



**BICYCLE PARKING INVENTORY &
UTILIZATION SURVEY REPORT 2012**

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INTRODUCTION

Each year since 1995, University of Washington Transportation Services has conducted an Annual Bicycle Parking Inventory and Utilization Survey to assess the adequacy of the University's bicycle parking facilities and identify demand trends. The Survey has two main components, counting bicycles parked on campus and recording any previously undocumented changes to the University's bicycle parking asset inventory. Knowing how and where UW community members use end-of-trip facilities like bike racks, lockers, houses¹ and rooms allows Transportation Services to adjust capacity and provide additional end-of-trip services as appropriate. The Annual Survey also provides Transportation Services with a tool for assessing and corroborating trends in ridership on and to campus.²

HIGHLIGHTS OF THE 2012 BICYCLE PARKING INVENTORY & UTILIZATION SURVEY

-  The 2,628 bicycles counted in the 2012 Survey were the fourth highest in its seventeen year history.
-  2012's overall bicycle rack utilization (number of bicycles / bicycle parking capacity) of 48.5 percent is the third highest in the Survey's history.
-  Since the Survey's inception in 1995, the number of bicycles counted has grown 19.6 percent.
-  Covered bicycle parking capacity is at an all-time high. The 2,883 covered spaces in 2012 represent a 46.6 percent increase from the 1,967 covered spaces in 1997 and a 7.5 percent increase from the 2,666 covered spaces in 2011.
-  Compared to 2011, bicycle rack utilization decreased in all areas of campus, ranging between -.3 and -17.3 percentage points.
-  Compared to 2011, the number of bicycles counted decreased in all areas of campus, ranging between 13 and 113 fewer bikes.
-  The 66 percent bike locker occupancy rate³ represents a 5 percentage point decline from 2011.
-  The 80 percent bike locker utilization rate⁴ represents an 8 percentage point decline from 2011.

METHODOLOGY

Transportation Services conducted the 2012 Bicycle Parking Inventory and Utilization Survey on Wednesday, May 9th, between 11 AM and 2 PM.⁵ This is consistent with past surveys, which have typically been conducted during the same time period on a sunny Wednesday in mid-May. May 9th was overcast with temperatures in the high 40s/low 50s.

¹ Bike house refers to fenced areas, either in parking garages or open-air.

² The primary tool used to assess ridership and mode split trends is the *Biennial U-PASS Survey Report*, available at www.uwcommute.com/upass/reports.

³ Occupancy rate refers to the percentage of total lockers that were rented to tenants.

⁴ Utilization rate refers to the percentage of days tenants report using their bicycle locker.

⁵ Due to availability of building coordinators, several bicycle rooms were counted after May 9th on a subsequent Tuesday, Wednesday, or Thursday between 11 AM and 2 PM.

Surveyors used maps showing known bicycle parking facilities to locate and count the number of bicycles parked at each location, including inside building bicycle rooms. Surveyors identified missing and incorrectly identified racks on the maps, as well as where bicycles were locked to rails, posts, or other non-rack locations. The field survey did not include bicycles parked in lockers, offices, or hallways; however, a supplementary online survey of locker tenants was conducted through the University’s Catalyst Web Tools System to assess locker occupancy and estimate the number of bicycles parked in lockers on May 9th. Forms used in the survey are included as Appendix A.

FINDINGS

All bicycle parking

In 2012, 2,628 bicycles were counted at 5,415 rack spaces, for a 49% utilization rate. This represents the first decline in bikes counted since 2009 and the first decline in utilization since 2007. Figure 1 shows changes in overall bicycles counted, parking capacity, and rack utilization over time.⁶ Changes over time for individual areas of campus are similarly detailed in Appendix B.

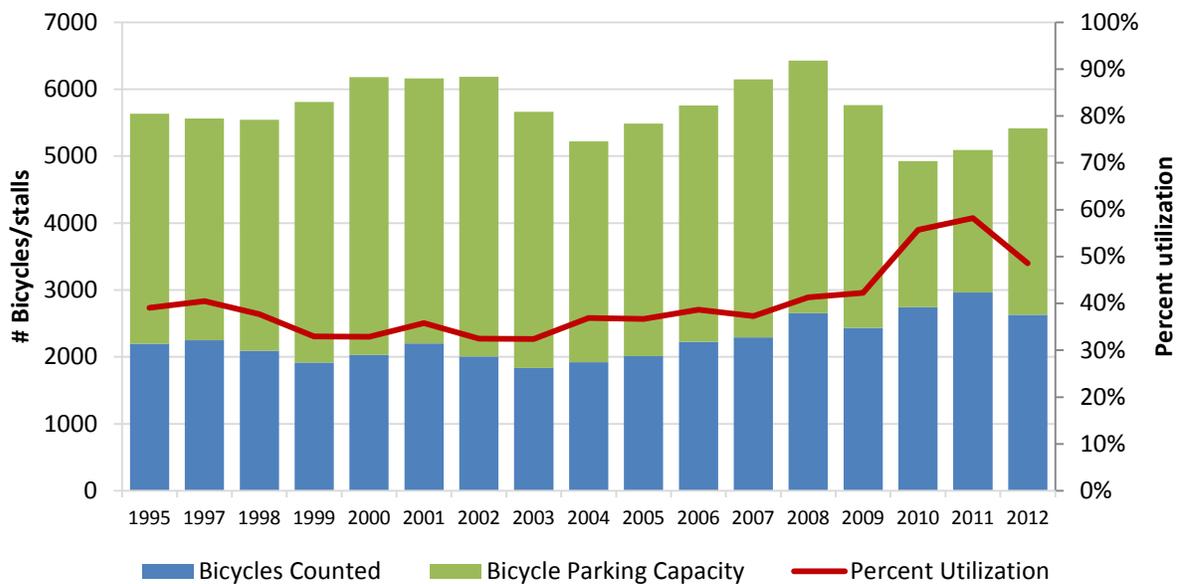


Figure 1: Trends in campus bicycle parking and rack utilization (1995-2012)

⁶ Counts were not conducted in 1996 due to poor weather conditions. Since 2005, the railings at McMahon and Haggett Halls have been included in the inventory. Declines in parking capacity in 2009 reflect adjustments to assumed rack capacity, not physical infrastructure declines; beginning in 2009, *actual capacity* was used instead of *rated capacity* to determine rack utilization, and a ribbon rack’s actual capacity is typically 50-60 percent its rated capacity. The large increase in utilization observed in 2010 reflects an overall increase in the number of bicycles counted, as well as further refinements in calculating capacity for ribbon, toast, and other racks. Specifically, Transportation Services made a concerted effort to adjust a rack’s actual capacity to its installation orientation and rack obstructions. This is particularly significant for toast racks, which are designed to be accessed from two sides. In the absence of two-sided access, a toast rack’s actual rack capacity can be reduced by 50 percent or more. The slight increase in utilization observed in 2011 reflects an increase in the number of bicycles that outpaced increases in capacity.

Table 1 shows how utilization and number of bicycles counted have changed compared to both 2010 and a 2000 baseline.

CAMPUS AREA	2012 BICYCLES COUNTED	% CHANGE SINCE 2010	% CHANGE SINCE 2000	2012 RACK UTILIZATION	% PT CHANGE SINCE 2010	% PT CHANGE SINCE 2000
West	603	26.4%	30.5%	46.8%	-11.1	2.5
East	121	-9.0%	70.4%	27.1%	-5.9	4.2
North	603	-19.1%	25.1%	49.4%	-15.1	15.1
South	402	-5.2%	16.2%	54.5%	1.1	22.1
Central	899	-7.0%	34.4%	52.2%	-3.1	23.8
Campus Total	2628	-4.3%	29.5%	48.5%	-7.2	15.7

Table 1: Comparison of number of bicycles and utilization over time (2012, 2010, 2000)

In recent years, providing secure and covered parking facilities has become a greater priority for Transportation Services. Parking options such as bike lockers, rooms, and houses provide users with an added level of security and can alleviate the risk and perception of risk of bike theft. Covered bike parking facilities offer protection from rain, which occurs frequently in the Pacific Northwest. Table 2 shows the distribution of covered, secure, and high security campus bike parking facilities.⁷

AREA	SECURE CAPACITY			HIGH SECURITY CAPACITY				GRAND TOTAL
	COVERED ⁸	UNCOVERED	TOTAL	ROOMS	HOUSES	LOCKERS	TOTAL	
West	590	347	937	263	88	54	405	1,342
East	287	160	447	0	0	22	22	469
North	504	563	1,067	128	26	62	216	1,283
South	277	370	647	21	70	252	343	990
Central	544	1,090	1,636	85	0	182	267	1,903
Total	2,202	2,532	4,734	497	184	572	1,253	5,987

Table 2: Bike parking capacity by security and coverage

Adequacy of bicycle racks

One objective of monitoring the use of bicycle parking facilities on campus is to identify locations where existing facilities are not well matched to demand. Transportation Services can then focus on high-demand locations that may be able to accommodate additional bicycle parking, as well as low-demand locations that may be able to “donate” bike parking to locations in greater need.⁹ Transportation Services uses three primary methods to identify locations in need of additional bicycle racks and locations with a surplus of bicycle racks:

- 1) Evaluation of specific locations with 80 percent or higher utilization (“High” utilization)
- 2) Evaluation of specific locations with 5 percent or lower utilization (“Low” utilization)
- 3) Feedback from campus bicyclists and building coordinators

Appendix C lists the locations with high and low utilization in 2012 and Figure 2 shows the number of high and low utilization sites over time.

⁷ Secure capacity includes racks not in locked facilities. High security includes rooms, lockers, and houses.

⁸ This number does not include high security capacity, and all high security capacity is covered.

⁹ Many of the racks on campus are mobile, and can be redistributed to better match demand. Care is always taken to maintain a minimum level of capacity at all areas, including those with low utilization.

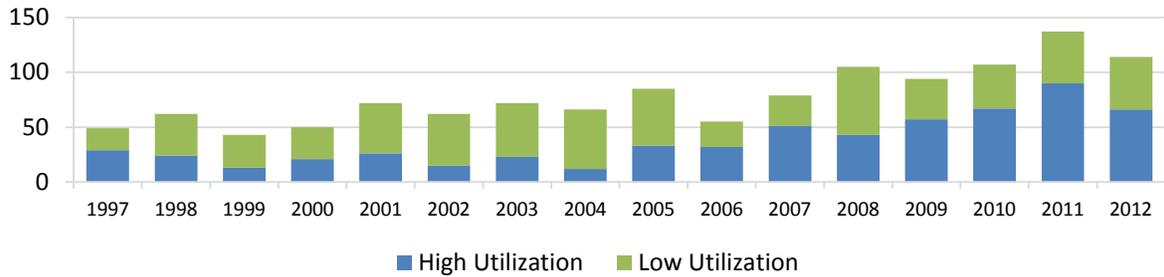


Figure 2: High and low utilization locations over time

Regarding campus bike rack utilization in general, the following points are of particular interest:

- Campus-wide, 66 locations had high utilization. Covered racks averaged 55 percent utilization and uncovered racks just 41 percent.
- Covered racks represented 64 percent (42 locations) of high utilization locations and 53 percent (2,833 spaces) of total rack capacity.
- Uncovered racks represented 50 percent (141 locations) of all rack locations and 47 percent (2,532 spaces) of total rack capacity, but comprised 63 percent (30 locations) of rack locations with low utilization. Conversely, covered racks represented 37 percent (18 locations) of low utilization locations, but 50 percent (149 locations) of total rack locations.

Between spring 2011 and spring 2012, the University added bicycle parking at locations through a combination of new capacity, capacity re-balancing, and building acquisitions, as shown in Table 3:

LOCATION	RACK TYPE	COVERED	HIGH SECURITY	CAPACITY	TYPE
4545 GARAGE	TOAST	YES	NO	4	RE-BALANCE
BROOKLYN TRAIL BUILDING	CUSTOM	NO	NO	4	NEW
CEDAR HALL BIKE ROOM W203B	VERTICAL	YES	YES	25	NEW
CEDAR HALL BIKE ROOM W203A	VERTICAL	YES	YES	24	NEW
CEDAR HALL BIKE ROOM W203C	VERTICAL	YES	YES	31	NEW
CEDAR HALL BIKE ROOM E208A	VERTICAL	YES	YES	9	NEW
CEDAR HALL BIKE ROOM E208B	VERTICAL	YES	YES	10	NEW
CEDAR HALL BIKE ROOM E203D	VERTICAL	YES	YES	39	NEW
COMPUTER SCIENCE & ENGINEERING	VERTICAL	YES	YES	28	NEW
DEMPSEY HALL	TOAST	NO	NO	28	NEW
DEMPSEY HALL	TOAST	YES	NO	14	NEW
KANE HALL	TOAST	NO	NO	14	RE-BALANCE
KANE HALL	TOAST	NO	NO	52	RE-BALANCE
MUSIC BUILDING	TOAST	NO	NO	4	RE-BALANCE
POPLAR HALL BIKE ROOM	VERTICAL	YES	YES	87	NEW
SUZZALLO	TOAST	NO	NO	65	RE-BALANCE
UTC	TOAST	NO	NO	13	RE-BALANCE
UWMC ROOSEVELT CLINIC	RIBBON	NO	NO	5	NEW
WEST RECEIVING STATION	RIBBON	NO	NO	5	NEW
TOTAL (NEW/REBALANCE)	--	--		309/152	--

Table 3: Capacity changes, summer 2010 - summer 2011

Bicycle lockers

At the time of the Survey, there were 286 bicycle lockers on campus with a maximum capacity of 572 bicycles (each bike locker parks two bikes). Three-hundred and seventy-nine locker spaces were rented out, for an occupancy rate of 66 percent. This represents a 5 percentage point decline from the 71 percent occupancy rate in 2011.

On May 15th, 2012, Transportation Services sent a supplementary online survey to current locker tenants. An estimated 80 percent utilization rate was deduced, which represents an 8 percentage point decline from the 88 percent utilization rate estimated in 2011. By multiplying this percentage rate by the total number of leased bicycle lockers, it was estimated that 303 bicycles occupied lockers on May 15th, 2012, a decline of 54 bicycles from 2011.¹⁰

CONCLUSION & NEXT STEPS

The University of Washington continues to promote bicycling to faculty, staff, students, and visitors by providing end-of-trip facilities including bicycle racks, rooms, houses, and lockers; however, the data collected in the 2012 Bicycle Parking Inventory and Utilization Survey revealed the first decline in bicycles and rack utilization rate since 2009 and 2007, respectively. While poor weather on the survey day (overcast and temperatures in the high 40s/low 50s) likely played a role in these declines, it is also important to recognize that 2010 and 2011 represented record highs for both bicycles and rack utilization, continuing a trend since 2003 of relatively consistent year-over-year growth. So, while the results of the 2012 survey should provide motivation for renewed efforts to encourage bicycle use on campus, it is also important to remember that a single-year drop in the annual count does not necessarily indicate a long-term trend of declining bicycle use.

One way that Transportation Services is improving its efforts to encourage bicycling is through better management of its bicycle locker inventory. In early 2013, Transportation Services initiated a LEAN process to re-evaluate its current process of administering lockers, managing access, and performing maintenance and customer services. Transportation Services expects rapid growth in the occupancy rate of its bicycle lockers as a result, which should bode well for future locker surveys

Another area that's improving is Transportation Services' bicycle parking asset management system. In 2011, Transportation Services underwent a process to ground-truth its GPS bicycle parking

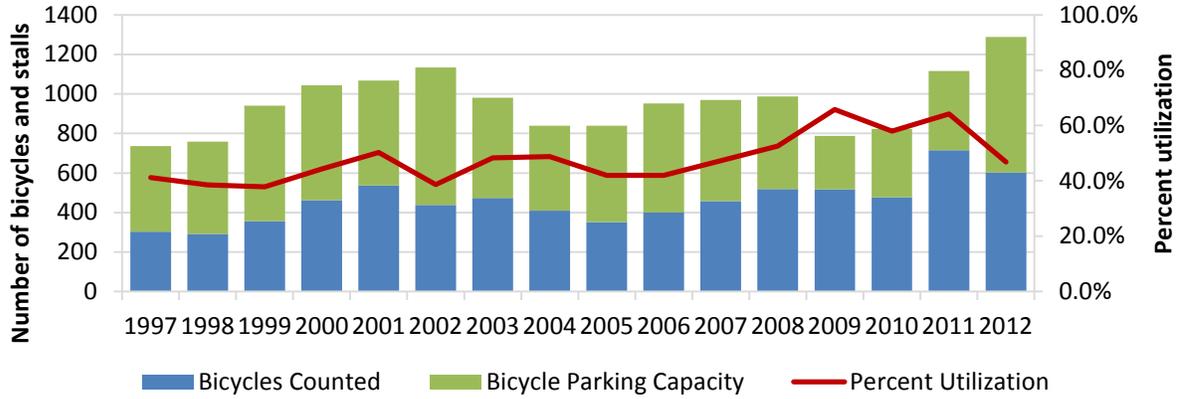
¹⁰ In 2012, the response format for survey questions related to trips per week was changed. Instead of an open-ended response as in years past, participants were given drop-down options of "0 days" through "5 or more days." For the purposes of averaging responses to calculate weekly utilization, this had the unintended effect of artificially limiting participants' maximum trips per week to 5 ("5 or more days" was reclassified to 5 days to provide a conservative estimate). This may partially explain the decline in the number of bikes calculated for the survey date. In the future, respondents will be given the option of entering up to 7 commute days per week. As in years past, survey respondents indicated a higher locker utilization rate for all other quarters. Utilization rates for fall, winter, spring, and summer quarters were 90 percent, 82 percent, 96 percent, and 97 percent, respectively. This may be the result of survey response bias, wherein respondents overestimate their "good behavior," or may indicate that respondents more accurately predict their commute behavior for a single previous week than for an entire quarter.

inventory and in 2012 each bicycle rack was labeled with Transportation Services new Bikespace branding decals. The decals include a unique ID for each rack as well as website and contact information. The unique ID makes managing the assets less cumbersome and the contact information provides students, employees, and visitors with an easy way to contact Transportation Services with bicycle-related questions or comments to report.

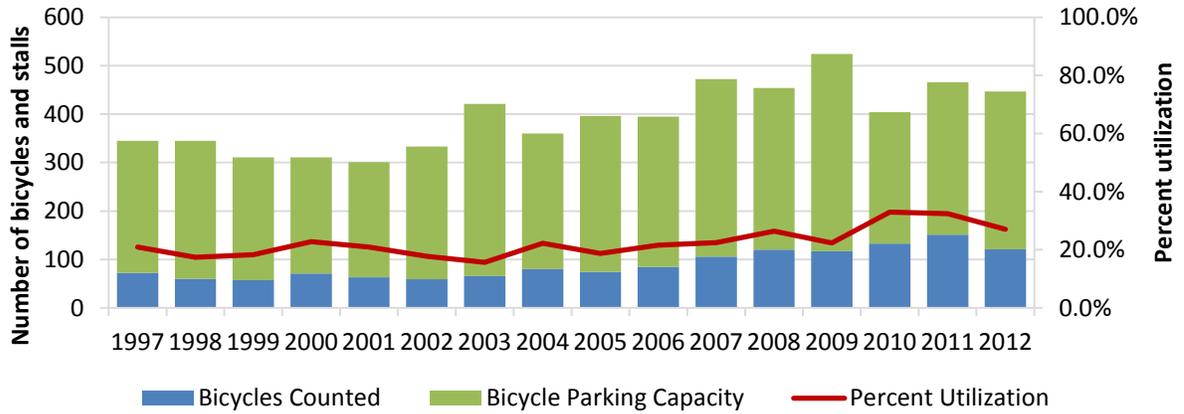
Finally, Transportation Services is involved in an ongoing effort with UW Capital Projects, UW Office of Planning and Budgeting, and a team of consultants to develop a strategic plan for installing future covered and secure bicycle parking. Transportation Services intends to begin implementing this strategic plan in 2013.

APPENDIX A | TRENDS IN BICYCLE PARKING AND RACK UTILIZATION BY AREA (1997 – 2012)¹¹

West Campus trends in bicycle parking and rack utilization (1997-2012)

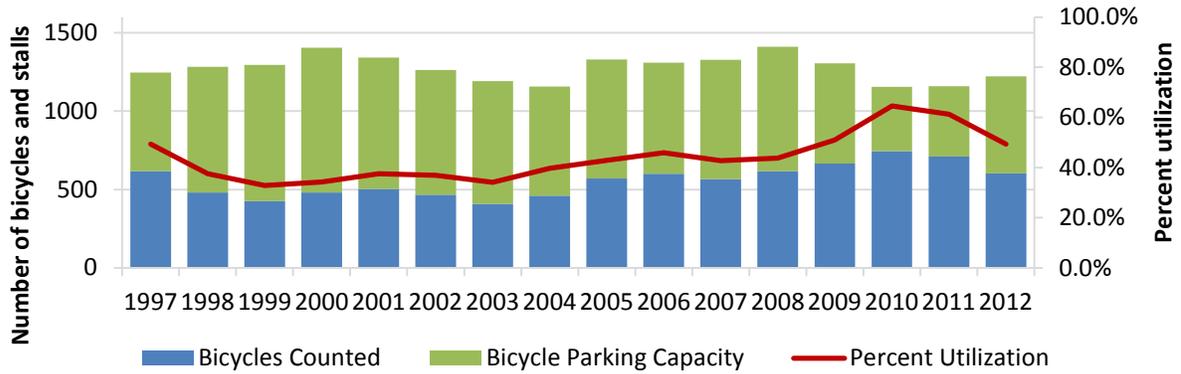


East Campus trends in bicycle parking and rack utilization (1997-2012)

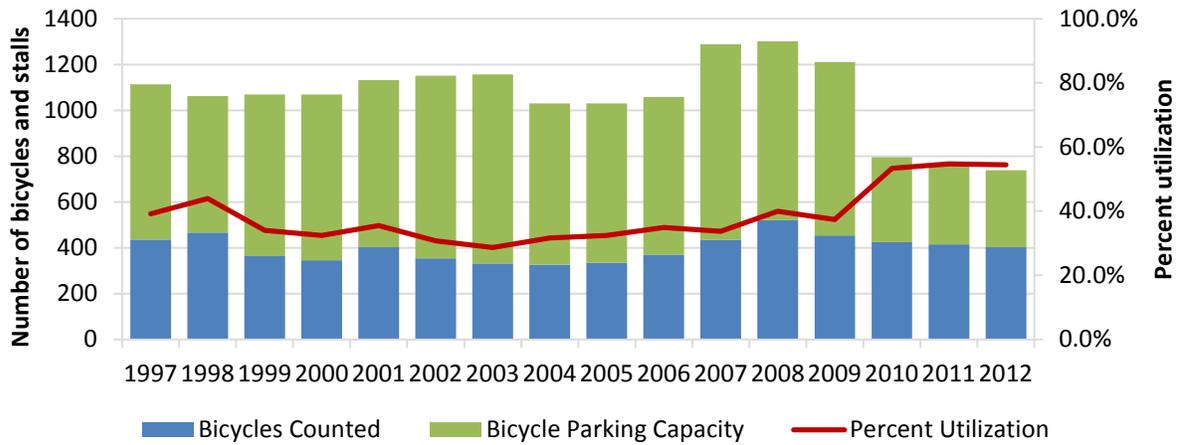


¹¹ Does not include bicycle lockers

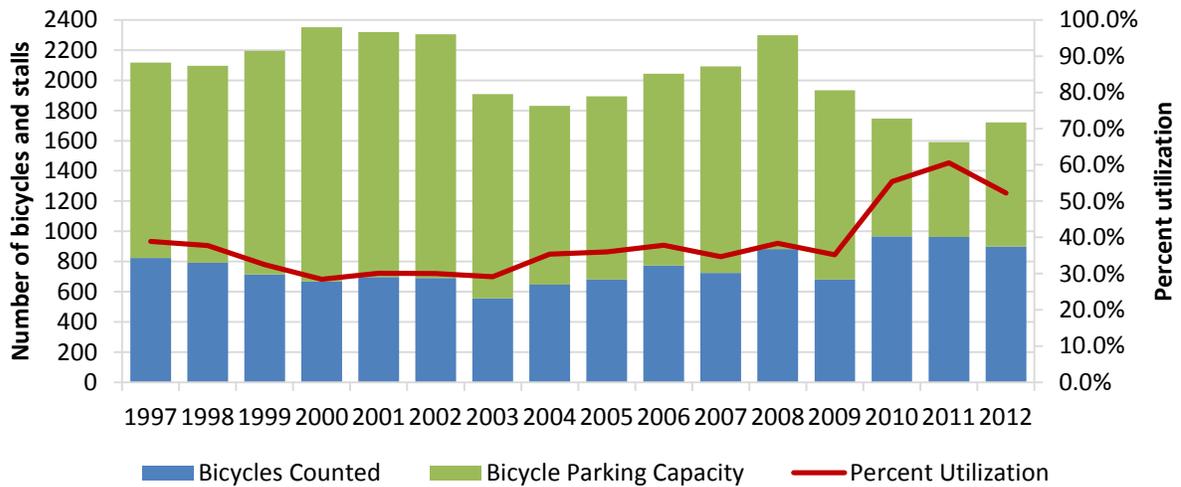
North Campus trends in bicycle parking and rack utilization (1997-2012)



South Campus trends in bicycle parking and rack utilization (1997-2012)



Central Campus trends in bicycle parking and rack utilization (1997-2012)



APPENDIX B | HIGH AND LOW UTILIZATION LOCATIONS

LOCATION	UTILIZATION	LOCATION	UTILIZATION
Haggett Hall	216.67%	Allen Center for CSE Bike Room	96.43%
Benjamin Hall	200.00%	Bagley Hall Bike Room	95.12%
Loew Hall	185.71%	McCarty Hall Bike Room	93.33%
Meany Hall Bike Room	175.00%	UWMC Southeast	92.31%
S1 Garage East	162.50%	McCarty Hall	90.91%
Laurel Village	157.14%	Terry Hall	89.23%
McCarty Hall Bike Room	150.00%	Kincaid Hall	88.89%
Social Work Building	150.00%	Bloedel Hall	87.50%
UWHS K-Court	143.75%	Fishery Sciences	85.71%
UWHS BB Tower	140.00%	Stevens Court	85.71%
Allen Center for CSE	134.78%	Mary Gates Hall	85.71%
Parrington Hall	133.33%	More Hall	85.71%
McMahon Hall	126.67%	Roberts Hall	85.71%
Roosevelt Commons Garage	125.00%	Fisheries Center	85.71%
Parrington Hall	125.00%	Benson Hall	84.62%
IMA/Burke Gilman Trail	123.08%	William H Gates Hall	83.33%
Plant Operations Annex 4	116.67%	Padelford Hall	83.33%
UWMC Emergency Entrance	114.29%	Mary Gates Hall	83.33%
McCarty Hall Bike Room	113.33%	UWHS I-Court	83.33%
Bagley Hall	111.54%	UWHS H-Wing	83.33%
Benjamin Hall Bike Room	110.53%	UWHS T-Wing/Bloedel Hall	83.33%
UWHS BB Tower	109.52%	Savery Hall	82.14%
Foege Bioengineering	109.09%	UWMC Roosevelt Clinic	80.00%
UWHS BB Tower	109.09%	Haggett Hall	80.00%
Kane Hall	107.69%	Johnson Hall	80.00%
Guggenheim Hall	107.69%	UWHS K-Wing	80.00%
UWMC Emergency Entrance	107.69%	4545 Parking Garage Bike House	5.00%
Lander Hall	102.56%	Hec Edmundson Pavilion North	4.76%
Roosevelt Commons Garage	100.00%	Cedar Hall Bike Room	4.00%
McCarty Hall	100.00%	Architecture Hall East	2.56%
Lander Hall	100.00%	Roosevelt Commons Garage	0.00%
Padelford Hall	100.00%	UW Tower	0.00%
University Transportation Center	100.00%	4545 Parking Garage	0.00%
Kincaid Hall	100.00%	Burke Museum East	0.00%
Allen Center for CSE	100.00%	Hughes Penthouse	0.00%
UWHS T-Wing/Bloedel Hall	100.00%	Fleet Services	0.00%
UWMC Southeast	100.00%	McCarty Hall Bike Room	0.00%
UWHS Magnuson Court	100.00%	Environmental Storage Building	0.00%
UWHS T-Wing/Bloedel Hall	97.44%	Lander Hall Bike Room	0.00%

More Hall Annex	96.83%	Cunningham Hall	0.00%
Padelford Hall	0.00%	University Transportation Center	0.00%
McMahon Hall	0.00%	Community Design Center	0.00%
Fluke Hall	0.00%	Chemistry Library Building	0.00%
Haggett Hall	0.00%	Guthrie Hall	0.00%
Clark Hall	0.00%	Mary Gates Hall	0.00%
Environmental Safety Building	0.00%	Chemistry Building	0.00%
Douglas Research Conservatory	0.00%	Graves Annex Building	0.00%
Benjamin Hall	0.00%	Graves Annex Building	0.00%
Northgate Building	0.00%	Plant Operations Annex 6	0.00%
UW Police Department	0.00%	IMA North	0.00%
Agua Verde	0.00%	IMA Sports Field #3	0.00%
Ocean Research Building 2	0.00%	Nordstrom Tennis Center	0.00%
Portage Bay Garage	0.00%	UWHS H-Wing	0.00%
Purchasing & Accounting Building	0.00%	UWHS Rotunda South	0.00%
Brooklyn Trail Building	0.00%	South Campus Center South	0.00%
Sakuma Viewpoint	0.00%	Fisheries Center	0.00%
Purchasing & Accounting Building	0.00%	Hec Edmundson Pavilion	0.00%

APPENDIX C | SURVEY MATERIALS

Survey instructions

General Instructions

Please count all bikes parked on your portion of the campus map, except on racks labeled “do not count.” Mark the number of bikes parked at a rack or group of racks by writing the number of bikes next to the Rack ID Number. Correct mistakes on the map if there are errors, which may include making changes to the presence and capacity of racks (see “Detailed Instructions,” below). When counting bikes, count by map label. For example, if the label says 9/RB-13/A/NC, count all of the bikes at all 9 racks and report that number. Do **not** count each rack separately unless it is labeled on the map as an individual rack. Please use blue ink.

KEY TO MAP LABELS:

2/RB-11/A/NC = 2 Ribbon Racks, 11 capacity each, asphalt, not covered.

2104 = Rack ID Number (first two digits correspond to page number).

1. The first number indicates the number of racks at this location.
2. The second set of information indicates the type of racks and capacity:

RB-9 = Ribbon 9 capacity	SS-8 = Single sided 8 capacity
RB-11 = Ribbon 11 capacity	(other capacities possible,
RB-13 = Ribbon 13 capacity	denoted by appropriate
TST = Toast Rack	number, sometimes no
R3 = Rack Three (brown rack, 2 capacity)	number)
DS-AA, DS-BB, DS-EE , = Double	Custom = Custom Rack
sided rack (see pictures for	BKLID = Bikelid, only one on
style)	campus
3. The third code indicates the type of surface:

A = Asphalt	D = Dirt
B = Brick	G = Gravel
C = Concrete	
4. The fourth code indicates if the area is covered:

NC = Not Covered (blue)	
C = Covered (red)	

Detailed Instructions

You may encounter racks that differ in type, presence, and/or capacity from what is indicated on the map.

- If you find a rack in your area that is not on the map, place a letter on the map and write the same letter in the “Letter on Map” column on the form titled, “New Racks”. Fill out the remaining information on the form.
- If there is a rack (or group of racks) on your map that is not on the ground, cross out the rack(s) on the map with a single line through the label and write the Rack ID Number in the “Rack ID Number” column on the form titled, “Missing Racks.” Fill out the remaining information on the form.
- If the map contains incorrect information about the number of racks, rack capacity, etc., cross out the incorrect information on the map and write the correct

information next to it. Write the Rack ID Number in the "Rack ID Number" column on the form titled, "Incorrect Racks."

Bikes on Railings, Trees, and other non-rack locations

If you encounter a bike parked on a railing, tree, or other non-rack location, place a letter + number combination (ex: A1, B1, C1) on the map and write the same combination in the "Letter + Number" column on the form titled, "Bikes Parked at Non-Rack Locations". On the separate sheet of paper, indicate the number of bikes and what the bikes are locked to.

NOTE: Railings at Haggett and McMahon are considered racks.

Feel free to note general observations. Some things to think about:

Are bike racks placed appropriately? Have they been moved? Can both sides of the rack be utilized? Is there any debris or excess garbage around the racks? Are there any safety issues around rack areas? Is there vegetation near the racks that requires maintenance?

If you have any questions, please call David's cell at (XXX) XXX-XXXX.

Rack types

Ribbon Rack=RB



Toast=TST



Bikelid=BKLID



Rack3=R3



McMahon Railings



Single Sided=SS



Custom (Haggett)



Custom (Parking Services)



DS-BB



DS-CC



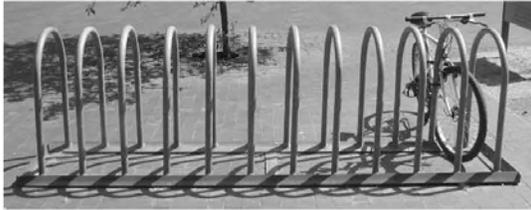
DS-EE



City Rail Rack - Do Not Count



TST-13



RB-13



TST-11



RB-11



TST-8



RB-9



TST-7



RB-7

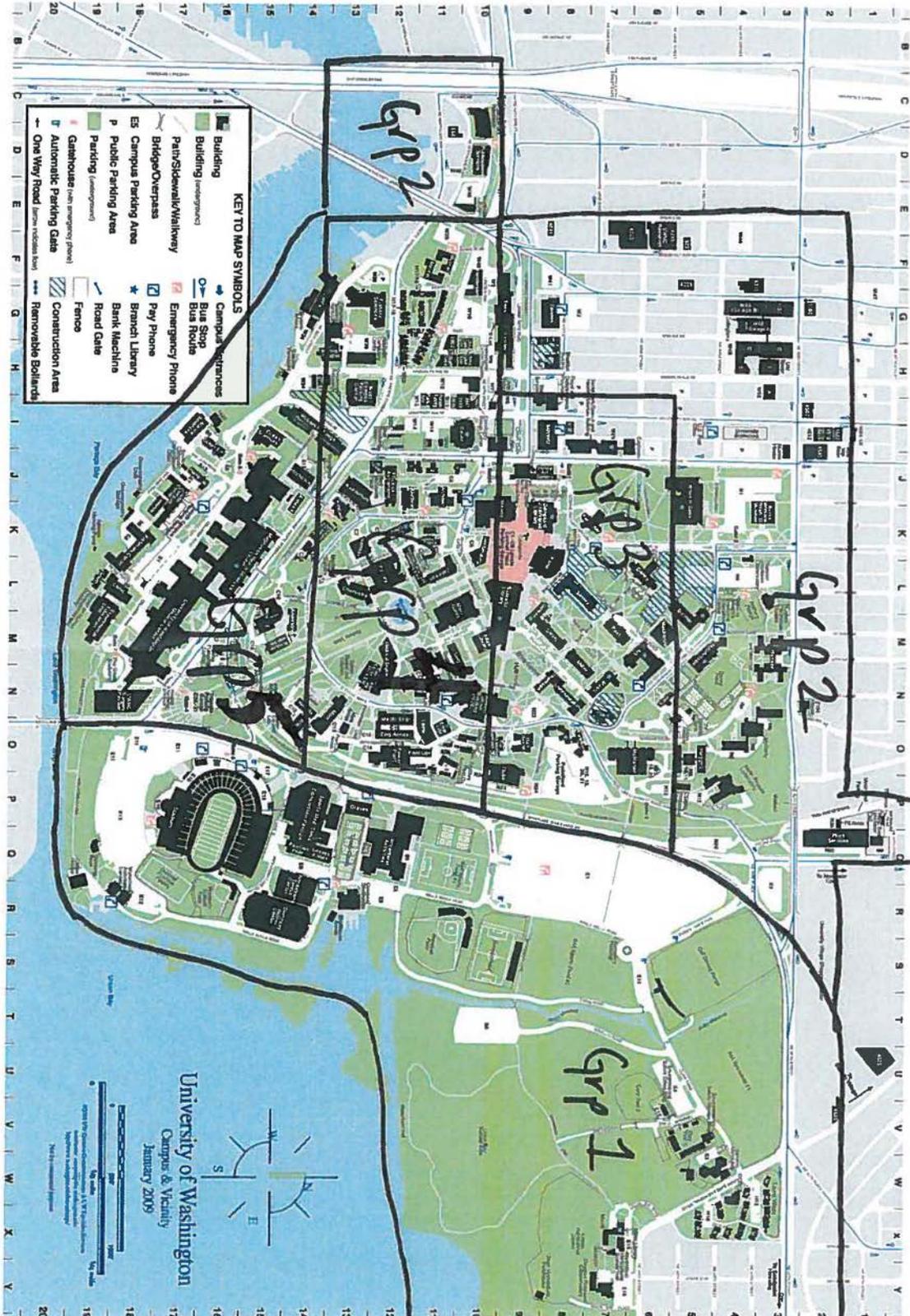


RB-5



Toast and Ribbon Rack Types

Campus survey grid map



w | bikespace

University of Washington Transportation Services
University Transportation Center | Box 355360
3745 15th Ave NE | Seattle Washington | 98105

For additional information, contact:

David Amiton | Active Transportation Analyst

(206) 616-7493 | damiton@uw.edu

www.uwcommute.com