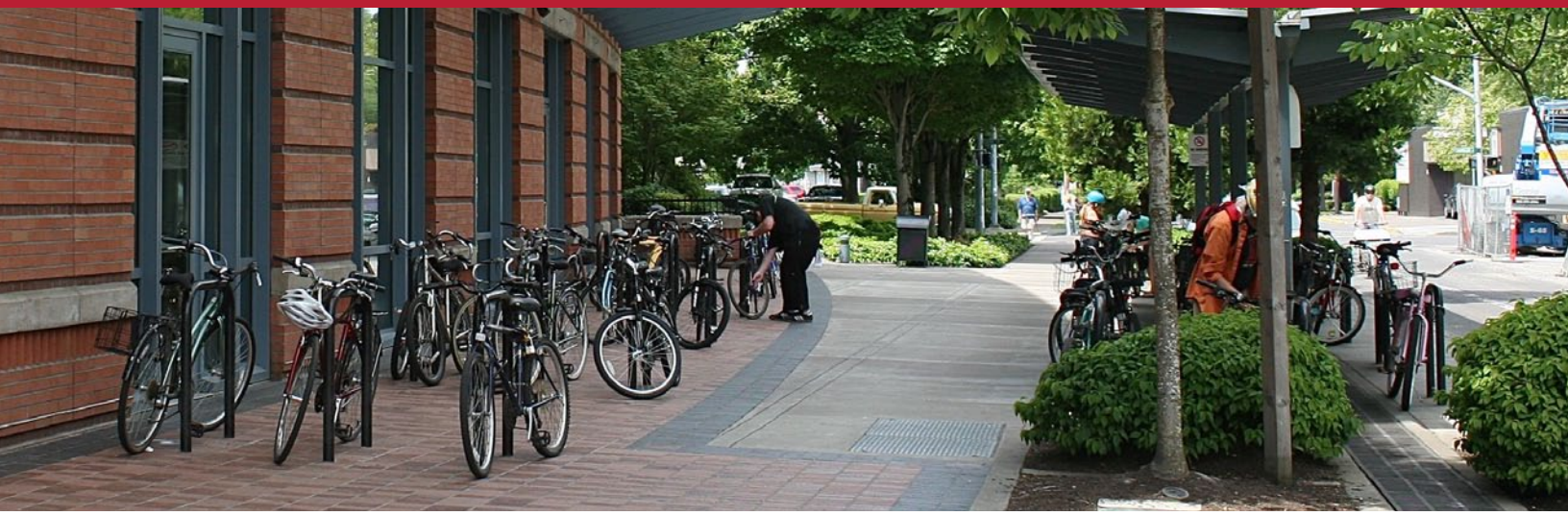
Lane Transit District - point2point



October 2013

Regional Bike Parking Study

CENTRAL LANE MPO

SPRINGFIELD OREGON

COBURG OREGON

Eugene

Lane Transit District

point2point A PART OF LTD

alta PLANNING + DESIGN

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Table of Contents

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1: Introduction

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1.1 Study Purpose

More and more people are choosing to bicycle in the Eugene-Springfield region. More bikes on the roads, however, means more bikes that need to be parked - at home, at work, at the store, at restaurants, and everywhere in between.

In order to accommodate and plan for this increased need for bike parking, this Regional Bike Parking Study provides the region with key planning information about the following:

- Short and long-term bicycle parking supply and demand
- Existing facility conditions and preferences
- Potential new facilities
- Bicycle parking for transit stations
- Recommended bicycle parking facility types
- Recommendations for bicycle parking installation, security, and management
- Recommended development code changes

This study report, and the associated products (including digital (GIS) mapping files, photographs, maps, graphics, and presentations) are intended to assist Lane Transit District and local jurisdictions to 1) secure and allocate funding to install new bicycle parking in ways that best meet the region's needs, and 2) ensure that new private development appropriately provides for bicycle parking needs.

1.2 Study Partners

The study was led by point2point Solutions at Lane Transit District (LTD). Regional partners included the City of Springfield, the City of Eugene, the City of Coburg, the Lane Council of Governments (LCOG), and Lane County. The study was funded through a grant from the Central Lane Metropolitan Planning Organization.

1.3 Study Area

This study focused on the following three priority areas, as defined by LTD:

- Priority transit stations throughout the region, to help solve the "first- and last-mile" barrier.
- Activity centers (cultural institutions, shopping centers, major employers, and institutions of higher learning), where both employees and visitors are increasingly demanding high-quality bike parking.
- A total of 100 blocks of downtown areas, divided between Springfield and Eugene, to accommodate increases in bicycling as downtowns redevelop.

Figure 1-1 shows the locations of transit stations and activity centers included in the study.

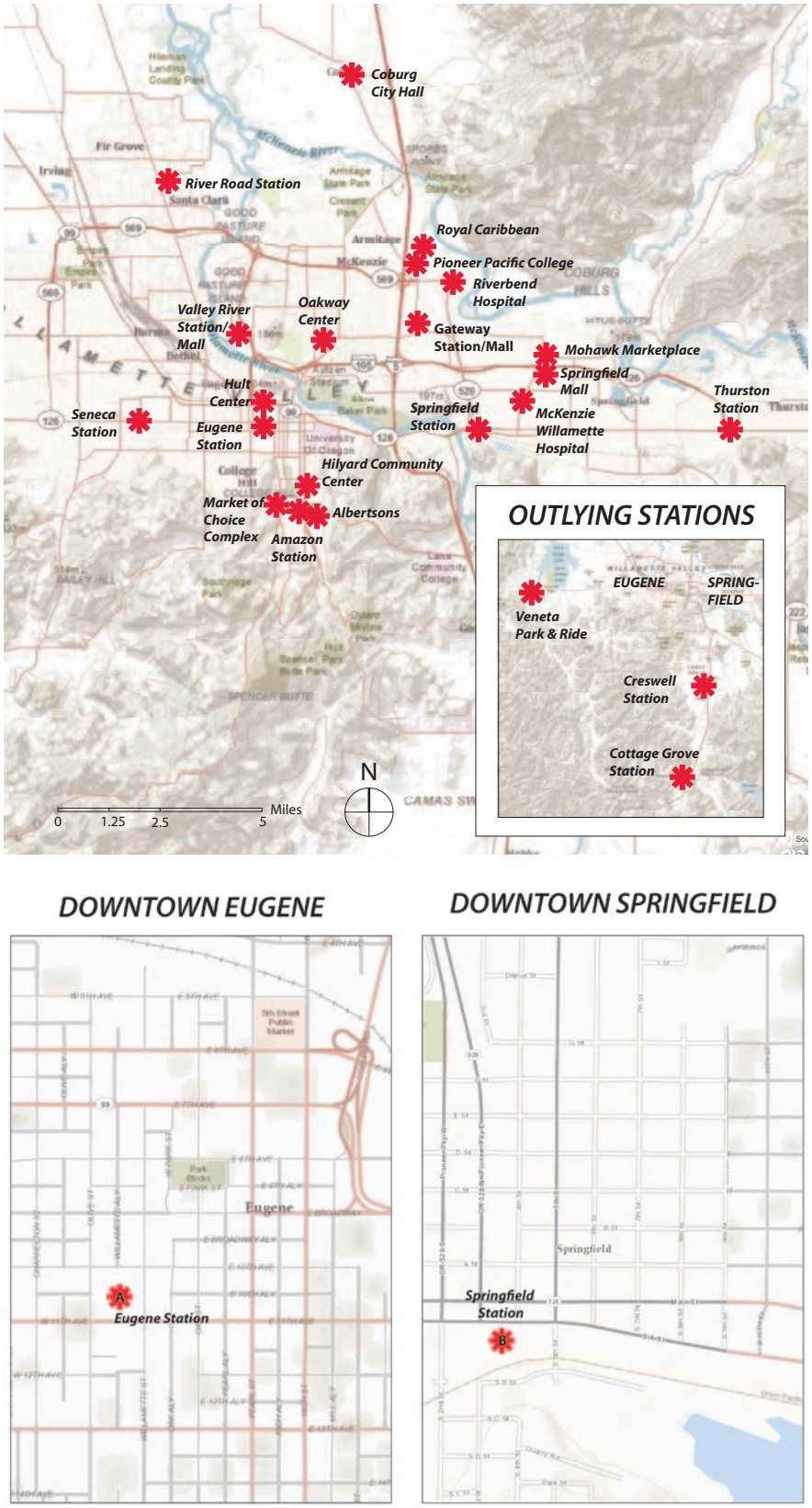

Figure 1-1: Transit Stations and Regional Activity Centers Included in Project Study Area

1.4 Study Design

This study has four major parts, comprising Chapters 2 through 5. Chapter 2 covers existing conditions for bicycle parking, including the field inventory and the web map survey. Chapter 3 covers the demand model creation and results for transit stations, activity centers, and downtowns. Chapter 4 covers recommendations and cost estimates for transit stations and downtowns. Chapter 5 covers design guidance, including recommended bicycle parking types, installation guidelines, and an overview of development code amendments (covered in detail in Appendix H).

1.5 Public Input

Throughout the project, an extensive list of interested parties was created and contacted with information about the project. Public engagement was managed by Cogito, a local firm. Interested parties included the following:

- Eugene Bicycle and Pedestrian Master Plan email list
- Eugene Bicycle and Pedestrian Advisory Committee (BPAC)
- Springfield Bicycle and Pedestrian Advisory Committee (BPAC)
- Employee Transportation Coordinators email list
- DriveLessConnect email list
- point2point Solutions email list
- City of Eugene InMotion Newsletter
- Greater Eugene Area Riders (GEARs)
- Eugene Sustainability Commission
- Bike shops and architecture firms
- BikeLane Coalition
- Eugene Safe Routes to School Program
- Lane County Home Builders Association
- Lists assembled for other planning projects in the region
- Eugene Neighborhood Associations
- Eugene, Springfield, and Lane County Public Works Departments

In addition, newsletters and flyers were posted, and phone calls were made to key community leaders at crucial points during the project. point2point/LTD staff presented before the Metropolitan Policy Committee, the Lane Transit District Board, and both Springfield and Eugene Bicycle and Pedestrian Advisory Committees. On March 13, 2013, an open house was held to provide community members with an opportunity to comment on preliminary recommendations.

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2: Existing Conditions

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2.1 Inventory Methodology

A bicycle parking inventory was conducted over two days in October 2012. The weather was clear and mild with some clouds in the sky, but no rain, meaning that inclement weather did not cause reduced bicycle use during the inventory. The downtown Springfield and Eugene surveys were conducted by two Alta staff members using a combination of GPS (Geographic Positioning System), paper maps, and digital cameras to record physical conditions at each site. For each site, Alta staff recorded the position of the rack (through GPS data), the rack type, how many bicycles were locked to it, evidence of unmet demand (such as bicycles parked to an immediately adjacent sign or tree), and a photograph.

2.2 Inventory Results

Downtown Springfield and downtown Eugene featured a wide variety of short-term bike rack types in the public right of way.

Bike rack types (pictured in Figure 2-1) found during the inventory included the following:

- Standard hoop-and-post
- Staple racks (includes shelters, corrals, and other grouped units)
- Custom art racks
- Parking meter adapted units (hoop-and-post)
- Wave/ribbon racks
- Toaster/wheel-bender units

The bike racks found at transit stations and activity centers consisted primarily of staples and wave/ribbon racks. In general, bike racks were installed in locations that were visible upon entering the transit centers. The bike racks at newer facilities tended to be more visible, well spaced, and fully functional. Older facilities were more likely to have less functional wheel bender or wave/ribbon racks. Covered bike parking varied across the survey areas.

Figures 2-2 and 2-3 (Springfield) and 2-4 and 2-5 (Eugene) show the rack type and number of bike parking spaces in the downtowns as observed by Alta staff and point2point/Lane Transit District staff on October 16 and 17, 2012. Additionally, three outlying transit stations were surveyed by point2point/LTD Staff (Veneta, Cottage Grove, and Creswell). Tables 3-1 and 3-2 (subsequent section) show the capacity and occupancy at transit stations and activity centers, observed on the same days.

The bike parking installations at EmX stations were consistent, predictable, and fully integrated with the station/platform area. Springfield Transit Station in particular had a very well-designed layout. All other EmX stations featured at least one stainless steel staple rack at the end of the platforms.

Hoop-and-Post Rack

Staple Rack

Art Rack

Parking Meter Adapted

Wave/Ribbon Rack

Wheelbender Rack

Figure 2-1: Existing Bicycle Rack Types

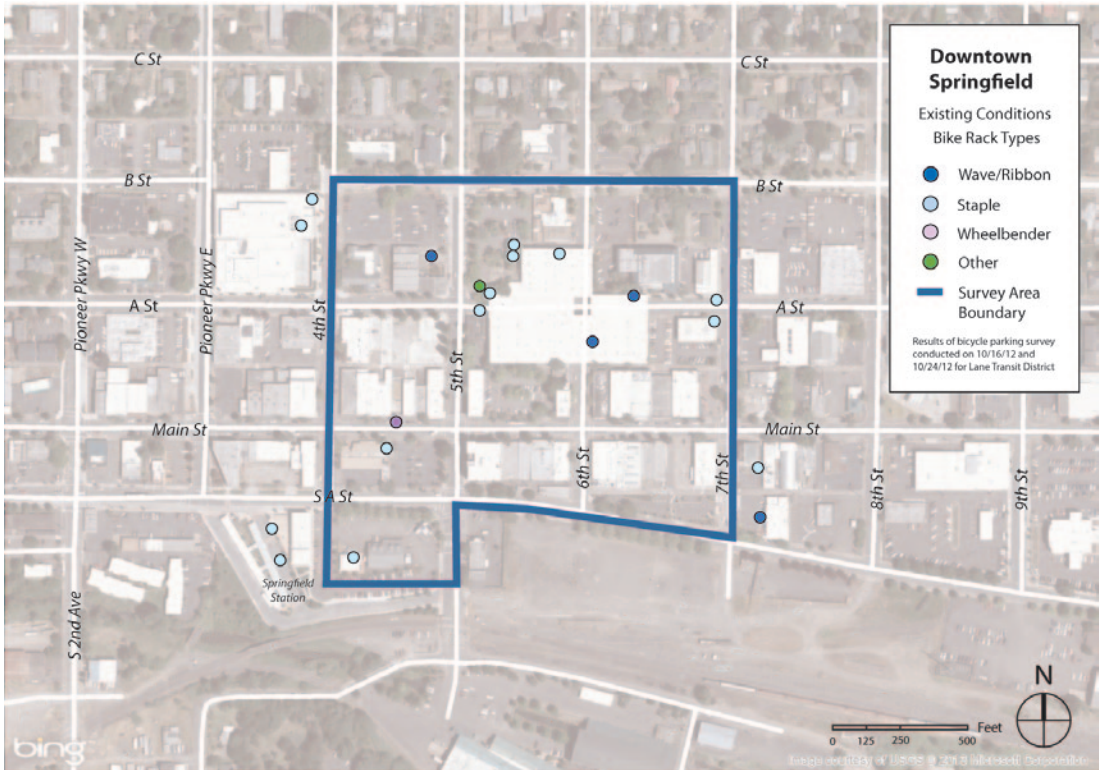

Figure 2-2: Downtown Springfield Bike Parking Types

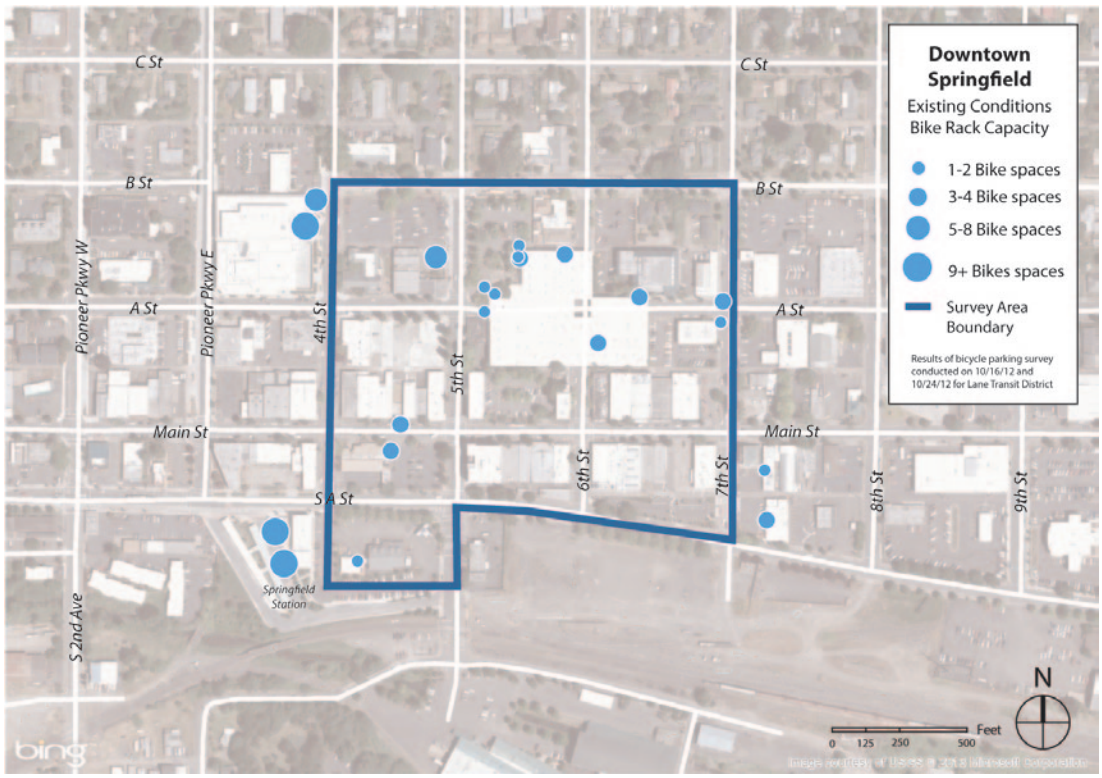

Figure 2-3: Downtown Springfield Bike Parking Capacity

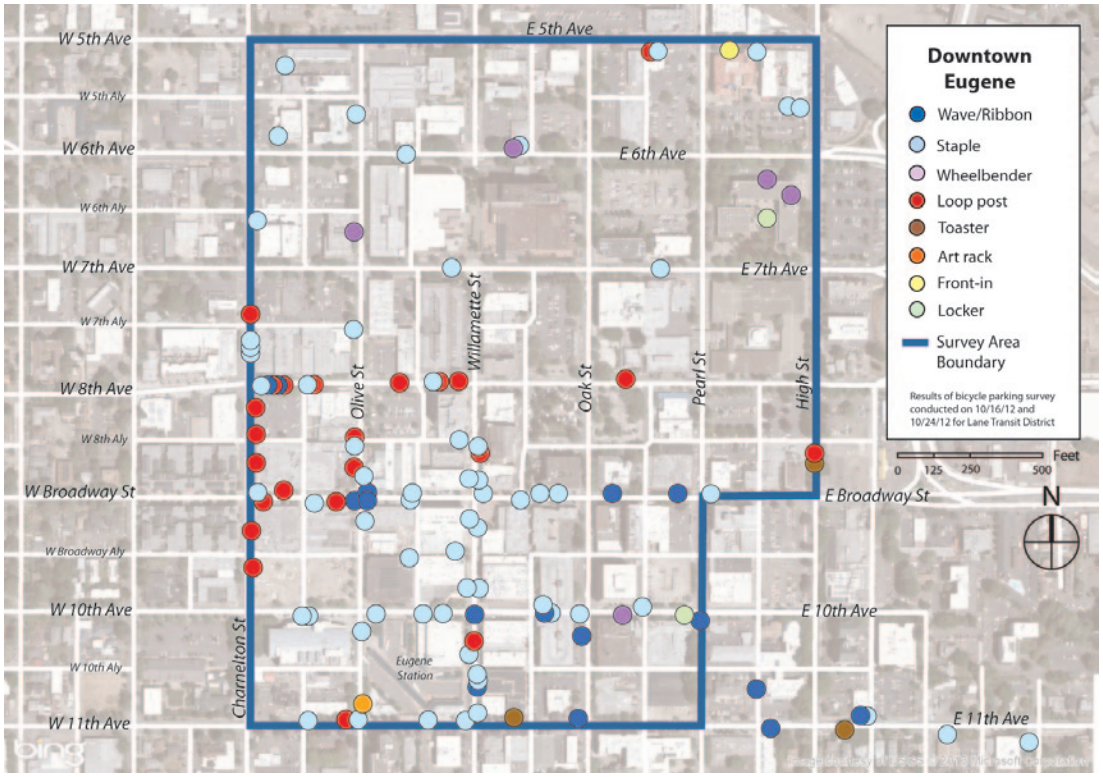

Figure 2-4: Downtown Eugene Bike Parking Type

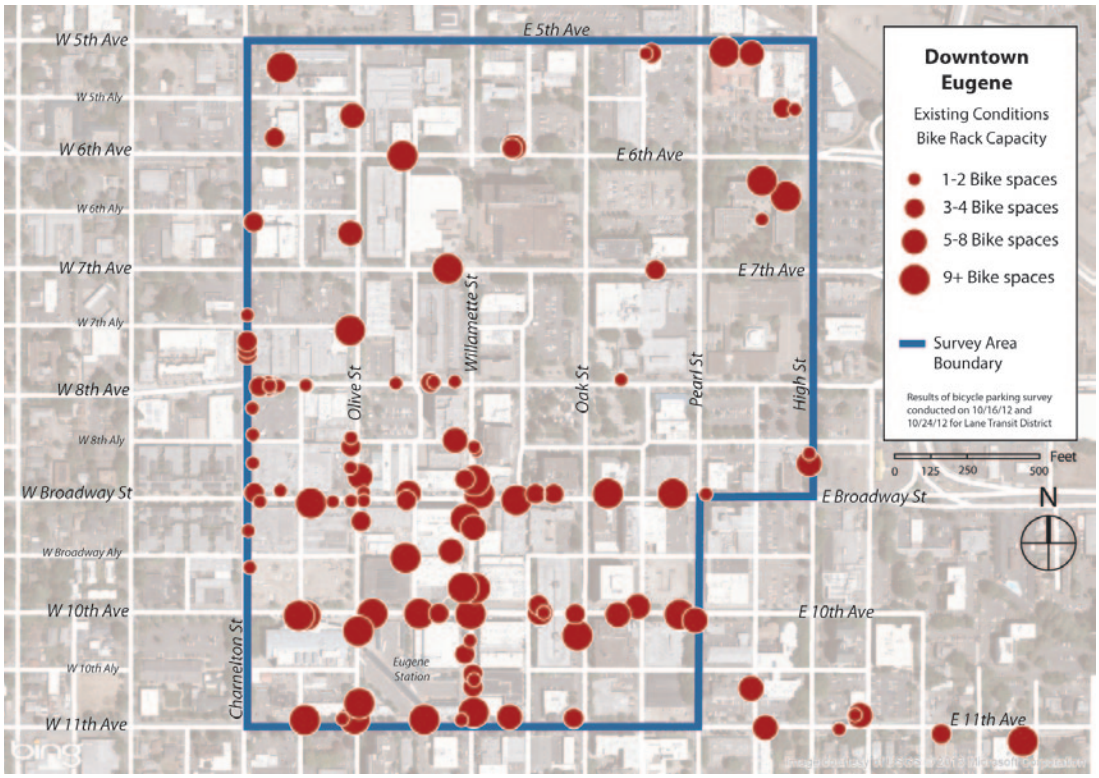

Figure 2-5: Downtown Eugene Bike Parking Capacity

Wave/ribbon bike racks, staple racks, and hoop-and-post racks were among the more prevalent bike rack types in the right-of-way in the downtown Springfield and Eugene survey areas. (See Figures 2-2 and 2-4).

In both downtowns, short-term bike parking is most often found in either the furnishing zone (directly adjacent to the building front) or the frontage zone (next to the curb, in the same area as street trees) of the sidewalks in front of local shops and businesses.

In downtown Springfield, numerous bike racks have been installed well at both the Justice Center and at Springfield Station; the latter feature covers to shield racks from the rain. Numerous racks are also installed outside of the Juvenile Court building and surrounding City Hall. Generally speaking, newer bicycle parking installations are higher in quality and better installed compared to older racks.

In downtown Eugene, bike parking is also often found on the grounds of some of the larger institutional properties such as the city, county, and federal buildings, hospital campus, etc. There are many examples of covered bike parking, under awnings and alcoves. Wide sidewalk widths often allow perpendicular or angled parking in the downtown core. Many bike racks were located in less conspicuous areas, tucked between buildings, concealed partially by walls or hedges, and in downtown Eugene's numerous alleyways. When bike parking was difficult to find, it was typically underutilized.

Many racks were improperly installed with regard to spacing, orientation or general location. In some cases, this necessitated parking at awkward angles and limited the potential capacity of the racks, or impeded pedestrian travel. As expected, there are higher concentrations of bike racks available near the core of downtown. There are far fewer racks further north toward the river and east toward the Sacred Heart Hospital and the more residential neighborhoods between downtown and the University of Oregon campus.

In downtown Eugene, there are a number of secure, longer-term facilities visible from the right-of-way including enclosed bike lockers maintained by the City and outdoor, secure bike parking areas. However, it appears the majority of these secure parking areas are for employee use, and not available to the general public.

2.3 Web Map Methodology

For this study, an interactive online bike parking web survey was created to solicit feedback from community members about their bicycle parking needs. The survey asked people to share where they currently park a bicycle, and where they have difficulty finding parking. It was open for 18 days, and received over 1,000 individual responses (each "response" could be either a single new point, or a comment on an existing point that had been submitted by another user). A total of 643 unique bicycle parking locations were identified through the web map survey. Ninety-five percent of points added were in the City of Eugene. Anecdotally, some people reported difficulty using the mapping instrument which may have suppressed participation and limited the number of responses.

2.4 Web Map Results

Figure 2-6 (following) shows current and requested bicycle parking locations in the City of Springfield. Figures 2-7 and 2-8 show similar data for Eugene (both citywide and downtown, respectively).

Within Springfield, most of the requested parking locations were within the downtown core, centered around Main Street, the existing transit station, and civic buildings (e.g., the Court House and Library).

Within Eugene, a number of major hubs and corridors stood out, including South Willamette Street, Amazon Park and Amazon Transit Center, Blair Boulevard, Oakway Center, West 11th Avenue, Alton Baker Park, the Amtrak station, and others scattered throughout downtown.

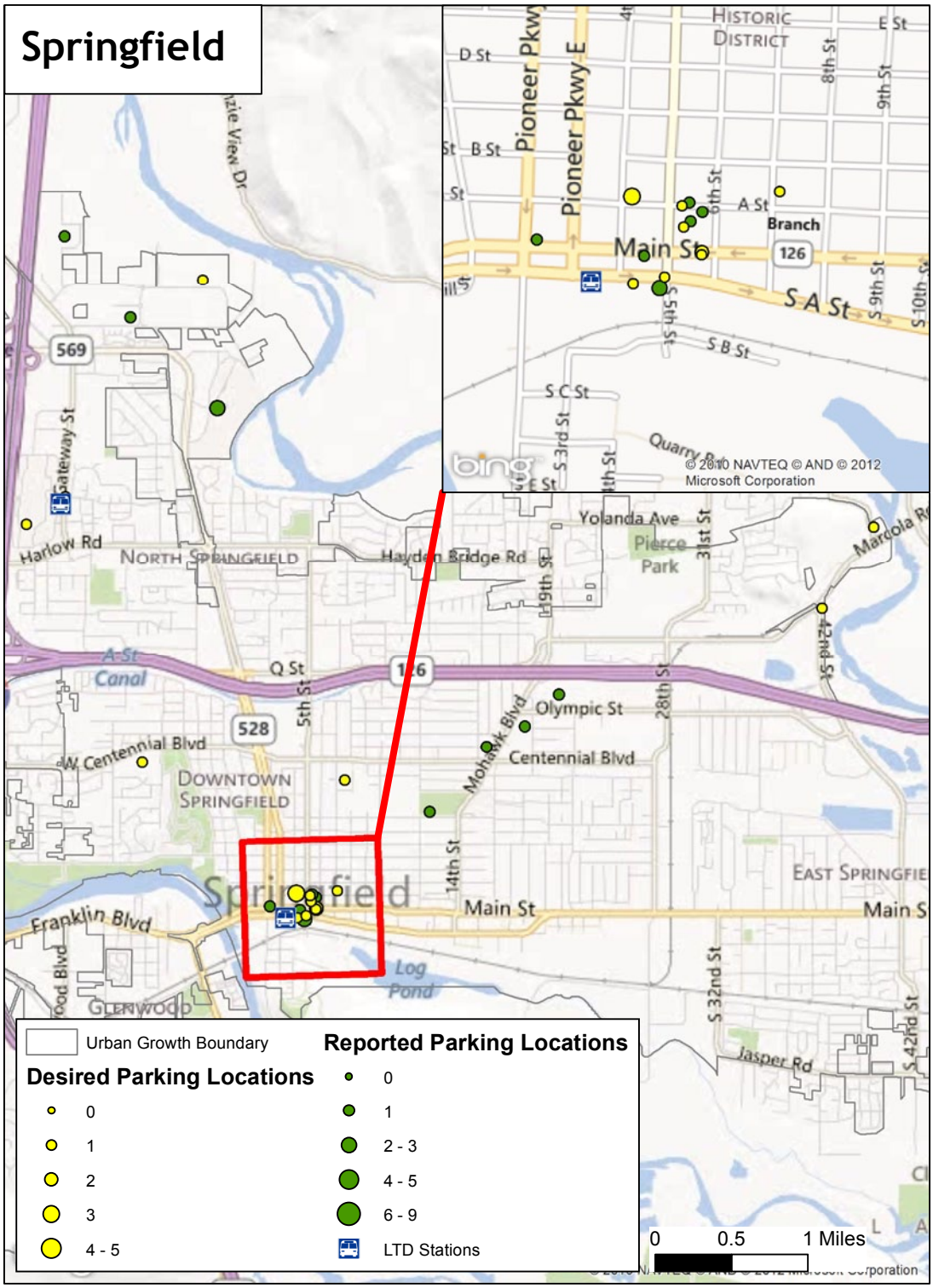

Figure 2-6: Web Map: Requested Bike Parking Locations in Springfield

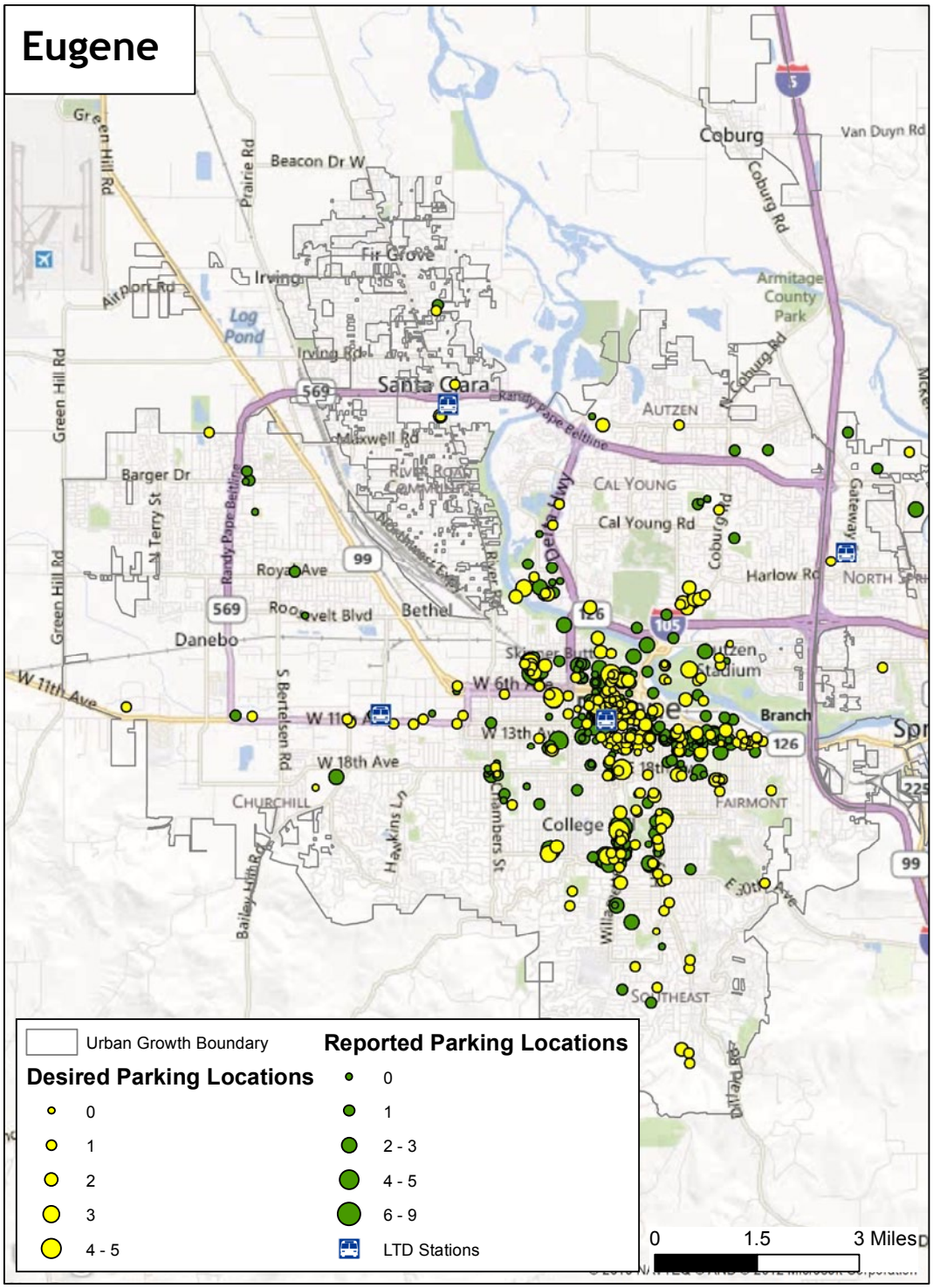

Figure 2-7: Web Map: Requested Bike Parking in Eugene (Citywide)

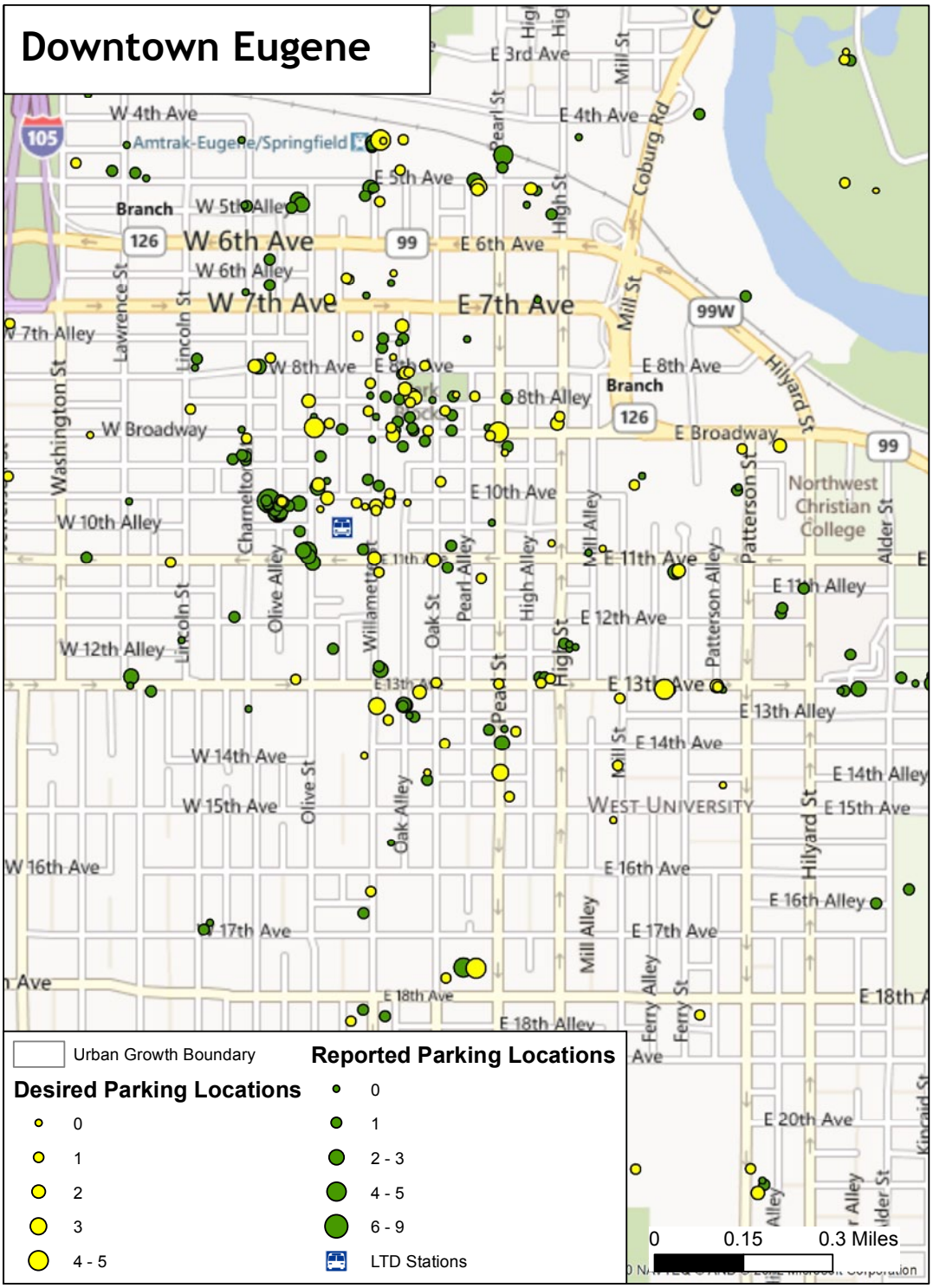

Figure 2-8: Web Map: Requested Bike Parking in Eugene (Downtown)

2.5 Existing Conditions Conclusions

Throughout the region, a range of bicycle parking types exist, some more usable and better installed than others. Generally, newer buildings had better bicycle parking (both in rack type and proper installation), likely due to improvements in bicycle parking development code. Rack type, utilization (number of bicycles parked at the site), and, where present, evidence of additional demand (such as bicycles parked to trees or sign poles) all were considered in the demand estimation process, described in the next section.

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3: Demand Modeling Process and Recommendations

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3.1 Methodology for Transit Stations

In 2012, the Transit Cooperative Research Program (TCRP) published a research study titled *Guidelines for Providing Access to Public Transportation Stations*[1]. This study considered recent data from transit agencies around the US, and additionally developed a Station Access Planning Tool spreadsheet model that provided a research-based method for calculating bicycle parking demand at public transit stations. The project team decided to use this model and calibrate the results if needed to meet local conditions.

The model inputs include characteristics of the transit system (including transit type, station type, and land use), characteristics of the specific station (including car parking spaces, bike parking spaces, and local bicycle commute mode share), and station area demographics. The two local variables that most directly affected the model output were daily transit ridership at the station and arrivals by bike (percentage of existing trips to the transit station made by bicycle). Once all the inputs were entered, the model returned an estimate of both short and long-term bicycle parking needed. Figure 3-1 illustrates the demand model process for transit stations. Once all the inputs were entered, the model returned an estimate of all bike parking needed, which was divided into long and short term parking based on the 2010 APBP Bicycle Parking Guidelines, 2nd Edition.

1 *http://www.trb.org/Main/Blurbs/166516.aspx*

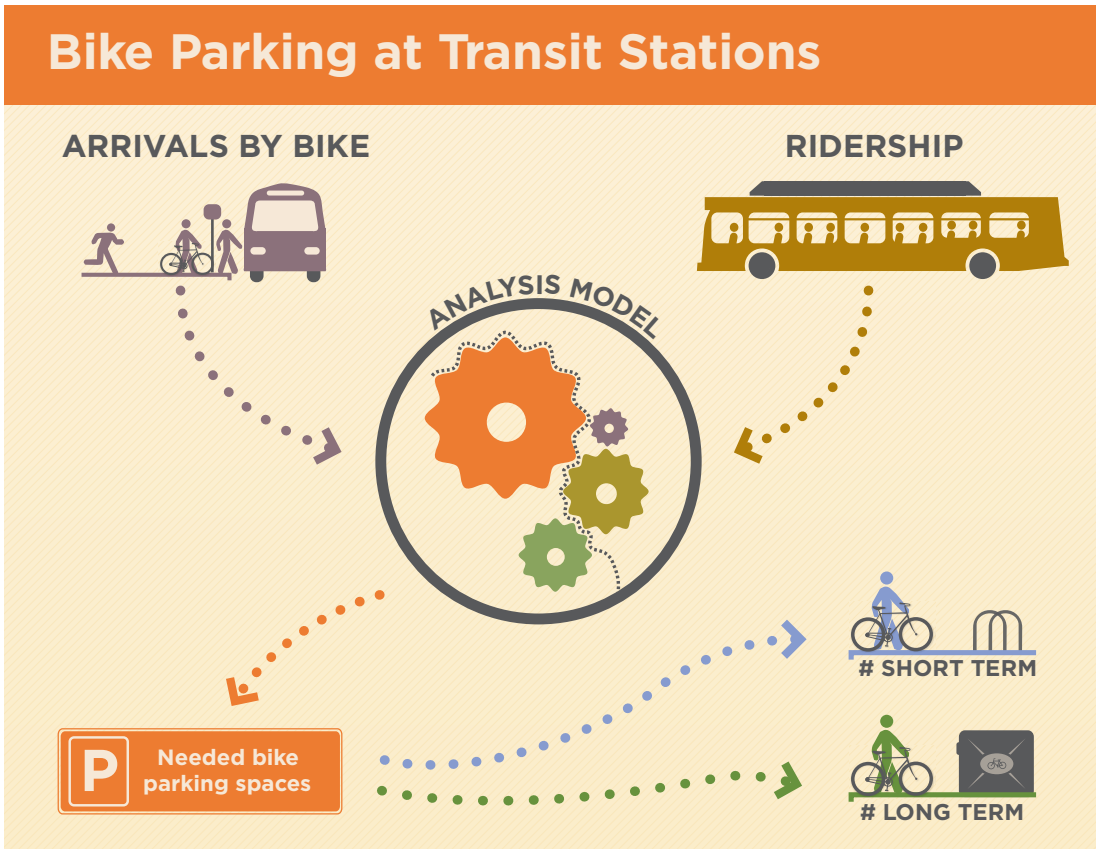

Figure 3-1: Bicycle Parking Demand Estimation Process for Transit Stations

3.2 Demand Model Results for Transit Stations

Table 3-1 shows the existing capacity and utilization at LTD stations in the study, along with the bicycle parking numbers recommended by the TCRP Station Access Planning Tool. The technical team reviewed these results with LTD and representatives of Eugene and Springfield and found that in most cases the results were reasonable. For many stations, the local team knew specific details about how the station is used, which made it necessary to calibrate the results; the final two columns of Table 3-1 show the resulting recommendation, including any adjustments made based on team knowledge and existing racks. In the case of Eugene Station, the TCRP results were not appropriate because they were not designed to consider the hub of a transit network within a city that is an outlier, nationally, in its percentage of bike commuters. Instead, staff at LCOG assisted project staff with developing a customized estimate based entirely on local data and the 2011 LTD rider survey results.

Table 3-1: Bicycle Parking Recommendations for Transit Stations

Station Name	Existing Bike Parking Capacity	Existing Bike Capacity (Short Term)	Occupancy (Short term)	Existing Bike Capacity (Long Term)	Occupancy (Long term)	Recommended Bike Parking Capacity (TCRP Model)	Action	Site Specific Considerations	Recommended New Bike Parking (Short Term)	Recommended New Bike Parking (Long Term)
A. Eugene Station	64	64	19	0	0	160*	Co-locate staffed secure bike parking in close proximity to transit station	Unlike other sites, we used citywide bicycle modeshare for this location. Interim step before staffed bike station may be several secure cages + e-lockers. *Methodology adjusted to take into account the high number of transfer trips that typically do not include a bike as well as people that choose to take their bike on transit.	Sufficient	112
B. River Road Station	16	14	0	2	0	16	Add new parking	Total seems about right, but parking needs to be relocated, and lockers converted to e-lockers, to offer better security from loiterers.	Sufficient	11
C. Springfield Station	40	40	21	0	0	90	Monitor and consider secure unstaffed parking	Model output is too high for present conditions. At most, a small # of lockers; is probably premature for a secure cage.	Sufficient	63
D. Valley River Station	69	62	2	7	Not visible (enclosed lockers)	4	Monitor and consider secure unstaffed parking		Sufficient	3
E. Gateway Station	4	4	0	0	0	23	Install secure unstaffed parking		3	16
F. Seneca Station	8	8	0	0	0	9	Install secure unstaffed parking	Note that if this becomes a high-capacity transit stop, demand will likely increase.	Sufficient	6
G. Thurston Station (Albertsons)	8	8	0	0	0	2	Monitor and consider additional secure parking	Current short-term parking doesn't feel secure, especially for long-term use. Increase % of spots served by secure parking in response.	Sufficient	1
H. Amazon Station	25	22	6	3	Not visible (enclosed lockers)	10	Monitor and consider additional secure parking	Tricky location, with a lot going on. Demand varies widely by season. Recommendation to monitor and convert existing lockers to e-lockers is probably appropriate.	Sufficient	7
I. Creswell Station	2	2	4	0	0	2	Consider providing long-term parking		Sufficient	1
J. Cottage Grove Station (Walmart)	16	14	1	2	0	2	Consider providing long-term parking		Sufficient	1
K. Veneta P & R	4	4	0	0	0	2	Consider providing long-term parking	Usage patterns may be changing as the survey was done right after one of the two P&R parking lots was closed. Consider monitoring.	Sufficient	1

* Methdology adjusted to take into account the high number of transfer trips that typically do not include a bike as well as people that choose to take their bike on transit.

3.3 Methodology for Activity Centers

The Association of Pedestrian and Bicycle Professionals (APBP) publishes the *Bicycle Parking Guidelines, Second Edition*[2], the definitive guide to bicycle parking in the United States. For activity centers, the technical team used the recommendations for bicycle parking needs by land use type as the initial demand estimate, and again calibrated the results to meet local conditions with the assistance of the local agency team. Depending on the specific facility type in question, the calculation was based on square footage (e.g. for shopping centers), maximum occupancy (e.g. for theaters), or total enrollment (e.g. for universities). Figure 3-2 illustrates the demand estimation process. Table 3-2 shows results for activity centers in the study area. See also Appendix I for Table I-1: Recommended Parking Requirements, Civic/Cultural Land Uses.

2 *http://www.apbp.org/?page=publications*

Figure 3-2: Bicycle Parking Demand Estimation Process for Activity Centers

3.4 Demand Model Results for Activity Centers

Table 3-2: Bicycle Parking Recommendations for Activity Centers

Building / Complex Name	Jurisdiction	Existing Bike Parking Capacity (Spaces)	Existing Bike Parking Occupancy	Total Recommended Spaces (APBP)	Total Recommended Spaces (Code)	Adjusted for Local Conditions	Net Needed Spaces	Rationale and Phasing Recommendation
1. Albertsons (30th/ Hilyard)	Eugene	24	5	14	18	24	0	Recommend retaining existing parking. Existing racks could be rebalanced if necessary.
2. Coburg City Hall / Pavilion Park	Coburg	0	0	2	4	4	4	Install racks based on code recommendation.
3. Gateway Mall	Springfield	66	12	321	402	160	94	Reduced APBP recommendation by 50 percent based on local observations. Consider phased installation, with a focus on providing at least 2 - 4 sheltered racks near each mall entry.
4. Hilyard Community Center / Park	Eugene	10	0	0	19	19	9	Given high use of parks and community centers, used code recommendation.
5. Hult Center*	Eugene	18	1	122	279	122	104	Excess demand indicated through community observation.
6. Market of Choice Complex (29th/ Willamette)	Eugene	26	8	62	85	62	36	Consider phased installation of bike parking to reach recommended number of APBP Spaces. Installation may be phased with a focus of installing 2 - 4 spaces near each doorway.
7. McKenzie Willamette Hospital	Springfield	8	0	30	150	16	8	Consider phased installation of bike parking to reach recommended number of APBP Spaces. Installation may be phased with a focus of installing 2 - 4 spaces near each doorway.
8. Mohawk Marketplace	Springfield	18	0	47	66	48	30	Consider phased installation of bike parking to reach recommended number of APBP Spaces. Installation may be phased with a focus of installating 2 - 4 spaces near each doorway.
9. Oakway Center	Eugene	154	20	102	213	154	0	Parking exceeds APBP demand, but survey indicates sufficient parking exists. Monitor and install additional parking if necessary.
10. Pioneer Pacific College	Springfield	28	0	28	150	28	0	Survey indicates that sufficient parking exists. Monitor and install additional bike parking if necessary in the future.
11. RiverBend Hospital	Springfield	24	1	179	899	90	66	Reduced APBP recommendation by 50 percent based on local observations. Consider phased installation, with a focus on providing at least 2 - 4 sheltered racks near each entry.
12. Royal Caribbean	Springfield	62	6	15	76	62	0	Parking exceeds APBP demand, but survey indicates sufficient parking exists. Monitor and install additional parking if necessary.
13. Springfield Mall (2090 Olympic St.)	Springfield	4	0	179	173	90	86	Reduced APBP recommendation by 50 percent based on local observations. Consider phased installation, with a focus on providing at least 2 - 4 sheltered racks near each entry.
14. Valley River Mall	Eugene	67	2	280	350	140	73	Reduced APBP recommendation by 50 percent based on local observations. Consider phased installation, with a focus on providing at least 2 - 4 sheltered racks near each mall entry.

* This count was conducted during the daytime. Reports from community members indicate that the Hult Center parking is typically full to overflowing during events.

3.5 Methodology for Downtowns

For downtown Springfield and Eugene, neither of the previous methods of calculating bicycle parking capacity at a single location was appropriate. Instead, a custom model was developed that considered downtowns as a district where bicycle parking is needed throughout to service many destinations.

As a first step, all blocks within the downtown study areas that contained only single-family homes were eliminated from further study, as these land uses have low need for visitor parking. Multi-family buildings were included in the study, however, based on input received from the public and from agency staff that visitor parking at such developments is currently lacking. All blocks that included commercial, civic, or multi-family land uses were named activated blocks. Next, all activated blocks were assigned new bike parking to meet a minimum baseline of two racks (four spaces) per block face for Springfield and three racks (six spaces) per block face in Eugene. These figures were selected with the input of City staff.

Next, blocks with business types that are known to generate more bicycle trips (such as pubs, restaurants, and music venues) were assigned additional bike parking. Likewise, more parking was assigned to locations where crowded bike rack conditions were observed during the field inventory.

The resulting bike parking recommendations were compared to input received on the web map to verify that the model outputs corresponded to community needs. This process revealed that the model results were generally appropriate, and minor changes were made as needed. As a final step, block faces with eight or more recommended spots were flagged as potential locations for bike corrals[3], which can accommodate high volumes of parked bicycles without consuming excessive sidewalk real estate.

Figure 3-3 illustrates the demand model steps developed for downtown environments.

3 *An on-street bicycle corral replaces one or two on-street auto parking spaces with a bank of staple racks. It is protected by a curb at each end, and delineated with pavement markings. For more details, see Appendix F – Visual Guide to Bicycle Parking Types.*

Figure 3-3: Bicycle Parking Demand Estimation Process for Downtowns

3.6 Demand Model Results for Downtowns

In downtown Springfield (see Figure 3-4), the calibrated model output showed that four spots per block face are needed for all activated blocks in the study area except for eight blocks where four to six spots per block face were recommended (all streets surrounding City Hall, and 5th and 6th Streets between Main and A St, and A and Main between 4th and 5th Streets). In addition, one on-street bike corral is needed at the corner of 4th Street and Main Street.

In downtown Eugene (see Figure 3-5), four spots per block face were recommended for nearly all blocks west of Jefferson, south of 19th Ave, except for along South Willamette Street and extending to Amazon Park, where greater numbers are recommended. Within the core of downtown, most blocks have recommendations for six to eight racks, except for hotspots of greater demand on 12th and 13th Avenues near UO, near the central Library/Kiva/Eugene Station area, near the Amtrak station and 5th Street Market, and the area of greatest concentration centered around Broadway and Willamette; these locations may be appropriate for on-street bike parking corrals, particularly as development occurs.

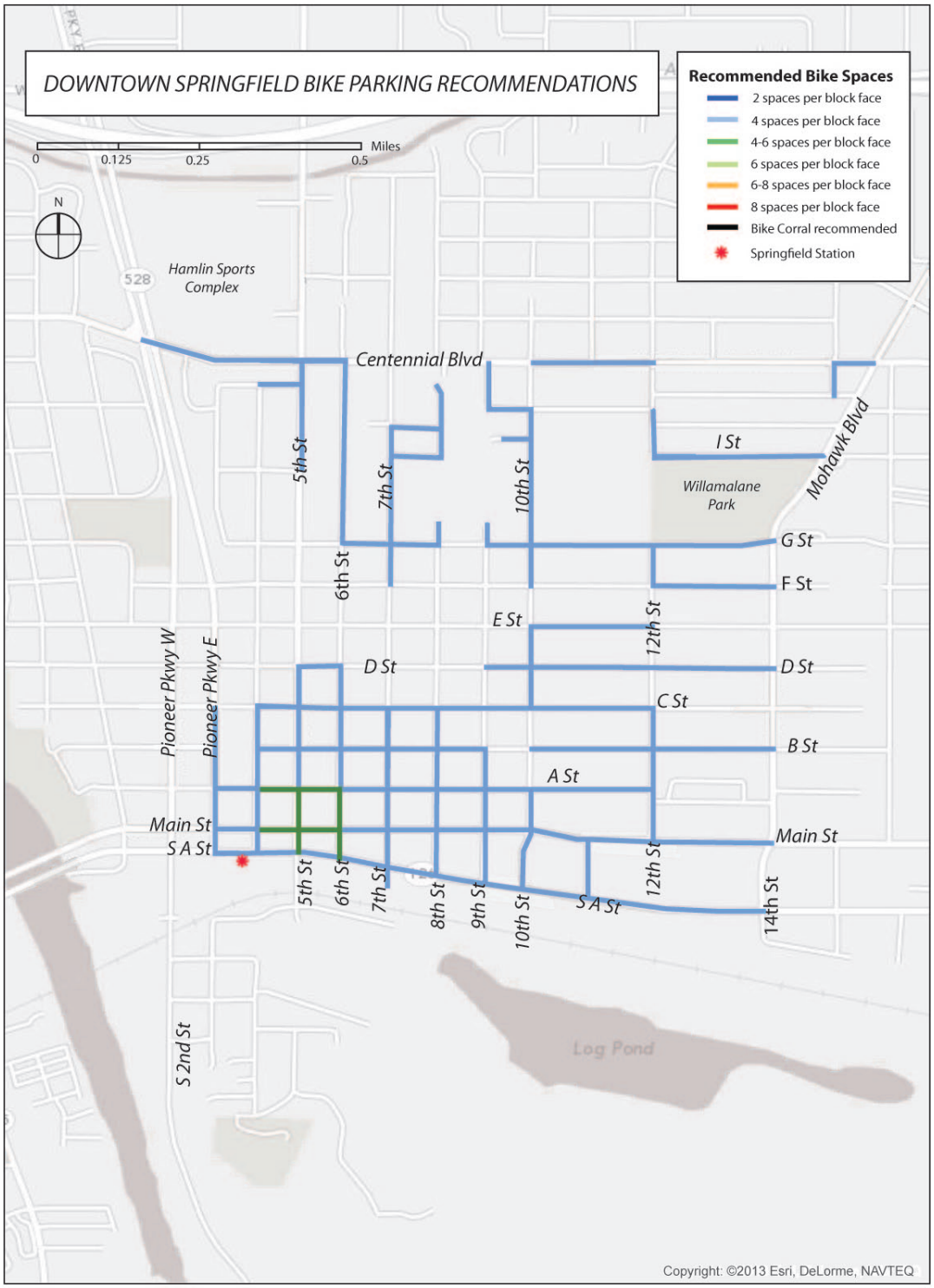

Figure 3-4: Bicycle Parking Recommendations for Downtown Springfield

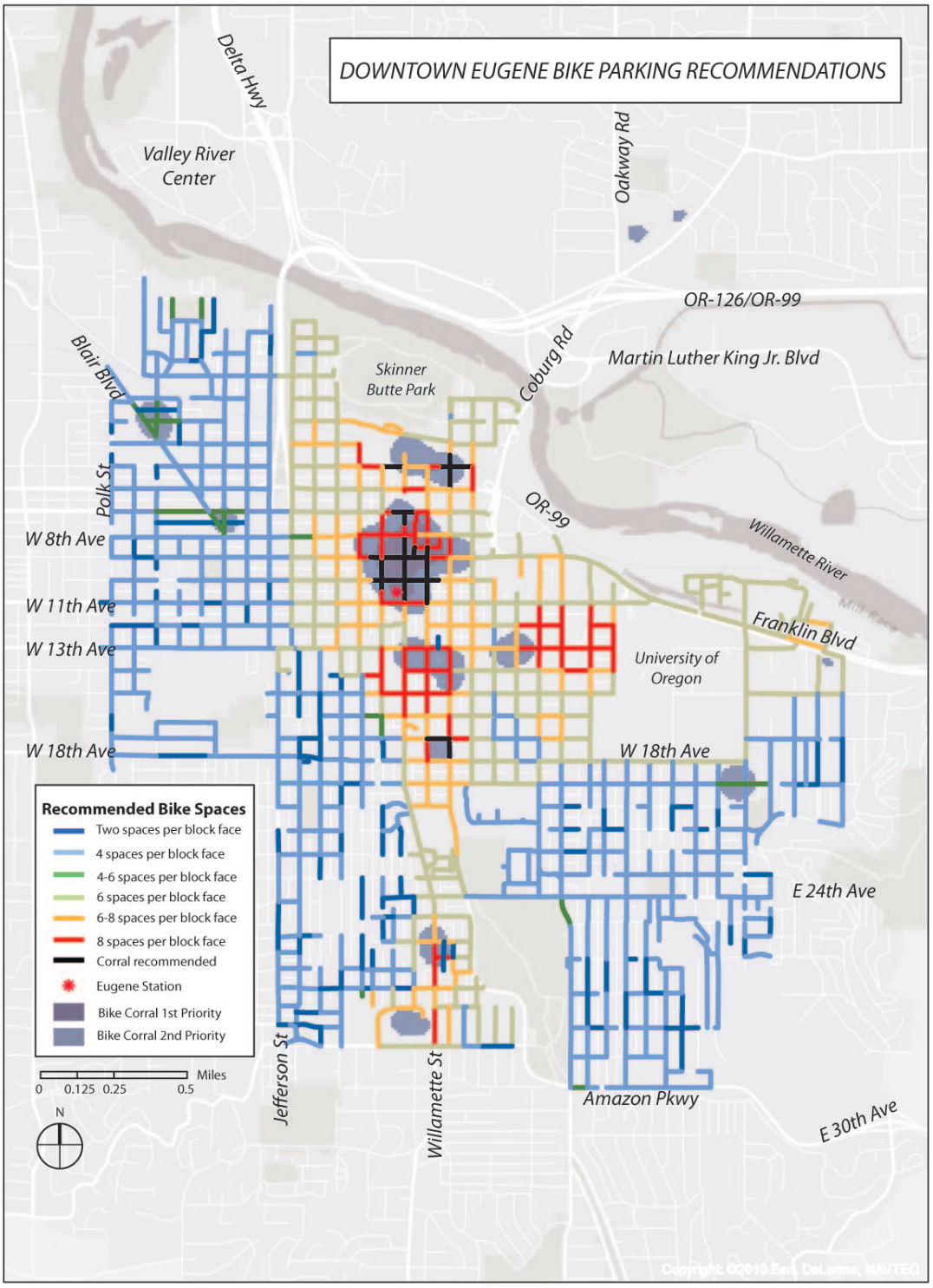

Figure 3-5: Bicycle Parking Recommendations for Downtown Eugene

4: Recommendations and Cost Estimates

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4.1 LTD Transit Station Priority Recommendations

For LTD transit stations, LTD staff worked with the project team to prioritize a subset of bicycle parking facilities from the demand model results. Projects were prioritized where the current conditions are notably inadequate, where security concerns for users are greatest, and where near-term ridership increases are expected. The resulting priority recommendations would provide 19 new and 11 retrofitted lockers, 4 new short-term spots, and 36 secure cage/room spaces (see Table 4-1). At this time, no secure staffed "bike station" type facility (as defined in section D.1.3) is recommended in the near term. However, this type of facility may make sense in the future for downtown Eugene as bicycle ridership rises, increasing the demand for bike parking. Should such a facility be constructed, it would ideally be located near Eugene Station. No additional bike parking is recommended for Springfield Station at this time, based on the fact that current bike parking is of high quality and, while well-used, is not oversubscribed. If ridership changes dramatically at Springfield Station in the future, additional bike parking may be installed at that time.

Table 4-1: Recommended Bike Parking at LTD Stations

Location	Short-Term	New Lockers	Replaced Lockers	Secure Cage Spaces	Rack/Cage/ Locker Cost	Installation Cost
Eugene Station	–	–	–	16	$48,000	$7,200
River Road Station	–	4	2	–	$19,800	$2,970
Springfield Station	–	–	–	–	–	–
Valley River Station	–	1	7	–	$26,400	$3,960
Gateway Station	4	4	–	–	$13,700	$2,055
Seneca Station	–	4	–	–	$13,200	$1,980
Thurston Station (Albertsons)	–	2	–	–	$6,600	$990
Amazon Station	–	–	–	20	$60,000	$9,000
Creswell Station	–	2	–	–	$6,600	$990
Cottage Grove Station (Walmart)	–	–	2	–	$6,600	$990
Veneta P & R	–	2	–	–	$6,600	$990
TOTALS	**4**	**19**	**11**	**36**	**$207,500**	**$31,125**

4.2 Downtown Priority Recommendations

For downtown Springfield and downtown Eugene, the demand model results were first adjusted to account for the current supply of racks. The resulting net demand was then prioritized with a two-step approach: 1) provide one rack per block face where none exist today (to make sure downtowns have a minimum level of accommodation for people arriving by bicycle), and 2) accommodate 25% of net demand, with a particular focus on "hotspots" of concentrated demand. The 25% figure was arrived at through discussion with Eugene and Springfield staff. A recommendation was made for downtown Coburg based on the site visit made during the inventory process (see

section 2.1 for more information); the future Coburg City Hall will be located at 91136 N Willamette St, and will have three racks. Corrals have not been recommended for specific locations in Eugene to allow the City flexibility in where these should be sited, but Figure 3-5 in the previous chapter is intended to be used as a guide to bicycle parking "hotspots" where corrals may be well used. Quoted costs do not include installation, which varies depending on the quantity of racks being installed at any given time. The resulting priority recommendations provide two spots at Coburg City Hall, 129 spots in downtown Springfield, and 1,059 spots in downtown Eugene (see Table 4-2).

Table 4-2: Recommended Bike Parking in Downtown Coburg, Springfield, and Eugene

Location	Short-Term Racks (Staples)	Corrals	Rack Cost	Installation Cost
Coburg City Hall	1	–	$250	$38
Downtown Eugene	1059	–	$264,750	$39,713
Downtown Springfield	129	1	$32,250	$4,838
TOTALS	**1190**	**1**	**$297,250**	**$44,589**

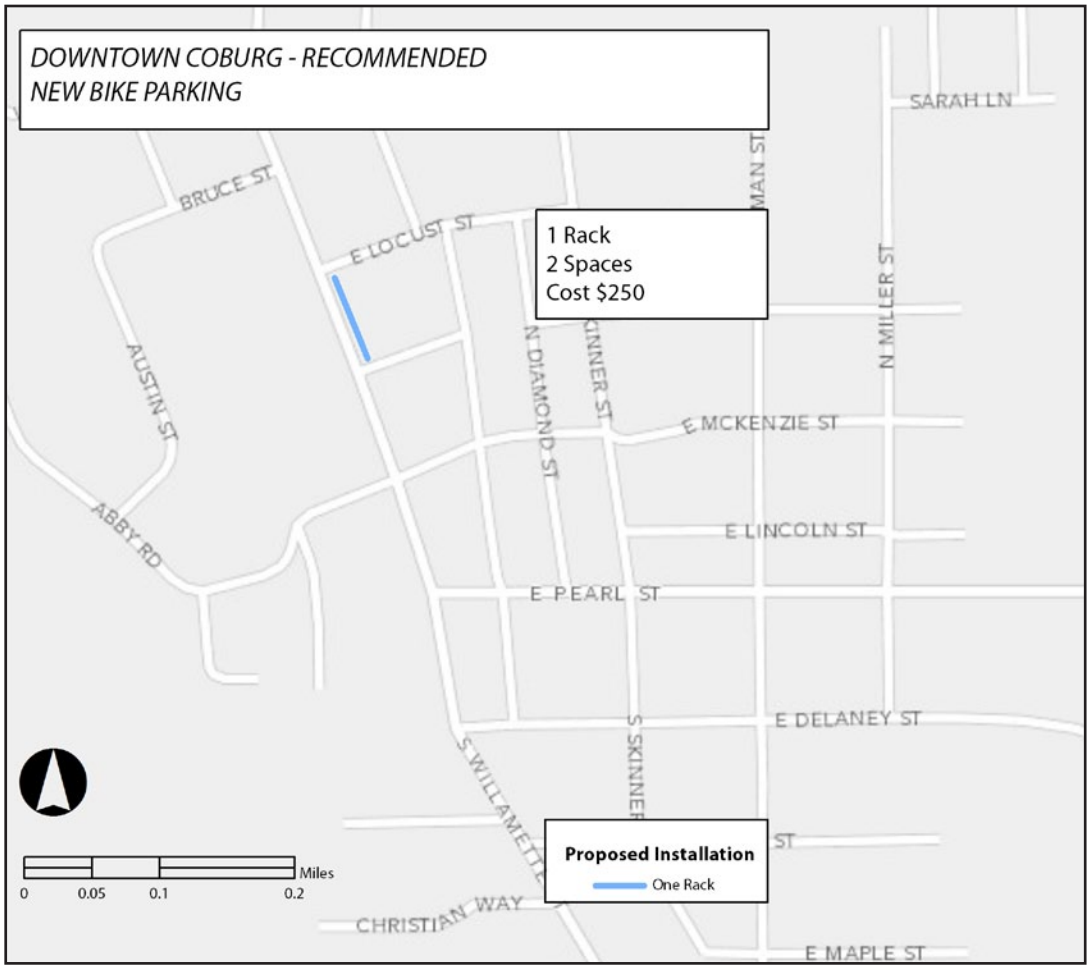

Figure 4-1: Downtown Coburg Priority Bicycle Parking Recommendations

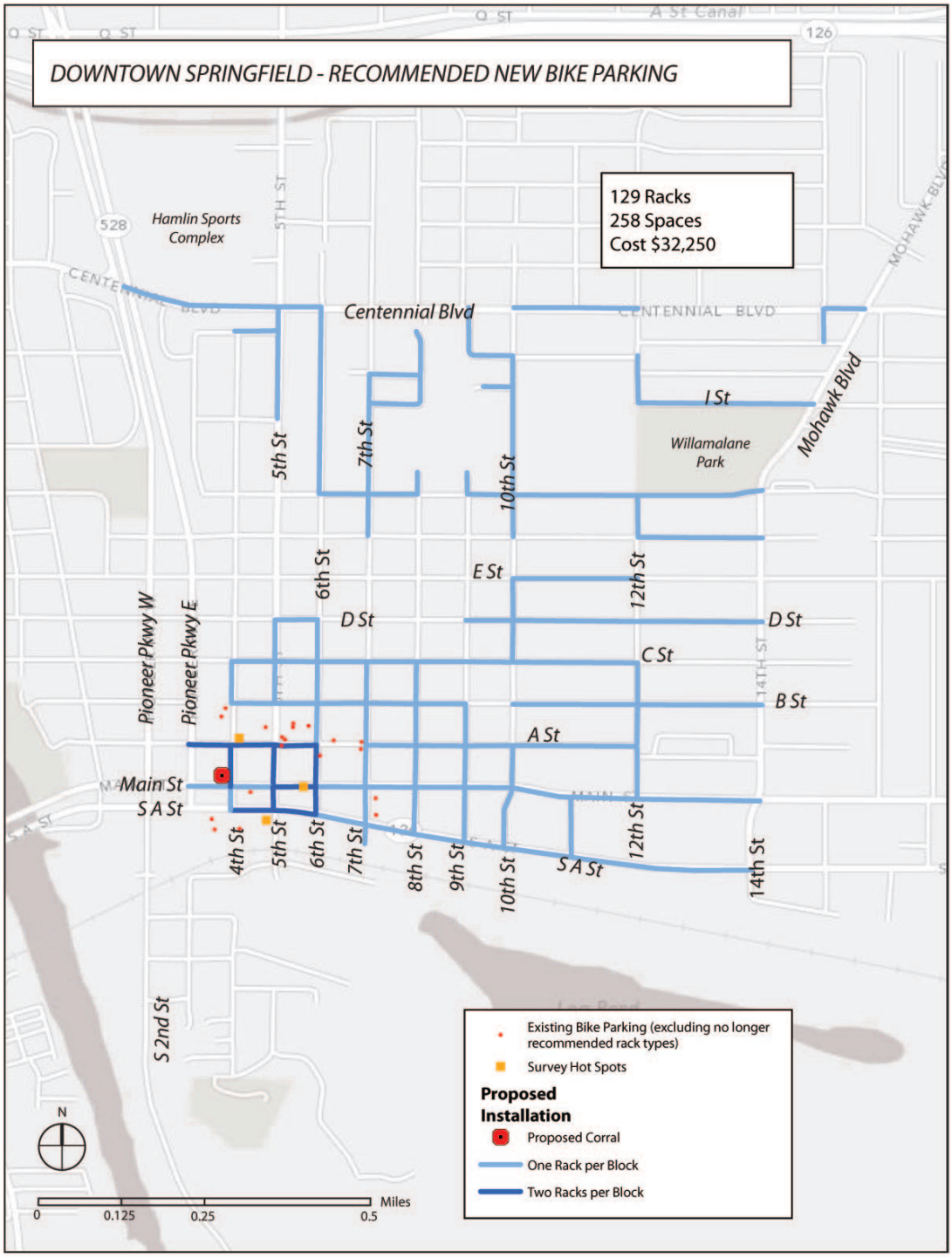

Figure 4-2: Downtown Springfield Priority Bicycle Parking Recommendations

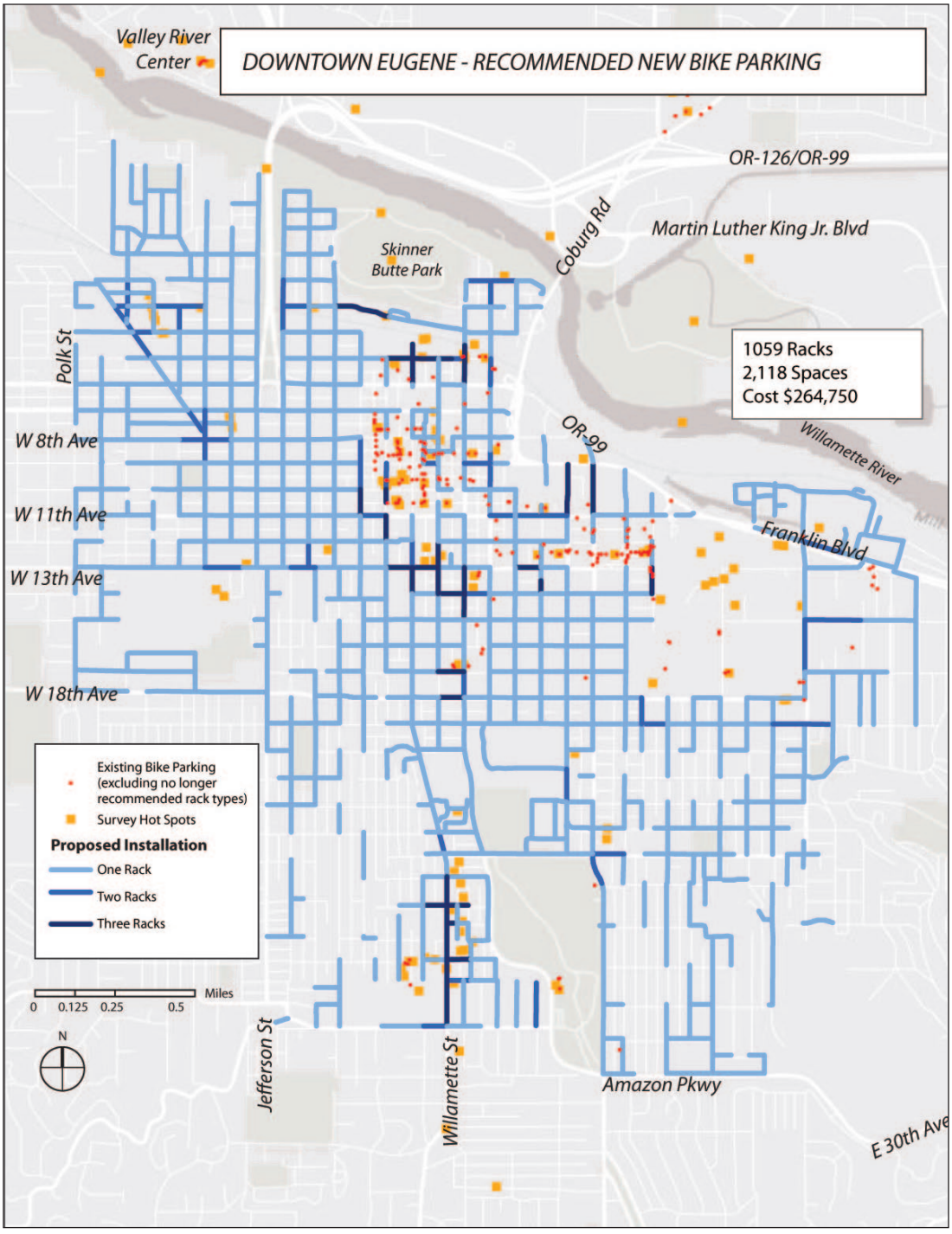

Figure 4-3: Downtown Eugene Priority Bicycle Parking Recommendations

5: Bicycle Parking Design Guidance

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5.1 Visual Preference Survey

A web survey was assembled to determine users' preference for different types of bike parking in different situations. The survey presented a series of photos illustrating various bicycle parking types (staple rack, hoop and post, coat hanger, bike corral, bike cage, bike room, and bike station), and asked which would be preferable for shorter-term trips, for shopping, for all-day work parking, at LTD transit stations, and at LTD Park and Ride locations. It also asked questions about the importance and value of security, shelter from the elements, lighting, and accommodation of oversized or unusual types of bicycles.

For short-term trips, users showed a clear preference for staple racks. For all-day work parking, users wanted parking that provided both security and shelter from the rain, including bike cages, rooms, lockers, and bike stations. For access to transit, users preferred highest-security options (bike station and bike locker), or secondarily a bike cage. Nearly 70 percent of respondents were willing to pay for higher security all-day bike parking. Most respondents placed a high value on shelter from the elements and lighting. For the exact survey language and complete results, see Appendix E.

5.2 Recommended Bicycle Parking

Recommended types of bicycle parking are described below. A more detailed Visual Guide to Bicycle Parking Types can be found in Appendix F. As agencies and developers around the region follow both the guidelines for bicycle parking type and installation, it will provide a more consistent and high-quality standard for bicycle parking throughout the region.

5.2.1 General Criteria for Bicycle Parking

Any bicycle rack should conform to the following guidance:

- Supports the bicycle in at least two places, preventing it from falling over (note that older racks that only connect to the bike front wheel do not meet this criterion)
- Allows locking of the frame and one or both wheels with a U-lock.
- Is securely anchored to the ground
- Resists cutting, rusting and bending or deformation, both from natural causes and from human abuse
- Works for a variety of bicycle frame types (e.g. should work for step-through frame as well as for diamond frame)

Figure 5-1: Staple Rack

Figure 5-2: Hoop and Post Rack

Figure 5-3: Parking Meter Retrofit Hoop and Post Rack

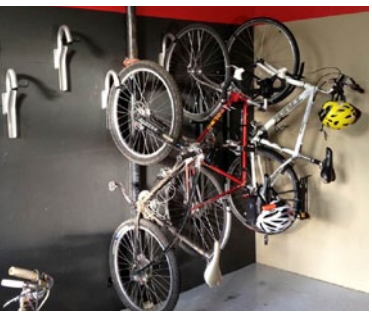

Figure 5-4: Wall-Hanging Racks

5.2.2 Recommended Bicycle Parking Types

The following types of bicycle racks are categorically recommended for use throughout the Eugene-Springfield region. While some types of racks are more often associated with short-term bike parking (such as staples) or long-term bike parking (such as lockers), any rack type may be used in the appropriate context for either short- or long-term bike parking. For example, a staple rack on the sidewalk in front of a row of shops is expected to be used as short-term parking, while a staple rack in a secure office building room that is only accessible through a keycard is functioning as long-term parking.

Staple or Inverted U

Staples, also called inverted U's (see Figure 5-1), are the most common type of bike rack, and meet all of the guidelines listed above. They are generally very cost-effective, and can be installed in a variety of constellations to meet needs. They can be spaced in a way that works for large or unusually-dimensioned bicycles (including cargo bicycles, family bikes, tricycles, and recumbents).

Hoop and Post

The hoop and post (see Figure 5-2) offers two points of contact in an efficient footprint. It can be branded or customized, and can be retrofitted to parking meter posts if needed (see Figure 5-3). Hoop and posts racks are slightly easier and less expensive to install because they have a single base. However, compared to staple racks, they do not fit as wide a variety of frame types, and it is more difficult to lock two bikes (one on each side). For this reason, staples are slightly recommended over hoop and post racks.

Wall Hanging Racks

There are many types of wall-mounted hook/hanging options (see Figure 5-4). Wall mounted racks are particularly space efficient, especially where there is not enough room for floor-mounted racks. It should be noted that many of these types do not offer good ways to secure the bike with a U-lock. This makes them a more common choice for interior bike rooms, particularly where security is of lower concern. Wall-mounted racks can be challenging to use for people who are not physically strong, or who have long, large, or heavy bikes. For this reason, they should be accompanied by other types of rack installations. Please note: at the time this study was finalized, wall mounted racks were not code-compliant in the City of Eugene for "required parking", though installation of these racks can occur if the number of code-compliant racks installed exceeds the amount of racks required by code.

Double-Decker Racks

Double-decker racks can be very space efficient (see Figure 5-5). Most modern double-decker racks offer some type of pneumatic or mechanical assist for the top-mounted racks. Each manufacturer has a slightly different approach, with slightly different pros and cons. Again, two points of contact with the bicycle frame is not achieved, but the bicycle is stabilized through the wheel tray and/or the front receiving slot. Of greater concern is security – some racks offer a sturdy cable to which a U-lock can be attached, but that is not considered as secure as the ability to lock the frame directly to the rack. These racks are most commonly used in an indoor setting – a cage, room, or other secure facility.

Figure 5-5: Double-Decker Racks

Bike Lockers

Bike lockers (see Figure 5-6) provide a high level of security for long-term bike storage. Only those who have a keycode or keycard can access the interior of the locker, providing more security for the bicycle and accessories compared to rooms or cages. One drawback to lockers is they can be space-inefficient, particularly if ten or more spots are installed.

Figure 5-6: Electronic Bike Locker

Art Racks

Art racks (see Figure 5-7) should meet the stated guidelines as a primary function, and only secondarily have decorative elements. However, there are many examples of attractive and functional art racks.

Figure 5-7: High-Quality Art Rack

Rain Shelter

Any of the aforementioned racks can be combined with a rain shelter to make them much more appealing and useful in our climate (see Figure 5-8).

Figure 5-8: Rain Shelter

Figure 5-9: Comb Rack

Figure 5-10: Wheelbender Rack

Figure 5-11: Wave Rack Ribbon Rack

Figure 5-12: Clamshell Rack

Figure 5-13: Coat Hanger Rack

5.2.3 No Longer Recommended

Comb Rack

Comb racks (see Figure 5-9) only support the bicycle by the wheel, and do not allow for easy locking by U-lock.

Wheelbender Rack

Similar to comb racks, wheelbenders (see Figure 5-10) only support the bike by the wheel and do not allow for easy locking by U-lock.

Wave Rack/Ribbon Rack

Wave racks (see Figure 5-11) are very popular, but they don't support the bicycle frame in two points, so bikes may fall and tangle. Alternately, people end up parking parallel to the rack, which greatly reduces the number of bikes that can be accommodated. One problem with these is that manufacturers exaggerate their functional capacity, so developers or agencies believe they are providing space for many more bikes than can actually be accommodated.

Clamshell

Clamshells (see Figure 5-12) take up a large amount of space and only work with limited frame types. They can damage the bicycle frame.

Coat Hanger

The coat hanger rack (see Figure 5-13) does allow for two points of contact, and a way to U-lock to the frame. However, bicycle handlebars tend to catch, and bikes of different sizes may have trouble getting two points of contact and good U-lock position. This rack is also not usable for "big bikes."

Toaster Rack

A toaster rack (see Figure 5-14) allows for two points of contact, but the spacing is very close. It is not good for bikes with baskets/racks, or for "big bikes".

5.3 Installation Guidelines

Good bicycle parking that is installed improperly is bad bicycle parking. Bicycle parking should be installed in a location that is convenient with respect to the main building entrance, including:

- Parking should be visible from the building main entrance or transit stop (e.g., not hidden with the dumpsters)
- Parking should be located along the logical path to front door or primary destination (e.g., not at the back entrance)

- A ramp should be provided if there is a separate grade level from bikeway or street. For most sidewalk bike racks, this criterion is met if there is a standard ADA ramp at the corner. But if there is no ADA ramp, one should be installed. If there is a particularly long block, or parking is on a non-sidewalk grade-separated location (like a public plaza), a ramp access point should be considered specifically for the bike parking.
- There should be sufficient room for pedestrians and bicycles to navigate around racks (3 foot minimum)

5.3.1 Materials and Installation

Racks should be made of strong material. Steel is recommended, with a coating or finish for protection from rust. While no rack can be completely resistant to cutting, a rectangular shape is more difficult to cut than a circular shaped cross section (see Figure 5-15).

Tamper-resistant fasteners are highly recommended (see Figure 5-16), as is using several types of fasteners on each rack, requiring multiple tools to remove. Alternately, permanently embedding the rack in concrete (see Figure 5-17) will also make it much more difficult for thieves to simply remove the rack. Mounting a series of racks on rails can also make it more difficult for thieves to remove a bicycle even if they are able to unbolt it.

A detailed installation guide for bicycle parking was written for the use of public agencies, developers, employers, and other organizations who wish to install bicycle parking. It can be found in Appendix G.

5.4 Development Code Amendments

As part of the study, project staff examined the existing development code related to bicycle parking for Springfield, Eugene, and Coburg to identify opportunities for enhancements. Based on the results of this assessment, and considering the input of City staff as well as the agreed-upon recommended bicycle parking types (see section 5.2) and the results of the demand model (see section 3.0), recommended development code amendments were developed (see Appendix H). Examples of changes recommended include defining the maximum distance between bicycle racks and building entrances; adding bicycle parking requirements for multi-family residential dwellings; and adding guidance for when bicycle parking specifically for non-standard bicycle sizes shall be installed. City staff may use, modify, and adopt the recommendations to suit their needs.

Figure 5-14: Toaster Rack

Figure 5-15: Rectangular cross-section

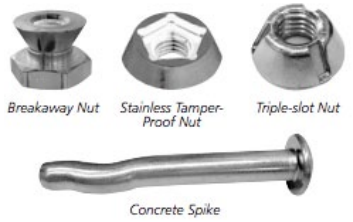

Figure 5-16: Tamper-resistant fasteners

Source: dero.com

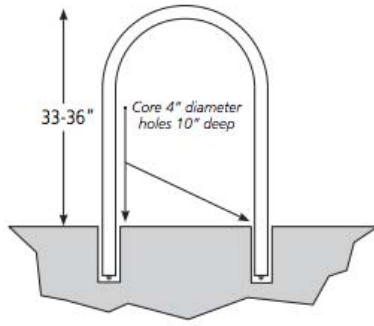

Figure 5-17: Embedded in concrete

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6: Conclusion

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6.1 Conclusion

The LTD Regional Bike Parking Study provided a unique opportunity to consider bicycle parking needs and preferences at a regional level. By following the guidance in this plan about where and what bicycle parking should be installed, LTD, Springfield, Eugene, and Coburg have the opportunity to move forward with a consistent regional approach that will better meet the needs of their residents, employees, and visitors who travel by bicycle. Many of the guidelines and tools developed by this plan can also be used by institutions, employers, building managers, and private developers to enhance their bicycle parking offerings for their needs. The LTD Regional Bike Parking Study may further result in a coordinated regional approach to securing funding for high-priority recommended bicycle parking as well.

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Appendices

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Appendix A: Unit Cost Estimates

The following unit costs were applied to develop cost estimates for priority recommendations. These costs were developed in 2013. The applied cost (column 4) represents the cost that was used to develop cost estimates for this plan

Table A-1: Bike Parking Unit Cost Estimates

Type	Cost (per space/bike)		Applied	Notes
	High	Low		
Short-term (staple)	$150	$90	$125	This cost is valid for both circular and square tubing.
Electronic Locker	$3,400	$1,700	$3,300	Low end of cost is for a locker with an electronic keypad; high end of cost is for lockers with smart cards or smart key fobs.
Secure Cage/Room	$5,000	$1,500	$3,000	Low end assumes LTD has ability to work internally and efficiently, and that the structure is neither attractive nor permanent (e.g., chain link fence and tarp roof). High end assumes free-standing new structure, and high level of aesthetics/amenities.
On-Street Corral	$3,500	$2,000	$2,500	Based on City of Portland costs.

Appendix B: Signs and Stickers

The following sign and sticker design was created for use by any entity in the Eugene-Springfield region that is providing bicycle parking. There is no regulatory requirement to use these designs, but as agencies and organizations use these images, they will provide regional consistency for users. The sign may be used to direct cyclists to the location of bicycle parking. The sticker may be used on staple racks to educate people about the most secure way to use them. To request the original graphic files for use, please contact point2point at LTD.

Figure B-1: Recommended Bike Parking Sign

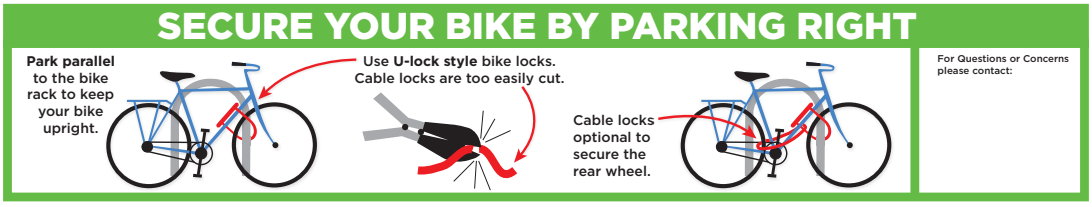


Figure B-2: Bike Parking Instructional Sticker

Appendix C: Bicycle Parking Best Practices Presentation

A presentation was created to summarize bicycle parking best practices in the Eugene-Springfield region. The presentation is intended to be used by any organization that would like to educate an audience about bicycle parking issues. To request a copy of the following presentation with presentation notes, contact point2point at LTD.

Bicycle Parking Best Practices

alta PLANNING + DESIGN

Lane Transit District | point2point solutions

Bicycle Parking

- General Principles
- Bicycle Parking Materials & Hardware
- Rack Types:
  - Recommended
  - Acceptable
  - No Longer Recommended

General Principles

Location

- Convenient Location to Destination
  - Visible from the front door or transit stop
  - Along logical path to front door
  - Ramp provided if grade separation
- Maneuvering room for peds & bikes – 3 feet min

Example – Not Recommended

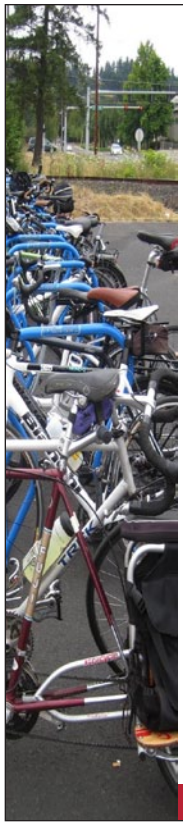
Connectivity to Transit

Accommodations - "Big Bikes"

Recommended Rack Types

- Features should include:
  - Supports the bicycle frame in at least two places
  - Allows U-lock use w/ frame & wheel(s)
  - Is securely anchored to ground
  - Resists cutting, rusting and bending or deformation
  - Works with a wide variety of frame types

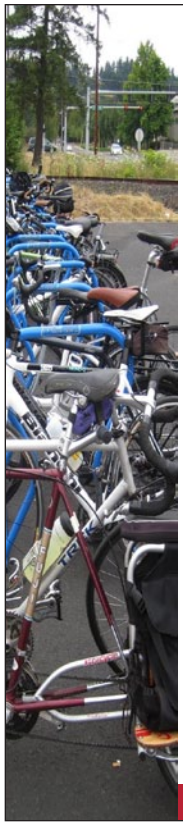
Bicycle Parking Materials and Hardware



Materials

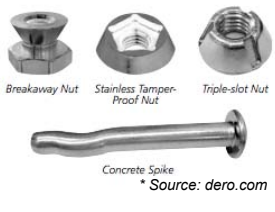
- Rack made of strong material
  - Coated/finished steel resists rusting
  - No rack can be completely resistant to cutting

Rectangular shape is more difficult to cut than a circular shaped cross section



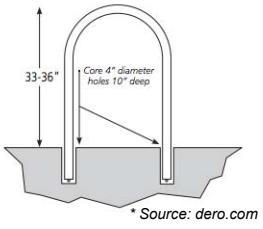
Hardware

- Rack Mounting:
  - Tamper-resistant hardware OR
  - Embedded in concrete



Tamper-resistant fasteners

Non-tamper resistant nuts are not recommended



Embedded in concrete

RECOMMENDED RACKS

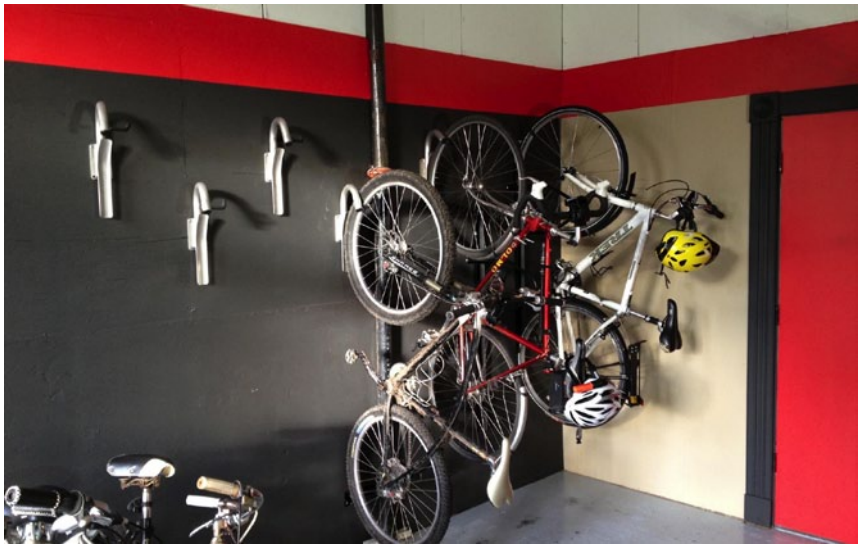
Art Rack

Art Rack

Hoop & Post

Staple or Inverted U

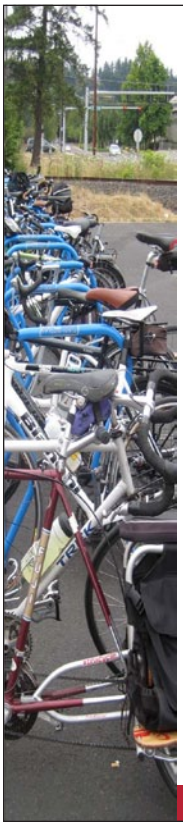
Wall Hanging



Double-Decker

Rain Shelter

Bike Locker



NO LONGER RECOMMENDED

- Coat Hanger – Not easy to use for all types of bikes.

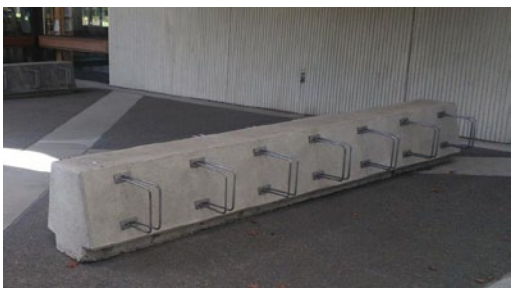
- Toaster – Allows 2 points of contact, but spacing is very close. Not good for bikes with baskets/racks.

- Comb

  Only supports bike by wheel and does not allow for easy locking by U-lock

- Wheel Bender

  Only supports bike by wheel and does not allow for easy locking by U-lock



- **Wave Rack**
  Does not provide 2 points of contact and bikes tangle when rack is fully loaded.

- **Clam Shell**
  Takes up large amount of space for each bike and only works with limited frame types

Recommended Resource

Bicycle Parking Guidelines, 2nd Edition
Association of Pedestrian and Bicycle Professionals (APBP) www.apbp.org

Appendix D: Funding and Security Best Practices

D.1 Introduction

This report provides an overview of best practices from around the US in both short- and long-term bike parking, with a focus on transit stations. In particular, the report covers innovative models used by public agencies around the country to provide high capacity, secure bicycle parking areas.

Bike parking at transit centers and stations come in a variety of configurations, but are typically provided in three general ways: 1) short-term parking, i.e., outdoor bike racks; 2) secure bike lockers; or 3) Secure Parking Areas (SPAs).

D.1.1 Short-term bike parking

Short term parking is generally placed near station boarding areas, on platforms, or where space allows in the right-of-way. The transit agency and the local municipality usually negotiate who is responsible for the provision and ongoing management of bike racks. The costs are typically divided according to purchase, installation, permitting, and each phase may be taken on by one or more partner.

Ideally, short-term bicycle parking should be installed in easily accessible areas that are well-lit, clear of pedestrian pathways, and ideally sheltered from the elements. Bike shelters are covered short-term bike parking that are typically in the right-of-way where space permits. These installations are usually on the sidewalk, either in existing sidewalk, or on a curb extension installed for that purpose.

Bike Corrals are short-term on-street parking installations that typically occupy one to three motor vehicle parking spaces. These are installed in areas where bike parking demand is high, and/or where there is little available space on sidewalks. They generally hold five to fifteen staple (inverted U) racks.

Best Practice: City of Portland Short-Term Bicycle Parking Program

In 1996, the City of Portland's planning and zoning code, Title 33, was amended to require developers to provide short-term bike parking within 50 feet of building entrance. The requirement was interpreted to allow parking within 50 feet on paper (not actual access), which resulted in many parking spots hidden away in parking garages that sometimes were locked at night or not accessible to the public. In 2004, Title 33 was amended again to allow developers the option to buy out of this requirement by paying into the Portland Bureau of Transportation (PBOT) Bike Parking Fund. The impetus for the revision was both to clarify that meeting short term bicycle parking requirements in parking garages was not desirable, as well as responding to an increase in mixed-use developments in downtown that extended to the lot line; developers were increasingly unwilling to reduce their building square footage to meet bicycle parking requirements on site. These fees allow PBOT to purchase and install bike racks in the public right-of-way throughout the rest of the city.

Figure D-1. BikeLink eLocker card reader

In addition to the Bike Parking Fund, PBOT has an annual budget of $30,000 for the provision of general bike parking throughout the city. The City's bike parking program is staffed by two positions at .63 FTE (total). Requests for a bike rack can be made by phone or in writing, by anyone (bicyclist, business owner, or other). PBOT sets aside a store of staple racks each year that are installed based on requests.

Only business owners may request a bicycle corral; the application for bike corrals can be submitted online, faxed, or by mail. Bike corral requests are prioritized according to those that serve the greatest area or number of establishments in commercial corridors/ neighborhoods.

Best Practice: Washington, DC Short-Term Bicycle Parking

In Washington, D.C. District DOT (DDOT) has an annual budget of $150,000 for installing bike parking in the right-of-way. DDOT contracts with the local bike advocacy organization, Washington Area Bicyclist Association (WABA) to procure and install bike racks throughout the city. DDOT also works with developers to conduct site assessments and consult on the proper installation of bike racks on private property. At transit stations, DDOT will install bike racks provided the station is public land. If the land is owned by the transit agency, then they are responsible for installation.

DDOT's bike rack/corral request program is a bit different than Portland's. DDOT's transportation demand management program (goDCgo) has a bike parking program geared toward local businesses called "Bike Brand Your Biz!" Bike parking is a large part of this bicycle encouragement program designed to help employers, employees, customers and visitors of local businesses meet the needs of current and future cyclists. Bike racks are purchased by the business, and the racks are installed by DDOT.

D.1.2 Bike lockers

Secure electronic bike lockers have many advantages for individual users (security, shelter, and on-demand access), as well as for agencies (who can monitor usage for abuse, abandoned bicycles, and continuous statistics to determine whether the program is operating as desired). Anecdotally, most transit riders who bring their bicycle on board the vehicle say that they would not consider leaving their bicycle unless a higher level of security, such as that offered by a locker, is provided. The tradeoff is that bike lockers also require more space to locate. For this reason, they are appropriate when security is a higher priority than bike parking capacity. Bike lockers may also have the advantage of being moveable if the need to relocate them should arise. However this will depend on the design of the lockers and how they are installed. There are two types of bike lockers programs: Assigned lockers and unassigned/shared lockers.

Assigned lockers are rented by individuals for a fixed amount of time (monthly, quarterly, annually, etc.), either free or for an annual or monthly charge. They can be simple key-operated lockers or they can rely on higher security, keyless, magnetic/RFID electronic access control. Many agencies administering assigned locker programs have found that lockers are often empty much of the time, and have instead opted to upgrade

to unassigned/shared bike locker systems. The shared locker program allows for a more efficient use of space and resources, with higher occupancy rates and increased revenue. TriMet and BikeLink - the leading manufacturer and supplier of keyless electronic access systems - claim that shared lockers serve five to seven times more cyclists than unshared lockers.

The electronic BikeLink locker system is the most popular system for managing unassigned/shared bike lockers. BikeLink lockers utilize an access card that customers purchase either online or through local vendors. Unattended BikeLink lockers can be accessed 24/7, and can eliminate the need for staff time and additional resources for operations and maintenance. BikeLink systems usually charge users around $0.03-$0.05/hour but variable rate schedules for peak/off peak times can also been arranged. These rates are not necessarily intended to generate significant revenues. Instead, they are designed to induce turn-over, and provide a disincentive to use the facilities as long-term storage units.

Figure D-2. BART BikeLink eLockers

A major advantage to the BikeLink system is that access cards are valid at any BikeLink facility nationwide. Bay Area Rapid Transit has 814 of these BikeLink electronic lockers at 28 other BART stations throughout the Bay Area. TriMet most recently used CMAQ funds administered through the Metro Regional government's Regional Transportation Options grant program to purchase twenty-eight BikeLink lockers at two of its transit centers.

Figure D-3. Secure Parking Area at TriMet Beaverton Transit Center

D.1.3 Secure Parking Areas (SPAs) / Bike Rooms and Cages

Secure Parking Areas (SPAs) are enclosed high-capacity bike parking facilities – sometimes called bike rooms, bike cages, or bike garages – with secure access. They can either be staff-attended or unattended facilities. Staffed or "valet" facilities allow for quicker processing times, and convenient hassle-free service for commuters. They may also make more complex, and higher capacity bike rack storage designs possible where staff are trained to operate them. Staff-attended facilities are generally more expensive due to staff time; however, all staffed SPAs are coupled with retail, repair, and/or rental operations in addition to the bike parking service. These combined operations generate additional revenue through multiple streams, which effectively reduces the costs of staff time spent exclusively on providing the bike parking service.

Unattended facilities typically utilize an electronic access control system like BikeLink. Similar to the BikeLink locker units, customers purchase and use the same BikeLink access card to enter the facility. Once inside, customers are responsible for locking their bike to a bike rack with their own lock. This allows greater flexibility, as agencies can provide both electronic locker and SPA facilities within their system that can be accessed with the same mechanism.

Figure D-4. BART Berkeley Bike Station attended bike parking

A wide variety of bike rack designs are possible within SPAs. The type/mix of bike rack designs will depend on budget, floor area/ceiling height, and bike parking demand. The bike rack system used should still allow bikes to be locked by more than their

front wheel (especially for unattended facilities). The SPA should also be designed to accommodate at least a few non-traditional bike types including long-tailed bikes, cargo bikes, trailers, and recumbent bikes. Most bike rack manufacturers are willing to assist agencies with detailed capacity estimates and plans illustrating the various arrangements possible given the floor area and ceiling height of the facility under development.

Operational models for long-term bike SPAs

In the last few years, a wide variety of organizational structures, partnership arrangements, and funding strategies have emerged in response to concerns about long-term public subsidies associated with the high costs of construction, operation and maintenance of secure bike parking facilities. The following case study examples represent some innovative models that may be relevant for the Eugene-Springfield regional context.

Best Practice: TriMet – Bike & Ride (BikeLink)

Over the last two years, TriMet has constructed three high-security bike parking areas they named Bike & Rides, located at the Beaverton Transit Center, the Sunset Transit Center, and the Gresham Central Transit Center. TriMet spent $768,000, $225,000, and $80,000, respectively, and the projects were funded through American Recovery and Reinvestment Act (ARRA) federal stimulus funding. Annual operating expenses for these facilities range from $3,000 to $10,000 and include costs for labor, access control software and computer servicing, and any additional parts replacement.

Figure D-5. TriMet Sunset Transit Center Bike & Ride

The Beaverton Transit Center Bike & Ride facility was the most expensive to build because it is a freestanding structure, whereas the Sunset Transit Center and Gresham Central Transit Center Bike & Rides were built into existing parking garage structures. The Beaverton Transit Center is the largest with capacity for 100 bikes. The Sunset Transit Center Bike & Ride can accommodate 74 bikes, and the Gresham Central Transit Center Bike & Ride can park 30 bikes. The Bike & Ride facilities utilize Saris two-tiered Stacker bike racks, and provide self-repair stands with basic tools and a bike pump, and electric outlets for e-bike charging.

All three of the Bike & Ride facilities utilize the BikeLink electronic access control system. BikeLink retains 100% of the membership revenue. All three of these facilities feature video camera security. Video footage is recorded and archived by BikeLink. BikeLink provides monthly and annual occupancy and membership reports to TriMet. TriMet reports that they have been satisfied with the BikeLink service, citing open and responsive communication and customer service. TriMet has had no security issues with the BikeLink system. In the event of a security breach, an email notification is automatically sent to TriMet from BikeLink, and the police are notified. TriMet also has online access to the video camera footage.

Both TriMet and BikeLink are responsible for marketing and promotions. TriMet promotes the Bike & Ride facilities through its website, print and brochure material,

events, and safety campaigns. Additionally, TriMet has an annual spring/summer marketing campaign to encourage bicycle ridership and promote bike-transit connections.

TriMet used to conduct monthly occupancy counts at its major station areas to evaluate demand for bike parking facilities; however, they are planning to reduce this to a quarterly exercise. They also intend to conduct surveys with existing and prospective users to gauge demand, assess customer satisfaction, and improve the services they offer to bicyclists.

Best Practice: PSU Harrison Bike Garage – Portland State University and TriMet

Portland State University (PSU) partnered with TriMet to construct the Harrison Bike Garage, a secure parking facility with capacity for 86 bikes on the ground floor of one of the University's parking structures. The bike garage is located at the terminus of the MAX Light Rail Green and Yellow Lines and in the heart of the Portland State University campus. This facility coincided with the opening of a new MAX light rail line and transit mall in Downtown Portland. TriMet negotiated with PSU to build the facility so that it would be able to fulfill the City of Portland's bike parking code requirements along the transit mall. This location at PSU is also the future hub for yet another light rail line scheduled to open in 2015.

The Harrison Bike Garage cost a total of $200,000. $150,000 was provided by TriMet as part of the MAX Light Rail Green Line/Transit mall renovation project with Federal Transit Administration funding. The remaining $50,000 was covered by PSU Transportation and Parking Services (TAPS) for design and construction of the facility. The TAPS department assumed all operations and maintenance costs. The facility is operated by the BikeHub, TAPS sponsored on-campus bike shop. Operations expenses (staff time) are covered through the TAPS BikeHub budget, and maintenance costs are covered by the TAPS parking budget.

Memberships are available to the PSU faculty, staff, and students, and the general public (as per TriMet contract agreement). Memberships are purchased in person at the BikeHub, across the street from the Bike Garage. Membership rates are $45/year or $15/academic term for the students, faculty, staff and general public alike. The BikeHub retains all membership revenues.

The facility utilizes the University's electronic access control system, and students, faculty and staff use their PSU ID cards to gain entry into the bike garage. Memberships to the general public include an electronic key fob. The facility is unattended and accessible 24/7. The bike garage features a combination of staple/inverted-U bike racks and Dero double-decker bike racks. It also features, u-lock storage, electric outlets for e-bike charging, and a vending machine for tubes, tire levers, chain lube, patch kits, etc. The BikeHub located just across the street, offers full bike repair, retail, and rental, and loaner bicycle services.

The TAPS Transportation Options program conducts bike parking occupancy counts quarterly. They conduct annual surveys, draft annual reports, manage marketing and promotions, and set policies for abandoned bikes in this facility and other bike parking available across campus. The University generally prefers to construct secure bike parking facilities like the Bike Garage in areas around campus rather than install bike lockers, due to space constraints and the need for higher-capacity parking.

Best Practice: Berkeley BART Bike Station – BART, City of Berkeley, and Alameda Bikes

The Downtown Berkeley BART Bike Station in Downtown Berkeley, CA is perhaps the most complex secure high capacity bike parking operational model. The Bike Station is the result of a successful partnership between the City of Berkeley, Bay Area Rapid Transit (BART), and Alameda Bicycles, a local for-profit bike shop. The 4,000 square foot facility can house a total of 268 bicycles. The facility has both an unattended side and a staff-attended side.

Figure D-6. Alameda Bike staff parking bikes in triple-decker bike racks

The unattended secure bike parking area of the facility utilizes the BikeLink electronic access control system for entry to the secure parking area. This side of the facility has capacity for 113 bikes, and is accessible 24/7 with a BikeLink access card. The BikeLink card can be purchased next door at Alameda Bikes or online. This self-park area costs BikeLink cardholders $0.03/hour to park their bikes.

The staff-attended valet operation is run by Alameda Bicycles staff and has bike parking capacity for 155 bikes. Alameda Bike staff members park the bikes in a custom triple decker high-capacity bike racks in the back of the shop. Alameda Bikes also staffs a full-service bike shop, offering retail, repair, and bicycle rental services. The bike parking valet service is offered only on weekdays from 7am to 9pm. Additional office space in the bike shop is leased to the East Bay Bicycle Coalition (EBBC).

The City of Berkeley was awarded a $500,000 Metropolitan Transportation Commission Safe Routes to Transit grant (grant funds derived from bridge tolls revenue for congestion mitigation on bridges) for the facility at the downtown Berkeley BART Station. However, the City didn't have the staff time or resources to pursue the project further, so BART stepped in to take over the project. BART supplied $50,000 of BART capital funds, and was able to secure the remaining $80,000 from the FTA, and $130,000 from Caltrans public transportation funds.

BART holds the lease with the property owner and contracts with Alameda Bicycles as the facility operator. BART subleases a portion of the facility to Alameda Bikes, who in turn subleases a space to the East Bay Bicycle Coalition (on the valet/shop side). There is a profit sharing agreement between BART, the City of Berkeley and Alameda Bikes. A percentage of the profits generated from the Alameda Bikes retail operation go back to defray the operational costs of the facility. The operational costs of the entire facility amount to about $190,000 per year. This cost is split $130,500/$60,000 by BART and the City of Berkeley, respectively. The City subsidizes only the BikeLink self-park side of the operations since Alameda Bicycle is a local for-profit business.

To select the operator, BART held an open bid process in response to an RFP. Although Alameda Bicycles had never operated a bike parking facility before, they offered the most convincing proposal and were selected to operate the facility. The City of Berkeley and BART are satisfied with their partnership with Alameda Bikes, who have taken on management of the bike station as a part of their larger mission of increasing bike ridership. Alameda Bicycles is responsible for daily maintenance, cleaning of the facilities, and helping customers with BikeLink issues, whereas BART is responsible for major maintenance of the facility.

BART and the City of Berkeley have already renewed their professional services agreement (PSA) with Alameda Bikes once and plan to continue to do so in the future. There were no particular performance incentives or risk-sharing built into the PSA with Alameda Bicycles. The City of Berkeley would like to explore other more dedicated funding sources for operational costs, as the subsidy ($60,000) accounts for about half of their total city bicycle project budget.

BART and the City of Berkeley are also very satisfied with the BikeLink self-service side of operations. They have offered promotions through the bike shop for free preloaded time on BikeLink cards.

The Berkeley BART Bike Station is BART's largest facility, but BART also has three other bike stations in Fruitvale, Embarcadero, and Ashby BART Stations. The Fruitvale Bikestation also features valet service, and full repair, retail and rental services (also serviced by Alameda Bicycle), and capacity for 200 bikes. The Embarcadero and Ashby BART stations have capacity for 96 and 128 bikes, respectively, and utilize the BikeLink electronic access control system as part of an unstaffed facility.

Best Practice: Cincinnati Bike Center (CBC) – City of Cincinnati and Bike and Park (Bike and Roll)

The Cincinnati Bike Center is a small part of a much larger $120 Million waterfront redevelopment project led by the City of Cincinnati Parks Department. The Bike Center is located within Smale Riverfront Park near the Great American Ball Park (where the Cincinnati Reds play), and downtown's Government Square Transit Station Area. The Parks Department was already planning to build a facility for a visitor center, adjacent restaurant and underground parking structure, so once the decision was made to include a Bike Center, there were only a few additional Bike Center-specific construction costs involved constructing the building shell, glass storefronts, shower rooms, toilets and locker space, at a cost of $450,000. The costs for the floors, ceilings, bringing utilities to the site, and geothermal heating for the park were overlapping costs associated with the construction of the larger park and cannot be assigned to the Bike Center. Basic lighting and utility systems were not included in this cost but were also paid for by the Cincinnati Parks. The City did not have the budget to operate the facility itself, so they solicited an RFQ for vendors and followed up with an RFP detailing their requirements for operations and services of the Bike Center.

Figure D-7. Back-to-back double decker parking at CBC

The RFP stipulated that the contractor provide bike parking, shower and locker facilities, retail, repair, and rental services, office space, etc. It also specified a minimum of 160 bike parking spaces for bicycle commuters. They received only two submissions: one from a local bike shop and another from Bike and Park, a subsidiary of Bike and Roll, a bike rental service company operating in numerous cities around the country. Bike and Park also operates bike parking facilities in Santa Monica, Chicago, and Washington, D.C.; the Cincinnati Bike Center was modeled on the McDonald's Cycle Center in Chicago's Millennium Park. The proposal submitted by the local bike shop was retracted, so Bike and Park was awarded the contract.

Bike and Park's operation of the Bike Center involved a partial rent subsidy for the first year of operation, but otherwise operates as an entirely self-sustaining for-profit enterprise. Bike and Park pay rent to the City and a percentage of their profits are also directed back into the Parks Department. Because there is no public subsidy after the first year, Bike and Park were able to negotiate their lease agreement and rental contract, and the City has not specified any particular performance measures. Bike and Park was responsible for furnishing the entire Bike Center, including the bike parking facility, retail and rental areas, lockers, etc. They are primarily responsible for daily cleaning services, housekeeping, and maintenance. Bike and Park is also entirely responsible for the marketing and promotion of the Bike Center. Because the Bike Center front desk also functions as a Cincinnati Parks Visitors Welcome Center, the City does not have to staff that position.

Figure D-8. DC Bikestation at Union Station

The unattended secure parking facility area is accessible by members 24/7 and utilizes a standard RFID (radio-frequency identification) card access control system. There are cameras and the glass wall provides visibility in and out. Bike Center staff members on the retail, repairs and rental side of the facility are available during regular business hours (7am to 7pm Monday through Friday, and also open on weekends during the summer, spring, and fall) to assist commuters with access issues. To use the bike parking facility, showers, and lockers, customers have to create a membership account. There are daily, annual, and monthly membership rates according to level of service, including lockers and towel service.

Best Practice: DC Bikestation – District DOT, Bikestation (Mobis), and Bike and Roll

The DC Bikestation located at Union Station in Washington, D.C is a 1,600-square-foot facility with capacity for 140 bikes and includes lockers, a changing room, and rental, repair and retail services. The facility represents the high end of possible design, costing about $4 million, including $1 million toward the renovation of the plaza it sits on. The majority of these costs were driven by the location - between two buildings on the National Historic Register at Union Station - and the desire to create a structure equally impressive, yet architecturally distinct. The funding source was Congestion Mitigation Air Quality (CMAQ) funding with an 80/20 match by DDOT.

The bike parking facility can be accessed 24/7 with a Bikestation key fob that is provided with a Bikestation membership. Membership rates are available for daily,

monthly and annual access. DDOT had contracted with Bikestation (Mobis) as a consultant for design work on the facility, and the contract for access control, security and membership of the bike parking facility was a sole source agreement with them as well. DDOT maintains a yearly contract with Mobis that includes marketing and promotion. There are no specific performance measures or targets in the contract; however, Bikestation makes available monthly/yearly reports detailing facility occupancy and membership info. Bikestation operates remotely (on the West coast), so they don't provide any staff for the bike parking facility.

Figure D-9. DC Bikestation Interior

The rental, repair and retail operations are managed by Bike and Roll, a national for-profit company based in Washington, D.C. District DOT put out an RFP for an operator, and there were only a few bids submitted. Bike and Roll won because of their national reputation and since they were already operating in D.C. The property on the Union Square Plaza is actually leased to DDOT for $1/year by the National Parks Service and Union Station Redevelopment Corporation, so DDOT does not charge rent from Bike and Roll. There is no public subsidy to Bike and Roll or Bikestation and both companies keep 100% of their respective profits (because the project received federal aid, DDOT cannot generate revenue).

Bike and Roll is responsible for general maintenance of the facility and general grounds keeping around the Bikestation, e.g., cleaning the glass walls orwatering planters. Bike and Roll staff the facility 66 hours per week (as required in the contract), and oversee daily operations, including assistance with parking access, and removal of abandoned bikes. Bike and Roll and Bikestation monitor bikes within the parking facility, and if a bike appears abandoned, its owner is contacted by Bikestation. If it is still not removed, Bike and Roll is responsible for removing the bikes. There is no profit sharing between Bike and Roll and Bikestation. Bike and Roll is however, entitled to monies it receives from one-day parking fees it charges to non-Bikestation members. Annual operating costs are approximately $50,000.

Best Practice: Indianapolis/Indy Bike Hub YMCA – YMCA and Bike Garage Indy

The Indy Bike Hub YMCA in downtown Indianapolis, Indiana has a unique operational model involving the local non-profit YMCA chapter, and a local for-profit bike shop Bike Garage Indy (BGI). In 2009, the City of Indianapolis put out an RFP for tenants as they redeveloped the East wing of the Historic City Market. They received only two bids - one from the YMCA and the other from Bike Garage Indy. Rather than choose one, they offered the lease to both. The YMCA was trying to advance its mission of supporting active, healthy lifestyles (Indiana is the 45th least-healthy state in U.S.), and had worked with BGI in the past to promote bicycle education and encouragement programs throughout the city, so it turned out to be a really strong match. Both organizations had strong leadership that understood one another well, and both organizations approached customer service in a similar way. Indy Bike Hub (the YMCA) became the primary tenant, who then leased the retail shop space to BGI (the secondary tenant).

Figure D-10. Indy Bike Hub YMCA Secure Parking Area

In 2011, The Indy Bike Hub YMCA opened a 19,000-square-foot facility, including a secure bike parking area for 148 bikes. On the ground floor of the building is the bike shop, bike parking area, cardio room, and a small office for the Indianapolis Metro Police Department. The second floor has lockers, offices for two local bike advocacy groups, YMCA offices, and a fitness room. The third floor has a cycle studio. The bike shop run by BGI offers full retail, repair and rentals, clinics, u-lock loans, etc. There is no profit sharing between BGI and the YMCA, and the YMCA does not have any specific performance incentives or risk-sharing built into the contract with BGI. As a non-profit, the YMCA doesn't have a huge marketing budget, and neither does BGI as a small local business, so they work together on marketing and promotions.

The capital costs for just the bike parking area amounted to $800,000 (total project redevelopment costs were $3.5M). Operating costs for just the bike parking facility are difficult to determine, since all of the facilities and services operate under a single budget, but the YMCA is responsible for general maintenance of the bike parking facility. Access to the bike parking area is controlled via RFID card during regular business hours. It is not a 24/7 facility and there are no staff attending the bike parking area. Access is granted with a bike parking only membership or full YMCA membership. Once inside the secure bike parking area, members can park their bikes at any of the Saris two-tiered Stacker bike racks.

Bike parking-only membership is offered at $41/month for access to the bike parking area, showers, and lockers. These bike parking-only memberships are sold through the bike shop, but the vast majority of the customers using the bike parking facility have full YMCA memberships. Indy Bike Hub is working with the City to provide bike parking to downtown employers. They are also trying to evaluate demand for bike parking and adjust their commuter membership rates accordingly. They have not broken even yet, but they are satisfied with the bike parking area and the services they offer to the community.

D.1.4 Conclusions

There are several noteworthy trends and conclusions that can be drawn from these best practices, including:

- There is a general satisfaction among several public agencies with BikeLink as a vendor for both lockers and secure parking areas.
- Numerous successful ventures have been created through creative partnerships and contracts between public agencies, nonprofit organizations, and for-profit businesses.
- There are national vendors (BikeLink, Bikestation/Mobis, and Bike and Park) who can successfully manage the bicycle parking access, security, and membership management. However, if bicycle rental/repair/retail services are desired (and this is generally recommended because it can be a revenue capture mechanism and provide "one stop shopping" services for members), most agencies select a local entity to manage that portion of the operations. Bike and Park is a national for-profit firm that can take on the retail side of operations.
- The capital phase of projects can be covered through federal funds (such as ARRA/stimulus or CMAQ), while the ongoing operational costs are more likely to be the responsibility of a local public agency. Local agencies in all known cases contract out the day-to-day management, generally with some degree of cost sharing (such as subsidizing rent but allowing the operator to keep all recovered revenue).
- Our research indicates that funding the capital costs of these SPA programs was only possible through partnerships and multiple funding sources. We can conclude that the programs are driven by demand for these services (and the willingness to pay for it), while strategies for the long-term financial stability of the programs (operations and maintenance) are still being developed. In other words, all agencies are actively seeking ways to reduce subsidies for operations and maintenance. For SPAs, public-private partnership models such as BART-Alameda Bikes and TriMet-PSU seem to afford a higher degree of financial stability for long-term operations and maintenance as a result of revenues generated from the private retail/repair/rental enterprise. Once the private-side operations are established, minimal staff time is needed for managing the bike parking operations exclusively.

Appendix E: Visual Preference Survey Results

The following images were used to illustrate different types of bicycle parking:

Staple Rack

Hoop and Post

Coat Hanger

Bike Corral

Bike Cage (keycard entry)

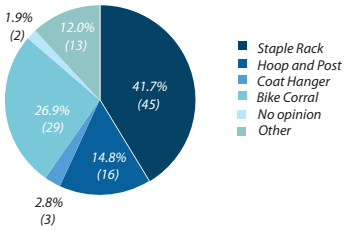
Bike Room (indoors)

Bike Locker (keycard entry)

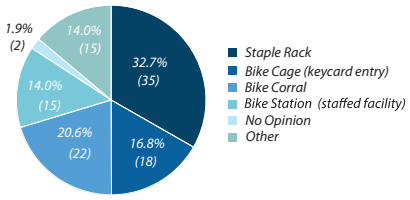
Bike Station (staffed facility)

Survey respondents were asked to select their preferred bicycle parking type for a number of situations. The results of the visual preference survey follow. 108 people completed the survey.

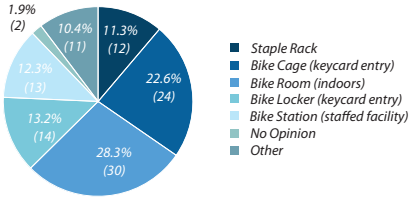
Q1. *If the following options were available to you for shorter-term bicycle parking trips, which would you prefer?*



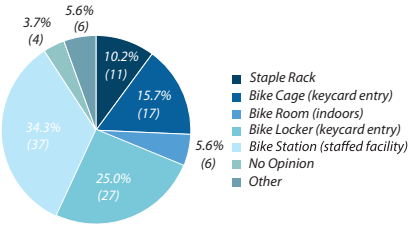
Q2. *If the following bicycle parking options were available to you at shopping centers or destinations (e.g. Woodfield Station, Valley River Center, Whitaker neighborhood, Fifth Street Market, etc.), which would you prefer?*



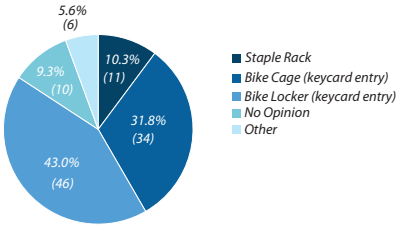
Q3. *If the following bicycle parking options were available at or near your work for all-day parking, which would you prefer?*



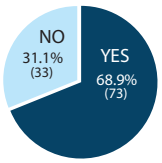
Q4. *If the following bicycle parking options were available at an LTD transit station (e.g. downtown LTD Springfield Station, downtown LTD Eugene Station, or Amazon Station) or at the Amtrak Station, which would you prefer?*



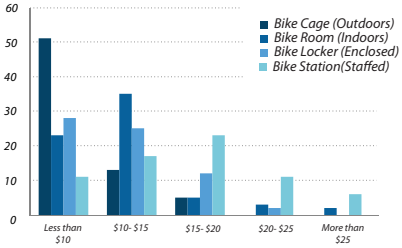
Q5. *If the following bicycle parking options were available at an LTD Park and Ride or other key transit stops and locations (e.g. Veneta, Creswell, etc.), which would you prefer?*



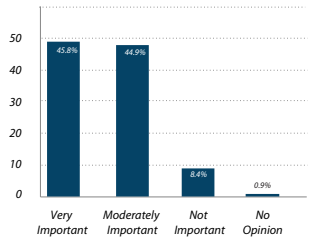
Q6. *If you had access to higher-security all-day bicycle parking on a daily basis (e.g. at work or at a downtown LTD Transit Center), would you be willing to pay for it?*



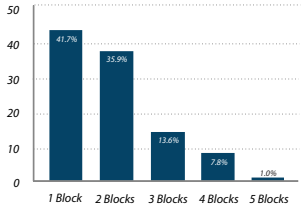
Q7. *If yes (to Q6.), how much would you be willing to pay to use the following types of bicycle parking options per month?*



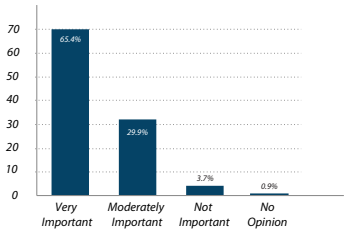
Q8. *How important is it to you that bicycle parking be covered?*



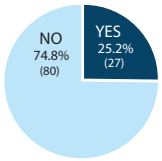
Q9. *How many additional city blocks from your destination are you willing to walk for covered bike parking?*



Q10. *How important is it to you that bicycle parking be well-lit at night?*



Q11. *Do you regularly need to park an oversized or unusually-sized bicycle (e.g. tandem, cargo bicycle, tricycle)?*



Appendix F: Visual Guide to Bicycle Parking Types

All bike parking can be broken down into three categories—short-term, long-term, and event. Short-term bike parking is intended to be used by people who will be parking their bicycles for two hours or less. Long-term parking is intended to provide bicycle parking for more than two hours. It comes in a variety of forms, and may be permanent or temporary in nature. Event parking is offered at special events of limited duration. The length of time needed for parking may vary from user to user.

F.1 Definitions

F.1.1 Short-Term Parking

Short-term parking generally consists of single racks or groups of racks that are located near a building entrance (see Figure F-1) or destination where people are conducting business. The rack should be visible from the destination and on or near the logical path that a person would use to enter the building. Many sidewalk racks in the Eugene/Springfield/Coburg region fit this definition. Short-term parking may be open to the elements, or it may have a roof providing shelter from rain. It is typically located out of the pedestrian travel way on sidewalks or in clusters on streets, close to the building entrance for convenient access to the final destination.

Figure F-1: Short-Term Parking near Front Door

On-street corrals are provided through reconfiguration of the parking lane (see Figure F-2). Corrals are typically accommodated through the removal of on-street parking or installed in locations where on street parking has previously been prohibited to increase visibility at corners or crosswalks. There are numerous benefits to on-street corrals. One benefit is removing bicycle racks from the sidewalk zone, which can help to remove sidewalk clutter in crowded pedestrian areas, on streets with narrow sidewalks, and on streets with very high bicycle parking demand. It can also free up sidewalk space for other uses such as café seating.

Figure F-2: On-Street Bike Corral

F.1.2 Long-Term Parking

Long-term parking facilities share features that are desired by bicyclists who will be leaving their bicycles unattended for several hours or more: protection from precipitation, additional security, and storage for gear such as helmets and lights. Because long-term bike parking is often located farther from a building entrance or main use area, good signage is essential to ensuring that potential users know about where the parking is, and how to use it.

Figure F-3: Bicycle Lockers

Bicycle lockers (see Figure F-3) provide the most secure type of parking, and are available either by subscription or upon demand. A bike locker typically holds one or two bikes and is only accessible by the owner of the bike. This exclusive security is the principal advantage of a bike locker—allowing people to leave accessories such as lights, panniers, helmets, or cargo on their bikes without worrying about theft. One of the disadvantages of bike lockers, however, is the amount of space they require. By nature, they are boxy and, even if stacked two high, require significant area for installation.

Figure F-4: Bike SPA (Secure Parking Area)

Figure F-5: Unattended Event Bike Parking
(Source: bikeracker.com)

Compared to other types of long-term bike parking solutions, they are an inefficient way to provide security. Generally, they will be appropriate where the total number of spaces needed is limited but security concerns are high, such as at inbound commuter transit stops. Modern bicycle lockers have electronic locks that are activated with some form of smart card, fob, or other electronic device. This electronic locking system allows for user access to be easily terminated (e.g. if fees are not paid), and provides the managing agency with real-time data about frequency of use, average span of use, occupancy, and more.

Bicycle Secure Parking Areas, or Bike SPAs (see Figure F-4), are another form of long-term bike parking. SPAs are free-standing buildings, or enclosed areas within a larger structure (for example, an enclosed portion of a parking garage). Like lockers, limited access is available to the general public. However, they do not provide the same degree of exclusivity, and thus security, compared to lockers because anyone with access into the SPA can gain access to any of the bicycles there. SPAs limit access to those who have a key or electronic access (as mentioned above, usually with smart cards). Users usually subscribe to some sort of membership and receive a smart card or other access toggle. Like lockers, SPAs require sufficient room to install, and will not fit everywhere that they might be put to good use. However, they do offer a more space-efficient way than lockers to provide a higher degree of security for bicycle parking users. SPAs are particularly useful at major destinations that attract many all-day users, such as transit centers or employment centers. In addition to bike parking, some SPAs offer access to bicycle repair tools, pumps or other amenities.

F.1.3 Temporary Parking

Temporary parking typically consists of portable racks that have been put in place to meet the demand for a specific event on a given date and time (see Figure F-5). Because the event brings a sudden surge of visitors beyond the day-to-day use for the facility in question, the normal supply of short-term bicycle parking is rarely sufficient to meet the need for an event. Racks are usually clustered together with some mechanism for limiting access (such as a fence), providing a higher level of security than if people were to just leave the bikes on their own, locked to whatever stationary object is available. One way to make event parking more secure is to have event staff monitor the area throughout the event. Typically, staff will issue a claim ticket with people as they drop off their bikes. When a bicycle owner returns from the event to pick up their bike, they show the claim ticket to the staff member, who then retrieves their bike.

F.2 Rack Materials and Installation

Racks must resist vandalism, theft attempts, and damage from exposure to weather and sun. The quality of the materials used for fabrication and installation will impact the longevity and security of the racks.

F.2.1 Rack Materials

There are three basic aspects of bike rack materials that affect how sturdy and long-lived they are. These include the base material itself, the rack coating or finish, and the shape (or cross-section) of the rack.

Base materials can commonly come in three types: mild steel, stainless steel, and aluminum. Mild steel is the most common material for bike racks. It is strong, economical, and relatively easy to work with. One drawback, however, is that it must be thoroughly weather-proofed to prevent rust and deterioration. Stainless steel shares workability and strength qualities of mild steel, but does not require an additional finish to ensure longevity. However, it is significantly more expensive than mild steel. Aluminum is generally not recommended. It is a soft metal and is susceptible to being easily cut or damaged by vandals.

These various base materials require different finishes in order to resist damage from the elements. Finishes for mild steel may include powder coating, painting (see Figure F-6), galvanizing, or rubberizing. Stainless steel is often bead blasted and does not need any additional treatment (see Figure F-7).

Another aspect to consider is the shape of the rack cross-section. Racks typically come in square/rectangular (see Figure F-8) or round cross-sections. Both are adequate in strength and provide a reasonable level of security. There is one difference worth noting. While a square tube may be cut with a hack saw (which requires much physical exertion) or a power saw (which by nature is noisy and attracts attention), round tubes can be easily cut with a simple pipe cutter. A pipe cutter has a sharp wheel and adjustable jaw grips. One simply clamps the cutting wheel against the pipe and rotates the cutter around the tube while repeatedly tightening the grips. This method is commonly used by plumbers and creates a very clean cut with a minimal amount of movement and effort. These characteristics are the perfect conditions for a thief to execute their crime unnoticed in a public place. That being said, many jurisdictions are satisfied with the amount of security provided with racks made from round tubes and are willing to take this risk. If an area has a particularly high theft risk, a square tube section rack should be considered.

F.2.2 Installation Practices

Bike racks can be installed on a variety of surfaces, including concrete, asphalt, or even gravel, as long as the rack can be secured to a fixed surface. No matter what surface the rack sits on, the most important security consideration is to make it difficult for thieves to separate the rack from its mounting surface. Racks should be installed either embedded in concrete or with tamper-resistant hardware (bolts that require special tools to loosen.) Tamper-resistant hardware is highly recommended—and can be even more effective if multiple fastener types are used, requiring a thief to have multiple tools to remove a rack. Alternately, permanently embedding a rack in concrete makes it extremely difficult for a thief to remove or loosen the rack itself (see Figure F-9).

Figure F-6: Painted Bike Rack

Figure F-7: Stainless Steel Rack

Figure F-8: A rectangular shape is more difficult to cut than a circular cross-section

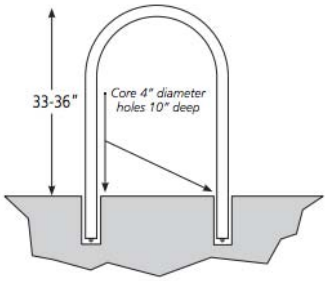


Figure F-9: Embedded in Concrete
Source: dero.com

Figure F-10: Racks Mounted on Rails

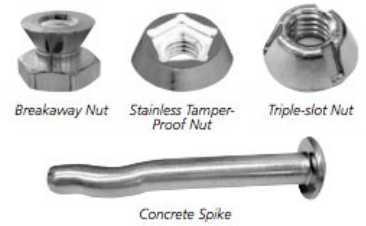


Figure F-11: Tamper-Resistant Fasteners
Source: dero.com

Figure F-12: Hoop and Post Racks

One other method of making racks more tamper-resistant is to mount the racks on flat steel rails (see Figure F-10). This effectively makes one rack have the weight of all of the racks combined, making it difficult for someone to remove any single rack. Again, thought should be put into how the racks are attached to the rails. Welding or using tamper-resistant hardware (see Figure F-11) is recommended.

Whenever possible, racks should be installed under cover to provide shelter from the rain. This makes parking a bike, and thus riding a bike, a much more desirable transportation choice in the rainy climate of the Northwest.

F.3 Rack Types

This section of the appendix provides a guide to various types of rack types, with information about any limitations or advantages associated with each rack type.

Bicycle parking professionals have developed a list of criteria that must be met in order to provide high-quality bike parking:

- The rack should support the bicycle in at least two places, preventing it from falling over. Note that older racks that only connect to the bike front wheel do not meet this criterion.
- The rack should allow locking of the frame and one or both wheels with a U-lock.
- The rack should be securely anchored to the ground.
- The rack should resist cutting, rusting and bending or deformation, both from natural causes and from human abuse.
- The rack should work for a variety of bicycle frame types (e.g. should work for step-through frames as well as for diamond frames).

F.3.1 Recommended Rack Types

The following rack types are generally recommended as options that meet the criteria above. Certain racks are recommended with reservations, and their disadvantages are documented.

Hoop and Post Rack

Hoop and post racks (see Figure F-12) offer two points of contact for bicycle frames, which prevents bikes from falling over. They are relatively space-efficient and require only a single point of installation into the sidewalk. It is possible to retrofit coin operated parking meter posts into hoop and post racks by removing the meter head, then installing a hoop that has been specifically designed to fit on the remaining post. The hoop provides a secure spot to lock the bike and prevents a thief from lifting the bike up over the top of the post and stealing the bike.

Staple/Inverted U Rack

The staple, also known as the "inverted U" rack (see Figure F-13), provides a very simple locking solution. With its stable footprint and two sturdy posts, the staple rack provides two points of contact for the bike to lean against. It can accommodate a wide range of bicycle types, including oversized or unusually sized bicycles, provided it is installed appropriately. The two legs of the rack also make it easy for users to lock a standard u-lock to each leg, gracefully accommodating two bicycles (one on each side). Staple racks are the most common bicycle rack type used in the U.S., due to their utility and relatively low cost.

Figure F-13: Staple Rack

Art Rack

Art racks (see Figure F-14) can vary in their execution, but when done well, they can meet all the criteria for good bike parking. Art racks can be purchased, pre-made, from manufacturers, or can be custom artworks created for the occasion. The art racks shown here sit in front of a veterinarian's office.

Figure F-14: Art Rack

F.3.2 No Longer Recommended Rack Types

A number of rack types currently in use in the Eugene/Springfield/Coburg region are no longer recommended because they do not meet the rack quality criteria. A brief discussion of each type is included below to help readers understand why the type is no longer recommended. These racks do not necessarily need to be removed, but as new bike parking is installed, it may make sense to gradually remove these older rack types over time.

Coat Hanger Rack

Coat hanger racks (see Figure F-15) do provide two points of contact for bicycle frames, and they can be relatively space-efficient. However, the coat hanger rack is not as desirable as the staple for several reasons. The locking loops, or "coat hangers" to which bikes attach, are often spaced too closely together to fit as many bikes as the manufacturer claims can be accommodated. Even if they are spaced far enough apart, they do not provide a good leaning platform for the bike. Bicycle handlebars tend to catch on the rack, and users with baskets, buckets, or utility racks may have trouble using the interior spaces.

Figure F-15: Coat Hanger Rack (with bicycle frame that was not properly locked to rack)

Figure F-16: Swing Arm Secured/Clamshell Rack

Figure F-17: Comb/Wheel Bender Rack

Figure F-18: Double-Decker Racks

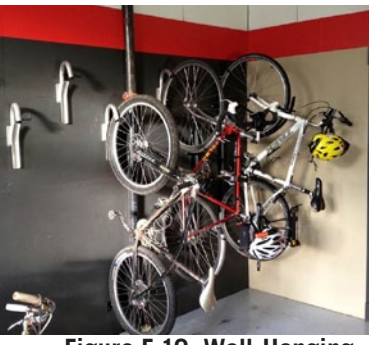


Figure F-19: Wall-Hanging Racks

Swing Arm Secured/Clamshell

Swing arm secured/clamshell racks (see Figure F-16) can work very well on certain types of bicycles. They can provide particularly secure locking because their solid steel bars pass through the frame and both wheels. However, the spacing for the prongs does not work on every type of bicycle, and is particularly problematic for step-through frames. Some users find that the prongs scratch the bicycle frame as well. It also takes up a significant amount of space for each bike. Therefore, this rack type may only be appropriate in certain situations and is not the best for a broad spectrum of bikes. The moving parts in this type of rack also require more maintenance and adjustment than stationery racks.

Comb/Wheel Bender

The comb/wheel bender rack (see Figure F-17) has been around the longest and is probably what many people think of when they think of a generic bike rack. Users lock the front wheel of their bike to the rack. Unfortunately, it does not allow the frame to be locked, does not provide two points of contact, and is often made of narrow tubing that can be easily cut. If someone were to knock over the bike with any force, the wheel of the bike is prone to bending. The comb rack is not recommended for any public bicycle parking installations, but is described here because it is in place in various locations within the study area.

F.3.3 Recommended Long-Term Parking

Two-Tier Racks

Two-tier, or double-decker, racks (see Figure F-18) are a good option for long term parking when trying to maximize the amount of bike parking supplied in a space. As the name describes, the two-tier rack provides hardware that can stack an additional layer of bikes on top of a ground level layer. Racks designed with springs or pneumatic arms to aid the user in lifting the bike are preferred to those without mechanical assist.

Wall-Hanging Racks

Wall-hanging racks (see Figure F-19) are common for tight indoor spaces. They have a smaller footprint than similar capacity floor mounted racks and can be staggered vertically to further increase capacity and accommodate bicycles with wider handlebars. They can be as simple as a hook mounted to the wall to hold the front wheel in place, or more complex with a tray for the wheels and a horizontal bar or other solid device to which to lock. If wall hanging racks are used, floor-mounted racks should also be provided for those who may not be able to lift their bikes up onto the wall.

F.4 Spatial Planning

A good bike rack installed poorly will compromise user comfort, bicycle security, and/or rack capacity. Well-installed racks, however, can serve their function for many years. The person in charge of planning and installation should provide a path that allows people to ride their bikes as close to the rack as possible. If the ramps are installed on an urban sidewalk on which bicycle riding is not allowed or recommended, it is best if there is a curb ramp nearby to make it easy for people to walk their bikes between the street and the parking. If the sidewalk space is constrained or the demand for bike parking is particularly high, car parking spots can be converted to high-capacity bicycle parking corrals; typically, ten to twelve bike parking spaces can fit into the area reserved for one car.

When racks are installed in rows, it is important to leave enough space around the racks for people to easily maneuver while pushing or locking their bikes. Ideally, a minimum aisle that is three feet wide should be provided around each set of racks. When there are racks on each side of the aisle, that width should be five feet (see Figure F-20).

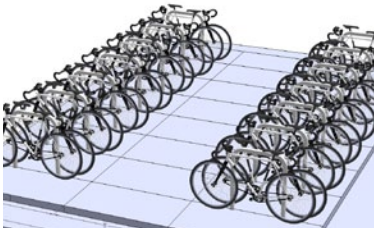


Figure F-20: Five-Foot Aisle Width

Sometimes racks are installed too close to a building wall. This limits the number of bikes that can be parked there and can inhibit the ability to properly lock with two points of contact to a rack. One should also consider the use of big bikes and trailers and allow for room for these bikes whenever possible. Oftentimes, the end of a set of racks can fulfill this role without any special rack spacing being put into place, as long as there is sufficient room in the aisle to turn the bicycle into or out of its space.

Short-term bike parking should be located as close to the destination as possible—preferably within 50′ of the door. Long-term bike parking can be located farther away from the door, but should still be easy to find and visible from a main entry. If long-term parking is not immediately obvious to someone approaching a building, wayfinding signs (see Figure F-21) should be provided to direct people to the proper location where they can park their bike for the day.

Figure F-21: Wayfinding Sign

Appendix G: Bicycle Parking Installation Guidelines

The following installation guide was prepared for use by any agency or entity that will be responsible for physically installing and maintaining bicycle parking facilities. It includes guidance for spacing between bicycle parking and other elements, information about materials and maintenance, and a cost range for recommended bicycle parking types.

Bicycle Lockers

Description

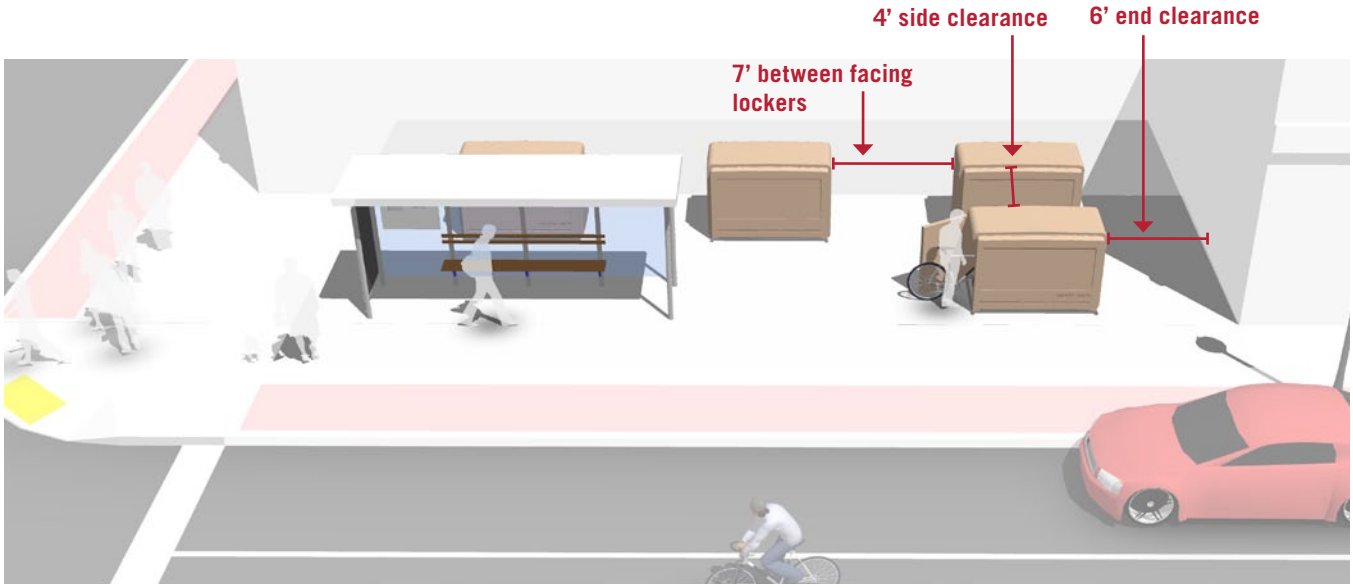
Bicycle lockers are intended to provide long-term bicycle storage for employees, students, residents, commuters, and others expected to park more than two hours. Long-term facilities protect the entire bicycle, its components, and accessories against theft and against inclement weather, including snow and wind-driven rain.

Bicycle lockers provide space to store a few accessories or rain gear in addition to containing the bicycle. Some lockers allow access to two users - a partition separating the two bicycles can help users feel their bike is secure. Lockers can also be stacked, reducing the footprint of the area, although that makes them more difficult to use.

Lockers may create potential hazards in public spaces if they are used to hide explosive devices or other objects harmful to the public. Many manufacturers have designed features to mitigate this threat by providing perforated sidewalls or windows that allow passersby to visually inspect the contents of a locker.

Guidance

- Minimum dimensions: width (opening) 2.5 feet; height 4 feet; depth 6 feet.
- 4 foot side clearance and 6 foot end clearance.
- 7 foot minimum distance between facing lockers.
- Locker designs that allow visibility and inspection of contents are recommended for increased security.
- Access for older systems was controlled by a key, while newer systems use a keycard or access code to provide security.



Discussion

Long-term parking facilities are more expensive to provide than short-term facilities, but are also significantly more secure. Although many bicycle commuters would be willing to pay a nominal fee to guarantee the safety of their bicycle, long-term bicycle parking should be free wherever automobile parking is free. Potential locations for long-term bicycle parking include transit stations, large employers, and institutions where people use their bikes for commuting and not consistently throughout the day.

Materials and Maintenance

Regularly inspect the functioning of moving parts and enclosures. Change keys and access codes periodically to prevent access to unapproved users.

Cost Range:

$1,500 to $3,500 per bike

Secure Parking Area (SPA)

Description

A Secure Parking Area for bicycles, also known as a BikeSPA or Bike & Ride (when located at transit stations), is a semi-enclosed space that offers a higher level of security than ordinary bike racks. Accessible to registered members via key-card, combination locks, or keys, BikeSPAs provide high-capacity parking for 10 to 100 or more bicycles. Increased security measures create an additional transportation option for those whose biggest concern is theft and vulnerability.

Guidance

Key features may include:

- Secure access for users with closed-circuit television monitoring.
- Double-decker racks & cargo bike spaces.
- Bike repair station with bench, pump, and tools.
- Bike tube and maintenance item vending machine.
- Bike lock hitching post – allows people to leave bike locks at the SPA.
- Lockers for users to securely store belongings.
- Electrical outlet for charging e-bikes.

Discussion

BikeSPAs are ideal for transit centers, airports, train stations, employment centers, or wherever large numbers of people might arrive by bicycle and need a safe place to park. A BikeSPA allows people to leave without worrying if their bike will be stolen or vandalized while they are away for an extended period of time.

Materials and Maintenance

Regularly inspect the functioning of moving parts. Hose down racks and floor to remove road grime left by parked bikes. Change keys and access codes periodically to prevent access by unapproved users.

See **Two-Tier Racks** and **Staple Racks** for Layout Dimensions.

Cost Range:

$1,200 to $5,000 per bike

On-Street Bicycle Corral

Description

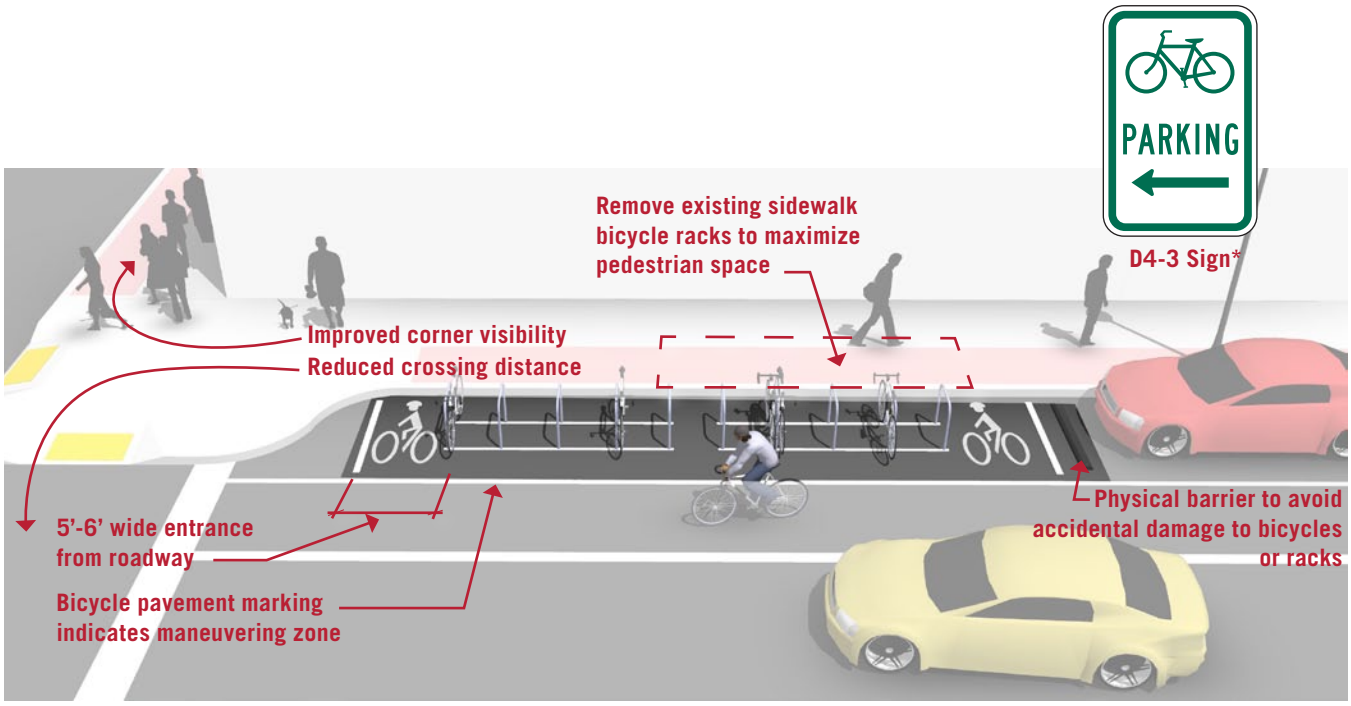
Bicycle corrals (also known as on-street bicycle parking) consist of bicycle racks grouped together in a common area within the street traditionally used for automobile parking. Bicycle corrals are reserved exclusively for bicycle parking and provide a relatively inexpensive solution to providing high-volume bicycle parking. Bicycle corrals can be implemented by converting one or two on-street motor vehicle parking spaces into on-street bicycle parking. Each motor vehicle parking space can be replaced with approximately ten to twelve bicycle parking spaces.

Bicycle corrals move bicycles off the sidewalks, leaving more space for pedestrians, sidewalk café tables, etc. Because bicycle parking does not block sightlines (as large motor vehicles would do), it may be possible to locate bicycle parking in no-parking zones near intersections and crosswalks.

Guidance

See guidelines for sidewalk **Bicycle Rack Placement** and clear zones.

- Bicyclists should have an entrance width from the roadway of 5 to 6 feet.
- Can be used with parallel or angled bike racks.
- Physical barriers should be installed a minimum of 6 inches from curb to allow drainage and reduce collection of debris.
- Parking stalls adjacent to curb extensions are good candidates for bicycle corrals since the curb extension provides a physical barrier to protect parked bicycles.
- For signs, either the MUTCD D4-3 sign (shown below) or the LTD custom sign (see Appendix B) may be used.



*As defined in the Manual of Uniform Traffic Control Devices, section 9B.23 (http://mutcd.fhwa.dot.gov)

Discussion

In many communities, the installation of bicycle corrals is driven by requests from adjacent businesses, and is not a city-driven initiative. In such cases, the city does not remove motor vehicle parking unless it is explicitly requested. In other areas, the city provides the facility, and business associations take responsibility for the maintenance of the facility. Communities can establish maintenance agreements with the requesting business. Bicycle corrals can be especially effective in areas with high bicycle parking demand or along street frontages with narrow sidewalks where parked bicycles would be detrimental to the pedestrian environment.

Materials and Maintenance

Consider establishing a maintenance agreement with neighboring businesses. In snowy climates the bicycle corral may need to be removed during the winter months.

Cost Range:

$1,500 - $3,500 for entire installation

Sidewalk Bicycle Rack Placement

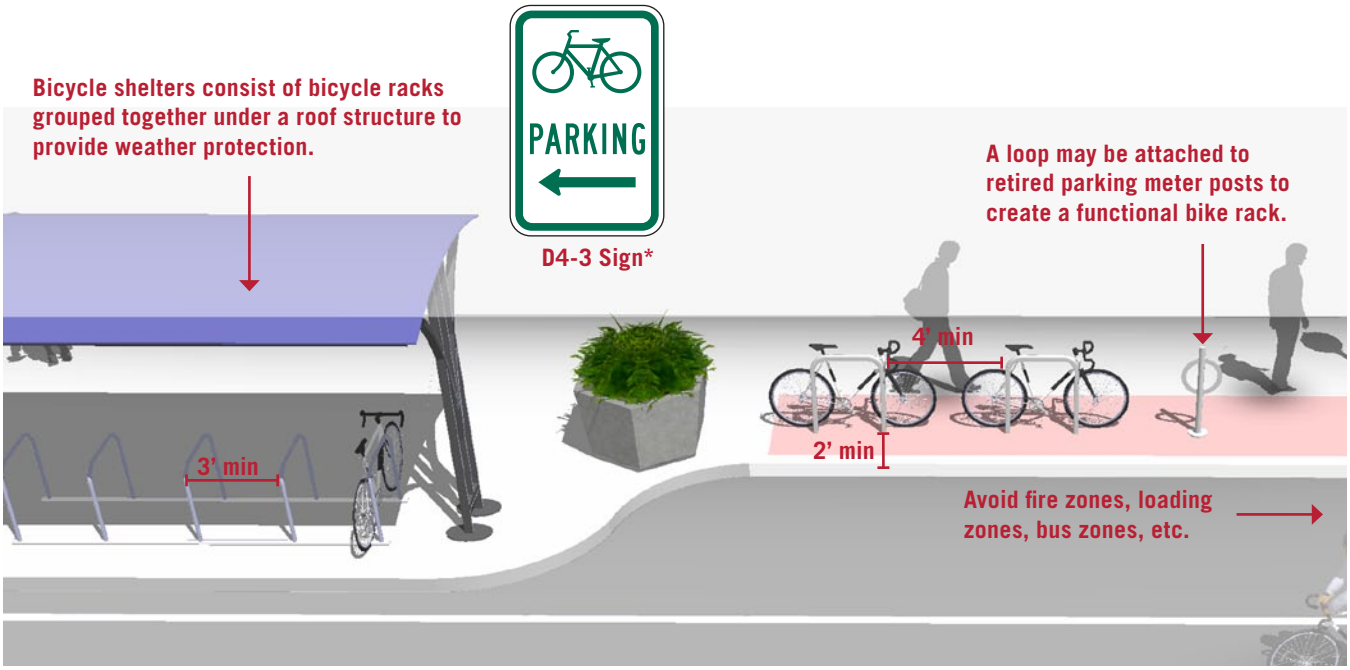
Description

Short-term bicycle parking is meant to accommodate visitors, customers, and others expected to depart within two hours. It should have an approved standard rack, appropriate location and placement, and weather protection. The Association of Pedestrian and Bicycle Professionals (APBP) recommends selecting a bicycle rack that:

- Supports the bicycle in at least two places, preventing it from falling over.
- Allows locking of the frame and one or both wheels with a U-lock.
- Is securely anchored to ground.
- Resists cutting, rusting and bending or deformation.

Guidance

- 2 feet minimum from the curb face to avoid dooring; 3 feet between parallel racks; 4 feet between end-to-end racks.
- Close to destinations; 50 foot maximum distance from main building entrance.
- Minimum clear distance of 6 feet should be provided between the bicycle rack and the property line.
- Should be highly visible from adjacent bicycle routes and pedestrian traffic.
- Locate racks in areas that cyclists are most likely to travel.
- For a sign, either the MUTCD D4-3 sign (shown below) or the LTD custom sign (see Appendix B) may be used



*As defined in the Manual of Uniform Traffic Control Devices, section 9B.23 (http://mutcd.fhwa.dot.gov)

Discussion

Where the installation of racks on sidewalks is not possible (due to narrow sidewalk width, sidewalk obstructions, street trees, etc.), bicycle parking can be provided in the street where on-street vehicle parking is allowed in the form of **on-street bicycle corrals**.

The two types of short-term racks most suitable for sidewalk installation are staple racks and hoop-and-post racks.

Some types of bicycle racks may meet design criteria, but are discouraged except in limited situations. This includes undulating wave racks, schoolyard wheel bender racks, and spiral racks.

Materials and Maintenance

Use of proper anchors will discourage vandalism and theft. Racks and anchors should be regularly inspected for damage. Educate snow removal crews to avoid burying racks during winter months. Where multiple racks are needed, welding them to a mounting rail in series will make it harder for thieves to unbolt a rack and remove the bicycle.

Bicycle Racks for Non-Standard Bicycles

Description

Bicycle parking should be provided for bicycles with longer wheelbases and wider carriages than standard bicycles. Design standards for the racks themselves remain the same, however special consideration should be given to location, clearance space, and weather protection. Long-tail bicycles, cargo bicycles, recumbents and other non-standard bicycle types may not fit in standard lockers, vertical/hanging racks or on double decker racks.

- Non-standard bikes may also be too heavy or awkward to safely lift onto a vertical rack.
- Supports the bicycle in at least two places, preventing it from falling over.
- Allows locking of the frame and one or both wheels with a U-lock. (A staple rack or hoop & post rack function well for big bikes as long as there is enough clearance to adjacent bikes or walls.)
- Is securely anchored to ground or a wall.
- Resists cutting, rusting and bending or deformation.

Guidance

Same guidance as **Sidewalk Bicycle Rack Placement** plus:

- Minimum clear distance of 4 feet should be provided between the bicycle rack and adjacent racks or obstructions.
- Minimum distance of 9 feet in length should be provided. A 5 foot aisle should also be provided.
- Should be highly visible from adjacent bicycle routes and pedestrian traffic.
- Provide signage designating priority use of the rack for longer/wider bicycle types.
- When providing curb-side parking, consider orienting bike parking parallel to the curb.
- The percentage of bicycle racks that should accommodate non-standard bicycles will vary by community and context, but should range from 10% to 15% for multifamily, commercial/retail, and schools.

Discussion

Non-standard bike types require greater consideration with regard to bike rack placement and orientation because they occupy more space, and may be more difficult to maneuver in tight spaces. These bikes can be as long as 8 feet 4 inches (28 inches longer than standard bikes) and as wide as 36 inches (twice the width of standard bikes). Because of their size, most of these bikes have self-supporting kickstands, but bike racks should still offer support in two places, especially since the shape of the frame may limit areas to secure a lock. If adequate space is not provided for larger bikes, they are more likely to be parked improperly and/or obstruct sidewalks or other access ways.

Materials and Maintenance

Use of proper anchors will discourage vandalism and theft. Racks and anchors should be regularly inspected for damage.

Hoop & Post Bicycle Rack

Guidance

Same guidance as Sidewalk Bicycle Rack Placement plus:

- Preferred clear distance of 3 feet between the bicycle rack and adjacent walls or obstructions.
- 3 feet preferred between parallel racks, 2 feet min; 4 feet 6 inches preferred between end-to-end racks, 4 feet min.
- When providing curb-side parking, consider orienting bike parking parallel to the curb.

Description

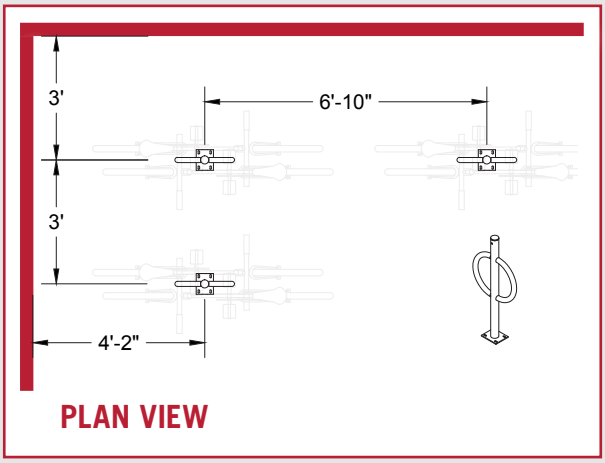
Hoop and post racks offer two points of contact for bicycle frames, which prevents bikes from falling over. They are relatively space-efficient and require only a single point of installation into the sidewalk. It is possible to retrofit coin operated parking meter posts into hoop and post racks by removing the meter head, then installing a hoop that has been specifically designed to fit on the remaining post. The hoop provides a secure spot to lock the bike and prevents a thief from lifting the bike up over the top of the post and stealing the bike.

Materials and Maintenance

Use of theft-resistant anchor fasteners will discourage vandalism and theft. Racks and anchors should be regularly inspected for damage.

Cost Range:

$60 - $110 per bike



PLAN VIEW

Staple or Inverted U Bicycle Rack

Description

The staple, also known as the inverted U rack, provides a very simple locking solution. With its stable footprint and two sturdy posts, the staple rack provides two points of contact for the bike to lean against. It can accommodate a wide range of bicycle types, including oversized or unusually sized bicycles, provided it is installed appropriately. The two legs of the rack also make it easy for users to lock a standard u-lock to each leg, gracefully accommodating two bicycles (one on each side). Staple racks are the most common bicycle rack type used in the U.S., due to their utility and relatively low cost.

Guidance

Same guidance as Sidewalk Bicycle Rack Placement plus:

- Preferred clear distance of 3 feet between the bicycle rack and adjacent walls or obstructions.
- 3 feet preferred between parallel racks, 2 feet minimum; 4-1/2 feet preferred between end-to-end racks, 4 feet minimum.
- When providing curb-side parking, consider orienting bike parking parallel to the curb.
- Racks can be staggered where space is constrained.

Discussion

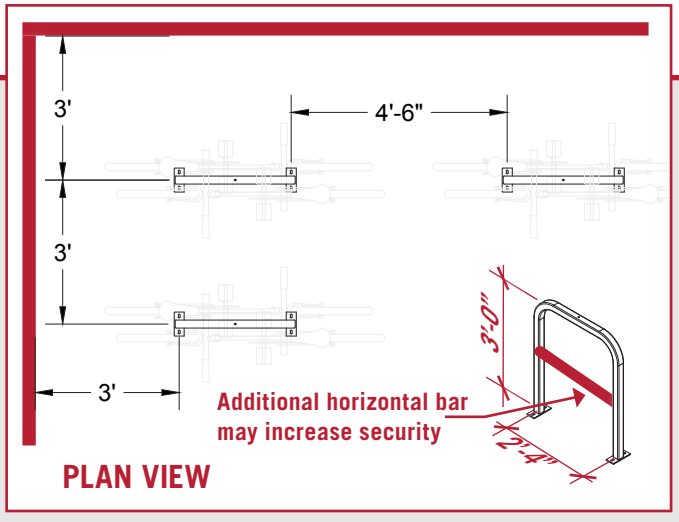
The rail-type rack design (inverted U with additional horizontal cross member) may offer an additional level of security for most bikes, since the bike rack (or bike lock) must be cut rather than simply unfastening the bike rack.

Materials and Maintenance

Use of proper anchors will discourage vandalism and theft. Racks and anchors should be regularly inspected for damage.

Cost Range:

$75 - $150 per bike



Coat Hanger

Guidance

- 1 foot 2 inches minimum from adjacent walls; 6 feet minimum between parallel racks; 2 feet 6 inches between end-to-end racks.
- Close to destinations; 50 foot maximum distance from main building entrance.

Cost Range:

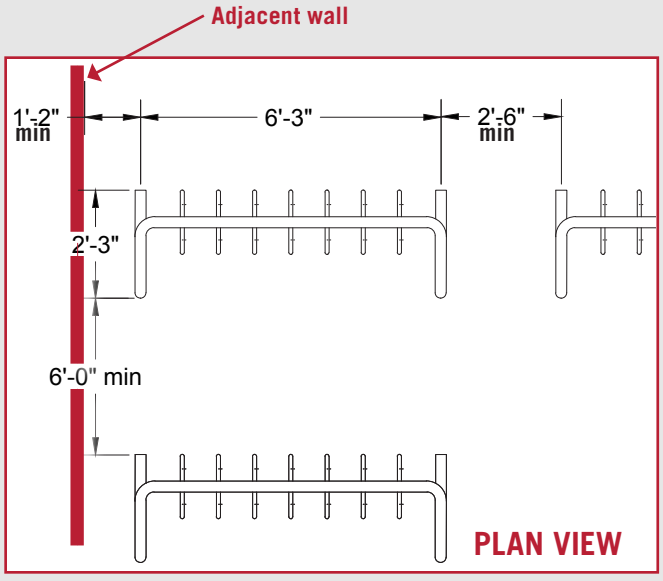
$50 - $150 per bike

Description

Coat hanger racks do provide two points of contact for bicycle frames, and they can be relatively space-efficient. However, the coat hanger rack is not as desirable as the staple for several reasons. The locking loops, or coat hangers, to which bikes attach are often spaced too closely together to fit as many bikes as the manufacturer claims can be accommodated. Even if they are spaced far enough apart, they do not provide a good leaning platform for the bike. Bicycle handlebars tend to catch on the rack, and users with baskets, buckets, or utility racks may have trouble using the interior spaces.

Materials and Maintenance

Use of proper anchors will discourage vandalism and theft. Racks and anchors should be regularly inspected for damage.



Art Rack

Guidance

- Provide clearances similar to Staple Racks above.
- Close to destinations; 50 foot maximum distance from main building entrance.

Cost Range:

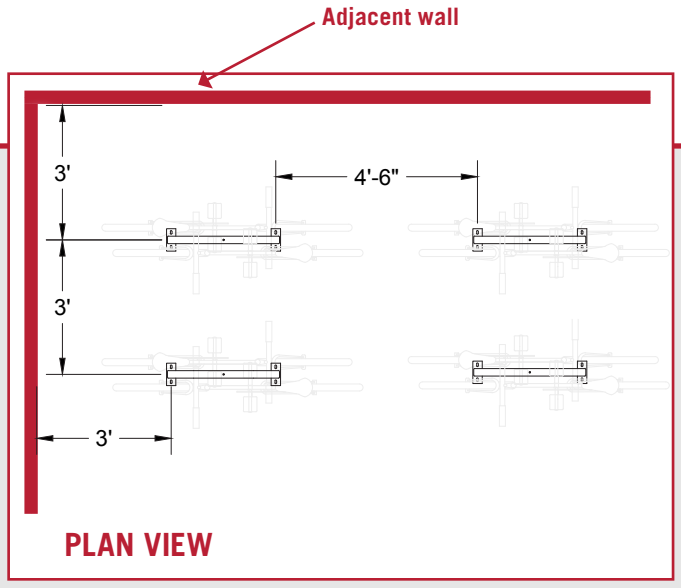
Cost varies widely and is dependent upon the cost of materials and complexity of the design. Art racks can range from $0 for found recycled objects to thousands of dollars per bike.

Description

Art racks can vary in their execution, but when done well, they can meet all the criteria for good bike parking, including two points of contact. Art racks can be purchased, pre-made, from manufacturers, or can be custom artworks created for the occasion. The art racks shown here sit in front of a veterinarian's office.

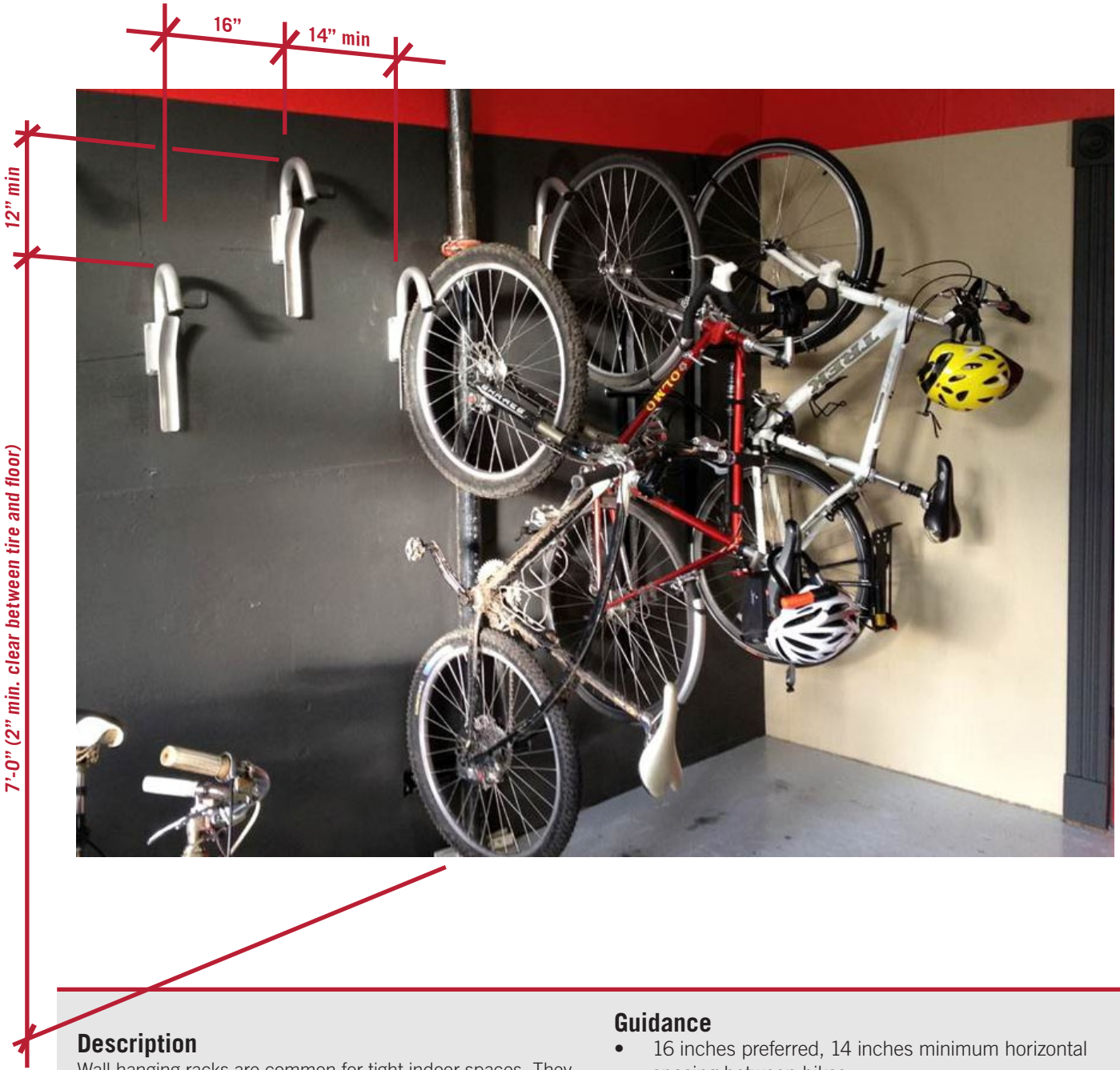
Materials and Maintenance

Use of proper anchors will discourage vandalism and theft. Racks and anchors should be regularly inspected for damage. Inspect and repair any unique features or surfaces of an art rack.



PLAN VIEW

Wall Hanging



Description

Wall hanging racks are common for tight indoor spaces. They have a smaller footprint than similar capacity floor mounted racks and can be staggered vertically to further increase capacity and accommodate bicycles with wider handlebars. They can be as simple as a hook mounted to the wall to hold the front wheel in place, or more complex with a tray for the wheels and a horizontal bar or other solid device to which to lock. If wall hanging racks are used, floor-mounted racks should also be provided for those who may not be able to lift their bikes up onto the wall.

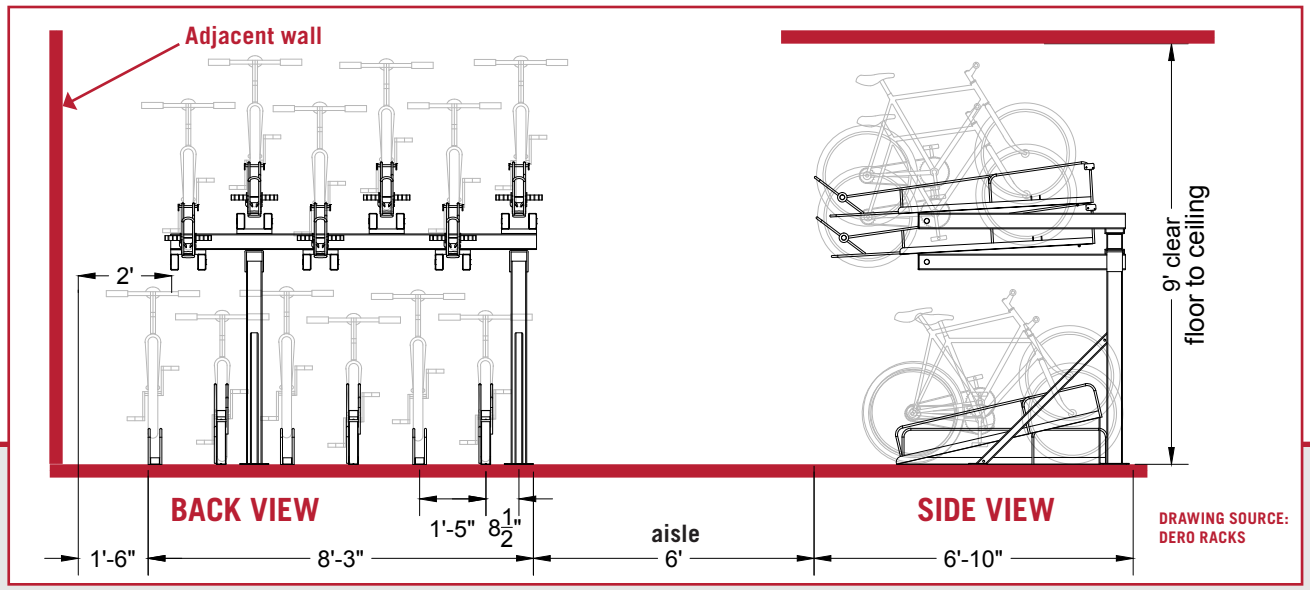
Guidance

- 16 inches preferred, 14 inches minimum horizontal spacing between bikes.
- Stagger racks vertically so that handle bars will not interfere with one another.
- Mount wall hanging racks so there will be 2 inches minimum between floor and tire.
- Maintain 5 foot aisle to allow maneuvering room

Materials and Maintenance

Regularly inspect the functioning of moving parts. Mop floor under hanging bikes and clean wall where tires rest to remove road grime left behind by bicycles.

Two-Tier / Double Decker Bicycle Racks



Description

Two-tier, or double-decker, racks are a good option for long term parking when trying to maximize the amount of bike parking available. As the name describes, the two-tier rack provides hardware that can stack an additional layer of bikes on top of a ground level layer. Racks designed with springs or pneumatic arms to aid the user in lifting the bike are preferred to those without mechanical assistance.

Materials and Maintenance

Regularly inspect the functioning of moving parts. Replace hydraulic arms if lifting power becomes unacceptable. Clean rack trays to remove dirt and grime sediment left behind by dirty bicycles.

Cost Range:

$300 - $500 per space

Appendix H: Development Code Amendments

The following section proposes specific changes to the bicycle parking provisions in the development codes of Eugene, Springfield, and Coburg. Changes are presented in strikethrough/underline format for clarity about the proposed changes.

Recommended Code Amendments - Eugene

9.6105 Bicycle Parking Standards. The bicycle parking standards in this section apply to all new development, building additions, and changes of use.

(1) Exemptions from Bicycle Parking Standards. The following are exempt from the bicycle parking standards of this section:

(a) Site improvements that do not include bicycle parking improvements.
(b) Building alterations.
~~(c) Drive-through only establishments.~~
(d) Temporary activities as defined in EC 9.5800 Temporary Activity Special Development Standards.
(e) Bicycle parking at Autzen Stadium Complex (see EC 9.6105(6) Autzen Stadium Complex Bicycle Parking Standards).

(2) Bicycle Parking Space Standards.

(a) The minimum required number of bicycle parking spaces for each use category is listed in EC 9.6105(5) Minimum Required Bicycle Parking Spaces. A minimum of 4 bicycle parking spaces shall be provided at each development site, unless no spaces are required by Table 9.6105(5) or unless otherwise noted.

(b) Bicycle parking spaces and facilities shall be constructed and installed according to the standards in the Eugene Bicycle Parking Manual.

~~Bicycle parking spaces required by this land use code shall comply with the following:~~

~~1. Perpendicular or diagonal spaces shall be at least 6 feet long and 2 feet wide with an overhead clearance of at least 7 feet, and with a 5 foot access aisle. This minimum required width for a bicycle parking space may be reduced to 18" if designed using a hoop rack according to **Figure 9.6105(2) Bicycle Parking Standards**.~~

~~2. Bicycles may be tipped vertically for storage, but not hung above the floor. Such vertical parking spaces shall be at least 2 feet wide, 4 feet deep, and no higher than 6 feet, and have a 5 foot access aisle.~~

~~3. Except pie-shaped lockers, bicycle lockers shall be at least 6 feet long, 2 feet wide and 4 feet high, and have a 5 foot access aisle.~~

~~4. Pie-shaped bicycle lockers shall be at least 6 feet long, 3 feet wide at the widest end, and 4 feet high, and have a 5 foot access aisle.~~

~~(c) Long and short term bicycle parking With the exception of individual bicycle lockers, enclosures or rooms, long term and short term bicycle parking shall consist of a securely fixed structure that supports the bicycle frame in a stable position without~~

~~damage to wheels, frame, or components.~~ Racks shall ~~and that allows the frame and both wheels to be locked to the rack by the bicyclist's own locking device.~~

~~(d) Areas devoted to required bicycle parking spaces shall be hard surfaced with concrete, compacted asphaltic concrete mix, pavers or an equivalent. All racks and lockers shall be securely anchored to such surface.~~

(e) Direct access from the bicycle parking area to the public right-of-way shall be provided ~~with access ramps, if necessary,~~ by at-grade, near-grade (one step or curb no greater than 6 inches high) or ramp access, and pedestrian access shall be provided from the bicycle parking area to the building entrance.

(3) Long Term Bicycle Parking Location and Security.

(a) Long term bicycle parking required in association with a commercial, industrial, or institutional use shall be provided in a well-lighted, secure location, sheltered from precipitation and within ~~a convenient distance~~ 200 feet of a main or employee entrance. A secure location is defined as one in which the bicycle parking is:

1. A bicycle locker,
2. A lockable bicycle enclosure, or
3. Provided within a lockable room with racks complying with space standards ~~at EC 9.6105(2)~~in the Eugene Bicycle Parking Manual.

(b) Long term bicycle parking required in association with a multiple-family residential use shall be provided in a well-lighted, secure location sheltered from precipitation, and within 200 feet ~~a convenient distance~~ of an entrance to the multifamily building. ~~residential unit~~. A secure location is defined as one in which the bicycle parking is provided outside the residential unit within:

1. A lockable garage;
2. A lockable room serving multiple dwelling units with racks complying with space standards ~~at EC 9.6105(2);~~in the Eugene Bicycle Parking Manual;
3. A lockable room serving only one dwelling unit;
4. A lockable bicycle enclosure with racks complying with space standards in the Eugene Bicycle Parking Manual; or
5. A bicycle locker.

(c) Long term bicycle parking shall be provided at ground level unless a ramp no less than 2 feet in width or an elevator with a minimum depth or width of 6 feet is easily accessible to an approved bicycle parking area. If bicycle parking is provided on upper floors, the number of required spaces provided on each floor cannot exceed the number of spaces required for the use on that floor as per Table 9.6105(5).

(4) Short Term Bicycle Parking Location and Security.

(a) Short term bicycle parking shall be provided:

1. Outside a building;
2. At the same grade as the sidewalk or at a location that can be reached by a bike-accessible route; and
3. Within 50 feet ~~a convenient distance~~ of, and clearly visible from, the main entrance to the building as determined by the city, but it shall not be farther than the closest automobile parking space (except disabled parking).

(b) Short term bicycle parking may project into or be located within a public right-of-way, subject to the city's approval of a revocable permit under Chapter 7 of this code.

(c) Shelters for short term bicycle parking shall be provided in the amounts shown below. ~~in Table 9.6105(4)(c) Required Sheltered Bicycle Parking Spaces.~~

1. If 10 or fewer short term bicycle parking spaces are required, no shelter is required.
2. If more than 10 short term bicycle parking spaces are required, at least 50% of the spaces must be sheltered.

~~Table 9.6105(4)(c) Required Sheltered Bicycle Parking Spaces~~	
~~Short Term Bicycle Parking Requirements~~	~~Percentage of Sheltered Spaces~~
~~5 or fewer~~	~~No shelter required~~
~~6 to 10~~	~~100% of spaces sheltered~~
~~11 to 29~~	~~50% of spaces sheltered~~
~~30 or more~~	~~25% of spaces sheltered~~

(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.*]

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

Table 9.6105(5) Minimum Required Bicycle Parking Spaces			
Use Category	**Specific Uses**	**Number of Required Spaces**	**Long and Short Term Bicycle Parking Percentages**
	Assisted care and day cares	1 per 5 employees	75% long term 25% short term
	Rooms for rent	1 per rentable room	One short term space and the rest long term
Commercial	General Trade	1 per 3,000 square feet of floor area	25% long term 75% short term
	Motor vehicle related trade (repair, sales, service)	1 per 6,000 square feet of floor area	100% short term
	Wholesale trade	1 per 6,000 square feet of floor area	25% long term 75% short term
	Eating and Drinking Establishments	1 per 600 square feet of floor area	25% long term 75% short term
	Drive-through Only Establishments	2 (minimum of 4 does not apply)	100% short term
	Lodging	1 per 10 rentable rooms	75% long term 25% short term
	Office	1 per 6,000 square feet of floor area	75% long term 25% short term
Institutional	Government related uses	1 per 3,000 square feet of floor area	25% long term 75% short term
	Entertainment and recreation assembly	Spaces equal to 3 percent of maximum capacity	25% long term 75% short term
	Schools (elementary through high school)	1 per 10 students based on planned capacity	25% long term 75% short term
Parks	Neighborhood park	4 per park	100% short term
	Community park	8 per park	100% short term
	Metropolitan park	8 per park	100% short term
	Universities/Colleges	1 per 5 students at planned capacity	15% long term 85% short term
	Hospitals and Medical Centers	1 per 40,000 square feet of floor area	25% long term 75% short term

Table 9.6105(5) Minimum Required Bicycle Parking Spaces			
Use Category	**Specific Uses**	**Number of Required Spaces**	**Long and Short Term Bicycle Parking Percentages**
	Religious Institutions and Places of Worship	1 per 20 seats or 40 feet of bench length (fixed seating) or 1 per 500 square feet of floor area (no fixed seating)	100% short term
Manufacturing	All uses	1 space per 5,000 square feet of floor area	75% long term 25% short term
Transportation Related	Structured Parking	10% of the number of vehicle parking spaces provided	75% long term 25% short term
	Transit Station	10% of the number of vehicle parking spaces provided (if no vehicle parking is provided, the minimum of 4 applies)	50% long term 50% short term
	Transit Park & Ride	10% of the number of vehicle parking spaces provided	50% long term 50% short term

Note to staff: Staff may want to consider including language to clearly outline how bicycle parking calculations are done. Example language:

The rules for calculating the minimum number of bicycle parking spaces are:

(1) If, after calculating the number of required bicycle parking spaces, the result contains a fraction of one-half or more, an additional space shall be required; if such fraction is less than one-half it may be disregarded.

(2) When the bicycle parking requirement is based on number of employees or number of students, the number of spaces shall be based on the number of working persons on the development site during the largest shift of the peak season or the highest expected student capacity. If the Planning Director determines that this number is difficult to verify for a specific facility, then the number of required bicycle parking spaces shall be a minimum of two (2) spaces or five (5) percent of the amount of required automobile spaces for the proposed facility, whichever is greater.

(3) The calculation of short-term bicycle parking may include existing racks that are in the public right-of-way and are within 100 feet of the main entrance.

(6) Bicycle Parking for Alternative Bicycle Types. Alternative bicycle types are those that do not have the same general dimensions (height and width) as regular bicycles and may require alternative parking facilities. Alternative bicycle types include tandems, recumbents, cargo bikes, trail-a-bikes, bikes with trailers and other bikes with similar dimensions. Bicycle parking facilities for alternative bicycle types shall be provided as follows:

(a) Multi-family residential and dormitories: 15% of required long-term bicycle parking spaces shall accommodate special bicycles. In addition, at least one short-term bicycle parking space shall accommodate special bicycles.

(b) Commercial trade and office: 10% of required long-term bicycle parking spaces shall accommodate special bicycles. In addition, at least one short-term bicycle parking space shall accommodate special bicycles.

(c) Schools (including elementary, middle, high schools and universities): 15% of required short-term bicycle parking spaces shall accommodate special bicycles.

(d) Parks and playgrounds. At least two bicycle parking spaces per park or playground shall accommodate special bicycles.

(e) Parking spaces for special bicycles shall be clearly marked with a sign, pavement marking, or other identifying feature.

(6 7) Autzen Stadium Complex Bicycle Parking Standards. [*Note: Renumbering only, no text amendments*]

9.3715 S-RP Riverfront Park Special Area Zone Development Standards.

(1) Parking Requirements.

(b) Bicycle parking: Bicycle spaces shall be provided as follows:

1. Non-residential uses - the minimum number of spaces shall equal 15 percent of the number of required automobile spaces.
2. Multiple-family dwellings - 1 space per unit.
3. Locking and cover shall be provided for all required spaces.
4. Required spaces shall be located no farther than twice the distance between automobile parking spaces and the closest building entrance.
5. Required bicycle parking spaces and facilities shall be constructed and installed according to the bicycle parking design standards in ~~Section xxxx of the Public Improvements Design Standards Manual~~ the Eugene Bicycle Parking Manual. ~~Each required space must be at least 6 feet long and 2 feet wide, with a minimum overhead clearance of 6 feet.~~

9.3970 S-WS Walnut Station Special Area Zone Development Standards Applicable to All Properties in the Walnut Station Special Area Zone.

(4) Parking Requirements.

e) Bicycle parking. The following minimum bicycle parking standards apply instead of the standards in Table 9.6105(5). Uses shall provide a minimum number of bicycle parking spaces as designated in Table 9.3970(4)(e) below. Where two options are provided (e.g., 4 spaces, or 1 per dwelling), the option resulting in more bicycle parking shall be used. The remaining standards in EC 9.6105 (1-3) and EC 9.6110 are applicable within the S-WS zone.

Table 9.3970(4)(e) - Minimum Required Bicycle Parking Spaces		
Use Categories	**Specific Uses**	**Number of Required Spaces**
Residential Categories		
Multifamily		4 minimum or 1 per bedroom ~~dwelling~~

9.6745 Setbacks-Intrusions Permitted.

(10) Bicycle and Pedestrian Amenities. Bicycle and pedestrian amenities such as bicycle parking racks, shelters, benches and lighting may be located in required front yard setbacks and interior yard setbacks, provided vision clearance is maintained for vehicles passing on the street and leaving the development site, in accordance with the requirements of EC 9.6780 Vision Clearance Area.

Recommended Code Amendments - Springfield

4.6-145 Bicycle Parking—Facility Design

A. The required minimum number of bicycle parking spaces for each principal use is 4 ~~3~~ spaces. Specific requirements per use are given in Section 4.6-155. Additional bicycle parking spaces may be required at common use areas. Fractional numbers of spaces shall be rounded up to the next whole space.

[Note to staff: Recommend increasing the minimum from 3 spaces to 4 spaces because bike racks typically hold two bicycles. This change is reflected in the table as well.]

~~**B.** Each bicycle parking space shall be at least 2 by 6 feet with an overhead clearance of 7 feet, and with a 5-foot access aisle beside or between each row of bicycle parking, and between parked bicycles and a wall or structure (the dimensions for commonly-used bicycle racks are shown in Figure 4.6-B.). Bicycles may be tipped vertically for storage but not hung above the floor.~~

B. Required bicycle parking spaces and facilities shall be constructed and installed in accordance with the bicycle parking design standards in Section xxxx of the Springfield Engineering Design Standards and Procedures Manual. Bicycle parking shall be provided at ground level unless an elevator is easily accessible to an approved bicycle storage area. Each required bicycle parking space shall be accessible without removing another bicycle.

C. All required long-term bicycle parking spaces shall be sheltered from precipitation. ~~Short-term bicycle parking is not required to be sheltered.~~

D. Short term bicycle parking shall be sheltered as follows:

1. If 10 or fewer short term bicycle parking spaces are required, no shelter is required.
2. If more than 10 short term bicycle parking spaces are required, at least 50% of the

spaces must be sheltered.

3. Shelters shall have a minimum 7-foot overhead clearance and be of sufficient area to completely cover the bicycle parking rack and any bicycles that are parked correctly at the rack.

~~D~~ **E.** Direct access from the bicycle parking area to the public right-of-way shall be provided ~~with access ramps, if necessary,~~ by at-grade or ramp access, and pedestrian access shall be provided from the bicycle parking area to the building entrance. (6211)

[*Note: Springfield may also want to consider adding provisions for large bikes (tandems, recumbents, bikes with trailers, etc.) similar to those added in Eugene.]*

4.6-150 Bicycle Parking—Facility Improvements

~~**Figure 4.6-B**~~

[Note: Delete Figure 4.6-B that shows dimensions for commonly used racks]

4.6-155 Bicycle Parking—Number of Spaces Required

The following parking standards have been established according to land use categories.

[*Note: The following table is intended to entirely replace existing Table 4.6-3. Because it is so long, the existing table is not shown here in the deleted, strikethrough format.]*

Table 4.6-3 Minimum Required Bicycle Parking Spaces

Use Category	Specific Uses	Number of Required Spaces *(minimum 4 spaces required unless -0- is indicated or otherwise noted)*	Long and Short Term Bicycle Parking Percentages
Residential	Single-family and duplexes	-0-	NA
	Triplex, four-plex, and multi-family	0.5 per dwelling unit	75% long term 25% short term
	Dormitories	1 space per every three occupants	50% long term 50% short term
	Assisted care and day cares	1 per 5 employees	75% long term 25% short term
	Rooms for rent	1 per rentable room	100% long term
Commercial	General Retail	1 per 3,000 square feet of floor area	25% long term 75% short term
	Eating and Drinking Establishments	1 per 600 square feet of floor area	25% long term 75% short term

Table 4.6-3 Minimum Required Bicycle Parking Spaces			
Use Category	**Specific Uses**	**Number of Required Spaces** *(minimum 4 spaces required unless -0- is indicated or otherwise noted)*	**Long and Short Term Bicycle Parking Percentages**
	Drive-through Only Establishments	2 for employee parking (minimum of 4 does not apply)	100% long term
	Lodging	1 per 10 rentable rooms	75% long term 25% short term
	Office	0.75 per 5,000 square feet of floor area	75% long term 25% short term
Institutional	Government related uses	1 per 3,000 square feet of floor area	25% long term 75% short term
	Schools (elementary through high school)	1 per 10 students based on planned capacity	25% long term 75% short term
	Parks and playgrounds	8 per park or playground	100% short term
	Universities/Colleges	1 per 5 full time students	25% long term 75% short term
	Medical Centers	1 per 40,000 square feet of floor area	25% long term 75% short term
	Religious Institutions and Places of Worship	1 per 20 seats or 40 feet of bench length (fixed seating) or 1 per 500 square feet of floor area (no fixed seating)	100% short term
Transportation Related	Structured Parking	10% of the number of vehicle parking spaces provided	75% long term 25% short term
	Transit Station	10% of the number of vehicle parking spaces provided (if no vehicle parking is provided, the minimum of 4 applies)	50% long term 50% short term
	Transit Park & Ride	10% of the number of vehicle parking spaces provided	50% long term 50% short term

Section 3.4-200 GLENWOOD RIVERFRONT MIXED-USE PLAN DISTRICT

3.4-270 Public and Private Development Standards

G. Vehicle/Bicycle Parking and Loading Standards

13. Bicycle Parking. Safe and convenient bicycle parking shall be provided for residents, visitors, employees and patrons. In mixed-use developments, the required bicycle parking for each use shall be provided. Required off-street bicycle parking spaces shall be as specified in Table 3.4-2. The requirements in Table 3.4-2 supersede any conflicting requirements in Section 4.6-155. The required minimum number of parking spaces for each listed use is 4 spaces.

14. Bicycle Parking Design, Location and Security.

a. Required bicycle parking spaces and facilities shall be constructed and installed in accordance with the bicycle parking design standards in Section xxxx of the Springfield Engineering Design Standards and Procedures Manual.

Recommended Code Amendments - Coburg

ARTICLE VII. DISTRICT REGULATIONS

I. Mobile Home Planned Unit Development District

2. Regulations

g. The total number of vehicle and bicycle parking spaces in the park, exclusive of parking provided for the exclusive use of the manager or employees of the park, shall equal not less than two vehicle parking spaces per mobile home unit and not less than one bicycle parking space per mobile home unit. Vehicle parking spaces shall be paved with asphalt, concrete or similar material. Bicycle parking spaces shall provide a convenient place to lock a bicycle and shall be constructed and installed in accordance with the bicycle parking design standards in the Coburg Bicycle Parking Design Manual. ~~shall be at least six feet long, two feet side, and seven feet height~~. Bicycle parking shall not interfere with pedestrian circulation.

[*Note: The Coburg Bicycle Parking Design Manual is not an existing document. This amendment assumes Coburg will adopt a stand-alone design manual as part of this update. If an existing public works document is available and more appropriate, then the bicycle parking design standards will be located there instead.]*

ARTICLE VIII. SUPPLEMENTARY DISTRICT REGULATIONS

B. Parking Regulations

5. Bicycle Parking

a. Bicycle parking requirements shall apply to all developments that require a site plan or amended site plan for new development, changes of use, and building expansions and remodels that require a building permit. The required number of bicycle parking spaces by land use is established in Table VIII-A below. ~~as follows~~:

~~(1) Multi-Family. Every residential use of two or more multi-family dwelling units shall provide at least one sheltered bicycle parking space for each unit. Sheltered bicycle parking areas may be in a conveniently located garage or storage unit, or under an eave, independent structure, or similar cover.~~

~~(2) Non-Residential Parking. There shall be a minimum of one bicycle space for every seven motor vehicle spaces. At least ten percent of all bicycle parking spaces shall be~~

~~sheltered. Bicycle parking provided in outdoor areas shall be located near the building entrance, similar to vehicle parking spaces, unless existing development on site precludes that option. Fractions shall be rounded to the nearest whole number.~~

Table VII-A Minimum Required Bicycle Parking Spaces			
Use Category	**Specific Uses**	**Number of Required Spaces** *(minimum 4 spaces required unless -0- is indicated)*	**Long and Short Term Bicycle Parking Percentages**
Residential	Single-family and duplexes	-0-	NA
	Triplex, four-plex, and multi-family	0.5 per dwelling unit	75% long term 25% short term
	Assisted care and day cares	1 per 5 employees	75% long term 25% short term
	Rooms for rent	1 per rentable room	100% long term
Commercial	General Retail	1 per 3,000 square feet of floor area	25% long term 75% short term
	Eating and Drinking Establishments	1 per 600 square feet of floor area	25% long term 75% short term
	Drive-through Only Establishments	1 (for employee parking)	100% long term
	Lodging	1 per 10 rentable rooms	75% long term 25% short term
	Office	0.75 per 5,000 square feet of floor area	75% long term 25% short term
Institutional	Government related uses	1 per 3,000 square feet of floor area	25% long term 75% short term
	Schools (elementary through high school)	1 per 10 students based on planned capacity	25% long term 75% short term
	Parks and playgrounds	8 per park or playground	100% short term
	Universities/Colleges	1 per 5 full time students	25% long term 75% short term
	Medical Centers	1 per 40,000 square feet of floor area	25% long term 75% short term
	Religious Institutions and Places of Worship	1 per 20 seats or 40 feet of bench length (fixed seating) or 1 per 500 square feet of floor area (no fixed seating)	100% short term

Table VII-A Minimum Required Bicycle Parking Spaces			
Use Category	**Specific Uses**	**Number of Required Spaces** *(minimum 4 spaces required unless -0- is indicated)*	**Long and Short Term Bicycle Parking Percentages**
Transportation Related	Structured Parking	10% of the number of vehicle parking spaces provided	75% long term 25% short term
	Transit Station	10% of the number of vehicle parking spaces provided (if no vehicle parking is provided, the minimum of 4 applies)	50% long term 50% short term
	Transit Park & Ride	10% of the number of vehicle parking spaces provided	50% long term 50% short term

b. Bicycle Parking Facilities Design Standards

(1) Long and short term bicycle parking shall consist of a securely fixed structure that supports the bicycle frame in a stable position without damage to wheels, frame, or components. Racks shall allow the frame and both wheels to be locked to the rack by the bicyclist's own locking device. ~~Bicycle parking facilities shall either be stationary racks which accommodate bicyclist's locks securing the frame and both wheels, or lockable rooms or enclosures in which the bicycle is stored.~~

(2) Bicycle parking facilities ~~spaces~~ shall provide a convenient place to lock a bicycle and shall be constructed and installed in accordance with the bicycle parking design standards in the Bicycle Parking Installation Guidelines document. ~~be at least six feet long, two feet wide, and seven feet high. Upright bicycle storage structures are exempted from the parking space length standard.~~

~~(3) A 5-foot aisle for bicycle maneuvering shall be provided and maintained beside or between each row of bicycle parking.~~

(4) Bicycle racks or lockers shall be anchored to the surface or to a structure.

(5) Covered bicycle parking facilities may be located within a building or structure, under a building eave, stairway, entrance, or similar area, or under a special structure to cover the parking. The cover shall leave a minimum 7- foot overhead clearance and shall extend over the entire parking space. If a bicycle storage area is provided within a building, a sign shall be placed at the area indicated that it is for bicycle parking only.

(6) Bicycle parking shall not interfere with pedestrian circulation.

c. Long Term Bicycle Parking Location and Security.

(1) Long term bicycle parking required in association with a commercial, industrial, or institutional use shall be provided in a well-lighted, secure location, sheltered from precipitation and within 200 feet of a main entrance. A secure location is defined as one in which the bicycle parking is:

i. A bicycle locker,

ii. A lockable bicycle enclosure, or

ii. Provided within a lockable room with racks

(2) Long term bicycle parking required in association with a multiple-family residential use shall be provided in a well-lighted, secure location sheltered from precipitation, and within a convenient distance of an entrance to the residential unit. A secure location is defined as one in which the bicycle parking is provided outside the residential unit within:

i. A lockable garage;

ii. A lockable room with racks serving multiple dwelling units;

ii. A lockable room with racks serving only one dwelling unit;

iv. A lockable bicycle enclosure with racks complying with the Bicycle Parking Installation Guidelines; or

v. A bicycle locker.

(3) Long term bicycle parking shall be provided at ground level unless a ramp no less than 2 feet in width or an elevator with a minimum depth or width of 6 feet is easily accessible to an approved bicycle parking area. If bicycle parking is provided on upper floors, the number of required spaces provided on each floor cannot exceed the number of spaces required for the use on that floor.

[Note to staff: Pending additional discussion, the language above regarding bicycle parking on upper floors may need to be revised to clarify the intent of the requirement.]

d. Short Term Bicycle Parking Location and Security.

(1) Short term bicycle parking shall be provided:

i. Outside a building;

ii. At the same grade as the sidewalk or at a location that can be reached by a bike-accessible route; and

iii. Within a convenient distance of, and clearly visible from the main entrance to the building as determined by the city, but it shall not be farther than the closest automobile parking space (except disabled parking).

(2) Short term bicycle parking may project into or be located within a public right-of-way, subject to the city's approval of a revocable permit under Chapter 7 of this code.

(3) Cover for short term bicycle parking shall be provided in the amounts shown below. Covers shall have a minimum 7-foot overhead clearance and be of sufficient area to completely cover the bicycle parking rack and any bicycles that are parked correctly at the rack.

i. If 10 or fewer short term bicycle parking spaces are required, no cover is required.

ii. If more than 10 short term bicycle parking spaces are required, at least 50% of the spaces must be covered.

Appendix I: APBP Guidelines for Bicycle Parking Requirements

The following table is reproduced from APBP's *Bicycle Parking Guide, 2nd Edition*, page 3-6.

Table I-1: Recommended Parking Requirements, Civic/Cultural Land Uses

Type of Activity	Long-Term Bicycle Parking Requirement	Short-Term Bicycle Parking Requirement
Non-assembly cultural (library, government buildings, etc.)	1 space for each 10 employees, minimum 2 spaces	1 space for each 10,000 s.f. of floor area, minimum 2 spaces
Assembly (church, theater, stadium, park, beach, etc.)	1 space for each 20 employees, minimum 2 spaces	Spaces for 2% of maximum expected daily attendance
Health care/hospital	1 space for each 20 employees or 1 space for each 70,000 s.f. of floor area, whichever is greater, minimum 2 spaces	1 space for each 20,000 s.f. of floor area, minimum 2 spaces
Education		
a) Public, parochial, and private day-care centers for 15 or more children	1 space for each 20 employees, minimum 2 spaces	1 space for each 20 students of planned capacity, minimum 2 spaces
b) Public, parochial, and private nursery schools, kindergartens, and elementary schools (1-3)	1 space for each 10 employees, minimum 2 spaces	1 space for each 20 students of planned capacity, minimum 2 spaces
c) Public, parochial, and elementary (4-6) public and high schools	1 space for each 10 employees, plus 1 space for each 20 students or planned capacity, minimum 2 spaces	1 space for each 20 students of planned capacity, minimum 2 spaces
d) Colleges and universities	1 space for each 10 employees, plus 1 space for each 10 students or planned capacity; or 1 space for each 20,000 s.f. of floor area, whichever is greater	1 space for each 20 students of planned capacity, minimum 2 spaces
Rail/bus terminals and stations/airports	Spaces for 5% projected a.m. peak period daily ridership	Spaces for 1.5% a.m. peak period daily ridership