UNIVERSITY OF WASHINGTON
2019 BIKE COUNT REPORT

Elizabeth Bastian
UW Transportation Services, Commute Options & Planning

1320 NE Campus Parkway
Seattle, WA 98105

July 2019

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2019 BIKE COUNT HIGHLIGHTS

- Including bike share, there were **2,703 bikes** counted on UW's campus in May 2019. This is a 2.8% increase from 2018.

- **Bike rack utilization continues to decline**, averaging 26.1% across campus.

- The number of bikes on campus has been **trending downward** for the last few years. This is likely due to a combination of **bike share and fear of bike theft.**

INTRODUCTION

Every year, on a warm, sunny day in May, the University of Washington Transportation Services team conducts the annual campus bike count. From late morning into the mid-afternoon, staff and students traverse the entire 634 acres of campus - plus large portions of the U District - in the attempt to count every single bike rack, bike house, and bike room.

With the passage of the 2018 University of Washington (UW) Campus Master Plan, the annual bike count is a critical piece of university compliance reporting to the City of Seattle. This count also serves as one of the major tenets of the active transportation program planning & strategizing. Analysis of the data collected during the survey identifies areas in need of more bike parking resources, as well as areas where racks could be relocated to spaces where they would be better utilized. In addition, it helps Transportation Services right-size permit sales, particularly for bike houses.

ABOUT UW BIKE PARKING INFRASTRUCTURE

As of May 2019, the University of Washington has **8,285 bike parking spaces** available on campus.

This total includes **5,886 bike rack parking spaces** managed by the University of Washington Transportation Services. Since last year's survey, over 200 bike rack spaces were added to UW's campus.[1] 2,877 of these spaces (48.8%) are covered. According to the Association of Pedestrian and Bicycle Professional (APBP) standards for college & university bike parking, UW exceeds the recommended unsecure (i.e. bike rack) bike parking spaces by 1,164 spaces.

Transportation Services (TS) also sells permits for bike houses and bike lockers, as a more secure (and covered) alternative to parking at a bike rack. There are 567 bike house spaces and 632 bike locker spaces, for a **total of 1,199 TS secure bike parking spaces** on campus.

In addition, there are **over 1,200 secure spaces between 33 campus bike rooms** that are not managed by Transportation Services. Twenty of these bike rooms are in campus dorms.

[1] The 2018 total bike rack spaces number was 7,078. During the 2019 survey process, it was discovered that there was a significant number of groups in the database that had duplicates, no longer existed, or had been temporarily closed due to construction. This total also included bike rooms - if 2018 bike room spaces are excluded, the adjusted 2018 total is 6,184. While there were some bike rack spaces that were lost between the 2018 and 2019 surveys, it did not equate to a reduction of 298 spaces. It is the belief of the Commute Options & Planning team that nearly all of this data discrepancy can be accounted for in the removal of duplicate bike rack groups prior to the 2019 survey.

SURVEY METHODOLOGY

UW bicycle infrastructure is tracked and updated using ESRI's ArcGIS. Preceding the survey, Commute Options & Planning staff use GIS to divide the campus & parts of the U District into sections for surveying. These areas are split among the surveyors based on geography - east campus, south campus, etc. Rack groups are labeled with the type, capacity, surface, covered or not covered, and the assigned rack group ID.

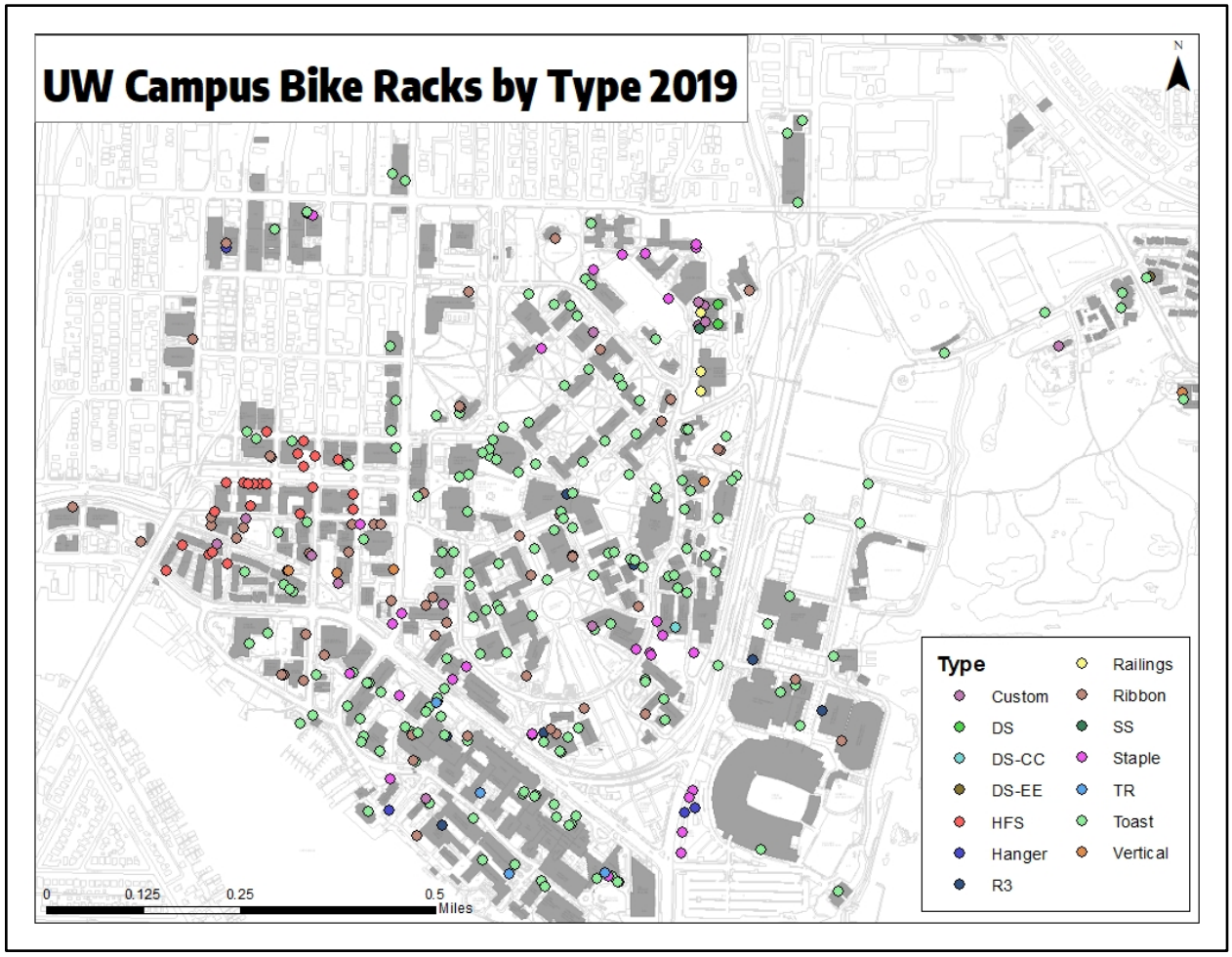

Figure 1: UW Campus Bike Racks by Type 2019

Survey maps include bike racks grouped based on similar types and bike houses. Bike lockers are not included in the annual bike survey, as all 600+ lockers are

individually keyed and would be impossible to survey in a day. Bikes that are in buildings outside of bike rooms (i.e. in an employee's office) are also not included.

The majority of bike rooms on campus are controlled access and managed by the respective building coordinator. In order to collect bike room count data, emails are sent to building coordinators requesting that they conduct a midday count in all bike rooms they manage within a 2 week period in May.

Surveyors are tasked with counting all bikes at each bike rack group. They also must note any abandoned bikes and bike parts, as well as any bike share bikes that are parked within 4 feet of the bike rack. Any racks that are missing, have been relocated, or are new (i.e. not shown on the survey map) must also be noted on the survey count sheet and/or on the survey map.

Bike share on campus is supposed to be parked at a bike rack, in order to be compliant with the Washington Administrative Code (WAC) and our contracts with the bike share vendors. However, due to the dockless nature of the bikes, they are often parked in other places on campus. In order to get a more accurate picture of the number of bike share bikes on campus during the time of the survey, Transportation Services utilized the Lime and JUMP online data dashboards to retrieve the daily average of bikes on campus.

2019 SURVEY INFORMATION

2019 was an unusual year for the bike count in that not one, but two counts were completed due to inclement weather.

The first bike count was planned for and conducted on Thursday May 16, 2019. At 11 AM, the temperature was 60 degrees Fahrenheit and mostly cloudy with on & off light drizzle; but by 2 PM, it was completely overcast and rainy. Initial data analysis

showed that numbers were significantly lower than previous years. As such, it was decided that a second full count should be attempted on a day with better weather.

A week later, on Thursday May 23, a second count was conducted. The weather was much more ideal for bike commuting - at 11:30 AM, it was 61 degrees Fahrenheit and sunny with a light wind; and by 2 PM, it was 71 degrees and still sunny.

Staffing levels varied between the two counts, with more staffing on the 16th and less on the 23rd. Due to a lack of staffing capacity, a full survey of campus on the 23rd was left slightly incomplete. For racks that were not re-surveyed on the 23rd, count numbers from the 16th were used to fill the gap. As such, the 2019 bike count results are an amalgam of 2 different survey dates.

RESULTS

A total of **2,415 personally owned bikes** were counted as part of the 2019 annual survey - a 2.8% increase from 2018. 1,640 bikes were counted at 334 bike rack locations managed by Transportation Services. An additional 9 bikes were counted attached to non-racks, such as railings or utility poles. 88 bikes were counted among the 9 bike houses. 678 bikes were counted in campus bike rooms at various times between 5/14/2019 and 5/22/2019.

According to the bike share data dashboards, there were an average of 244 Lime bikes and 44 JUMP bikes on campus on May 23, 2019.

Combining personally owned bicycles and bike share, there were **2,703 bikes** on the University of Washington campus in 2019.

2019 BIKE RACK UTILIZATION

While the total bike count on campus increased from 2018 to 2019, the average rack utilization rate actually decreased - from 30.1% to **26.1%** (does not include bike share) (Figure 2).

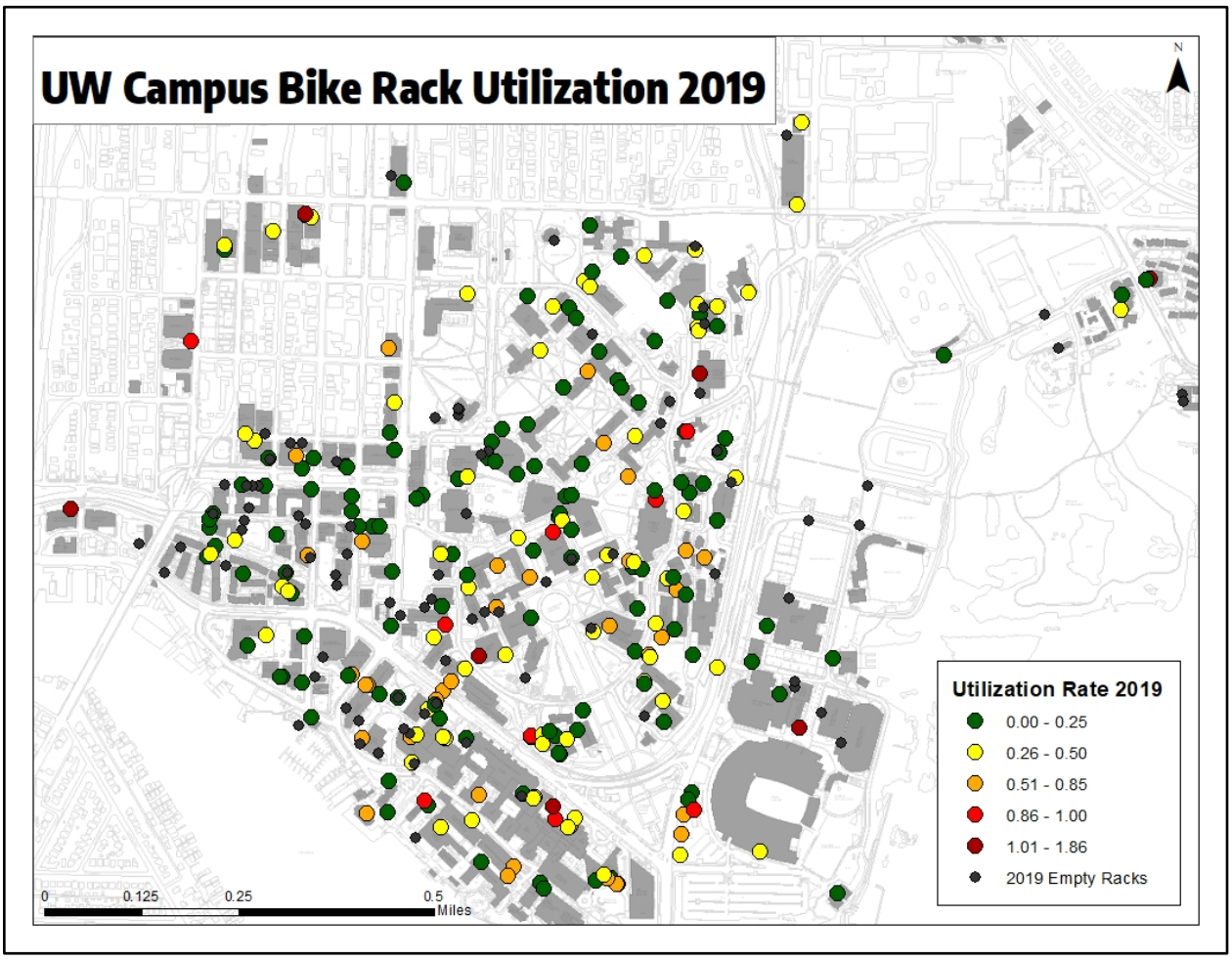

Figure 2: UW Campus Bike Rack Utilization 2019

Bike racks are identified as over capacity when they are at least 85% full. Areas with racks of over-capacity in 2019 included the UW Tower, UW Medical Center Pacific entrance, UW Link light rail station, Bloedel Hall/C10, the ASUW Bike Shop/HUB racks, McMahon/Haggett, and Northlake.

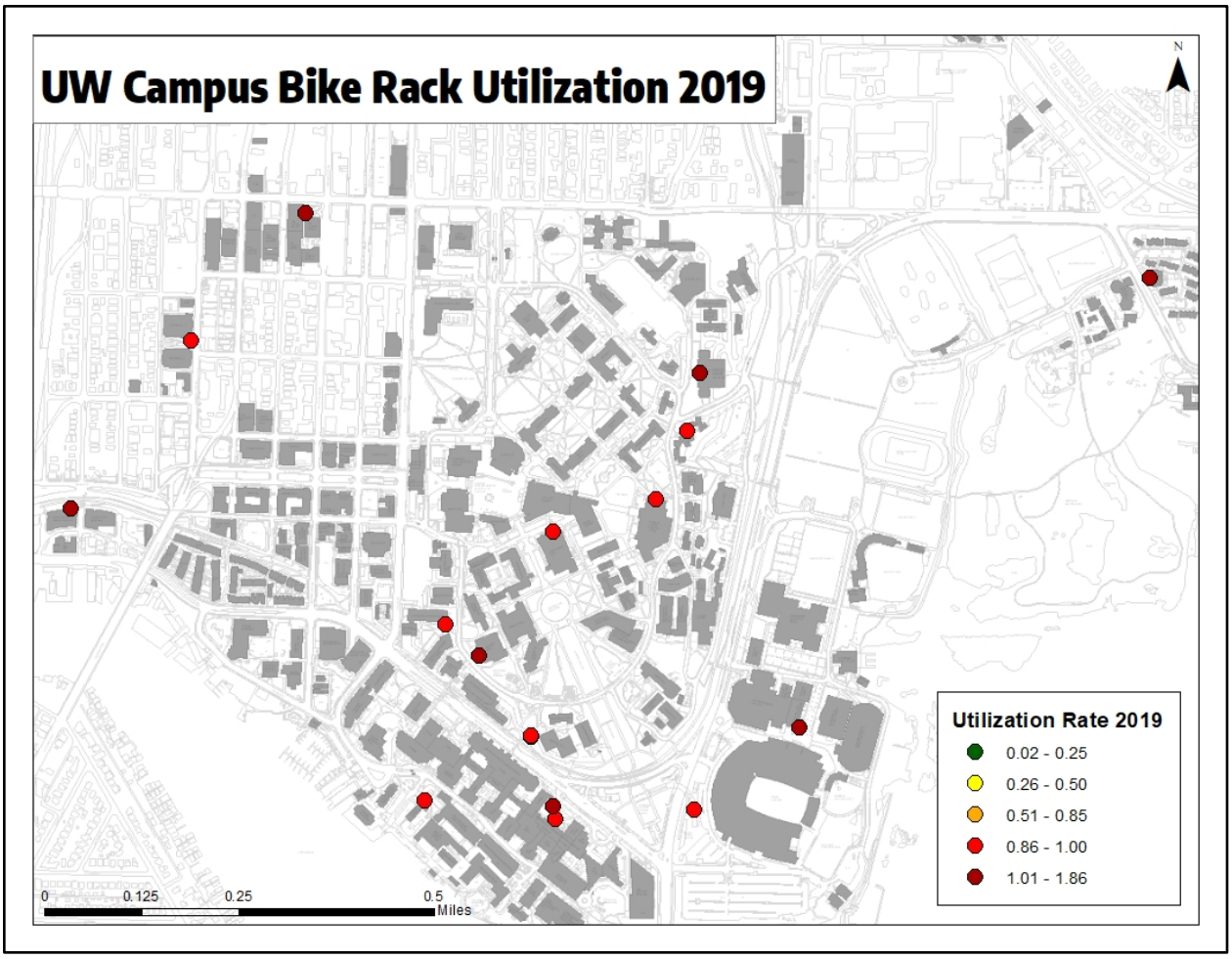

Figure 3: UW Campus Bike Rack Utilization - Over Capacity 2019

2019 BIKE HOUSE & LOCKER UTILIZATION

In addition to the annual bike count, TS sends out an evaluation survey to all current bike house and bike locker customers each May. The survey seeks to gather information on secure bike parking utilization, as well as customer satisfaction with their product. In 2019, TS received responses from 215 customers - a response rate of 26.3%.

Responses showed that bike lockers and houses have a far higher utilization rate than bike racks. Bike lockers are utilized **73.5%** of the time customers are on campus, while bike houses are utilized at a rate of **58.9%**. These percentages are calculated based on questions asking customers 1) how many days they commuted

to campus in the last week, and 2) how many days they utilized their secure bike parking in that same time window.

While Transportation Services is unable to survey each individual bike locker as part of the annual count, we can generate estimates of the number of bikes in bike lockers based on customer survey responses. If the 632 bike lockers are utilized at a rate of 73.5%, there would be an additional **466 bikes**. When accounting for this estimate, **the adjusted total bikes on campus increases to 2,881 without bike share and 3,169 with bike share.**

DISCUSSION

While 2019 bike count results did reveal a slight increase in bikes parked on campus versus last year, overall counts are still below count numbers from 2008. After a general trend of increasing from 2013 - 2017, bikes at racks and rack utilization rates have been trending down (Figure 3).

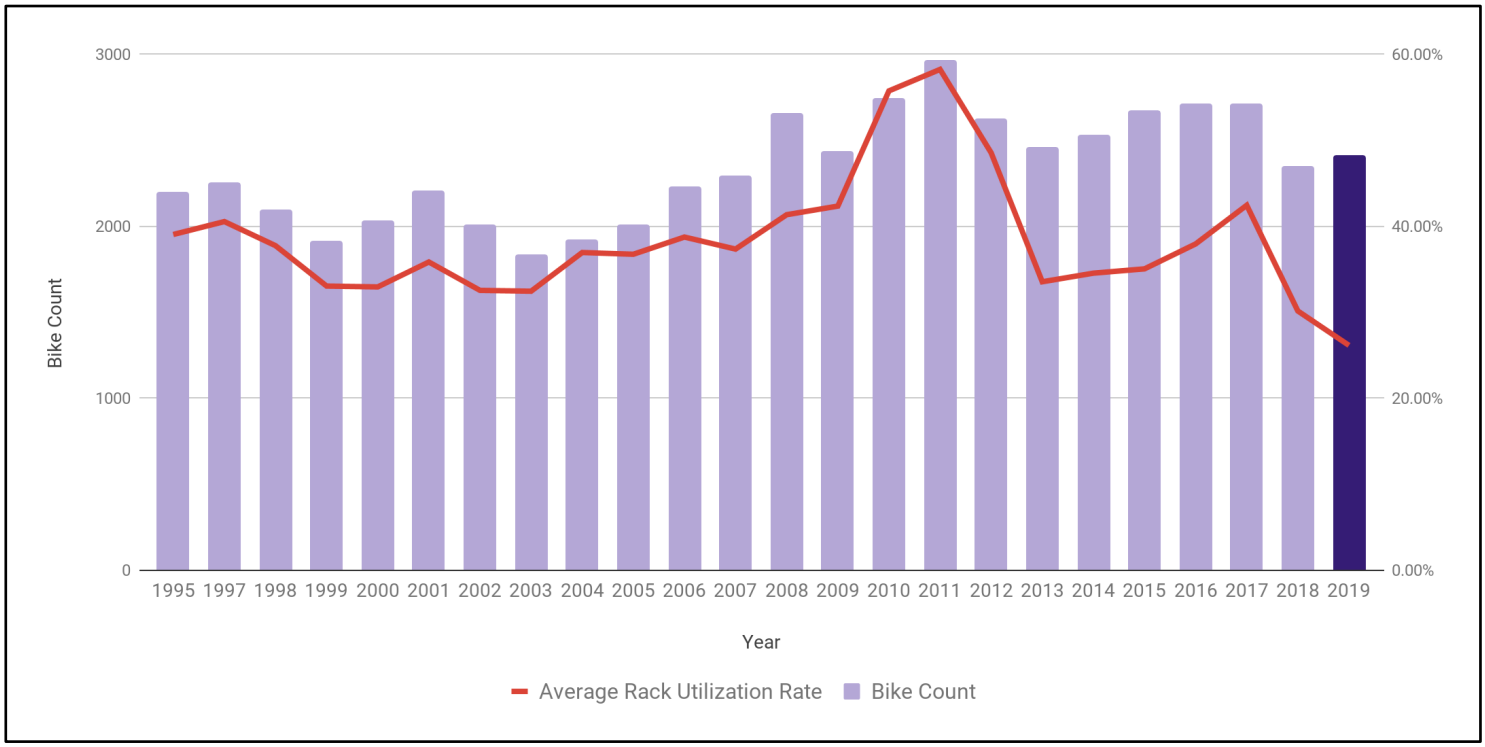

Figure 4: Bike Count vs. Bike Rack Utilization, 1995 - 2019

And yet, this seems counterintuitive to other campus and regional trends. UW's 2018 Annual Transportation Survey showed a bicycling mode split increase from

6.0% in 2017 to 7.7% in 2018.[2] City of Seattle bicycle counters continue to trend upward with several record-setting days in 2019.[3,4]

There are 3 likely major contributors to this decline: the proliferation of dockless bike share; increases in bike theft (and the perception of bike theft); and bikes being stored in offices.

BIKE SHARE

The Seattle bike share landscape has changed significantly in the last two years. What was once three vendors aggressively competing for market share suddenly downsized to a single provider (Lime) in summer 2018. Lime controlled the market share for about 6 months, until the launch of Uber-owned JUMP bikes. Unlike this time last year, all bike share are now e-assist, making it a more user-friendly transportation option for Seattle's landscape.

With it's large campus community and a student body of over 40,000, the University of Washington is a huge draw for bike share vendors and users. A fall 2017 study conducted by the Transportation Data Collective found that there were between 500 and 750 bikes available for rent on campus on any given day.[5] Anecdotally, Lime has shared with TS staff that UW accounts for over 25% of its revenue in Seattle.

UW Transportation Services has worked hard to ensure bike share remains an affordable and safe transportation option for its community members, while simultaneously minimizing any impact to campus operations. UW members receive

[2] Northwest Research Group (2019). "University of Washington 2018 Transportation Survey - Final Report." Feb 2019. https://transportation.uw.edu/files/media/transportation-survey-report-2018.pdf
[3] Fucoloro, Tom (2019). "2018 bike counts up 32 percent on 2nd Ave downtown after bike lane, bike share expansion". Seattle Bike Blog. Jan 2019. https://www.seattlebikeblog.com/2019/01/03/2018-bike-counts-up-32-percent-on-2nd-ave-downtown-after-bike-lane-bike-share-expansion/
[4] Bike Counters. Seattle Department of Transportation. Jul 2019. https://www.seattle.gov/transportation/projects-and-programs/programs/bike-program/bike-counters
[5] SDOT (2018). "Appendix B - TDC Bike Share Evaluation Report." Apr 2018. http://www.seattle.gov/Documents/Departments/SDOT/BikeProgram/APPENDIXB-TDCreport.pdf

a 50% discount on all bike share rides, incentivizing bike share use for short trips over driving or ridehail. And, as the data shows, it seems to be working. On the day of the 2019 survey, nearly 300 bike share bikes could be found on campus.

The wide availability of bike share - both on campus and city-wide - removes the necessity of having a personal bike on campus. This is especially true for the student population, who may forego the purchase of a less expensive bike in lieu of bike share for getting around campus.

BIKE THEFT

In 2018, 179 bikes were stolen from the University of Washington campus. 2019 numbers aren't much better - as of July 3, there have been 61 instances of bike theft. While this number is down from last year, it is still high enough to be a major concern.

Rising bike theft - and the perception of it - prevents many would-be bike commuters from riding to or from campus. This is especially true for staff members who work swing or night shifts, and for those working in south campus at the UW Medical Center (a consistent theft hotspot). While TS staff has several anecdotal encounters with customers to support this claim, it is also reflected in the data. Over **81%** of the 215 bike locker & house customer survey respondents listed **theft prevention as the number one reason they pay for a secure bike parking permit.**

To help ameliorate this issue, Sound Transit is planning to install over 100 secure bike locker at UW Station before the end of 2019. These will be accessible to the general public and rentable by the hour for a very nominal fee (about 5 cents per hour).

BIKES IN BUILDINGS

Per the Washington Administrative Code (WAC), bikes can only be stored in buildings if they are in a sanctioned bike room, which are managed by building coordinators. However, TS is aware of multiple instances of bikes being stored in buildings illegally - most in personal offices, but some in hallways or other under-utilized places indoors.

There are multiple reasons why bikes may be stored indoors in a non-compliant manner: fear of theft (see previous section), lack of available secure bike parking near one's workplace, lack of desire to pay for bike parking, a need to charge an e-assist bike, etc.

According to the 2018 Campus Transportation Survey, 10% of bike commuters park their bikes in an office (versus the 63% that park them at a bike rack). Extrapolating those percentages with our 2019 bike count results, there is **an additional 260 bikes parked in campus offices** on any given day. Including bikes counted at racks and bike share, that brings the 2019 total count up to **2,963** - just exceeding the 2011 all-time high of 2,962 bikes on campus. This element alone could explain the perceived decrease in bikes on campus.

RECOMMENDATIONS & CONCLUSION

The 2019 bike count results tell two major stories. One - the simpler version - tells Transportation Services what areas on campus need additional bike rack capacity. The other, more nuanced version, speaks to broader regional trends, advances in transportation technology and shared mobility, and personal fears of property loss. In order to achieve the city-mandated goal of 12% drive alone rate by 2028, Transportation Services will need to address both head-on.

Looking forward to the next year, the following recommendations are made:

- **Increase bike rack capacity at the following locations through the installation of new bike racks**, utilizing the established Bicycle Facility design guidelines (Appendix A):
    - UW Tower
    - UWMC Pacific frontage
    - UW Light Rail Station
    - Bloedel/C10

- **Continue to monitor bike share use on campus**, particularly if e-scooters are introduced.
    - Work with other teams in TS to monitor correct parking and bike rack utilization.

- **Work with Project Design Group (PDG) to incorporate secure, indoor bike facilities into new capital projects and existing buildings.**
    - Work with building coordinators to enforce the WAC and identify potential new bike rooms for retrofitting.

APPENDIX A: UW BICYCLE FACILITY DESIGN GUIDELINES

UW Bike Parking Design Guidelines

Last Updated: February 2019

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1. **General Overview**

    a. For large capital projects, Transportation Services should be engaged with early on in the design process. In collaboration with UW Facilities Asset Management & Project Delivery Group, Transportation Services will assess bike parking needs based on building usage and identified design standards.

    b. Space allocated to bike parking on UW Seattle campus, both in terms of square footage and number of bike parking spaces, should to the extent possible be based on the target demand calculations for colleges and universities identified by the Association of Pedestrian and Bicycle Professionals (APBP), and shall be designed in collaboration with UW Transportation Services.

    c. Orientation of racks will be determined to maximize space while maintaining adequate ease of access. Space design will be designed in collaboration with UW Transportation Services before installation.

2. **Long term secure bike parking**

    a. Long term secure bike parking facilities should to the extent possible be located either inside or within 250 feet of nearby buildings.

    b. All secure bike parking facilities must be access controlled via the Husky Card and integrated into the university CAAMS system.

    c. When possible (i.e. if providing storage space for more than 75 bikes), secure bike parking facilities should be designed with at least 2 entrance and exit points/doors.

    d. A minimum of 50% of the available secure bike parking spaces must be at ground level, allowing for bikes to be parked without any lifting.

    e. Security cameras monitoring the facility entrance and exit, and (when possible) the interior of the bike house, should be installed.

    f. Signage detailing rack use and bike facility terms of use shall be posted.

    g. Bike Houses

        i. Area surrounding the bike house must be well-lit.

ii. Any gaps or spaces in siding materials shall be sized appropriately to prevent any reach-through or other illegal entry.

iii. Facility design must incorporate reach-through prevention around the door(s). Doors should also be equipped with an automatic door closer.

iv. Roof and gutter design must allow for adequate drainage suitable to the site.

v. Quality durable materials, such as steel, are preferred.

h. Bike Rooms

i. If possible, bike rooms should have their own separate building entrance and exit that is controlled access. This will prevent bikes being rolled through buildings.

ii. Shower and locker room facilities should be located adjacent to indoor bicycle parking facilities.

i. Bike Racks For Use in Long Term Secure Bike Parking Facilities

i. Sportworks Tofino No Scratch Bike Rack (horizontal)

ii. Duo-Gard BR11BS (horizontal)

iii. Dero Downtown Rack - Galvanized or Black Powder Coat (horizontal)

iv. Dero Ultra Space Saver - Black Powder Coat (vertical)

v. Duo-Gard BRV4 (vertical)

vi. Sportworks VelopA lift-assist (two-tiered, horizontal)

vii. Dero Decker lift-assist (two-tiered, horizontal)

viii. Duo-Gard CBR2GS lift-assist (two-tiered, horizontal)

ix. For horizontal (single-tiered) bike racks, angled installation is recommended.

3. Short term bike parking - bike racks

a. Preferred model is a staple-style, rail-mounted corral rack. Rails shall be mounted on to paved surfaces (excluding bricks) when possible. Please contact UW Transportation Services to assist in determining rack spacing and installation layout.

b. Short term bike parking shall be located within 100 feet of building entrances.

c. Short term bike parking areas shall be well-lit with pedestrian-scale lighting.

d. Covered bike racks are preferred over uncovered bike racks. A minimum of 50% of the exterior short term bike parking shall be covered, either by a building overhang or by a free-standing shelter.

e. Bike Racks for Use in Short Term Bike Parking Facilities

    i. Sportworks Tofino No Scratch Bike Rack (horizontal)

    ii. Dero Downtown Rack - Galvanized (horizontal)

    iii. Duo-Gard BR11BS - Galvanized (horizontal)