as criteria for potential shuttle system restructuring, such as increases or decreases in service between locations.

Parking Management Elements

Similarly, the plan should describe details on the current parking system as well as future changes to it. This may include:

- Current capacities
- Recent occupancy data
- Current permit costs
- Current permit sales
- Enforcement plans and/or goals to manage spillover
- Any monitoring efforts to gauge demand, including evenings and weekends
- Planned changes to parking program

Capital Plan Elements

Plans for capital investments should be included in the plan. These include the replacement of, or addition to, shuttle vehicle fleet, parking operations and administrative equipment directly related to the provision of transportation programs.

Special attention should be afforded to a vehicle replacement and expansion plan. Based on the service plan, new vehicles requirements should be itemized reflecting vehicles specifications, quantities, costs and timing for purchase. Spare vehicles should also be identified for purchase as required. Most transit systems provide a spare ration between 10 and 20 percent meaning there is one spare for every 5 to 10 vehicles in service. PTS should have at least one spare and possibly two available to guarantee shuttle service is not impacted by mechanical failures. The comprehensive transportation plan should detail vehicle replacement plans as well. Large motor coaches tend to have 13 year or so life spans while smaller buses built on truck chassis last around 7 years.

Marketing Plan Elements

The plan should highlight efforts to promote PTS services and programs to students and staff. This should include any ongoing information distribution as well as special events. The timing of these activities and any expected results should be highlighted in the plan. As the plan evolves over time, it may become a repository for the results of past marketing efforts in order to focus on beneficial program elements. Any costs, both direct and PTS staff time should be identified for these efforts. The plan may include events and programs where student organization may help carryout promotional activities.

TDM Elements

College-wide and campus-specific transportation demand management activities should be presented in the comprehensive transportation plan. Many of the shuttle, parking management and marketing components of the plan are directly related to TDM goals and should be highlighted as such. For example, the transit subsidy program can be described in detail as a TDM program in the plan. Any expected goals for SOV reduction or mode shifts should be enumerated and correlated to the described actions where possible. The plan should also describe any supportive actions such as increase enforcement levels or incentives for not driving that will aid in meeting mode choice goals.

The TDM elements should also support efforts to meet the Oregon Employee Commute Option program requirements. Provided the College TDM goals meet or exceed any requirement of the ECO program, this component of the comprehensive transportation plan should address and ECO planning requirements.

Sustainable Transportation Elements

PTS is involved with the College's Sustainability Initiative on a number of fronts. The TDM programs effectively reduce SOV travel to campus and help minimize the College's greenhouse gas emissions. PTS efforts to operate shuttles on biodiesel, use "smart cars" for administrative needs and investigate electric car charging stations further help PCC meet its commitment in "becoming a leader in academic programs and operational practices that model the sustainable use of resources, so that the needs of current generations are met without impairing the ability of future generations to meet their own needs.[1]

These and future efforts should be detailed in the updated plan. The resulting plan should highlight planned actions, expected outcomes and associated costs.

[1] Board of Directors adopted policy, December 2006

Chapter 10. Future Monitoring and Evaluation

This chapter outlines a number of steps that will allow PTS to continually review and evaluate transportation and parking programs. The essence of a good monitoring program point to two adages: "you can't control what you can't measure:" and "you don't know if you're meeting your goal unless you have a goal."

Expected Performance

The programs and services provided by PTS, and detailed in the comprehensive transportation plan, should have explicit performance goals. Adherence to these goals should indicate whether or not things are working or if remedial actions may be needed. These goals should be quantitative where feasible (such as percent of students using transit or percent of parking space utilized). Other should use objective pass/fail tests so that there is no ambiguity as to whether or not something is working (such as shuttle on-time performance).

To be effective in monitoring operations, performance goals must rely on data that are easy to ascertain and process. Data collection and reporting should not be burdensome to avoid long lags between review cycles. Similarly evaluation procedures should be objective in nature, avoiding any subjective use of data or results.

Performance measures

The following list offers a set of suggested measures that may aid PTS in reviewing operations.

Shuttle Services

- Ridership by route, stop and time of day
- Passenger loads
- Bicycle rack unavailability
- Wheelchair loading unavailability
- On-time performance
- Operating cost per hour of service

Parking Operations

- Automobile occupancy by campus, lot, time of day and parking type
- Permits sold by type
- Bicycle occupancy by campus and location

TriMet Pass Program

- Passes sold
- Passes denied due to availability
- TriMet ridership to campus locations

Transportation Demand Management Efforts

- Mode share by campus
- Participation in applicable incentive programs

Changes in Operating Environment

In addition to evaluating internal operations, PTS should monitor external factors that may impact operations. This may include changes in the transportation systems as a whole such as increases congestion that impact shuttle service. Or it may be the cost or availability of fuel or labor that can dramatically change shuttle cost structure and impact operations. Economic factors that influence enrollment or student housing choices should also be reviewed.

Decision points

PTS should identify decision points or triggers that may cause the remedial action. Examples include:

- Should shuttle schedule changes be considered if passenger load data show excessive standing passengers?
- At what point do parking occupancy data show the need to lower demand and/or increase capacity?
- When should increased incentives be considers to lower SOV mode shares?

Tools

A variety of tools exist to collect and analyze data required for monitoring and evaluating operations. Some are periodic samples of performance data and student/staff behavior while others involve continual collection of operating data. Whatever tools are employed, they should be used on a regular basis to provide historical trends. Some data collection techniques include:

- **Regular student and staff surveys:** Similar to the one conducted for this study and those sponsored by PTS in the past, random surveys collect data on travel behavior and opinions. These should be conducted on a consistent basis, annually if possible, and in a consistent format. By keeping the survey instrument relatively constant, PTS can readily track changes in results. An annual survey asking about travel behavior may be able to collect mode share data for the biannual ECO survey requirements.
- **Parking capacity surveys:** Reoccurring occupancy counts of automobile and bicycle facilities will track peak usage and help identify trends and capacity limitations. Spot checks should be made on evening and weekends to determine usage at these times and to possibly initiate parking management actions on weekends.
- **Parking permit and TriMet pass sales:** Data regarding permit and pass sales may need to be broadened based on the selected performance measures. For example, the bookstores were not collecting information about TriMet pass “denials” where students or staff requested them but the monthly allocation was exhausted.
- **Shuttle ridership data:** Expanded ridership data may be required if PTS chooses to monitor passenger load data. Drivers currently log boarding activity by stop, but alighting passengers need to be counted at each stop to track loads by stop. Alternatively, if this is deemed burdensome, especially when multiple door alighting is

involve, operators can note stops where loads exceed a pre-determined level. Similarly, consistent tracking of bicycle rack or wheelchair capacity limitations by operators will help provide data on utilization of these items.

APPENDIX A

OPEN-ENDED SURVEY RESPONSES

Parking related	# of responses
Not enough parking spaces at	Total - 57
o Location not specified	34
o Sylvania	12
o Cascade	9
o Rock Creek	1
o Gladstone	1
Parking permits are too expensive / should be free	19
Need staff only parking spaces/permits	8
Make a space guaranteed for people with permits / Do not oversell permits	
Spaces are narrow	5
Safety concern (need street lights/security)	4
Should increase parking fee to discourage people from driving or subsidize other options	4
Would support a small fee for parking	4
Improve ticket machines / need better maintenance	4
More parking for motorcycle	3
Concerns about parking overflow into residential areas around the campus	3
Parking facilities should open everyday / year round (Rock Creek Campus)	2
Should not subsidize staff to drive / Staff only parking is not necessary	2
Better parking options for those who live in areas without access to transit	2
Need visitors parking spaces near the Child Development Center in RC	2
Disable parking spaces is not labeled (except Sylvania)	1
Double parked cars	1

Transit related	# of responses
Monthly passes are too expensive / or should be subsidized / free	41
Need a longer-term pass (e.g. term-based pass)	7
Safety concern	3
Insufficient bus (shelter) facilities	2
Monthly passes often run out	1
Shuttle related	**# of responses**
Need more frequent service / should reflect class schedule	98
Develop a new shuttle service	(Total 36)
o between SE Center and Cascade	6
o to MAX station / Transit Center	6
o between Rock Creek and Cascade	4
o between Rock Creek and SE Center	4
o to Beaverton	4
o to Hillsboro	4
o to Sellwood	3
o to other campuses (CPWTC/WCWTC)	2
o to St. Helens	2
o to general parking lots	1
Need direct shuttles between campuses (w/o stopping at PSU)	16
Does not like the shuttle service changes that took place this year – removed the direct RC- SY route?	9
Shuttles are not on time	9
Should be free from charge (opposing against the "small fee" option)	7
Would pay a fee for an improved service	5
Shuttle service / schedule is confusing	2
Should run during summer term	2
Need weekend service	1
More bike racks on shuttle	1
Need better shelters	1

Carpooling related	# of responses
Free or discounted permit/ designated parking spaces for carpoolers	4
Develop a PCC-based carpool matching program	3
Bicycle related	**# of responses**
Need bike parking and bicycle facilities such as lockers and showers	8
Should develop a program that encourages people to bike / provide incentives	5
Other	**# of responses**
Provide transportation information / resources (e.g. information desk)	3
Flexcar for staff for intercampus trips (for meeting or other business trips)	5