

Bike Parking in Student Apartment Complexes Surrounding UO

Problem

The University of Oregon accommodates 30,000 people, in which 41% of the UO population (12,300 people) lives less than a mile away from campus, according to a study conducted by the UO Campus Planning and Real Estate and Office of Sustainability (2013). Given that 48% of the UO population does not have a car, this gives a lot of students, faculty and staff the opportunity to use alternative transportation to get to campus. The statistics show that 21% of students bike to campus; there is a great likelihood that students living closer to campus bike to campus.

There is a large student population living in rental apartment units surrounding the university due to the proximity to campus. Students often have issues regarding the lack of bicycle infrastructure and safety in their apartment complexes, as many students lock their bicycles to railings and numerous bicycles in the area are missing parts. Interested in how rental properties provide for and address bicycle facility needs surrounding the university, I conducted research by walking through the streets observing bicycle parking conditions among several rental properties around campus. These rental agencies include apartment complexes managed by Von Klein Property Management, Jennings and Co., Capri at Eugene, University House, Mallard Properties, and Income Property Management. Based on observations, I made recommendations as to how rental agencies can implement better bicycle facilities. Figure 1 below is a map of the student apartment complexes surrounding the university.

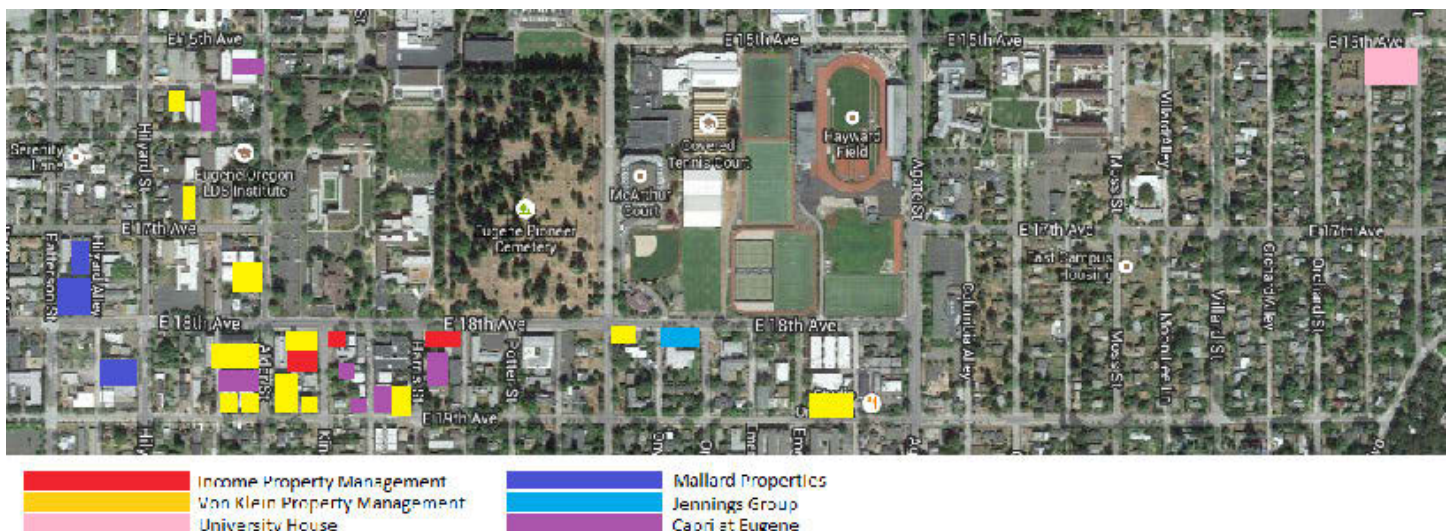


Figure 1: Verified apartment complexes observed for bicycle rack facilities.

There are several more rental agencies and in the area but either their target audience did not represent the overall UO population (special interest buildings) or they did not manage enough buildings in the area to be considered. Additionally, I have not selected the entirety of the apartment complexes in the region. The locations below depict what addresses I have written down and been able to match with the rental agency either online or in person. A larger image is available in Appendix C.

Observations

What are students doing?

Apartment complexes in the area are usually not equipped with adequate bicycle parking facilities, even though the streets surrounding the university are more accommodating to cyclists via the newly added bicycle lanes on Alder. Places that do have bicycle parking facilities are often neglected, and have scrapped bike parts left behind. People find alternatives to bicycle parking when current conditions do not meet their standards. During observations, a lot of bicycles were locked to railings such as gates, safety railings, fences, and property lines. These options may seem feasible to students who do not have adequate space in their household to store their bicycle, and do not wish to use what is currently supplied by the building. Parking bicycles within the apartment complex is relatively safer as intruders are less likely to cross property lines to obtain bicycle parts, especially if the residency is a gated community. Bicycles seen many flights above ground level were often locked to the railings in front of the student's residency. This is a good alternative as safety increases greatly, and as students are able to keep an eye out for their bicycle much more easily. However, it requires far more effort than simply locking a bicycle downstairs and walking upstairs without the additional weight.

Other bicycles observed were locked to public property such as trees, signs, and posts. These options are less feasible due to the possibility of students' bicycles being confiscated, and the fact that the bicycles are not directly on the property, but rather in a public location where the bicycle is more vulnerable to unfortunate situations.

The Regional Bike Parking Study (2013) indicates that the South University Neighborhood, which includes a large number of the rental properties inspected, has recommended two to four bicycle spaces per block face within the region observed. However, these blocks are not taking the student apartment complexes into consideration. Student apartment complexes are not required to fulfill these suggestions and often supply at least two to four bicycle parking infrastructures, regardless of how successful they are. The City of Eugene (2012) requires that multi-family housing in R-3 and R-4 zones of the West University and South University Neighborhoods are required to supply 1 bicycle parking space per unit for studios, and 1-bed and 2-bed units. Any housing with more than 3 bedrooms are required to have 2 spaces for bicycle parking. The locations observed are all within the R-4 zoning requirements which refers to high density residential zoning (City of Eugene, 2012). The city requires 10% of the parkin facilities be dedicated to short term (0-3 hours) and 90% to long-term (more than half a day) bicycle parking facilities.

Why?

I spoke to a few residents in apartment complexes about bicycle parking issues they were facing, and what kind of changes they would like to see. Since most students only live in the apartment complexes for a year or so, they are not inclined to bring change to their residency by requesting better bicycle facilities. There is a lack of incentive for students to become activists about bicycle parking issues. Students mentioned that the apartment complexes do not provide enough bicycle parking options. Bicycle parking facilities that were not in a cage were often misused as people would place their bikes parallel to the rack, causing a loss in space (Image 1). Unattended bicycles that are tipped over or stripped of their parts also decrease desire to use the facility. More importantly, students expressed concern regarding leaving their bikes outside where they cannot control the level of safety. Most students, for that reason, have been bringing their bikes inside. If there is no room inside, they lock their bikes right outside of their doors on the railing (if they are not on ground floor). This increases their perception of safety, as they assume bikes below them are more likely to be damaged or stolen, if anything were to happen.



Image 1: Bicycles parked parallel to the wave rack are more space consuming.

Rental Agencies

Additionally, I talked to representatives from Von Klein Property Management and Capri at Eugene and asked about the current conditions, requirements on bicycle parking within their facilities. Both property management representatives indicated that not all of their listings had bicycle facilities, even though they personally believed that there should be. However, Von Klein listings had fewer accommodations for bicycles than any other rental companies in the area. Capri representatives said they were surprised that not every apartment complex (even ones they do not operate) had bicycle parking facilities, given Eugene's high bicycle ridership rates. Von Klein representatives added that any request for a bicycle rack is directly forwarded to the building manager (not affiliated with the company) and it is up to that person to decide whether or not they will fulfill the requests, depending on the cost. Capri indicated that all but one of their locations have at least a few inverted U style racks, and that most had cages in the parking garage.

Examples

Indigo Place

Indigo Place, at the corner of 19th Ave and Kincaid St, is a property managed by Von Klein. This building opened to its residents in 2009, and includes stylish amenities to students, including a long-term bicycle facility. The facility however is not a locked

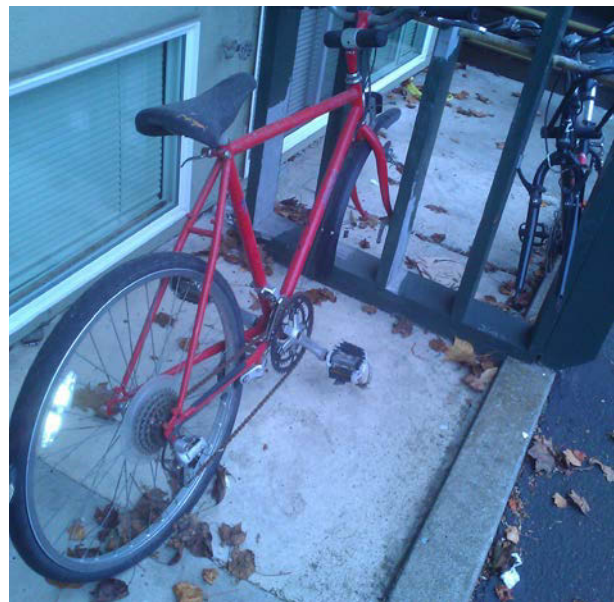
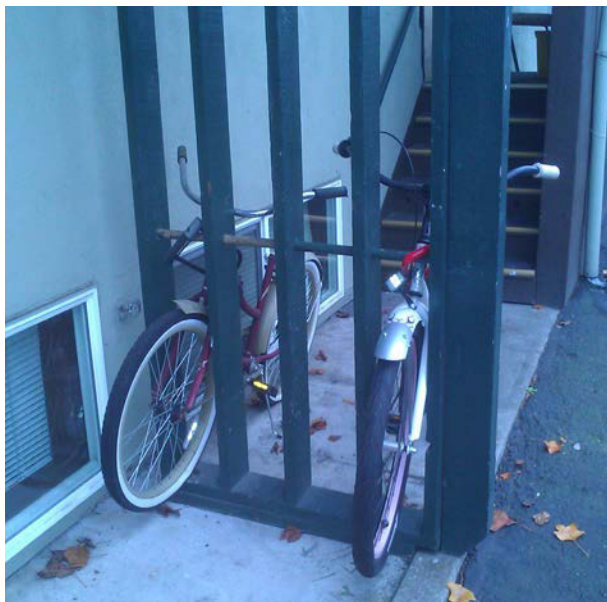


*Image 2 (left): The entrance to the bicycle facility leads to the garbage and recycling bins.
Image 3 (right): The chain link fence blocks visibility by residents across the parking lot.*

age, but instead wrapped around by a chain link fence on three sides. The opening to the bicycle parking cage that includes six inverted U style bicycle racks leads to the trash bins. The chain link fence blocks visibility among residents, and also lacks proper lighting for people to lock their bicycles. Images 2 and 3 above better depict how the bicycle facility is situated.

Blackstone Manor

Another example is of a location that provides bicycle parking facilities that are not adequate is Blackstone Manor, on 17th and Alder, again managed by Von Klein. This location provides parking facilities (Image 4 and 5), however, the style of the rack may not support all types of bicycle frames. Additionally, a lack of visibility among other residents has caused some of the bicycles to lose their front tires. Even though it is possible that the bicycle-owners took the wheels, the rust on the bicycles indicate that they have been exposed to wear and tear, and are not used.



*Image 4 (left): Bicycles with unusual frames may have a hard time using this rack style.
Image 5 (right): Bicycles parked in unsupervised regions of the building have suffered.*

Alderstgate

Another example is from Aldersgate on 14th and Alder, managed by Capri at Eugene. There was no bicycle parking infrastructure easily visible. There may have been one in an alleyway, but in that situation it would not be as easily accessible. Students had brought their bicycles upstairs and locked them to the railings near their apartments. Some of the bicycles are on the stairwell which is a obstruction and fire hazard during emergency situations (Image 6).



Image 6: Bicycles locked to the railings cause risk during an emergency, and require more effort to lock. There is an increased sense of security, however.

Image 7: Bicycle parking is far more safer, and is provided for longer term storage. There is a lot of space between the racks as well, reducing crowding and bicycles from tangling.



University House

A good example of bicycle parking facility can be seen at University House on 15th and Walnut, managed and owned by University House (Image 7). The bicycle facility provided is a covered bicycle cage with an artistic wall that lets in sunlight and fresh air, while sheltering from poor weather condition. Proper lighting is provided, as well as racks that allow for two points of contact, reducing the possibility of the bicycle tipping over. This is the long-term bicycle facility; there is short-term bicycle parking by the front doors where there are a few inverted U style racks.

Of all the rental agencies, Capri at Eugene appeared to have the best bicycle parking facilities. Almost all of the apartment complexes they managed had a bicycle parking cage in a covered parking lot that was easily accessible, near a staircase, well lit, and required a key to enter.

Given the conditions of the bicycle parking facilities, I will list a few key factors in determining what makes a good bicycle parking facility and focus on some features that rental agencies and building managers can try to implement to quickly enhance the bicycle parking scene with little funding. These recommendations were drawn from multiple sources, including the New South Wales Bicycle Guidelines (2005), the NYC DOT website (2013), the San Francisco Municipal Transportation Agency (2013), SARIS Parking (2013), and the Online Transportation Demand Management website (2013).

Recommendations

There are several steps multifamily housing locations can take to enhance the safety and usage of provided bicycle facilities, and starting points for initial implementation. The following are quick tips for important factors that greatly affect bicycle rack utilization.

1

LOCATION

Bicycle racks must be easy to spot to be used. If an insufficient amount of bicycle racks are provided, or if they are not seen near a destination, people will create a bicycle lock out of a variety of seemingly stable objects.

Placing bicycle racks in alleyways, or in locations where light is not sufficient during the night will discourage people from using the facilities.

Several apartment complexes provide bicycle racks under staircases, or in parking garages. These locations, while not as optimal, are still relatively sufficient due to the small amount of space they take up.



Image 8: Bicycle parking overcrowded and misutilized.



Image 9: Passive surveillance of the bicycle racks increases safety.

Image 8 on the left shows how bicycles are treated in a location not visible to its residents. The bicycles have been stripped of their parts and have begun to rust. There is limited lighting which also allows for burglars to work without being noticed. A location not facing the residencies also contribute to the lack of proper use.

Image 9 on the right is in sight and close distance of the apartments, which allow for the bicycles to be seen in a passive manner. Bicycle parking is also close enough to the apartments that people are more likely to use it. One disadvantage of parking in this location is that it is not covered, exposing the bicycles to rain, snow, and rust.

Styles of Bicycle Parking Racks

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There is a large variety of bicycle parking racks available depending on what one is looking for. Public locations may request more aesthetically pleasing, artistic bicycle parking racks. However, for a student apartment complex, the simpler the better. These types of locations should provide long-term bicycle storage facilities. Long-term bicycle parking standards refers to any duration longer than a few hours. However, short-term bicycle parking racks remain the most popular and cost effective. Placing bicycle lockers in apartment complexes can be very expensive and space consuming (Image 10).



Image 10: Bicycle lockers are generally not preferred in multi-family housing.



Image 11: Inverted U style

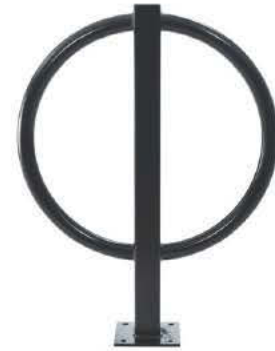


Image 12: Hoop and post style

Points of contact

Bicycle racks should support the bicycle frame at two places when locked. With one contact point, there is more opportunities for parts such as tires to be easily removed. For example, as wave style racks (Image 13) becomes more crowded, it becomes harder to remove bicycles as they get tangled and occasionally fall over. For example, wave/comb style bicycle racks, as seen on 13th on campus would not be recommended.

An inverted U style (staple style) bicycle rack will be the one of the cheapest (\$75-\$150 per bike) and most efficient rack type as it supports the many types of bicycle frames at two points and also allows for people to use U-locks on them as well (Image 11, and Image 14).

Hoop and post style bicycle racks (Image 12) are also recommended as they are similarly priced (\$60-\$110 per bike), supply two points of contact for bicycle frames, and only require one point of installation rather than two, compared to staple style bicycle racks.

The preferred clear distance is 3 feet between adjacent walls or parallel racks for both types of bicycle racks, with a 2 foot minimum.



Image 13: Bicycles locked to racks that only support one point of contact occasionally tip over, especially when the rack becomes crowded.



Image 14: Two points of contact reduce the possibility of tipping.

3 Space Required

Current codes laid out by the Lane Transit District allows for apartment complexes to place bicycle racks under staircases, or near entrances that are covered from weather, but are still not as safe as can be. However, according to my observations, some locations did not even provide that. When analyzing for space required, know the demand for bicycle parking for the apartment complex. In multi-family apartments, the DERO Bike Parking Guide (2013) suggests implementing 1 space rack per unit, and 6 space racks at each building entrance.

The DERO Bike Guide also suggests a 16" width per bicycle rack (inverted U, in this case), and 40" length. This way, within a 20' by 20' location, one could possibly fit 60 bicycles (Figure 2). Within a multi-family apartment complex, perhaps 60 spaces are not necessary, however, this comes to show how little space is needed to park bicycles. Especially in parking garages where space is abundant, one can easily place bicycle parking facilities without hindering other services.

4

Give Residents A Voice

Students should be able to easily make recommendations to their community, whether that is through an online/in-person form, a resident/community advisor, or the representatives of the buildings themselves. Supplying renters with recommendation forms is a good way to hear the public opinion. I encourage the rental agencies to straightforward ask how the students feel about the provided bicycle parking facilities. I personally believe that the students will ask for updated facilities, or simply renewed facilities.

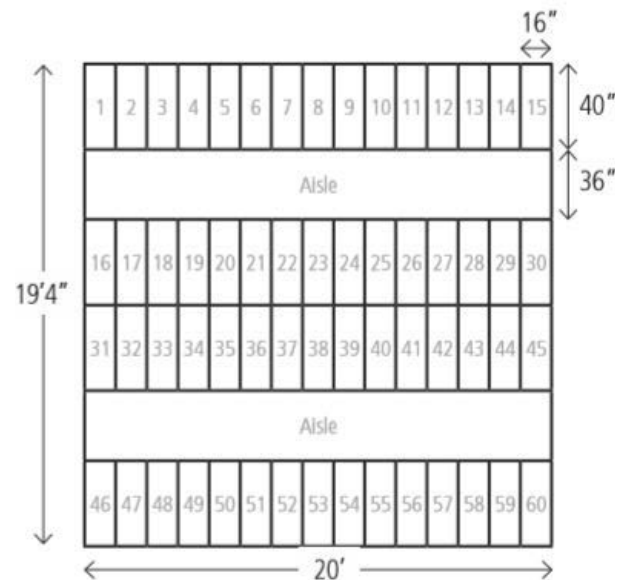


Figure 2: A 20' by 20' location can fit 60 bicycles, while providing a 36" aisle between racks.

Simple Solutions

Eugene is a city with very high bicycle ridership rates. Especially popular among university students, the multi-family apartment complexes surrounding the university must be able to keep up with the people by implementing proper bicycle storage facilities. Without a proper place to store their bicycles, people will be discouraged from riding. I suggest that the rental agencies improve the communication between the building managers and the residents by allowing a constant direct line of communication either through in person or online forms. Better communication between the building manager, rental agency, and residents, a more proactive community can be developed where the residents' needs may become more likely to be met.

The rental management agency Capri at Eugene appeared to have the best bicycle parking facilities. Almost all of the apartment complexes they managed had a bicycle parking cage in a covered parking lot that was easily accessible, near a staircase, well lit, and required a key to enter. I propose that in order to provide proper bicycle parking facilities at the most space and cost efficient level possible, other rental agencies and building managers should observe Capri's facilities. As advanced as the bicycle parking facilities at University House were, the cost of a facility at that capacity and with similar features would only be seen among new developments and cannot be implemented as a quick update.

As for bicycle parking facility improvements, I suggest that building managers look into cheap, quick fixes for their current facilities in order to improve the safety (lighting, locks, coverage, visibility) in addition to location, space, and style suggestions for future implementations. Such improvements include adding lights, possibly a security camera, in order to improve safety. Regarding location, placing parking facilities in a visible location that is easily accessible by residents (not in an alleyway, or around the building) is suggested. As for space, taking out a car space from a covered garage and implementing bicycle parking locations are optimal. Lastly, as for style, the cheapest solutions such as the hoop-and post, and the inverted U style rack are suggested, as they provide adequate support for the bicycle frames, and are space efficient as well.

There are a lot of small suggestions that could easily improve how people use bicycle parking facilities. Among the multi-family apartments observed, there is a lot of room for improvement. Some need a complete renewal, and some simply need to add more lighting, or orient their racks towards the windows and building entrances. Needless to say, there is always room for improvement and there should always be a way to communicate specific needs of the community.

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Appendix

A - Table 1: Detailed descriptions of student apartment complexes surrounding the university.

B - Table 2: List of local bicycle parking suppliers.

C - Map of study area.

D - City of Eugene Bicycle Parking Space Requirements.

Appendix A

Table 1: Detailed descriptions of student apartment complexes surrounding the university.

Locations	Property Mgmt Company	Conditions	Facilities Provided
Blackstone Manor 1750 Alder St	Von Klein	People brought bikes up several flights and locked them to the railing.	No apparent infrastructure provided.
Emerald Apts.	Von Klein	Bikes are scattered across street signs, trees, and personal door entrances.	No apparent infrastructure provided.
Talisman 888 E 18th Ave	Von Klein	Students are using the bike rack.	Bike rack provided facing 18th, no safety from others.
Alderwood Manor 1884 Alder St	Von Klein	Bikes locked to railings on multiple floors.	No apparent facility provided.
The Sonja 1836 Alder St	Von Klein	Some bikes are tipped over, crooked (taking up more space than necessary), some have parts stolen, some are locked to trees.)	U shaped bike racks installed by front door. Additional bicycle parking in a gated, covered parking lot, but is not easily accessible and unused.
The Prefontaine 1801 University St	Von Klein	In the bike cage, almost all of the bikes remaining were trashed for parts and are unusable.	Unprotected (no lock) bike cage near dumpster, no

Commons on Alder 1875 Alder St	Von Klein	Student lock bike to front door railings, most likely bring inside.	No apparent infrastructure provided.
Indigo Place 889 E 19th Ave	Von Klein	People have brought their bikes upstairs and are storing them on their balconies and indoors	Similar to Prefontaine, the provided space is very unsafe and run down.
Claire Lu 735 East 17th Ave	Von Klein	Some bikes had missing parts and rust.	Bike rack provided but may not suit all sizes/models of bikes.
Collegeside 737 East 16th Ave	Von Klein	Students have locked their bikes outside of the building to railings.	No apparent infrastructure provided.
Kincaid St Apts. 1844 Kincaid St	Income Property Mgmt	Students have brought their bikes upstairs and locked them near their door. Possible that some brought them inside.	No apparent infrastructure provided.
E 18th Apts. 914 E 18th Ave.	Income Property Mgmt	Due to direct access to main street from house, students are suspected to bring their bikes inside.	No apparent infrastructure provided.
Hayward House 1290 E. 18th Ave.	Jennings Group	A lot of people have brought their bikes upstairs and locked to railing. Assumed that others have brought their bikes inside.	No infrastructure, even in covered parking lot.
Campus Court	Capri at Eugene	Many bikes locked to railing on inside.	Gated entrance, safe from intruders.
Aldersgate	Capri at Eugene	People have brought their bikes upstairs and locked them to railings in front of their doors, possibly some were brought indoors.	No apparent infrastructure provided.
Woodside Manor 1810 Harris St	Capri at Eugene	Bikes are either in the bike cage or locked to the bars from the outside. All bikes are intact and the area looks used.	Secure, lit bike cage available in covered parking lot.

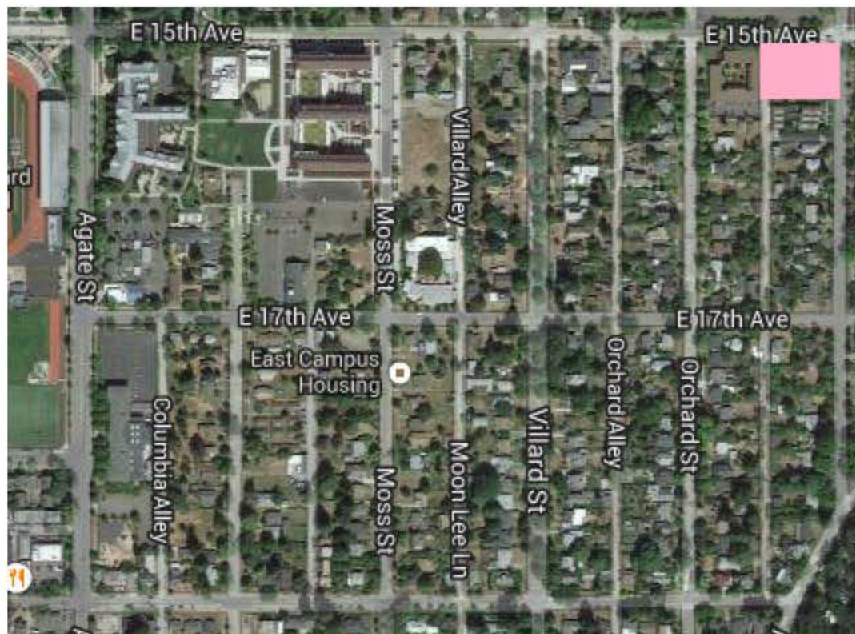
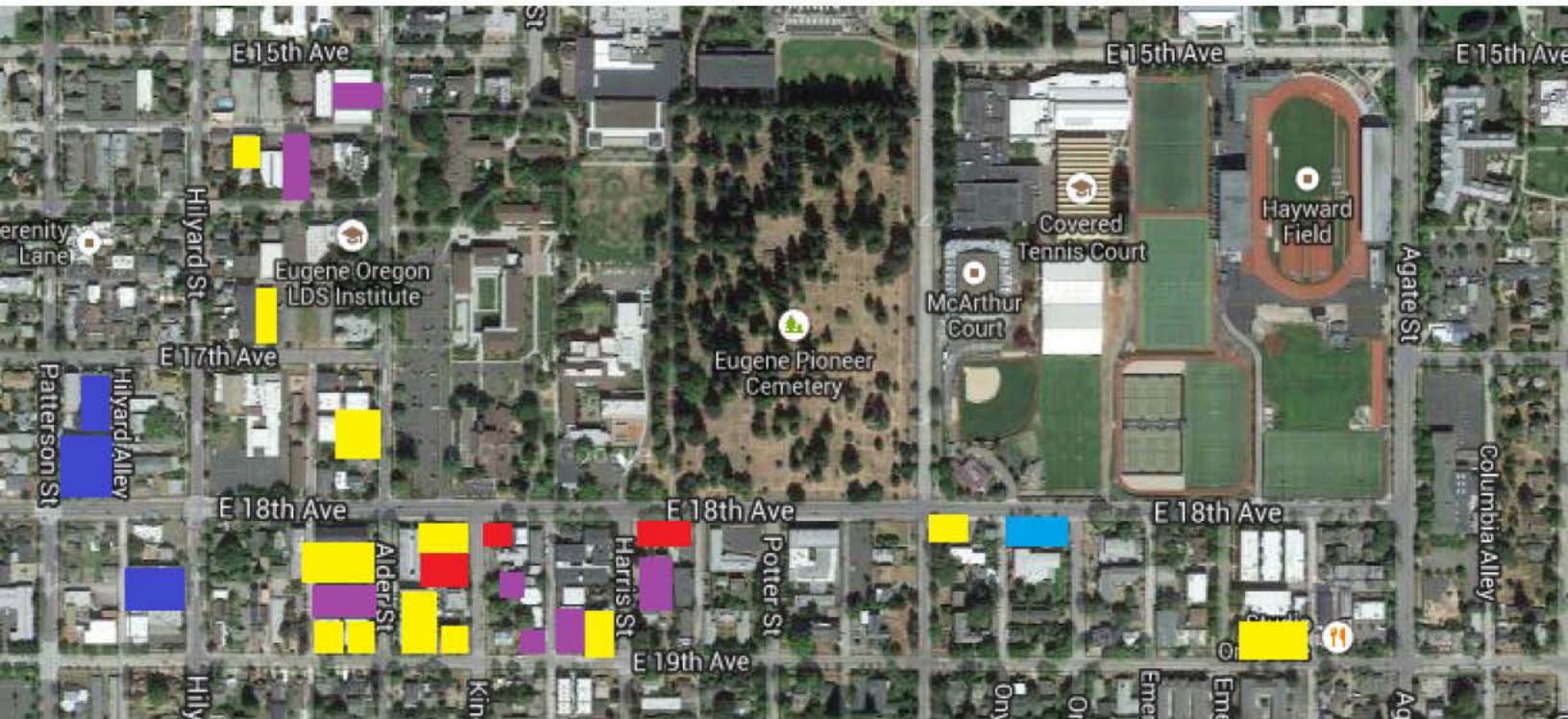
Stoneridge 951 E 19th Ave	Capri at Eugene	Bikes are stored scattered across the building, even under the staircase.	Bike age is provided in covered parking lot.
Hilyard Abbey 1848 Hilyard St	Mallard Properties	Bikes are not visibly stored.	No apparent infrastructure provided.
O-Town 1777 Patterson St	Mallard Properties	Bikes are not visibly stored.	No apparent infrastructure provided.
Waverly 648 E 17th Ave	Mallard Properties	Bikes are not visibly stored.	No apparent infrastructure provided.
University House 2050 E. 15th Ave	University House	All bikes are safe within the cage, yet one person still locked their bike to a tree.	Covered, lit, artistic, indoor bike storage room with U shaped locks, additional U shaped locks at the main door for shorter durations.
Student Manor 1442 East 18th Avenue	Greystone Properties	A lot of bikes are on the railings or assumed to be inside.	No apparent infrastructure provided.
Ridgewood Apts. 942 E 18th Ave	N.A.	People are using a staircase railing leading to a basement railing as a bike rack, where one bike has fallen down the staircase, still locked. Some bikes are missing parts.	No apparent infrastructure provided.
Camelot 800 E 18th Ave	N.A.	People are using the courtyard staircase railing as a bike rack. Most students bring their bikes indoors.	Bike rack available in ground level parking lot, students express alarm towards "eerie" location.

Appendix B
List of local and non-local bicycle rack distributors.

Local Suppliers	Contact Info
Columbia Cascade, Portland	http://www.timberform.com
Creative Metalworks LLC., Dayton	http://www.creativemetalworksllc.com
Eugene Rack Works, Eugene	catoregon.com
Huntco Supply, Portland	http://huntco.com/
Parkforms LLC, Portland	No website. 3707 NE Columbia Blvd Portland OR 97211 (503) 288-5797
Rack Attack, Portland	rackattack.com/bike-parking-racks.asp
Life Rax LLC., Oregon City	nwrecreation.com
Radius Pipe Bending / Radius Bike Racks	93192 Prairie Rd Junction City OR 97448 541.998.9700
Non-local Suppliers	
Park It Bike Racks, IL	www.parkitbikeracks.com
Urban Racks, Seattle, WA/Vancouver, BC	www.urbanracks.com/bike_racks.php

Appendix C

Figure 1: Verified apartment complexes observed for bicycle rack facilities.



Appendix D

City of Eugene Bicycle Parking Space Requirements

(5) Minimum Required Bicycle Parking Spaces. The minimum required number of bicycle parking spaces shall be calculated according to Table 9.6105(5) Minimum Required Bicycle Parking Spaces and subsection 9.6105(6) for alternative bicycle types. A minimum of 4 bicycle parking spaces is required for all uses unless otherwise noted in the table. For example, if the square footage for a use equates to 2 spaces, the use must still provide 4 spaces. For the 2 extra spaces needed to meet the minimum of 4, the developer may choose which type (long or short term) of spaces to provide.

Where two options are provided (e.g., 4 spaces, or 1 per dwelling), the option resulting in more bicycle parking shall be used.

[Note: The following table is intended to entirely replace existing Table 9.6105(5). Because it is so long, the existing table is not shown here in the deleted, strikethrough format.]

<u>Table 9.6105(5) Minimum Required Bicycle Parking Spaces</u>			
<u>Use Category</u>	<u>Specific Uses</u>	<u>Number of Required Spaces</u>	<u>Long and Short Term Bicycle Parking Percentages</u>
<u>Accessory Uses</u>		<u>-0-</u>	<u>NA</u>
<u>Residential</u>	<u>Single-family and duplexes</u>	<u>-0-</u>	<u>NA</u>
	<u>Triplex, four-plex, and multi-family in the R-3 and R-4 zones within the boundaries of West University and South University Neighborhoods</u>	<u>1 per unit for studios, 1-bed and 2-bed units</u> <u>2 per unit for 3-bedrooms or more</u>	<u>90% long term</u> <u>10% short term</u>
	<u>Triplex, four-plex, and multi-family in all other areas not listed above</u>	<u>0.5 per dwelling unit</u>	<u>75% long term</u> <u>25% short term</u>
	<u>Dormitories</u>	<u>1 space per every two occupants</u>	<u>50% long term</u> <u>50% short term</u>

Image 15: City of Eugene Bicycle Parking Space Requirements