Portland Community College

FACILITIES PLAN TECHNICAL REPORTS

Space Utilization

November 10, 2017

In partnership with:

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Contents

Introduction

As part of the larger Facility Master Plan process, Portland Community College wished to understand space utilization in its existing instructional spaces at its four campuses, and the various centers. Project goals include:

- Review instructional space and activities at each PCC site (4 campuses and 7 major centers)
- Understand the current inventory, formal instructional activities at each site, and how the instructional space inventory accommodates these activities.
- Analyze room and seat utilization and other performance metrics across all campuses and centers.

The report is organized into three parts, as follows:

Part I. Context for the Report
Part I explains the interrelationships among campuses and centers; provides definitions to explain necessary concepts and provide a common lingo for reporting findings from analyses; and explains the methodology for the study.

Part II. The Campuses and Affiliated Centers
Part II presents a review of existing conditions with respect to instructional spaces at the four campuses and three affiliated centers – Swan Island Trade Center, Hillsboro and Newberg – and findings and recommendations related to analysis and utilization of instructional spaces.

Part III. Workforce and Other Centers
Part III provides background on the three remaining major centers – CLIMB, Portland Metro and Willow Creek – including their missions, types of activities that they sponsor in their instructional spaces, and issues related to recording and tracking such activities. Findings and recommendations focus on strategies to help PCC gain a better understanding, and ongoing tracking, of how instructional spaces at these centers are used.

Part I
Context for the Report

There are many moving parts to a space utilization analysis that covers four campuses and multiple centers. Having a common understanding of the relationship among these entities, and a common vocabulary to describe their activities, is important before presenting any analyses. Further, while there are some similarities among these entities, there are also some significant differences.

Part I includes a Definitions section to help the reader navigate information provided in this report, as well as a Methodology section that explains how analyses were undertaken for the campuses and various centers.

Section 1
Definitions

The following definitions are offered to provide a consistent vocabulary for describing activities, spaces, and other aspects of the instructional environments at PCC.

Campuses vs. Centers

PCC is comprised of four campuses and seven major centers. Of the seven centers, six have significant activities occurring in their instructional spaces; the seventh – the Downtown Center – has only one classroom and a very limited number of courses, and consequently is not included in any analyses. The relationships among campuses and centers are described below and depicted in *Figure 1*.

Campuses and Campus-Affiliated Centers

There are four major campuses: Cascade, Rock Creek, Southeast, and Sylvania. Three of the seven major centers have close affiliations with a campus (as shown in *Figure 1*), and each is essentially smaller satellite of the primary campus with which it is associated – Swan Island Center with the Cascade campus; Hillsboro Center with Rock Creek; and Newberg Center with Sylvania.[1] Instructional spaces in these locations are used primarily – although not exclusively – for academic instructional activities.

Centers Focused on Workforce Training, Community Education and Other Activities

Instructional spaces at the campuses and three affiliated centers by and large house for-credit classes and other instructionally-based activities. Three other three centers – CLIMB, Portland Metro and Willow Creek – function somewhat more independently. Types of activities vary widely, and include for-credit and non-credit classes, workforce training activities, community education and other community-based events, administrative meetings associated with PCC, and a range of other activities. Part III provides more detail about the types of classes, events and other activities that occur across these centers.

Figure 1.

Relationships of Campuses and Centers
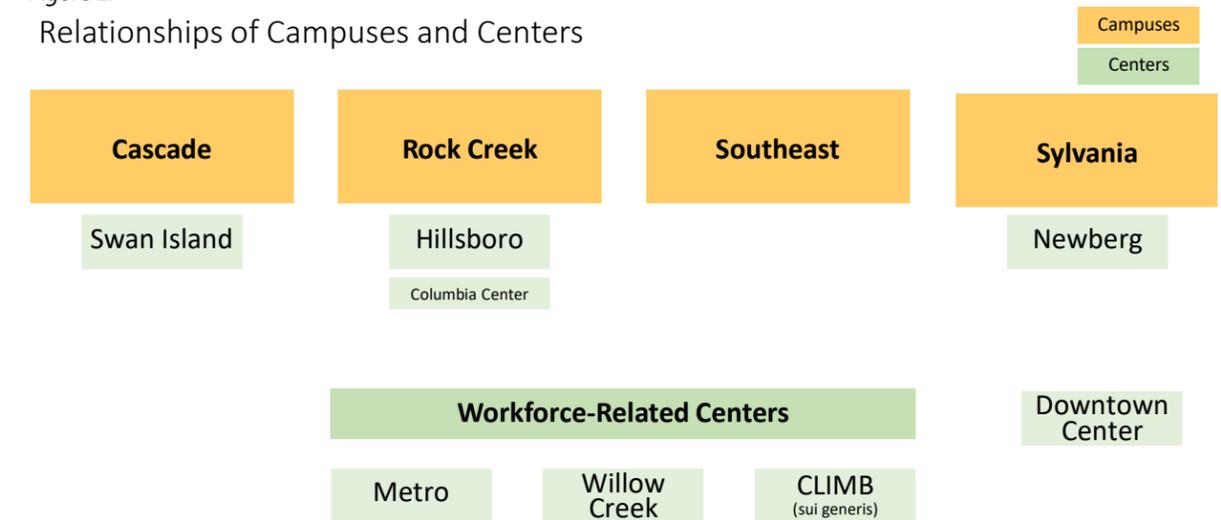
Physical vs. Administrative Locations

Each course or event at PCC is associated with both a "physical location" (i.e., where the course is actually held), as well as an "administrative location" – effectively the "campus of record" in the sense that it reflects which campus hires the faculty, has budgetary authority for the course, etc.

Physical Location

This study focuses on analyses by physical location, and evaluates performance of instructional spaces based on standard utilization measures – e.g., room utilization, seat utilization, supply vs. demand, etc. Time of day analyses are of interest, including utilization on Saturdays, as PCC contemplates possibilities for increased need for instructional and / or meeting space. (At the time of the study, weekend use at most campuses was thought to be primarily rental activity to outside groups.)

Administrative Location

The "administrative location" describes the administrative – as opposed to the physical – location of a class or event – i.e., the campus (or center) that has some type of administrative responsibility for the event (e.g., budgetary, programmatic, etc.). Since administrative location is not a physical construct – e.g., a class that has Cascade as its administrative location might actually be held on one or more other campuses or centers – standard physical performance metrics like room and seat utilization measures are not meaningful in the context of administrative locations, and are not a focus of this study.

Formal Instruction vs. Other Activities and Events

"Event" is the generic term for each instructional or other activity that occurs at a campus or center. Most events in these analyses are classes of some type – for-credit, non-credit, etc. Others are meetings or other events that occur in instructional spaces but are not traditional classes. One distinguishing characteristic is the CRN code. Generally if an event has a CRN code, it is a formal / for-creidt class of some type. If it does not, then it is something else. An exception is at Portland Metro, where certain events are given CRN codes regardless.

Formal Instruction for Academic Credit

Formal instructional activities are organized into three major categories. These categories, and their relationship to instructional space utilization analyses at the campuses and centers, are described below.

Classroom-Based Instruction
This describes a course that is conducted in-person at all times. It is held in a physical classroom space is included in utilization analyses.

CLWeb
These courses are hybrid classes – that is, some portion of the course is held in a physical space on-campus and some on-line. There is no set split from course to course in the percentage of time on-campus vs. on-line. (The split is generally decided by the instructor.) These courses are included in utilization analyses, although it should be recognized that utilization metrics will somewhat overstate the actual amount of time these courses occupy a room, since some of the course is on-line (e.g., 50 / 50 or 40 / 60). While the degree of overstatement cannot be quantified with available information, the fact that the overstatement exists should be noted.

WEB Classes (aka Distance Learning)
This instructional type involves no meeting on-campus (unless there is an individual situation requiring proctoring); all are on-line. No rooms are designated or assigned. At the time of this study, on-line enrollments were estimated to represent about 22% of FTE students. Any labs associated with WEB classes are recorded separately. These courses are excluded from utilization analyses, since there are no physical impacts. However, from an administrative location standpoint, it should be noted that these courses represent a significant percentage of overall enrollment activity. (It was estimated that online enrollment is currently ~22% of FTE.)

Other Activities and Events

In addition to using instructional spaces for for-credit academic instruction, rooms at the campuses and especially the centers are used for a range of other activities. A sampling of such activities includes:

- Non-credit classes
- Workforce-related training activities
- Continuing education activities
- Tutoring sessions
- District meetings
- Student group meetings
- Meetings sponsored by external organizations
- Etc.

Data on usage for formal instructional academic activities are generally more reliable and available because academic courses have regular start and end times, are assigned Course Record Numbers (CRNs) so they can be recorded in the Banner system, and are scheduled (or at least recorded) in the Resource25 scheduling program. Tracking non-academic uses of instructional spaces is much more *ad hoc*, as there are no consistent and systematic ways to record these events across the campuses and centers.

Room Scheduling and Room Types

A range of room types exist across the campuses and centers, including:

- General purpose classrooms (that may include seminar spaces, classrooms, lecture halls)
- Teaching labs
- Auditoria and other large gathering spaces
- Studios and other specialty spaces
- Conference rooms
- Etc.

For purposes of reporting on utilization, room types are organized into the following general categories:

General Purpose Room
Classrooms that can house a variety of instructional activities. Includes general purpose classrooms, auditoria and lecture halls and seminar rooms.

Computer Lab
Instructional spaces with dedicated computers (desktops or laptops), and potentially with specialized software, access to printers, etc.

Special Purpose Room / Teaching Lab
Includes a wide range of use-specific rooms – e.g., biology or chemistry labs, studio spaces, videoconferencing spaces, etc. Spaces are often for a single type of use, and not readily adaptable to other instructional functions.

Other Unspecified Rooms
These are rooms for which no reliable categorization was possible. Some are included in physical analyses, but without an associated specific room type.

Campuses and centers vary in how they allocate responsibilities for managing and scheduling classrooms. Typically, at least some rooms are scheduled centrally by a Registrar or other central office; others may be fully controlled by a department, especially in the case of teaching labs or other special use spaces; or there may be a shared arrangement between central schedulers and departments. In *Parts II* and *III* of this report, scheduling arrangements by room types, to the extent known, are presented.

Section and Event-Related Software

PCC uses two different types of software for recording information about activities occurring in instructional spaces – **Banner software** (a student information system) and **Series 25 products** (a scheduling and event management system). Banner's information is drawn from student registration and, as such, includes only formally-scheduled courses. Each entry in Banner must have a Course Record Number (CRN), which means that a significant number of non-credit / non-course activities at PCC's campuses and centers – which cannot be assigned CRNs – are never recorded in Banner. Series 25 products include **Schedule25 (S25)** and **Resource25 (R25)** software used, respectively, for scheduling and tracking courses and events. Events can be *ad hoc* and do not need a CRN to be recorded in **Series 25** software. Both products are gradually being replaced by **25Live**, a cloud-based system that performs similar functions. Series25 products are not used consistently across all campuses and centers.

As part of the larger Facility Master Plan process, Portland Community College wished to understand space utilization in its existing instructional spaces at its four campuses, and the various centers. Initial goals were to analyze room and seat utilization and other performance metrics across all campuses and centers. As the project evolved, both market research and initial quantitative analyses revealed that instructional spaces at the campuses and certain affiliated centers were used in traditional ways – i.e., largely to schedule academic courses – but that activities at some of the other centers were much more variable in nature. Consequently, two different paths for analyses were pursued, as follows.

### Traditional Instructional Space Utilization Analyses

Traditional space utilization analyses address how instructional space is used when the primary activity is academic courses. These analyses typically evaluate room and seat utilization, how the existing supply of instructional space comports with demand, etc. For such analyses to be meaningful, sections need to meet on a regular basis over an extended period of time (e.g., an academic term). Offerings at the four campuses – Cascade, Rock Creek, Southeast and Sylvania – and their closely-affiliated centers – Swan Island Trade Center, Hillsboro, and Newberg, generally meet this condition. Space utilization analyses for these areas (illustrated as Analyses 1A and 1B in *Figure 2*) are discussed fully in *Part II – The Campuses and Affiliated Centers*.

Analyses of Existing Conditions for Instructional Spaces at CLIMB, Portland Metro and Willow Creek

The remaining centers – CLIMB, Portland Metro Workforce Training Center (WTC) and Willow Creek – were different enough in the activities and events scheduled in their instructional spaces that a traditional space utilization analysis was not possible or appropriate. Activities at these centers are far more *ad hoc* than regularly-scheduled, and serve a wider range of institutional objectives than just delivery of academic instruction, including Workforce Development, Community Education, and other undertakings.

Further, scheduling data at these centers was much more limited and less complete than at the campuses. Consequently, the decision was made to gather more detailed information – primarily qualitative – about the nature of space, programs and institutional objectives at each center, and report them out as a first step in gaining a more complete understanding of the use of instructional and meeting spaces at these centers. These are shown as Analysis 2 in *Figure 2*, and are discussed fully in *Part III – Workforce and Other Centers*.

Figure 2. Breakdown of Utilization Analyses by Campuses and Centers
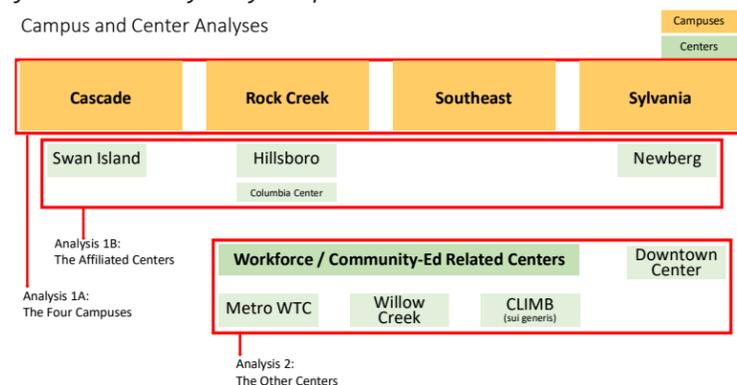
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For the analyses, Portland Community College provided data for the academic year 2016 (Fall 2015 and Spring 2016), including section meetings and room inventories for all campuses and centers, to the extent that data were available. Fall 2015 data were used in analyses because of the heavier volume of scheduling activity vis-à-vis spring. There were significant issues with both course section and room inventory data that required extensive review, cleaning and updating prior to undertaking any analyses. (Room inventories were aggregated from various data sources, in some cases including those provided by schedulers at campuses and / or centers.)

Course-Related Issues

Among the many issues, the following were most salient:
- Many courses have multiple sections meeting at the same time (e.g., cross-listed or otherwise). These are collapsed into one record to avoid double-counting or overstating the number of section meetings.
- The course dataset includes instructional methods that do not have a physical meeting location (e.g., distance learning courses). Only instructional methods with physical meetings are included. All sections that are purely through distance learning are omitted; sections that include both a physical meeting and a distance learning meeting are included.
- The database has a mix of active and cancelled classes. Only active classes are included in analyses; cancelled classes are removed.
- Several sections show no specific start or end time. Since it is not possible to know when these classes meeting during a day, they are omitted from all analyses.

Reconciling Room and Course Databases

Not every room is scheduled in each term. Only rooms that have at least one section meeting in the Fall term are included in utilization analyses. (See *Figure 3.*)

Further, there were discrepancies between the set of rooms included in the room inventory (an amalgam of separate room databases provided by campus schedulers, as well as master room database) versus rooms in the course database (i.e., rooms that included a course or section scheduled in them). The room inventory database included 396 rooms across all four campuses; the course database included 474 rooms. Of these totals, 360 rooms were included in both the course and room databases. There were significantly more "unique" rooms in the course database than in room inventory databases – 114 rooms in course database only; 36 rooms in scheduler databases only. Because the focus of all analyses is how rooms are scheduled for classes and other activities, only rooms with at least one class or other event are included in utilization analyses. The total inventory that includes some type of class or event scheduled within in the Fall term is 389 rooms.

Figure 3. Comparison of Full Course Inventory vs. Inventory for Utilization Analyses

	Rooms			
	[1]	[2]	[3]	[4] = [3] - [1]
Room Type	**Full Course Inventory**	**Scheduled in Fall Term Only**		**Difference (Full vs. Fall)**
		No.	*Pct.*	
General Purpose Rooms	195	186	*48%*	**(9)**
Computer Labs	38	37	*10%*	**(1)**
Special Purpose / Teaching Labs	128	111	*29%*	**(17)**
Unspecified	113	55	*14%*	**(58)**
Total	474	**389**	*100%*	**(85)**

Note: Biggest reductions are in (1) special purpose rooms in Sylvania, and (2) unspecified rooms in Cascades and Rock Creek.

The next sections present profiles of room inventories in use (Fall 2015) and course sections for each campus (*Sections 2* and *3*), and a profile of the affiliated centers (*Section 4*). *Section 5* presents utilization analyses.

Section 2
Profile of Room Inventories at the Four Campuses
(Analysis 1A)

In Fall 2015, 389 rooms were scheduled on the four campuses. As *Figure 4* shows, the Sylvania campus had the largest inventory 146 rooms (38% of the four-campus inventory), followed by Rock Creek (97 rooms; 25% of inventory), and then Cascade (89 rooms; 23%) and Southeast (57 rooms; 15%).

Figure 4. The Fall Inventory
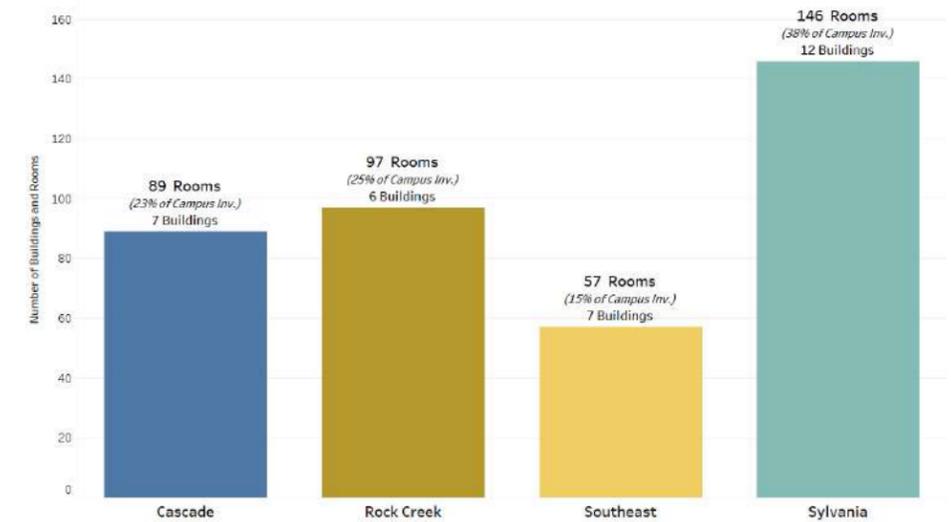
By seat capacity, the preponderance of rooms at each campus have between 20 and 30 seats – as high as 68% of the inventory at Southeast; about 50% at Cascade and Rock Creek; and about one-third at Sylvania. (Sylvania also has ~1/3 with 30 to 40 seats.) See *Figure 5*.

Figure 5. Room Distribution by Seat Capacity and Campus

Room Inventory by Scheduling Responsibility

The primary scheduler at each campus was asked to provide guidance as to who schedules rooms on the campus. In many cases, departments have first right of scheduling, and the campus-wide scheduler fills in remaining sections in available space once all departmental scheduling is complete.

PCC has Resource25 (R25), Schedule25 (S25) and 25Live – three components of the CollegeNET 25 Series for scheduling and event management. Migration to 25Live has begun, but several campuses are still scheduling academic courses through R25 and S25. Some campuses are starting to use 25Live to schedule non-course events. Formal courses (having a CRN) are in Banner and the 25 Series, although not all data fields are in both systems. Non-course events are not included in Banner.

Scheduling Responsibility at Cascade
Figure 6 shows that scheduling responsibilities for 92% of rooms are distributed among four academic areas at Cascade – Allied Health, Emergency & Legal Services; Arts and Professions; Liberal Arts and Pre-College Programs; and Math, Science, Health and PE. Each area schedules and has priority over the rooms it controls, and many rooms are pre-assigned. Then rooms are turned over to the campus scheduler to schedule any remaining classes in unused time slots. S25 is used for course and event scheduling.

Figure 6. Distribution of Scheduling Responsibility – Cascade
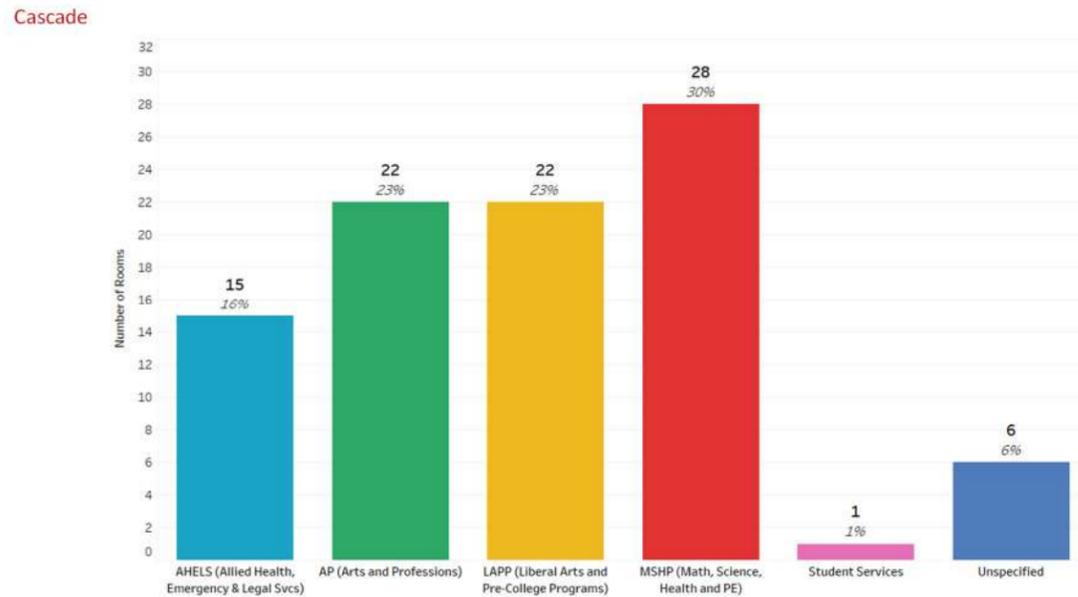
Scheduling Responsibility at Rock Creek
At Rock Creek, almost all General-Purpose rooms are pre-assigned to certain departments. (See *Figure 7*.) (Reportedly of the ~49 general purpose classrooms, only ~3 are not pre-assigned.) After departments complete scheduling, the campus-wide scheduler addresses remaining scheduling needs.

The campus scheduler schedules computer labs except as follows:

- Special labs (e.g., Biology and Chemistry) are dedicated spaces, scheduled by departments.
- Welding classes (Bldg 2, Rooms 131 & 132 and Bldg 6, Room 110) are essentially open labs; these sections are in the course database, but as they are not formally scheduled for individual sections, they are not included in utilization analyses.
- Computer Systems Applications (CAS) lists several classes in the same room at the same time. These are not "cross-listed" but rather different classes that meet in essentially open labs where instructors assist students.

Outdoor spaces (e.g., Tualatin Hills Parks and Recreation – THPRD) are not presently tracked in the course database. Because PCC is interested in knowing more about how outdoor spaces are used, these should be tracked and added into the course database in the future. For scheduling events, Rock Creek uses 25Liv; courses are still scheduled with Resource25 / S25.

Figure 7. Distribution of Scheduling Responsibility – Rock Creek
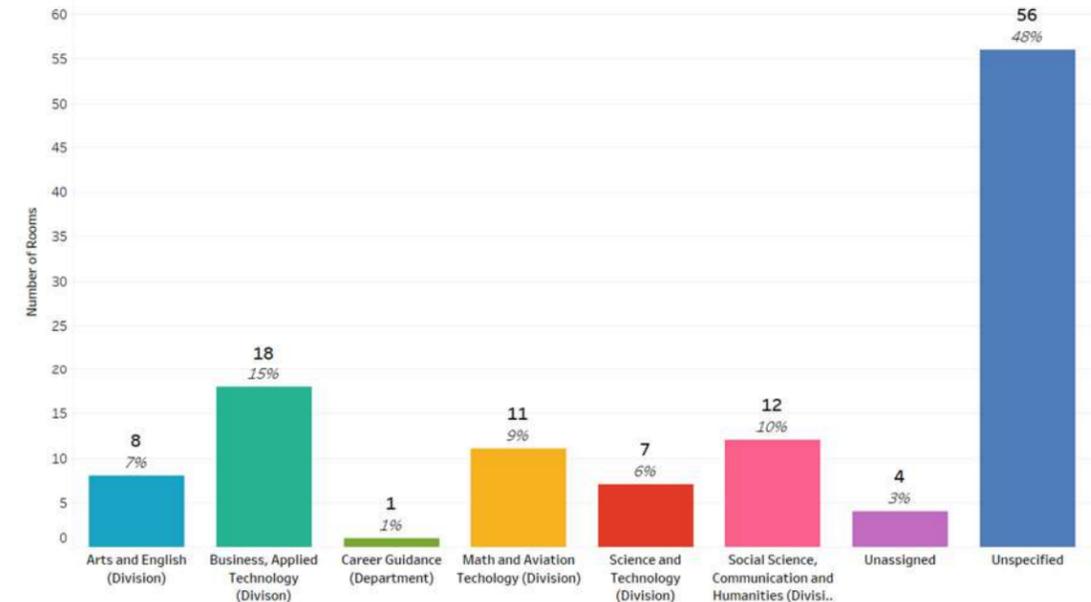
Scheduling Responsibility at Southeast
Administrators in each area have priority in scheduling. (See *Figure 8*.) The campus scheduler fills in the "remainders." Southeast has three outdoor spaces – the Quad (which is not formally scheduled), LAWN (scheduled for Community Ed classes); and the Learning Garden Geodesic dome (which recently came on-line). The campus primarily uses R25 for scheduling, but will eventually move to 25Live.

Figure 8. Distribution of Scheduling Responsibility – Southeast

Southeast
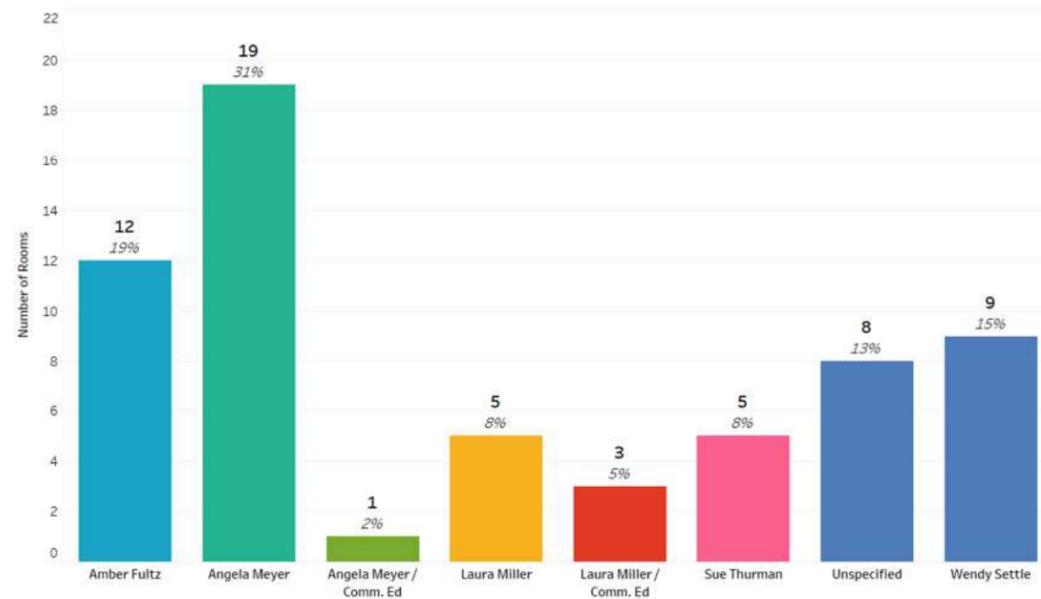
Scheduling Responsibility at Sylvania
The Scheduling Office schedules about 43% of rooms; all others are scheduled by individual departments or areas, as shown in *Figure 9*. R25 includes data on events occurring in general-purpose classrooms, meeting rooms and common areas. Areas not in R25 include the library and common / conference rooms in the cafeteria.

Figure 9. Distribution of Scheduling Responsibility – Sylvania
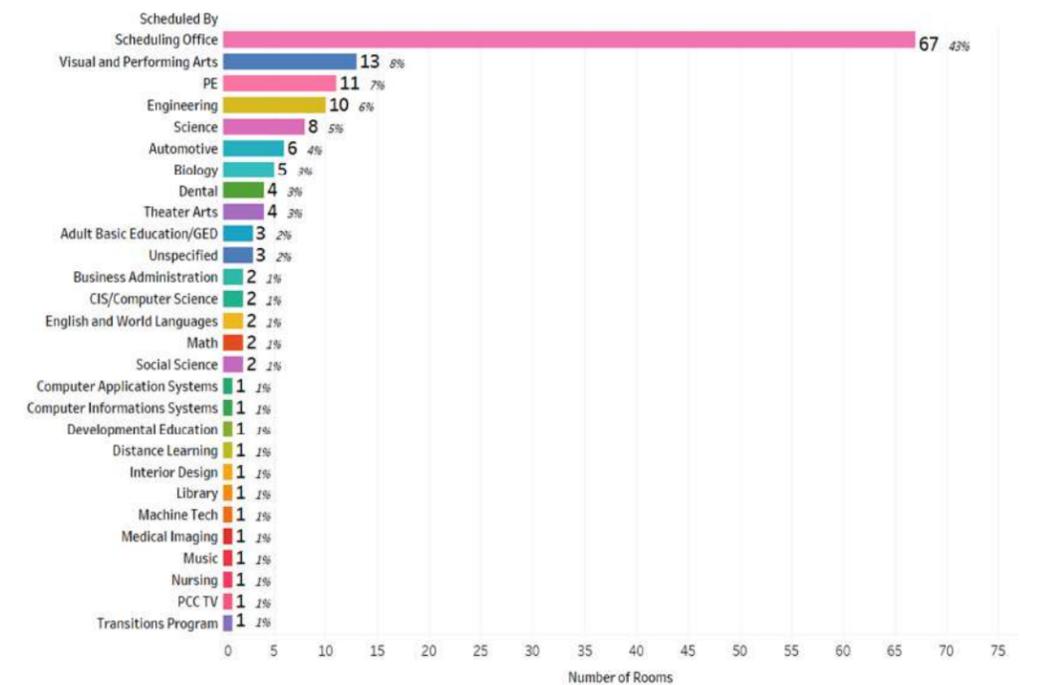
Sylvania

Sections by Campus – Fall 2015 Term

In total, among the four campuses, in Fall 2015, there were ~3,359 sections which had actual meeting times and locations. The number of records in the course database in Fall 2015 was actually closer to 9,000 – including all campuses and centers – but many were filtered out for a variety of reasons already discussed (e.g., lack of meeting time information, distance learning, etc.).

Sylvania had the highest concentration of sections (37%), followed by Rock Creek (25%) and Cascade (21%). The lowest was Southeast, at 17%. (See *Figure 10*.)

Figure 10. Distribution of Sections by Campus
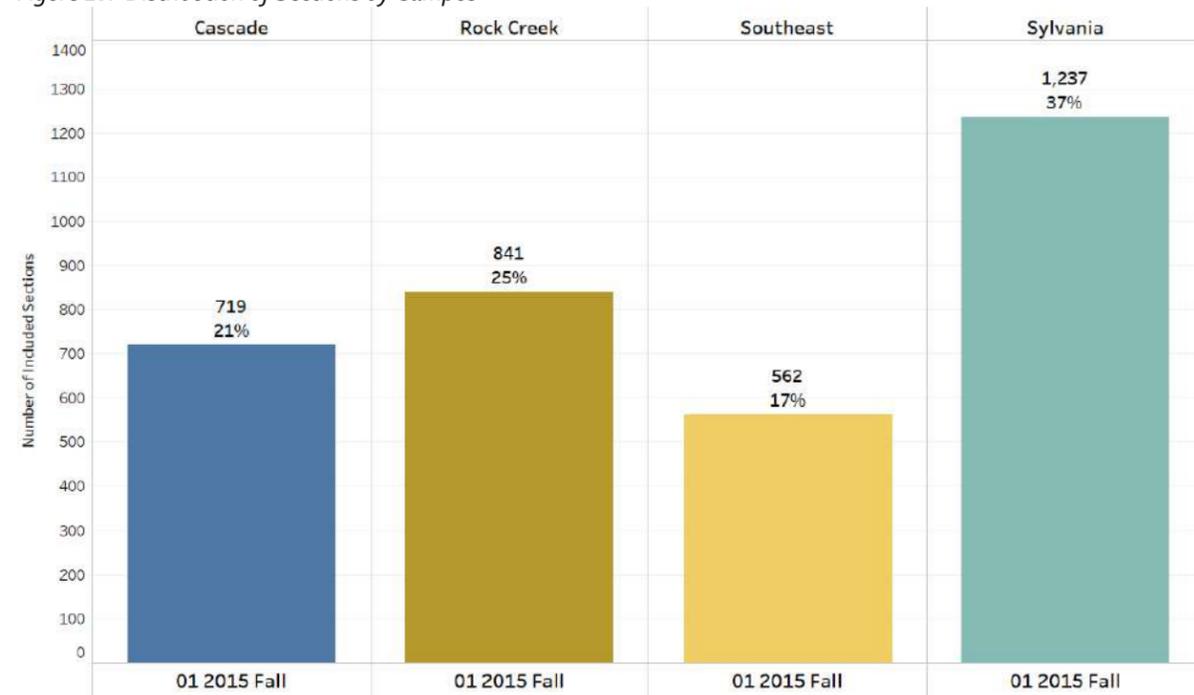
Enrollment Distributions

Generally, between 85% and 90% of sections at all four campuses would be considered small in number of students enrolled -- about 40% to 50% of all sections at each campus enroll 20 to 30 students, and about one-third enroll 10 to 20 students. At the high end, most enrollments top out at about 40 students at Rock Creek and Southeast, and 50 at Sylvania. Only Cascade has classes larger than 70, and then only a few. (See *Figure 11*.)

Figure 11. Enrollment Distribution by Campus
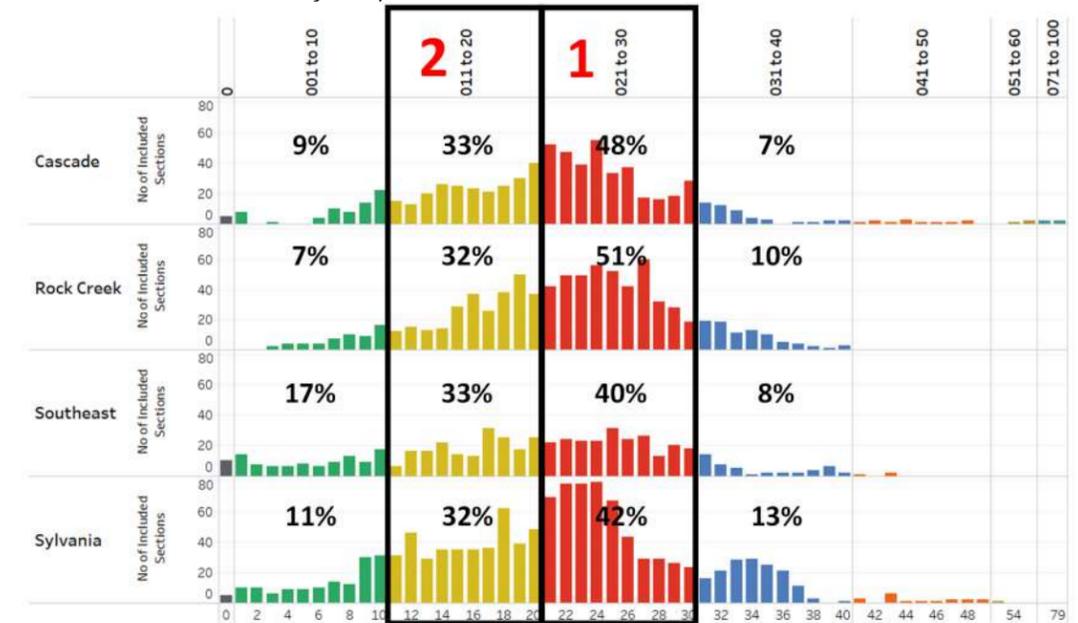
Concentrations of Sections by Department

Figure 12 shows how sections are distributed among departments. At each campus about 50% of sections are concentrated in just 8 departments. Common among these top departments are Math, Biology, Writing, English as a Second Language, and 9Series (Community Education).

Figure 12. Concentrations of Sections by Campus and Department

Cascade		Rock Creek		Southeast		Sylvania	
47% **of sections in**		**50%** **of sections in**		**57%** **of sections in**		**51%** **of sections in**	
8 **departments**		**8** **departments**		**8** **departments**		**9** **departments**	
Tot Depts: 57		**Tot Depts: 60**		**Tot Depts: 44**		**Tot Depts: 68**	
10%	MTH	13%	MTH	21%	9 Series	13%	9 Series
9%	BI	9%	BI	10%	MTH	8%	MTH
6%	WR	7%	WR	9%	ESOL	7%	BI
6%	9 Series	5%	ART	7%	WR	6%	WR
5%	ART	5%	PE	3%	ABE	5%	ESOL
4%	PE	5%	ESOL	3%	CH	5%	PE
4%	MM	4%	CH	2%	RD	3%	CH
3%	ESOL	4%	CG	2%	HE	3%	ART
						3%	CG
47% **of Total Sections**		**50%** **of Total Sections**		**57%** **of Total Sections**		**51%** **of Total Sections**	

Figure 13 depicts the distribution of sections by department using a "hive map" to present a slightly different perspective on the relative size of various departments.

Figure 13. Percentage of Sections by Department at Each Campus
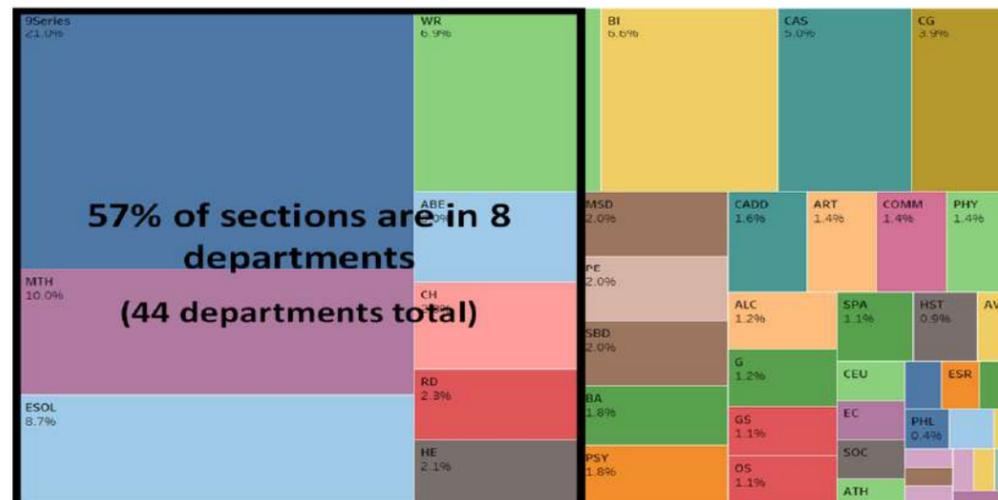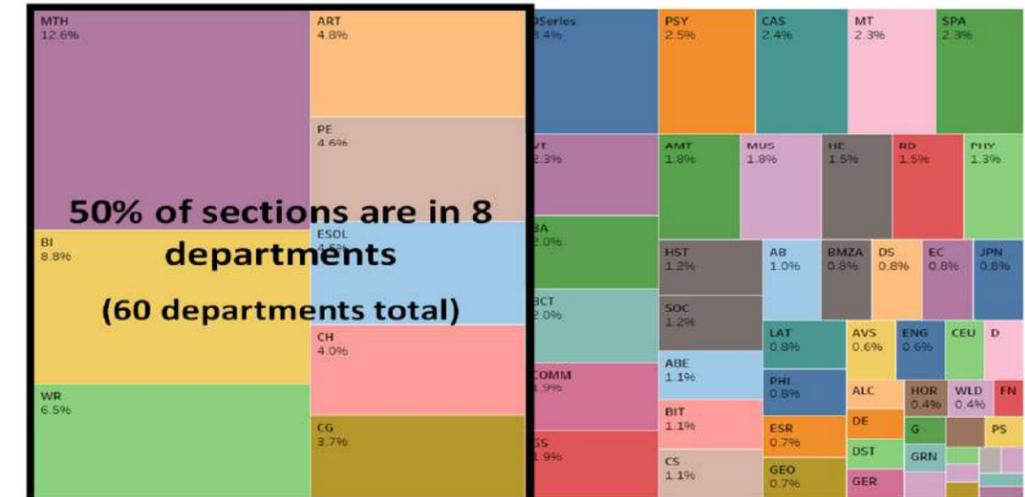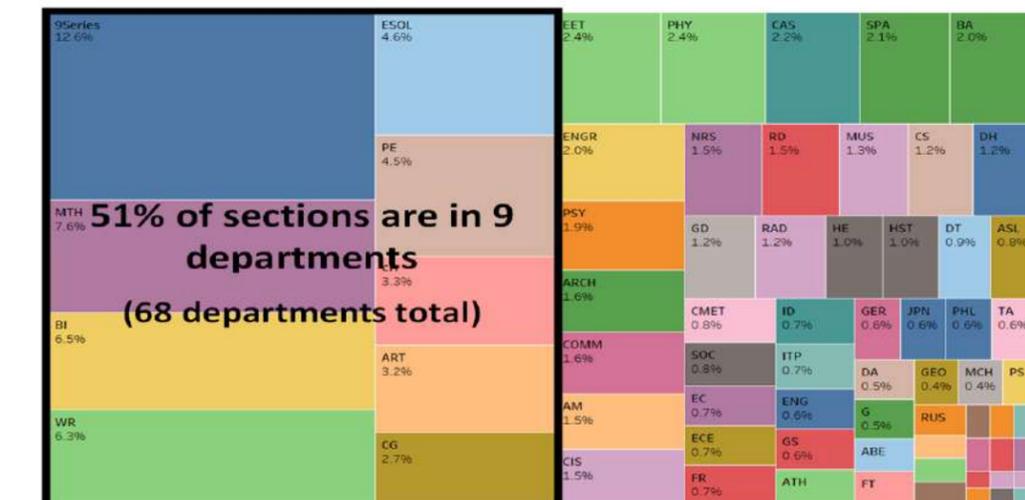
PCC has four campuses and several centers, as depicted in *Figure 14* below. Although each center is unique, they can roughly be divided into two major categories – centers that are affiliated with a campus, and centers that focus on workforce training and / or other activities. This section covers the campus-affiliated centers.

Figure 14.

Campus and Center Analyses
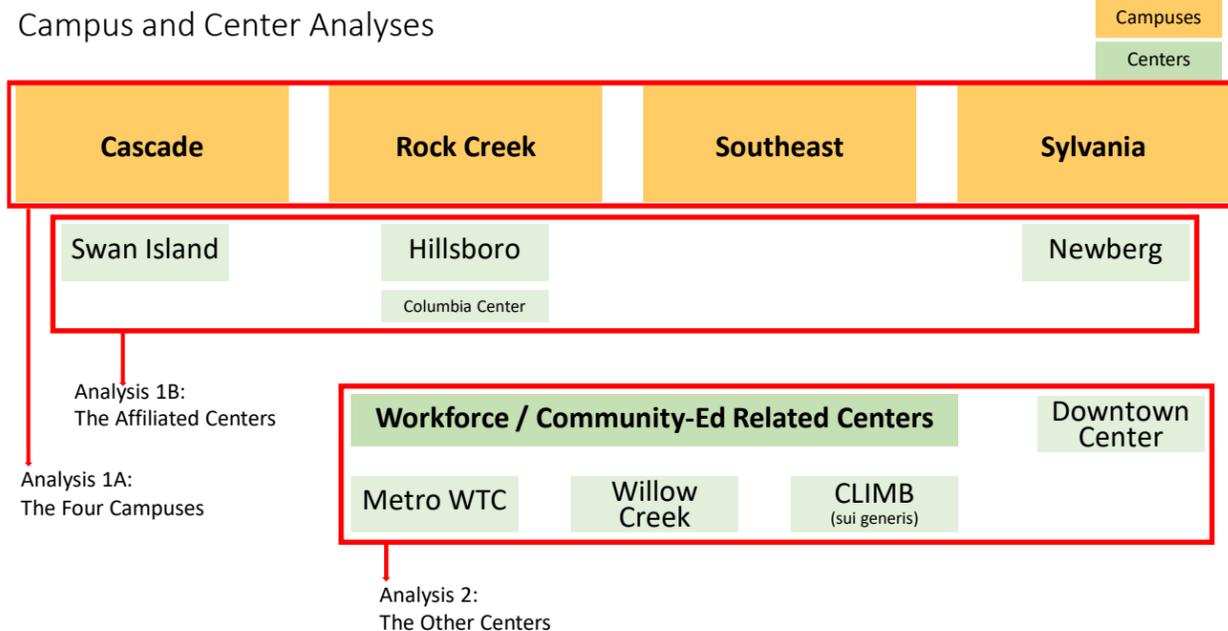
Three primary centers are closely affiliated with campuses. This section presents a profile of these centers -- Swan Island Trade Center (Cascade), Hillsboro (Rock Creek) and Newberg (Sylvania). These centers are located in smaller communities and part of their mission is to help students transition to larger campuses. Instructional spaces are used primarily for academic instruction and academically-related activities. With respect to scheduling, events in these rooms are typically coded as academic events in the Banner information system, and have a "course record number" (CRN), a designation that is usually associated only with an academic activity.

Newberg Center

The Newberg Center is a satellite of the Sylvania campus. It offers mostly for-credit courses – including general studies prerequisite courses, along with occasional *ad hoc* events (e.g., hosting a town hall for a Congressman or Senator, or an event sponsored by the Oregon Employment Department).

The room inventory (*Figure 15*) includes:

- 4 general classrooms (32 seats – 2 per movable table)
- 1 computer lab (26 seats)
- a small conference room (6 seats) near the faculty area (generally not scheduled for academic events).

The lobby is listed with a capacity of 200. It may be booked for large events, but is not scheduled for academic classes.

There are four FTE staff, including a scheduler and building coordinator, funded by the Sylvania campus. (This is not the case at every center.) Instructors are hired by the department chairs and deans at the Sylvania campus. Some scheduling is done at the center, and some by an administrative assistant at the Sylvania campus. About 28 different departments schedule about 50 to 60 classes each term (outside of summer term). The greatest concentrations are in CAS (Computer Applications), Math, ESOL, and Writing. Academic events are scheduled in Banner and Resource25. *Ad hoc* events are generally recorded more informally on a shared calendar within the center.

Figure 15.

Newberg Center

Building	Room Name	Seat Capacity
NEC	NEC 110	26
	NEC 111	32
	NEC 112	32
	NEC 115	32
	NEC 116	32
	NEC LOBBY	200
Total Rooms		**6**

Hillsboro Center

The Hillsboro Center is a satellite of the Rock Creek campus. It offers mostly for-credit courses.

The room inventory includes five general purpose classrooms ranging in size from 24 to 32 seats. (*Figure 16*.)

About 35 to 50 courses are scheduled per term (outside of summer term), by fourteen different departments. The greatest concentrations are in ESOL, Math and Writing.

Figure 16.

Hillsboro Center

Building	Room Name	Seat Capacity
HC	HC H104	30
	HC H105	24
	HC H110	30
	HC H117	32
	HC H118	32
Total Rooms		**5**

Swan Islands Trade Center

The Swan Island Trade Center is a satellite of the Cascade Campus. It offers mostly for-credit courses.

The room inventory includes twelve rooms, eleven of which are general classrooms, and one is a welding shop. (See *Figure 17*.) The general classrooms range in capacity from 24 to 48 seats, with just over half at 24 seats, and are scheduled in Banner / Resource 25. The welding shop is essentially a teaching lab, and generally is not formally scheduled. Accordingly, its usage does not appear in any room utilization analyses.

About 140 to 160 courses are scheduled per term (outside of summer term), by nine different departments – the largest by far is Welding (WLD), with 67% of all courses scheduled. Other top schedulers are Facilities Maintenance Technology (FMT), Apprenticeships and Trades (APR), and Electrical Trades (ELT).

Figure 17.

Swan Island Trade Center

Building	Room Name	Seat Capacity
STC	STC 102	24
	STC 120	36
	STC 122	36
	STC 124	36
	STC 130	24
	STC 131	24
	STC 132	36
	STC 133	24
	STC 134	24
	STC 135	24
	STC 136	48
WELDTC	WELDTC SHOP	NA
Total Rooms		**12**

Review of Performance Metrics

As part of understanding and analyzing how physical spaces are used at the campuses and their affiliated centers, several standard metrics were used to illustrate utilization. These metrics are defined and explained below.

Room and Seat Utilization

Room utilization is a measure of how frequently a room is scheduled during the week, generally defined as the percentage of available room hours that a room is used for instruction. Room utilization can be evaluated in many ways, e.g., by time of day, day of week, etc.

Seat utilization is a measure of the percentage of seats filled whenever the room is scheduled.

Plotted together – as **room utilization versus seat utilization** – a clear picture emerges as to how well, overall, rooms are being used. Room and seat utilization statistics are computed for Monday / Tuesday / Wednesday / Thursday (MTWR); Friday (F); and Saturday (S) – day and evening, and are presented in chart form, along with room vs. seat utilization visualizations, where each room's average room and seat utilization rates are plotted as an individual data point on a graph, to provide a shorthand way of understanding how rooms measure up to room and seat utilization. Ideally rooms would have high room and seat utilization.

Demand Over Time – Overview

"Demand over Time" shows minute-by-minute patterns of when sections are scheduled over a day and / or a series of days. This analysis shows periods of peak use, and when depicted against total available hours for scheduling, identifies "unused capacity" where the campus could schedule more.

There are many ways to illustrate "Demand over Time." Analyses here show demand over time for the following periods and parts of the inventory:

- Monday through Friday – All Rooms
- Monday through Friday – General Purpose Rooms

Performance Metrics for the Four Campuses

Room Utilization

Figure 18 shows summary room utilization statistics for all rooms (including general-purpose, computer labs, special purpose / teaching labs), and then general-purpose rooms separately, for each campus, daytime (8am to 5pm) and evening (5pm to 10pm). Utilization rates are reported separately for a four-day week (MTWR); Friday; and Saturday.

In general, room utilization during the four-day week is 50% or better across the campuses; and is generally higher for general-purpose rooms than "all rooms", since the latter includes computer and specialized labs and teaching spaces which are more limited in ways in which they can be used and scheduled. Conversely, general-purpose classrooms are the "workhorse" rooms on a campus – the most flexible in terms of types of classes and events that can be held in them.

Room utilization is low on Fridays (in the 20% to 30% range), mirroring national trends for moving toward a four-day academic week, with fewer "three-two" meeting patterns (MWF and TR) and more "two-two" meeting patterns (MW and TR), with Friday used for more *ad hoc* activities.

Saturday utilization is similar to Friday utilization during the day (in the range of 20%), but very low or non-existent in the evening.

Figure 18.

Overview of Room Utilization

Campus		All Rooms		General Purpose Rooms	
		8am to 5pm	5pm to 10pm	8am to 5pm	5pm to 10pm
Cascade	MTWR	48%	33%	55%	33%
	F	22%	24%	20%	24%
	S	21%	8%	21%	8%
Rock Creek	MTWR	58%	39%	69%	41%
	F	21%	20%	19%	22%
	S	27%	3%	24%	3%
Southeast	MTWR	51%	42%	59%	44%
	F	17%	24%	18%	29%
	S	19%	0%	20%	0%
Sylvania	MTWR	53%	33%	60%	31%
	F	18%	30%	14%	40%
	S	21%	8%	16%	0%

Seat Utilization

Figure 19 shows summary seat utilization statistics for all rooms, in breakdowns similar to the statistics for room utilization. Seat utilization is generally high across all campuses (65% or better in most cases) except in the evenings on Friday and Saturday. PCC has a very good match between class sizes and room sizes (many in the range of 20 to 40 seats / enrollments), so a high seat utilization rate should be expected, and is in fact borne out by analyses.

Figure 19.

Overview of Seat Utilization

Campus		All Rooms		General Purpose Rooms	
		8am to 5pm	5pm to 10pm	8am to 5pm	5pm to 10pm
Cascade	MTWR	72%	67%	66%	58%
	F	67%	71%	63%	69%
	S	71%	29%	53%	29%
Rock Creek	MTWR	68%	65%	71%	66%
	F	64%	32%	63%	38%
	S	58%	55%	63%	55%
Southeast	MTWR	72%	68%	78%	68%
	F	63%	66%	74%	77%
	S	70%	0%	70%	0%
Sylvania	MTWR	67%	65%	65%	60%
	F	65%	45%	55%	30%
	S	53%	74%	38%	0%

Demand Over Time and Room vs. Seat Utilization

The figures on the following pages show two alternating graphical analytics for each campus.

The first graph illustrates the demand over time for all instructional spaces on a campus, color-coded by the room type – general purpose room, computer lab, special purpose room / teaching lab, or unspecified. The graphic part of each figure shows the amount of time that is scheduled at each hour over a five-day week (Monday through Friday). To complete the picture, each graph also includes an embedded table showing the room utilization rates for three different day patterns (MTWR, F and S) and three time frames (8am to 5pm, 5pm to 10pm, and 8am to 10pm). See Figure __ below for the Cascade campus.

For the **Cascade** campus, scheduling peaks mid-morning and mid-afternoon, then falls off at dinner time, and has a smaller peak again in the evening hours. (See *Figure 20*.) Total supply of hours is shown by the grey line at the top of the graphic. In the case of Cascade, there are 445 schedulable hours at any given time based on the total inventory, and the room utilization rate indicates that about 48% of those hours are scheduled during daytime hours on MTWR. Daytime utilization of general purpose rooms on MTWR (not shown) is about 55%, indicating that even in the most popular time frame, there is still scheduling capacity available.

Figure 20.
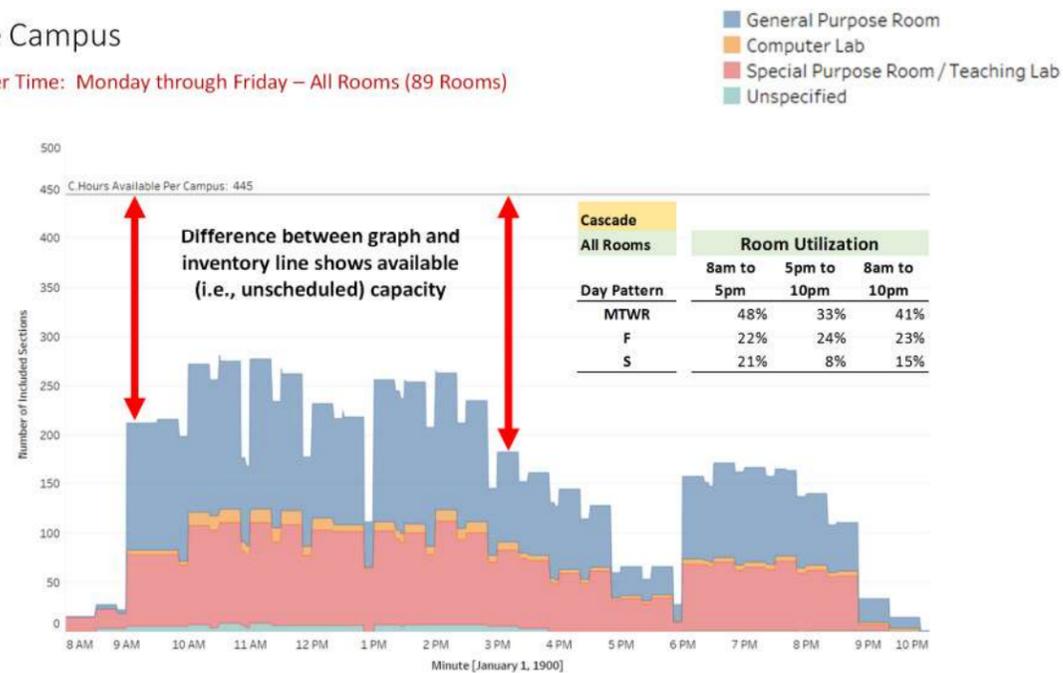
The second graph plots average room utilization (x-axis) versus average seat utilization (y-axis) for each room on the campus. Each room is color-coded by room type (general-purpose room, computer lab, special purpose room / teaching lab, or unspecified) and the size of the dot indicates the relative number of seats in the room. Red lines on the graphic map the average room and average seat utilization, and the dotted black lines divide the graphic into four equal quadrants as follows:

- **Quadrant 1 (lower left):** low room (<50%) and low seat (<50%) utilization
- **Quadrant 2 (upper left):** low room (<50%) and high seat (>50%) utilization
- **Quadrant 3 (upper right):** high room (>50%) and high seat (>50%) utilization
- **Quadrant 4 (lower right):** high room (>50%) and low seat (<50%) utilization.

The graph for the **Cascade** campus (*Figure 21*) shows that most of its general-purpose classrooms (blue dots) fall into quadrant 3, with high room and high seat utilization, while the special purpose / teaching lab rooms (pink dots) are more widely dispersed among quadrants 1 (low room / low seat), 2 (low room / high seat), and 3 (high room / high seat).

Figure 21.
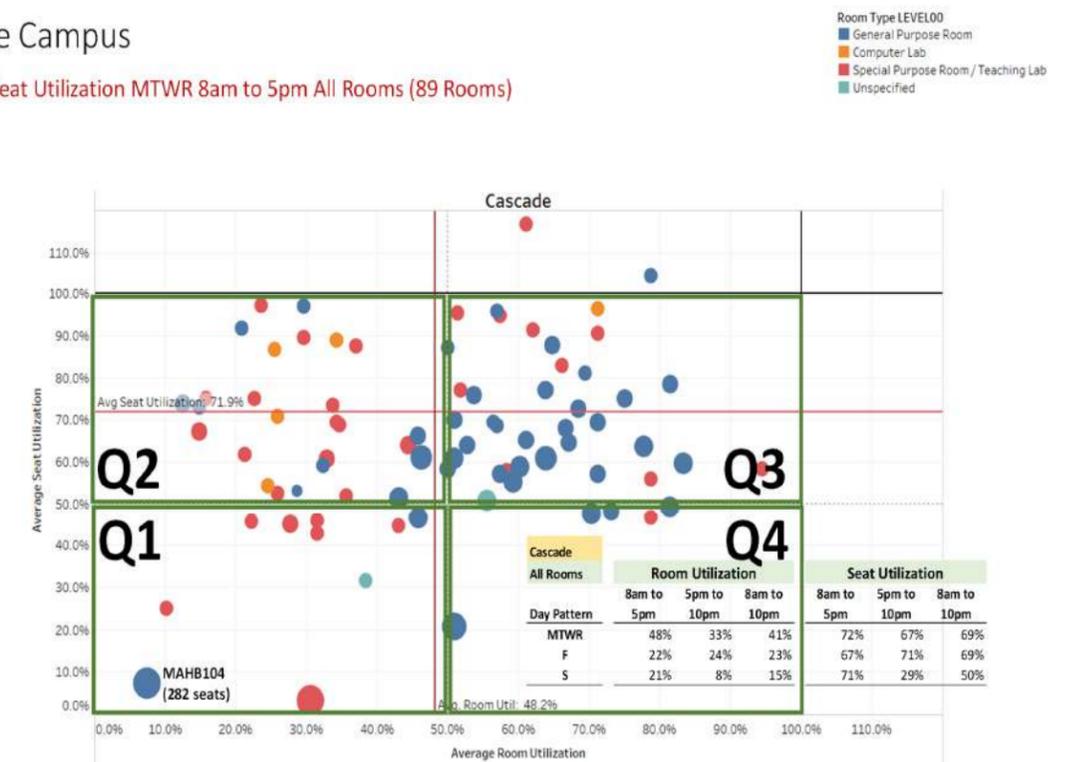
For **Rock Creek**, scheduling peaks around 10am to 11am and, while gradually declining, remains high until dinner time. (See *Figure 22*.) A second smaller peak occurs in the evening. Daytime average room utilization over a four-day week for all rooms is 58%, and for general purpose rooms (not shown separately) is 69%. For additional scheduling capacity, the campus would look to the early morning hours (8am) and late afternoon (after 4pm).

Figure 22.

Southeast scheduling is fairly consistent throughout the day until dinner time, with a slight peak around 10am. Daytime average room utilization over a four-day week for all rooms is 51%, and for general purpose rooms (not shown separately) is 59%. Evening room utilization is higher than at most other campuses MTWR – 42%. See *Figure 24*.)

Figure 24.

Figure 23 shows that most of its general-purpose classrooms fall into quadrant 3, with high room and high seat utilization; and all but a few computer labs have high seat and room utilization.[2]
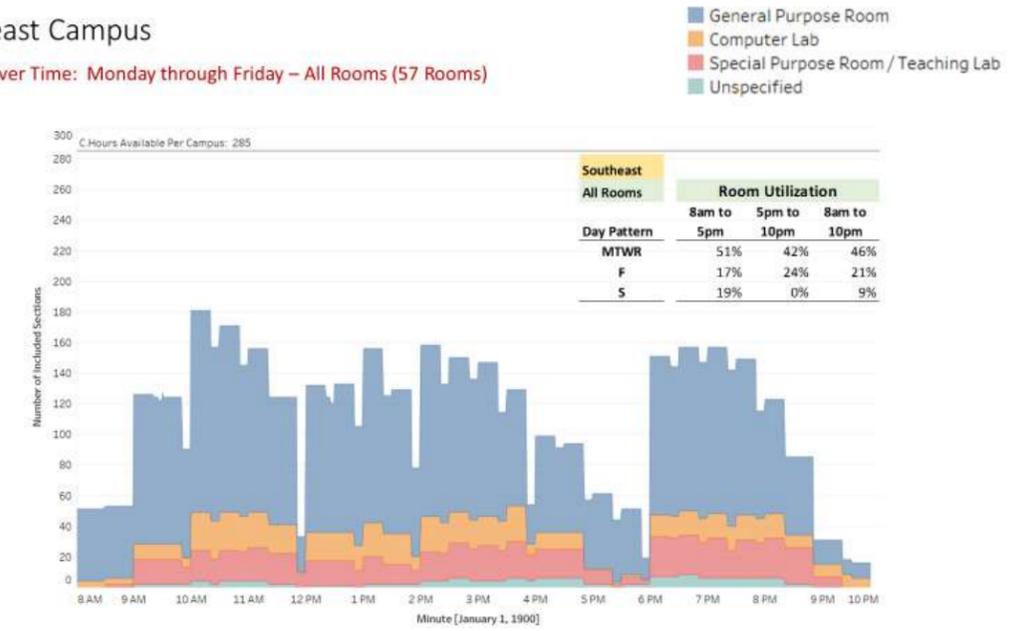
Figure 23.

Figure 25 shows that most of its general-purpose classrooms fall into quadrant 3, with high room and high seat utilization – average seat utilization hovers around 70% day and evening except on Saturday evening.

Figure 25.

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[2]There are a number of "unspecified" rooms for which information was lacking to determine their room type.

Sylvania scheduling is highest from 9am to mid-afternoon, somewhat lower in late afternoon and falls off at dinner time. Daytime average room utilization over a four-day week for all rooms is 53%, and for general purpose rooms (not shown separately) is 60%. Evening room utilization is ~33%. (See *Figure 26*.)

Figure 26.

Sylvania Campus
Demand over Time: Monday through Friday – All Rooms (146 Rooms)

Sylvania All Rooms	Room Utilization		
Day Pattern	8am to 5pm	5pm to 10pm	8am to 10pm
MTWR	53%	33%	43%
F	18%	30%	24%
S	21%	8%	15%
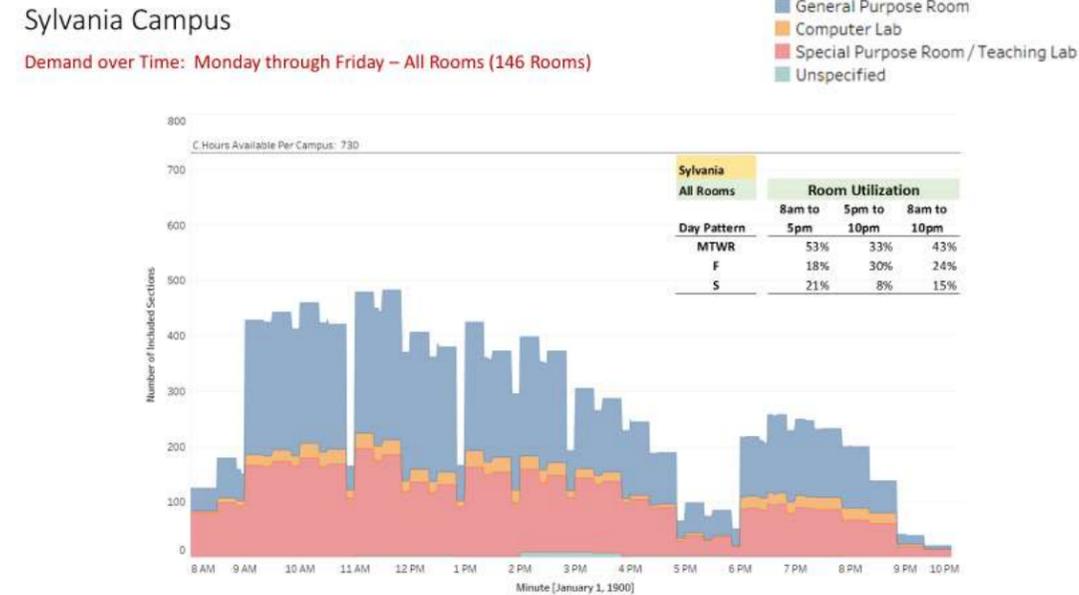
Sylvania has the largest number of rooms. As *Figure 27* shows, almost all general-purpose classrooms fall into quadrant 3 or 4 (high room utilization), with most in quadrant 3 (high seat utilization also) Average seat utilization hovers around 65% day except on Friday evening, and seat utilization is surprisingly high (74%) on Saturday evening. Special purpose rooms are on the lower end of room utilization (quadrants 1 and 2), although many have relatively good seat utilization (quadrant 2).

Figure 27.

Sylvania Campus
Room vs. Seat Utilization MTWR 8am to 5pm All Rooms (146 Rooms)

Sylvania All Rooms	Room Utilization			Seat Utilization		
Day Pattern	8am to 5pm	5pm to 10pm	8am to 10pm	8am to 5pm	5pm to 10pm	8am to 10pm
MTWR	53%	33%	43%	67%	65%	66%
F	18%	30%	24%	65%	45%	55%
S	21%	8%	15%	53%	74%	63%
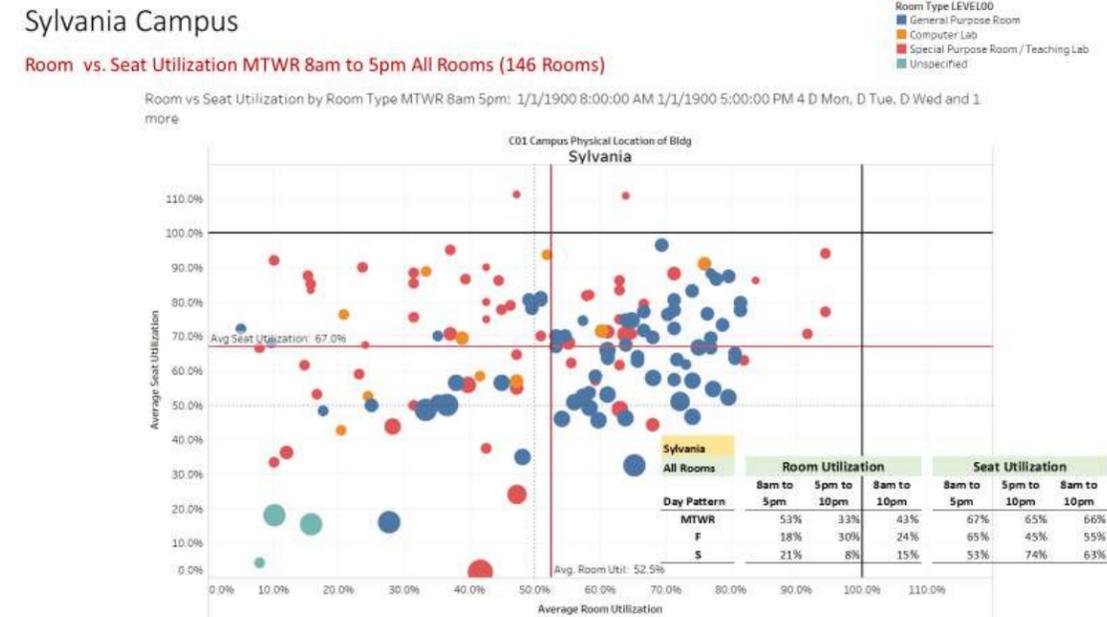
Performance Metrics for the Three Affiliated Centers

Figure 28 shows average room and seat utilization for the three affiliated centers from 8am to 5pm. In terms of scheduling capacity, the greatest additional capacity is at the Swan Island Trade Center (SITC), where room utilization is low during weekdays (28% MTWR and 10% on Friday) and somewhat higher on Saturday (44%). The pattern is somewhat reversed at Hillsboro and Newberg, where MTWR daytime utilization is highest (45% to 50%); lower on Friday (21%), and zero on Saturday, as nothing appears to be formally scheduled then.

Seat utilization is generally high at Hillsboro (70% to 80% during weekdays); at Newberg, seat utilization is 46% from Monday through Thursday, and 62% on Friday. Swan Island's seat utilization is highest on Saturday (58%).

Figure 28. Room and Seat Utilization Statistics for the Three Affiliated Centers

SITC All Rooms	8am to 5pm		Hillsboro All Rooms	8am to 5pm		Newberg All Rooms	8am to 5pm	
Day Pattern	Room Utilization	Seat Utilization	Day Pattern	Room Utilization	Seat Utilization	Day Pattern	Room Utilization	Seat Utilization
MTWR	28%	38%	MTWR	50%	69%	MTWR	46%	46%
F	10%	0%	F	21%	80%	F	21%	62%
S	44%	58%	S	0%	0%	S	0%	0%

Figure 29 shows scheduling patterns throughout the day and evening over a five-day period from Monday through Friday. Swan Island has two small peak periods during daytime hours (9am to 11am and 1pm to 3pm), and a bigger spike in evening hours. Nonetheless, there is substantial unscheduled capacity at this center. Hillsboro and Newberg are more heavily and evenly used throughout the day and into the evening. Figures ___ and ___ show room and seat utilization detail by individual rooms.

Figure 29.

Affiliated Campuses
Demand over Time: Monday through Friday

Note: Other than some minor activity at SITC, there is nothing scheduled on Saturdays.
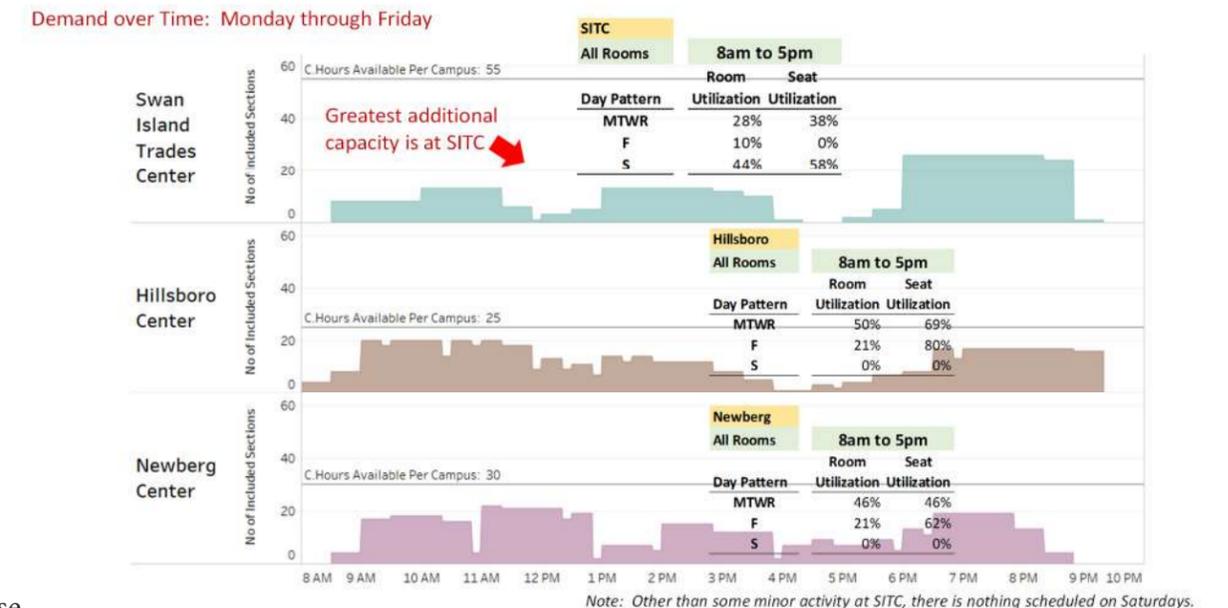
Figure 30. Room and Seat Utilization – Monday through Thursday, 8am to 5pm, All Rooms
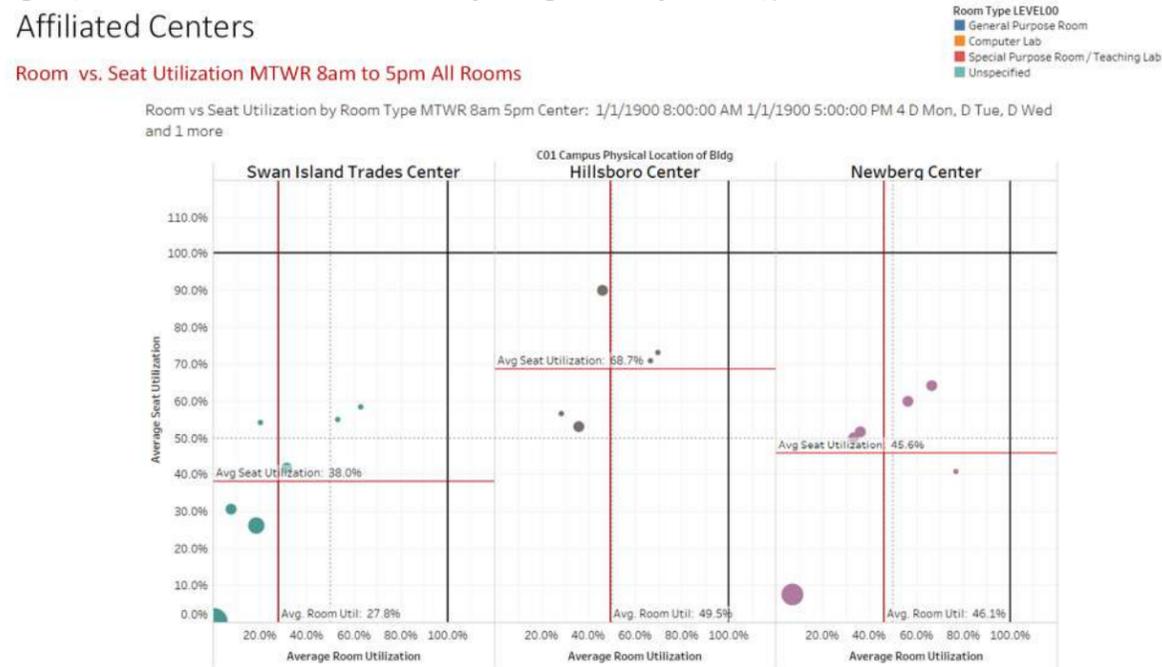
Figure 31. Room and Seat Utilization – Friday and Saturday, 8am to 5pm, All Rooms
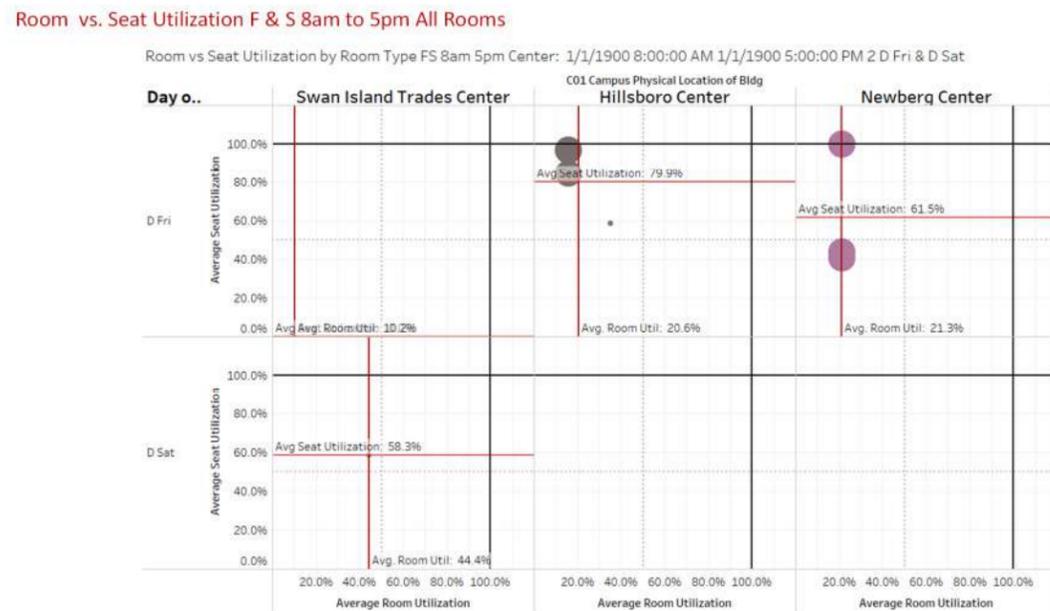
Area 1
Room Utilization

Room utilization analyses measure how intensively a room is scheduled over a given time period, and a "room utilization rate" is a calculation of the percentage of hours used versus total hours available over that time frame. At PCC, room utilization rates at each campus and affiliated center were computed for the following periods:

- Daytime utilization – 8am to 5pm (9-hour day)
  - Monday through Thursday (36 available hours per room)
  - Friday (9 available hours)
  - Saturday (9 available hours)
- Evening utilization – 5pm to 10pm (5-hour evening)
  - Monday through Thursday (20 available hours per room)
  - Friday (5 available hours)
  - Saturday (5 available hours)

Because different types of rooms often have different use patterns, room utilization analyses were also broken out into three distinct room types – general purpose rooms; computer labs; and special purpose rooms / teaching labs.

Findings
Room Utilization from Monday through Thursday

Analyses show that room utilization is generally good across all four campuses between 8am and 5pm from Monday through Thursday. For all room types taken together, room utilization is 50% or better. For general purpose rooms, which are typically the "workhorse" rooms at an institution, room utilization is generally between 55% and 60% across the campuses and most centers, although somewhat lower in the Swan Island Trade Center (28%).

By time of day, utilization is highest mid-morning and early afternoon, and falls off somewhat in later afternoon. An exception is utilization at the Southeast campus, which is consistently high across the day until about 4pm.

Utilization at 8am – traditionally a period of limited scheduling at many institutions nationwide – is low at Cascade and Sylvania; moderate at Rock Creek and Southeast. Evening utilization (5pm to 10pm) is generally in the range of 30% to 40% of available hours.

Room utilization on Friday and Saturday – day and evening – is generally low across the campuses and affiliated centers. Room utilization averages around 20% on Fridays for most room types across most campuses and affiliated centers. The exceptions, with slightly higher utilization, are:

- Sylvania: 30% room utilization across all rooms, and 40% room utilization of General Purpose Rooms
- Southeast: 29% room utilization for General Purpose Rooms on Friday evening.

Saturday evening usage is extremely low on all campuses.

Recommendation 1.1
Explore options for modest improvements in utilization of general-purpose classrooms at times when utilization is low.

As noted above, room utilization in general purpose classrooms is between 55% and 60% at most locations. The low periods of room utilization are 8am and late afternoon (3pm to 5pm) Mondays through Thursdays, and much lower utilization across the board on Fridays and Saturdays.

The 8am hour is typically not very popular among faculty and / or students for a variety of reasons – e.g., the early morning hour itself, traffic difficulties in reaching campus during morning rush hour, early morning child care responsibilities, etc. The late afternoon may provide more opportunities for increased room utilization. Classrooms at some locations are already being used to some degree, indicating that there is some demand for classes during those hours. If PCC is looking to increasing scheduling between Monday and Thursday, the late afternoon time period offers the most opportunity.

Fridays and Saturdays present a more significant opportunity for increased room utilization. Again, these are not traditionally popular periods for many – especially for faculty who prefer a Monday – Wednesday or Tuesday – Thursday teaching pattern, but with room utilization rates as low as 20% on Fridays, this would clearly be a time frame to explore before adding any new classroom space if PCC needs more classroom capacity.

Area 2
Seat Utilization

Findings
Seat Utilization – All Rooms and Time Frames

Seat utilization measures the extent to which seats in a room are filled whenever the room is scheduled. A "seat utilization rate" is a calculation of the percentage of seats occupied (which is the class enrollment) divided by the total number of seats in the room. As with room utilization, seat utilization rates were also calculated for three distinct room types – general purpose rooms; computer labs; and special purpose rooms / teaching labs – with the most relevant measure being the seat utilization rate for general purpose classrooms.

Seat utilization is generally good or very good – in many cases 60% to 70% or better – across the campuses and affiliated centers. This no doubt results from a good balance between class enrollment sizes and seat capacities in rooms. Most classes enroll between 20 and 40 students, and similarly, the preponderance of rooms across the four campuses are in the same range, indicating that the inventory (supply) across the locations is generally well-balanced with the demand (enrollment) for those spaces.

Seat utilization is good not only in General Purpose Rooms but also in Computer Labs and many Special Purpose Rooms. The only exception is the very few large spaces (over 100 seats), where seat utilization is generally low; this is to be expected since PCC has very few courses with enrollments in that range.

Recommendations
As seat utilization is generally very good, no specific recommendations are offered here.

Area 3
Course and Room Data

While PCC generally has complete data on course-related activities in instructional spaces of the four campuses, both course and room inventory data are not organized to facilitate easy space utilization analyses.

Findings
Course and Section Data

With respect to course and section data, there are several issues that impede efficient analyses, as detailed below.

"Unique" Records

The dataset had numerous sections (4,015 of the 8,993 records) with a meeting in the same classroom at the same time, but with other different elements in the record – e.g., different course name, different enrollments, etc. These include cross-listed courses, courses listed in rooms that are essentially open labs where students can drop-in to work, and other anomalous conditions. Considerable data-cleaning effort is required to recategorize these records to ensure that they are not double-counted or otherwise misinterpreted in utilization analyses.

No Start or End Times

The course database has 3,434 sections with no start or end times, for a variety of reasons, e.g., section is offered through distance learning; it is in an open lab with no actual meeting time, etc.

Other Data Complications

The dataset included 493 sections occurring in off-campus locations. While it was possible to develop approaches to exclude these from campus and center analyses, the dataset does not include a straightforward way to achieve this. Almost 30% of sections showed no patterns of meeting days per week, and about 14% lacked sufficient information to be included in any way in utilization analyses. Again, there was no easy way to eliminate such "outliers" from utilization analyses, other than a laborious data-scrubbing "by hand."

Recommendation 3.1
Take steps up-front to code course and section data so that they can be organied easily for room and seat utilization analyses.

If PCC wishes to continue to analyze instructional space use on some regular basis, a field should be added to the course database that tags a section as to whether it is appropriate for inclusion in utilization analyses, or whether it should be excluded. For example, the following types of sections would be excluded:

- Distance learning sections
- Sections held in off-campus locations
- Sections held in open labs where there is no relevant start or end time to a "class meeting."

Since PCC records class meeting data both in Banner and R25, it should explore options for adding this data field to one or both systems. (In theory, data updates are made between the two systems so that data is consistent between them, although in the analytical phase, there appeared to be inconsistencies between the data sources.)

Findings
Room Data

Across the campuses (and centers), PCC has a wide variety of instructional spaces. Understanding and / or analyzing these spaces is complicated by (1) inconsistent descriptions of spaces, (2) a lack of hierarchies that group spaces of similar types into separate categories, and (3) multiple sources of room data based on ownership / control / campus or center location. *Figure 32* below presents a list of all the room types included in the course databases.

Figure 32. Room Types Included in Data Sets

A & P Lab	Community Education (tentative)	Geology Lab	MSC Computer Lab	Special Purpose Computer Lab	Special Purpose Lab/Music Studio
ABE/GED	Computer Lab	GP Classroom	MSC Smart Room	Special Purpose Lab	Special Purpose Lab/OMT
ALC Computer Lab	Conference Room	GP Classroom	Nursing Lab	Special Purpose Lab EMS	Special Purpose Lab/Painting Classroom
Alchemy Room	Corrective PE Room	GP Classroom (1st priority AHELS, 2nd CG)	Office Space	Special Purpose Lab/ABE	Special Purpose Lab/Physics
Architectural Drafting	CSET/Math Lab	GP Classroom/BA	Painting Lab	Special Purpose Lab/AD	Special Purpose Lab/Rhythm Training Room
Art History /GP	CTE Computer Lab	GP Classroom/EMS	PE	Special Purpose Lab/Aerobics and Dance	Special Purpose Lab/Scenario Room
Art lab	Dance Studio	GP Classroom/ETC	PE Lab	Special Purpose Lab/Airway Science for Kids/MOU on File	Special Purpose Lab/Sculpture
Art Room	Darkroom	GP Classroom/FP	PE Room	Special Purpose Lab/ALC	Special Purpose Lab/Skill Center Small Classroom
Art Studio	Dental lab	GP Computer Lab	Performing Arts Center	Special Purpose Lab/Anatomy & Physiology	Special Purpose Lab/Skill Center Small Computer Lab
ASL/ITP Room	Dental Radiology Lab	GP Computer Lab/CAS	Performing Arts Center Lobby	Special Purpose Lab/Biology	Special Purpose Lab/Spinning
Auditorium (used 9-11:00)	Drafting Room	Graphic Design	Physical Science Lab/Classroom w/32 netbooks	Special Purpose Lab/Campus IVC Classroom/MM lab	Special Purpose Lab/Stats
Auditorium/MM/TA	Drawing Lab	Green Screen Studio	Physics Lab	Special Purpose Lab/Ceramics	Special Purpose Lab/Video Production
Auto Cad Lab	ECE Lab	Gym Main Floor/Space for multiple classes	PL Legal Resource Center	Special Purpose Lab/Chemistry	Special Purpose Lab/Visual Resource Center
Automotive lab	Electronic Engineering Lab	IVC Room	Pool/Class Room	Special Purpose Lab/Clean Art/Printmaking	Special Purpose Lab/Weight Room
Biology Lab	Engineering Drafting Lab	Keyboard Room	Printing Technology Lab	Special Purpose Lab/Drawing Classroom	Speech Room
Business Technology Room	Engineering Lab	Language Computer Lab	Radiology Lab	Special Purpose Lab/EMT	STEM Center Room
Career Pathways Smart Room	ESOL Computer Lab	LAPC Computer Lab	Science Room	Special Purpose Lab/General Purpose	Theater
Career Pathways/Computer Lab	ESOL Smart Room	LAPC Smart Room	Sculpture Lab	Special Purpose Lab/Keyboard Classroom	Transitions classroom
CAS Computer Lab	Fitness Studio/Weight Room	Learning Resource Center	SIM/Nursing	Special Purpose Lab/MA	Tutor Lab
Ceramics Lab	Fitness Technology	Lecture Classroom	Skill Center Classroom	Special Purpose Lab/Microbiology	Video Teleconferencing Classroom
Chemistry	Fitness Works	Liberal Arts Writing Computer Lab	Special Purpose Classroom/EMS	Special Purpose Lab/MIDI Classroom	Writing Center
Chemistry Lab	Forum/ Little Theater	LINKS Smart Room	Special Purpose Classroom/ESOL	Special Purpose Lab/MLT	Writing Lab
CIS-CAS	Forum/Music Room	LINKS/GP Computer Lab	Special Purpose Classroom/Paralegal	Special Purpose Lab/MM	General Purpose Classroom
CIS-CS Lab	Gen. Science Lab	Machine Shop	Special Purpose Computer Classroom/Languages	Special Purpose Lab/Multimedia	
Classroom	General Purpose Room	Make-up Room	Special Purpose Computer Classroom/WR	Special Purpose Lab/Music Room	

Recommendation 3.2
Develop and adopt a hierarchy for categorizing room types that allows for analysis of room activity at both a strategic and a micro level.

Specifically, adopt the nomenclature used in this report for three "macro" categories – (1) General Purpose Rooms, (2) Computer Labs and (3) Special Purpose / Teaching Labs as a starting point for developing the recommended hierarchy. Within each of these "macro" categories, develop standard nomenclature for each room type to simplify the range of room descriptions shown in *Figure 1*. Populate a single comprehensive room database with all instructional spaces regardless of owner, campus location, etc. The proposed 3-level hierarchy and starting point for developing a standard room type classification system is shown in *Figure 33* on the following page.

Figure 33. Hierarchy of Room Classifications

GENERAL PURPOSE ROOM	COMPUTER LAB	SPECIAL PURPOSE ROOM / TEACHING LAB				

GENERAL PURPOSE ROOM

Auditorium
- Auditorium (used 9-11:00)
- Auditorium/MM/TA
- Forum/ Little Theater

Conference Room
- Conference Room

General Purpose Classroom
- Career Pathways Smart Room
- Classroom
- Community Education (tentative)
- ESOL Smart Room
- General Purpose Room
- GP Classroom
- GP Classroom
- GP Classroom (1st priority AHELS, 2nd CG)
- GP Classroom/BA
- GP Classroom/EMS
- GP Classroom/ETC
- GP Classroom/FP
- LAPC Smart Room
- Lecture Classroom
- LINKS Smart Room
- MSC Smart Room
- Special Purpose Lab/Multimedia
- STEM Center Room
- Transitions classroom
- General Purpose Classroom

COMPUTER LAB

Computer Lab
- ALC Computer Lab
- Auto Cad Lab
- Career Pathways/Computer Lab
- CAS Computer Lab
- Computer Lab
- CTE Computer Lab
- ESOL Computer Lab
- GP Computer Lab
- GP Computer Lab/CAS
- LAPC Computer Lab
- Liberal Arts Writing Computer Lab
- LINKS/GP Computer Lab
- MSC Computer Lab

SPECIAL PURPOSE ROOM / TEACHING LAB

Special Purpose Classroom

Skill Center Classroom	Special Purpose Computer Classroom/Languages
Special Purpose Classroom/EMS	Special Purpose Computer Classroom/WR
Special Purpose Classroom/Paralegal	

Special Purpose Lab

Gym Main Floor/Space for multiple classes	Special Purpose Lab/Microbiology
Physical Science Lab/Classroom w/32 netbooks	Special Purpose Lab/MIDI Classroom
Special Purpose Classroom/ESOL	Special Purpose Lab/MLT
Special Purpose Computer Lab	Special Purpose Lab/MM
Special Purpose Lab	Special Purpose Lab/Music Room
Special Purpose Lab EMS	Special Purpose Lab/Music Studio
Special Purpose Lab/ABE	Special Purpose Lab/OMT
Special Purpose Lab/AD	Special Purpose Lab/Painting Classroom
Special Purpose Lab/Aerobics and Dance	Special Purpose Lab/Physics
Special Purpose Lab/Airway Science for Kids/MOU on File	Special Purpose Lab/Rhythm Training Room
Special Purpose Lab/ALC	Special Purpose Lab/Scenario Room
Special Purpose Lab/Anatomy & Physiology	Special Purpose Lab/Sculpture
Special Purpose Lab/Biology	Special Purpose Lab/Skill Center Small Classroom
Special Purpose Lab/Campus IVC Classroom/MM lab	Special Purpose Lab/Skill Center Small Computer Lab
Special Purpose Lab/Ceramics	Special Purpose Lab/Spinning
Special Purpose Lab/Chemistry	Special Purpose Lab/Stats
Special Purpose Lab/Clean Art/Printmaking	Special Purpose Lab/Video Production
Special Purpose Lab/Drawing Classroom	Special Purpose Lab/Visual Resource Center
Special Purpose Lab/EMT	Special Purpose Lab/Weight Room
Special Purpose Lab/General Purpose	
Special Purpose Lab/Keyboard Classroom	
Special Purpose Lab/MA	

Teaching Lab

A & P Lab	Gen. Science Lab
ABE/GED	Geology Lab
Alchemy Room	Graphic Design
Architectural Drafting	Green Screen Studio
Art History /GP	Keyboard Room
Art lab	Language Computer Lab
Art Room	Learning Resource Center
ASL/ITP Room	Machine Shop
Automotive lab	Make-up Room
Biology Lab	Nursing Lab
Business Technology Room	Painting Lab
Ceramics Lab	PE
Chemistry	PE Lab
Chemistry Lab	PE Room
CIS-CAS	Performing Arts Center
CIS-CS Lab	Performing Arts Center Lobby
Corrective PE Room	Physics Lab
CSET/Math Lab	Pool/Class Room
Dental lab	Printing Technology Lab
Dental Radiology Lab	Radiology Lab
Drafting Room	Science Room
Drawing Lab	Sculpture Lab
ECE Lab	SIM/Nursing
Electronic Engineering Lab	Speech Room
Engineering Drafting Lab	Theater
Engineering Lab	Tutor Lab
Fitness Technology	Writing Center
Fitness Works	Writing Lab
Forum/Music Room	

Studio
- Art Studio
- Dance Studio
- Darkroom
- Fitness Studio/Weight Room

VideoConferencing
- IVC Room
- Video Teleconferencing Classroom

LEVEL 1
LEVEL 2
LEVEL 3

- Available technology (including projection, Internet access, etc.)
- General physical condition of room (according to a rating scale that PCC can devise – e.g., 1=poor to 5=excellent, with narrative descriptors for each level, to assist room inspectors in their categorizations).

In developing this hierarchy, also tag each room with a field that describes ownership / control / level of access as follows:

- *General Pool:* rooms fully controlled by the campus or center scheduling office (Registrar, etc.).
- *Shared Space:* space whose scheduling responsibilities are shared between the scheduling office and a department. The degree to which responsibilities are shared may vary with different departments, but should be codified by the scheduling office so that there is a clear understanding of whatever agreements have been developed.
- *Departmental Space:* rooms that a department fully controls. Typically these should be limited to very department-specific needs (e.g., a specialized biology lab, a dance studio, etc.).

Recommendation 3.3

Review and update the room inventory periodically to ensure that room data include in PCCC databases are accurate.

Part of ensuring that room and seat utilization analyses are useful and accurate is having good information about the nature and fit out of each room. Over time various aspects of an instructional space may change – seats "migrate" to other rooms; technology changes; physical conditions may deteriorate to the point that a room may be less desirable and thus less intensively-scheduled, etc. PCC should periodically – no less than once per year – conduct an inspection of instructional spaces to record missing data and update any inaccurate information, and enter such information into a single, comprehensive room inventory database. Among the elements that should be noted in the inspection are the following:

- Existing seats in the room
- Fire Marshal maximum seat capacity
- Type of furnishing (e.g., fixed tablet arms, moveable tablet arms, moveable tables and chairs, etc.)
- Writing surfaces (presence of whiteboards, blackboards)

PCC Space Utilization Analyses
SRG Partnership / Biddison Heir LTD

<div style="text-align:center">

Part III
CLIMB, Portland Metro and Willow Creek Centers

</div>

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Section 1
Profile of the Centers

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While the affiliated centers – Swan Island, Hillsboro and Newberg – are closely affiliated with activities on PCC's campuses, the other three major centers – CLIMB, Portland Metro and Willow Creek – have significant differences in their basic missions and in the types of activities and events that occur in their instructional spaces. This came to light when a first round of utilization analyses for CLIMB, Metro and Willow Creek revealed significant gaps in scheduling data vis-à-vis the volume of activity occurring at each center. This prompted more more detailed research with each.

Based on extensive interviews with individuals involved in scheduling and programming at these centers, it became clear that activities occurring in instructional spaces at these centers are much more variable in nature than those at campus-affiliated centers. Much of this activity is not recorded in a formal and / or consistent way that would result in meaningful utilization analyses. Thus, it was deemed more important to provide a narrative review of what was learned about each center, and to supplement that review with recommendations about steps to take to collect data and track instructional space use to support meaningful space utilization analyses going forward.

Overview of the Centers

The primary focus for Portland Metro and Willow Creek is Workforce Development and Continuing Education activities. CLIMB has a somewhat similar focus, although it also has a mandate to generate revenue to contribute back to PCC, which is unique to that Center. As such, CLIMB has been described as "not quite like any other center."

A more complete list of activities that may occur at any of these centers includes:

- Workforce training
- Continuing Education
- Community Education
- Academic for-credit and non-credit courses
- District and internal PCC meetings (center-specific and across the system; often not formally recorded or tracked)
- Activities sponsored by partnering entities (e.g., state or local government agencies, businesses, etc.)
- Community meetings

Workforce Development

Workforce Development encompasses a wide range of activities related to job training and skill development. This includes courses to assist individuals with skills upgrades (e.g., computer skills) as well as training courses to support business. Different centers focus in different areas – for example, a focus of activity at CLIMB is medical training, while Metro and Willow Creek offer basic work skills training, job fairs, etc. Through these centers, PCC also partners with other entities – public (e.g., state departments), industry, community organizations – to provide access to training and education. In workforce development, a number of training activities and events are offered through distance learning – on-line enrollment is estimated at about 22% of enrollment credit. (By their nature, events that are offered purely through distance learning do not need physical meeting space and are not captured in space utilization analyses.)

Community Education

The goal of Community Education is to "enrich lives through lifelong learning." [3] Hundreds of non-credit and continuing education units (CEUs) are offered at these three centers (and others). More than 25,000 non-credit students enroll annually. (These events are distinguished in course databases as "9-series sections.") The focus of these activities is on enrichment through life-long learning; personal exploration and development; accessing PCC resources; and enhancing communities through diverse education experiences. Classes run the gamut in terms of subject matter (e.g., Excel training, Photoshop, language classes, yoga, etc.) and some are reimbursable through FTE revenue generation.

Community Education classes tend to be small (fewer than 15 enrolled), and generally offered evenings and weekends, although some courses are offered during the daytime to reach the senior market more easily. The nature of scheduling is variable – a course can run for a weekend or a full term. While hard data are not readily available, it was noted that there perhaps 800 to 900 sections are offered per term. Some of the events are fee-based, although some may also get receive state reimbursement based on FTE.

CLIMB

Overview

Revenue generation is a primary priority for CLIMB. Its strong focus on courses and workshops that generate revenue dictates priorities for space use. For example, community education classes generate immediate immediate revenues, but not FTE, while credit classes are subsidized by the state based on FTE generated.

There are other factors influencing space use and availability at CLIMB, factors that may be somewhat in conflict with revenue-generation goals. For example, CLIMB's rooms are used often for District-wide meetings, in part because of its central location and access to parking, as well as for Community Ed activities (non-funded grant programming) and Workforce Development activities. There is a lack of clear policies about how these competing priorities should be resolved, and more generally, policies around space use across the centers.

Major Program Areas

CLIMB is highly responsive to workforce needs of the business community as well as catering to citizen interest in personal enrichment. Consequently, it sponsors a number of programs focused on workforce development and continuing education. These programs have shorter planning horizons than academic courses, and are offered in a much wider range of time frames and meeting patterns than traditional academic classes. In some cases, classes for these programs tend to be "built after-the-fact" – in terms of data capture – and meeting and room use data may be lacking or inaccurate.

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[3] https://www.pcc.edu/community/about/#help

Major CLIMB program areas are listed below and illustrated in *Figure 34*.

- Institute for Health Professionals (IHP) – housed at CLIMB (a primary program) – medical training, CPR, etc.
- Small Business Development Center
- Professional Development and Training (PDT) (contract training) --- gaining skills to flourish in today's workplace
- Life by Design – programs focus on work-life transitions and planning for meaningful retirement
- Customized Workforce Training (CWT)
- Community Education – Personal enrichment courses
- Other (e.g., computer training; other workforce training)

Figure 34.

Overview of CLIMB Program Areas

Continuing Education	

Community Education (CED)	CLIMB Center (A range of programs and activities – Community Ed (CED), Workforce, CEUs)

- Credit Courses – Continuing Education Units (CEUs)
- Non-Credit Courses
  - CED
  - 9 Series

IHP Institute for Health Professionals	SBDC Small Business Development Center	CWT Customized Workforce Training (no reliable schedule records)
Life by Design (no reliable schedule records)	PDT Professional Development and Training	Community Education Personal Enrichment Courses
Meetings (no reliable schedule records)	Senior Studies (no reliable schedule records)	

Room Inventory at CLIMB

Figure 35 shows the inventory at CLIMB. It consists of the following:

13 General Purpose Rooms
- 24 seats in rooms 305, 306, 307, 201, 102
- 18 and 18 seats – in rooms 302 and 303 / 105 and 106 / 202

Specialized Rooms
- 307 is Small Business Development Center. (The room may be available to the center scheduler in an emergency if not otherwise in use)
- 2 Certified Nursing Assistant (CNA) labs – rooms 204 and 304: fit out with beds, single-use function
- Room 301: a conference / meeting room; should not be part of general inventory
- 2 computer labs
- 2 conference rooms (seat 8 to 10)

Auditorium
- One auditorium with 102 seats; Health Care is the major user
- Advanced Cardiac uses it for lecture, then breaks out (6:1 ratio) to smaller rooms – e.g., if 24 people, need 4 rooms.

There is also some interest in converting three rooms for a Sim Lab.

Figure 35.

CLIMB Center

Building	Room Name	Seat Capacity
CLIMB	CLIMB 102	24
	CLIMB 104	102
	CLIMB 105	18
	CLIMB 106	18
	CLIMB 201	24
	CLIMB 202	18
	CLIMB 203	18
	CLIMB 205	16
	CLIMB 206	16
	CLIMB 207	16
	CLIMB 300	10
	CLIMB 301	24
	CLIMB 302	18
	CLIMB 303	18
	CLIMB 305	24
	CLIMB 306	24
	CLIMB 307	24
Total Rooms		**17**

Scheduling

CLIMB's events are generally not on a regular time schedule, so they cannot easily be recorded in Resource25. It is heavily used as a meeting space, and meetings – if recorded at all – are typically noted on individual calendars rather than in a central database.

With respect to classes, very few activities at CLIMB are offered for-credit (primarily paralegal classes), so very little is recorded in the Banner system. (Events need a course record number and a consistent meeting pattern to be recorded in Banner.) Generally, the durations of classes and events is highly variable. Some Community Education classes run for eight weeks, for example, while others run for six weeks or two weeks. The nature of the program drives the length.

Schedulers at CLIMB describe the biggest challenges as "scheduling, space and priorities." Because there are very few "term classes" at CLIMB, schedulers are constantly juggling to find space for a wide range of activities and events, as well as the significant number of meetings held there. (Reportedly, "Friday tends to be the biggest meeting day.") Based on the volume of meetings held and their impact on other functions at CLIMB, it was suggested that PCC needs to find more space in a conveniently located downtown area for District-wide meetings.

Because of the wide variability in activities, events, meeting times, and protocols for recording activities, CLIMB was said by schedulers to have perhaps the least complete and accurate data among the centers.

User Groups at CLIMB

A sampling below gives an idea of the wide range of groups that make use of instructional and meeting spaces at CLIMB, as well as the diversity in scheduling needs.

City of Portland Graffiti Task Force. Meets on the third Thursday of each month. To accommodate these meetings, the room used is consistently blocked off, preventing others from scheduling in that time frame.

Central East Side Industrial Council. Meets at CLIMB once per month.

OMSI Summer Camps. This group has had an ongoing relationship with PCC for eleven years, and occupies space with programs for kids during summer months.

Portland Metro WTC

Overview

Portland Metro receives no general fund dollars; programs are 100% grant-funded. Funding is from several sources including:

- WSI (Work Systems Inc.)
- DHS (Department of Human Services)
- WIOA (Workforce Innovation and Opportunity Act) – through Federal Department of Labor to State of Oregon. (Community organizations apply for grants.)
- Multnomah County
- PDC (Portland Development Commission) – which has a small business focus.

A number of community partners use the building, and the Department of Human Services occupies space in the building.

Programs / Classes / Courses

Portland Metro has a combination of credit and non-credit classes. (Non-credit classes are not recorded in Banner.) Major programs and users at Portland Metro are described below.

Workforce Innovation and Opportunity Act (WIOA) classes. WIOA is federal landmark legislation that, according to the federal website, is "designed to strengthen and improve our nation's public workforce system and help get Americans, including youth and those with significant barriers to employment, into high-quality jobs and careers and help employers hire and retain skilled workers."[4] Portland Metro receives federal funds to offer WOIA programs for skills upgrades and training (e.g., including scholarships, certificates, etc.). Portland Metro also provides staff for Worksource, to help job seekers with career planning and job search efforts. Metro also sponsors WOIA-related classes (e.g., Career Link, Nursing, high-tech and manufacturing, etc.). These are non-credit courses, which generate no FTE and are not recorded in Banner.

Department of Human Services (DHS). Portland Metro receives two major grants through DHS – Temporary Assistance to Needy Families (TANF), and Able-Bodied Adults Without Dependents (ABAWD). A number of DHS staff are housed at Portland Metro, along with other locations in St. John, N. Portland, Northeast 45th and Broadway. ABAWD (formerly the food stamps program) serves about 30,000 people, providing GED, training, basic skills and skills upgrades, life skills and career development assistance. Some of the programs are for-credit, which means that they will appear in Banner.

Oregon Employment Department (OED). There is significant collaboration between Workforce Development and Oregon Employment Department (OED). Activities are focused on helping unemployed individuals – e.g., running workshops; hosting hiring events; providing job-hunting assistance. Most of the workshops are not on a set schedule. Times may change and each is different – e.g., once per month; one, two or three days per week – from one to five hours. Most are held during the academic year; summers are a slower time. There is no easy way to track all of the workshops – records are not kept in Banner (because there is no CRN number), although some information may be recorded in R25. There is no consistency in meeting times, and no stored information on enrollment data.

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[4] https://www.doleta.gov/wioa/

PCC Space Utilization Analyses
SRG Partnership / Biddison Heir LTD

Room Inventory

Portland Metro is one building with three floors. Its inventory includes a classroom, three computer labs that are used on a regular basis and one large space (200 seat capacity). (See *Figure 36*.)

Figure 36.

Portland Metro

Building	Room Name	Seat Capacity
PMWTC1	PMWTC1 110	40
	PMWTC1 115	35
	PMWTC1 132	40
	PMWTC1 204	30
PMWTC2	PMWTC2 112	200
Total Rooms		**5**

Willow Creek

Overview

Willow Creek's programs are a combination of credit and non-credit classes; mostly non-credit classes, with a focus on Workforce Development, including job-hunting workshops, and EMT (Emergency Medical Technicians) training. EMTs use two of the Willow Creek rooms on a schedule that varies from term to term.

Other uses of Willow Creek space include a Small Business Development Center (SBDC) which is on-site; Worksource Oregon (occupies half of the first floor on a leased basis); and the Oregon Employment Office. Willow Creek also serves as overflow space for the Rock Creek campus.

Room Inventory

Willow Creek's first floor includes three computer classrooms and other class labs, dedicated to Workforce Development in working with OED, and to workshops. One of the first floor spaces (room 103-104) is the Great Room with a capacity of ~150 – one of the few very large spaces at PCC. (See *Figure 37*.)

A few PCC departments hold classes and meetings at Willow Creek, but scheduling is variable. Some classes run for a full-term, others for part of ta term, some in between terms. Reportedly, every day holds a different set of events and uses in Willow Creek rooms.

Among outside users, Portland State University (PSU) uses four classrooms – some on a full-time basis and some for a partial day. The Oregon Institute of Technology (OIT) uses two computer labs, and the Department of Human Services (DHS) uses three classrooms to sponsor various events (e.g., food stamp workshop).

Figure 37.

Willow Creek

Building	Room Name	Seat Capacity
WCC	WCC 103	150
	WCC 107	32
	WCC 108	32
	WCC 109	31
	WCC 201	10
	WCC 204	32
	WCC 205	32
	WCC 206	32
	WCC 207	32
	WCC 208	32
	WCC 209	32
	WCC 211	32
	WCC 212	32
	WCC 213	24
	WCC 214	24
	WCC 215	18
	WCC 217	18
	WCC 219	21
	WCC 222	31
	WCC 223	30
	WCC 224	31
	WCC 225	32
	WCC 303	32
	WCC 304	40
	WCC 305	5
	WCC 306	31
	WCC 310	32
	WCC 311	32
	WCC 312	32
Total Rooms		**29**

CLIMB, Portland Metro TWC and Willow Creek are home to a wide range of activities and events beyond just the for-credit courses that comprise the bulk of scheduling at the campuses. This creates a series of issues and problems for allocation and use of instructional space resources.

Findings
Scheduling and Use of Instructional Space Resources at Workforce and Other Centers

Variability of Activity in Instructional Spaces

Unlike classroom scheduling at the campuses and affiliated centers, scheduling at these centers focus on Workforce and Community Education activities, which are much more variable in nature, e.g.:

- They may meet for a day, several days, parts of a term, etc.
- Meeting times and class lengths may vary.

These centers also host a wide range of other activities that place competing demands on instructional and other spaces, e.g.:

- Continuing Education
- Academic for-credit and non-credit courses
- District and internal PCC meetings (center-specific and across the system; often not formally recorded or tracked)
- Activities sponsored by partnering entities (e.g., state or local government agencies, businesses, etc.)
- Community meetings.

Competing Priorities

Conflicts exist between revenue-generating activities (especially at CLIMB) and course-scheduling and other institutional needs at PCC. There are competing priorities for spaces between credit and non-credit classes, revenue-generating activities, meetings, etc., and there appears to be no explicit philosophy about how to prioritize competing needs. Centers may not have sole control over their rooms – rooms at CLIMB, for example, frequently get scheduled for District-wide or other PCC meetings.

Need for Dedicated Meeting Space

There appears to be a significant need for dedicated meeting space for PCC meetings (District wide / internal / etc.) in a reasonably central location, to relieve pressure from instructional and other spaces coopted for these meetings. Additional workspace space also needed for PCC staff as they move from campus to campus (i.e., temporary places to work).

Inconsistent Protocols and Information Availability on Event Scheduling

There is no consistent way of recording events at these centers. Some events may be entered into R25, some into Banner (only if there is a Course Record Number (CRN)); many appear to be recorded in an *ad hoc* fashion (e.g., Outlook or Google calendars, other handwritten / home-grown methods); some are recorded after-the-fact or not formally at all.

Structural Conflicts in Allocating Instructional Space Resources

There are structural conflicts among types of events scheduled. For example, classes (academic credit-generating) that need a long lead time for scheduling are competing for the same space as non-credit events. Some users / schedulers tend to hold space for courses to ensure availability. Spaces may not be freed up "until the last minute" for other uses.

Implications from these Findings

1. There is no single, reliable central repository of information on teaching / event spaces and who schedules and controls them.
2. Because of highly variable scheduling needs, it is difficult to schedule spaces, especially when information on space use and availability is lacking.
   - When something is scheduled for a week or two, or several weeks instead of a full-term, it becomes more challenging to fill in remaining times available.
   - Schedulers are "always juggling to find space."
3. In the absence of complete information about space availability, spaces may be allocated based on who has knowledge of / access to the space, which may or may not be congruent with institutional priorities for space use.

Recommendation 1
Develop a unified and consistent approach to recording classes and events at these centers.

PCC has two primary venues for recording events associated with instructional space – Banner and Resource25. Banner only includes events that are tagged with a Course Record Number (CRN). By definition, this excludes all or most non-credit events that occur at these centers. Resource25 has the capacity to record both regularly-scheduled "term" classes and events, as well as *ad hoc* meetings. R25 is used sporadically but not comprehensively to record events at these centers.

Accordingly, evaluate options to adopt Resource25 and other Series25 software comprehensively across the centers as the locus for scheduling and recording classes, events, and other activities in instructional spaces. As part of the evaluation, review issues that may impede R25's use, e.g.:

- Portland Metro TWC reports that R25 is used for some scheduling, but data cannot be retained in R25.
- It is difficult to extract data from R25 for analytical purposes.

Recommendation 2
Develop policies that clarify priorities for using instructional spaces at these centers.

With a wide array of activities and events potentially occurring at these centers, schedulers' decisions about allocating space implicitly suggest a prioritization that may or may not align with broad institutional / strategic goals. Each center should develop a hierarchy of how instructional spaces may be used, and a method of prioritizing allocation when competing uses are in conflict.

For example, the prioritization should address issues such as:

- CLIMB's focus on the need to host revenue-generation activities versus its popularity as a central location for hosting PCC meetings.

- Scheduling academic (for-credit) classes – which require space for a full-term and a long-lead time in planning – versus state-sponsored and other programs, which are more variable and have shorter planning horizons and shorter turn-around times for identifying space availability.

Recommendation 3
Evaluate options to set aside dedicated spaces and / or allocations of time in certain spaces for PCC meetings and workspace.

At present, it appears that classrooms are pressed into service for internal PCC meetings that may compete with other uses for instructional spaces. Given the frequency of travel among centers (and campuses), it would be useful to have space and / or time in space at key locations to support these internal meetings. It would also be helpful for each campus / center to offer some type of modest "hoteling" space that faculty / staff visitors from other campuses and centers could use as a "home base" while visiting.

Recommendation 4
Develop protocols and metrics for analyzing space use that reflect the nature of activities at these centers.

Traditional instructional space utilization analyses and metrics, which rely on consistent scheduling across a term, do not apply as easily to conditions where events are more irregularly scheduled, as is the case at these centers. Nonetheless, once the centers develop a consistent approach to collecting and maintaining data on scheduling and use of their instructional spaces, these data should be analyzed to assess how these spaces are used, and whether there are opportunities for more effective use.

In the absence of good data at present, it is difficult to identify specific performance metrics that will be relevant at each center. Drawing from work undertaken in this assignment, a few initial thoughts on metrics are offered here:

- Space use based on some measure of revenue vs. non-revenue activities (tied to strategic goals for revenue generation)

- Week-by-week room utilization – to gain a better understanding of the peaks and valleys in use of instructional spaces over the calendar year, and to identify downtimes when additional programs may be scheduled.

- Use patterns by outside groups over time, to aid in planning space allocations from year-to-year, and to determine what space will be available for PCC-specific use.

- Tracking of room use by a standardized set of categories – e.g., academic credit, non-credit, outside users, internal meetings, etc. – so that the percentage of time dedicated to each category can be computed.