

2022 | Portland Bicycle Counts



PBOT
PORTLAND BUREAU OF TRANSPORTATION

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Introduction

For the last three decades, the Portland Bureau of Transportation (PBOT) has been collecting and analyzing data about bicycle use from a variety of sources. The most prominent is an annual, one-day volunteer count at hundreds of locations around the city that tallies bicycle volumes, the direction of travel, the use of helmets, and assumed gender for the purpose of capturing large trends.

In 2022, PBOT also collected 24-hour data from automated hose counts at 67 locations. At an additional seven locations people bicycling are counted daily and around the clock via fixed pneumatic hoses. These counts are on the Hawthorne Bridge, Broadway Bridge, Steel Bridge (both upper decks and the Riverwalk, which is the lower ped-bike deck of the Steel Bridge), Tilikum Crossing, Sellwood Bridge, and S Moody Avenue. A final source of data is commute data from the American Community Survey (ACS) conducted by the U.S. Census Bureau. Unlike other data sources, the commute data provides information about the proportion of commute trips made by all means of transportation.

This report relies primarily on volunteer count data from 2006-2019, and 2022. Volunteer counts were not conducted in 2020 and 2021 due to the COVID-19 pandemic. While the city collected data annually through 2019, this is the first published report since 2013-2014. Data from 2022 reveals how the pandemic has affected travel by bike (and other modes). The data shows that biking in Portland in 2022 dropped back to 2006 levels. This is reinforced by available commute data, which shows similar regression for all modes.

While 2022 data is anomalously low, it is also a continuation of a trend of declining bicycle use in Portland. Both annual count data and Census data demonstrates that bicycle use in Portland peaked in the 2013-2015 period and has been declining since.

Collecting the data

Volunteers conducted weekday, peak-time counts¹ at 234 locations citywide in 2022 (on par with the 240 locations counted in 2019) largely, but not exclusively, at the intersections of established bikeways. Maps in Appendix A show locations of all completed counts. These counts were conducted by 105 volunteers between June 1 and Sept. 30, 2022 on a Tuesday, Wednesday, or Thursday.

In the past, these peak-time counts—principally conducted from 4 to 6 p.m.—have accounted for approximately 20% of all daily bicycle activity at each location, making it possible to extrapolate a full weekday estimate of the number of people biking at each count site. Given the enormous affect that the pandemic has had on travel it was unclear if this past assumption would hold for 2022. But there was no compelling data or reasoning that identified other times that might be more representative. So PBOT used the established methodology; counts were conducted during the historic two-hour weekday peak.

While volunteers were conducting manual bike counts, PBOT was also collecting 24-hour automated bike counts using pneumatic hoses at 67 locations. Looking across all 67 automated count sites, the number of bikes tallied in the 4–6 p.m. period represented 21% of all bicycle traffic at those sites. Thus, the historic relationship appears valid, and the 2022 two-hour peak counts were considered 20% of the daily bicycle traffic at each location. A more detailed assessment of the data validation, methodology, and hose counts can be found in Appendix D.

“In 2022, Portland bicycle traffic dropped more than a third compared to 2019, to levels not seen since approximately 2005-2006.”

¹ Counts typically take two hours. The peak time at most locations is 4 – 6 p.m. One-way roads headed into the central city are typically counted during the 7 - 9 a.m. morning peak.

Summary of count analysis

- Overall, Portland bicycle traffic in 2022 dropped more than a third compared to 2019, to levels not seen since approximately 2005-2006 (Table 1). This is based on a comparison of people counted at the 184 locations that were counted in both 2022 and 2019. Volunteers recorded 17,579 people biking at those 184 locations in 2022, a 37% drop from the 27,782 counted at the same locations in 2019.
- This reversion to earlier and lower volumes is also reflected in bicycle commute data, as well as for driving, walking, and using transit to commute. (Tables 5-6)
- Looking at data from 2013-2019 we see that bicycling remained relatively flat between 2013 and 2016. However, bicycle counts dropped significantly between 2016 and 2019. This drop is also reflected in census commute data.
- East Portland (east of I-205) had the lowest average number of riders (117 riders averaged over 33 locations) while Southeast Portland (west of I-205) had the highest average (700 riders, 57 locations).
- In considering data going back to 2006, and excluding locations where 2022 was the only data point, the 2022 count was the lowest recorded at 126 locations (56%). Conversely, 2022 was the highest count at 11 locations (5%). (Appendix B)
- In addition to other data points, volunteers captured the assumed gender of riders during their count. This data is not collected for precision, but rather to identify larger trends. Research shows that greater gender parity in people biking has historically correlated with the bike network being perceived as safer and more comfortable for all riders. In 2022, for instance, the share of riders who volunteer counters identified as women dropped to a low of 28% in 2022 from a consistent 31-32% over the last 13 years of counts. (Figure 1)
- Helmet use also fell from a high of 85% in 2018-2019 to 81%, a rate last seen in 2014. (Figure 3)
- In 2022, East Portland had the greatest gender disparity, with the lowest number of riders who volunteer counters identified as women (18%) and the lowest helmet use (56%). Northeast Portland had the highest share of riders who volunteers identified as women (31%) while Southwest had the highest share of helmet use (90%). (Figure 4)
- Overall, the use of helmets was higher among riders who volunteers identified as women (87%) compared to riders who volunteers identified as men (78%). (Figure 4)

Below: Four people riding in Southwest Portland, including a tandem bike.



Historic change in bicycle use by time period

This report examined changes in bicycle use in three distinct time periods, comparing 2013 to 2016, 2016 to 2019, and 2019 to 2022. The change from 2013 to 2016 was variable but, overall, the rate of change in bicycling was essentially flat, showing a 0.5% increase over those four years. Despite this flat rate citywide, counts recorded in the City Center and East Portland showed significant decreases (see Table 1).

From 2016 to 2019 the trend changed significantly. Over those four years all but one district experienced decreases in cycling. Northeast Portland was the only area of town that maintained 2016 levels of bicycling. Overall, bicycling declined more than 10% citywide in the 2016-2019 period. This decrease in the number of people counted is consistent with changes in bicycle commuting during this period, as shown in Tables 5 and 6. U.S.

Census data indicates that bicycle commute mode split peaked in Portland at 7.2% in 2014, while the number of people bicycling to work peaked in 2015 at 23,432. The numbers then generally declined, reaching pre-pandemic lows of 5.2% and 19,052 bicycle commuters in 2019.

From 2019 to 2022, cycling predictably dropped in every district due to the pandemic and dramatic changes in travel patterns. Overall, the city saw a greater than one-third decrease in the number of people cycling across the city during the pandemic, but this decline was a both a continuation and acceleration of a trend that began before 2016. These trends are displayed in the figures in Appendices B and C.

Table 1: Percent change in number of people biking by district

District	% change			based on # of constant locations	number of people counted***			
	2013 - 2016	2016 - 2019	2019 - 2022		2013	2016	2019	2022
East	-22.1	-17.7	-25.6	18	1,067	831	684	509
Northeast	9.5	0.8	-42.2	23	4,603	5,041	5,083	2,937
North	6.6	-10.9	-40.8	13	2,334	2,489	2,218	1,312
Northwest	1.8	-17.0	-31.9	11	1,770	1,802	1,496	1,019
Southwest	-6.3	-14.5	-23.7	20	1,754	1,643	1,404	1,071
Southeast	6.5	-11.2	-28.0	27	7,084	7,542	6,697	4,824
Central City*	-18.1	-27.3	-45.9	15	3,478	2,850	2,073	1,122
Bridge**	19.3	-24.7	-58.8	2	579	691	520	214
City Center	-25.5	-28.1	-41.5	13	2,899	2,159	1,553	908
Portland	0.5	-11.5	-34.9	127	22,090	22,198	19,655	12,794

*Bridge and Center City are combined under Central City.

**The Morrison and Burnside bridges are the only ones included here.

***Only includes the 127 sites that were counted during every year indicated.

Note: East Portland refers to areas east of I-205, while Northeast and Southeast are west of I-205.

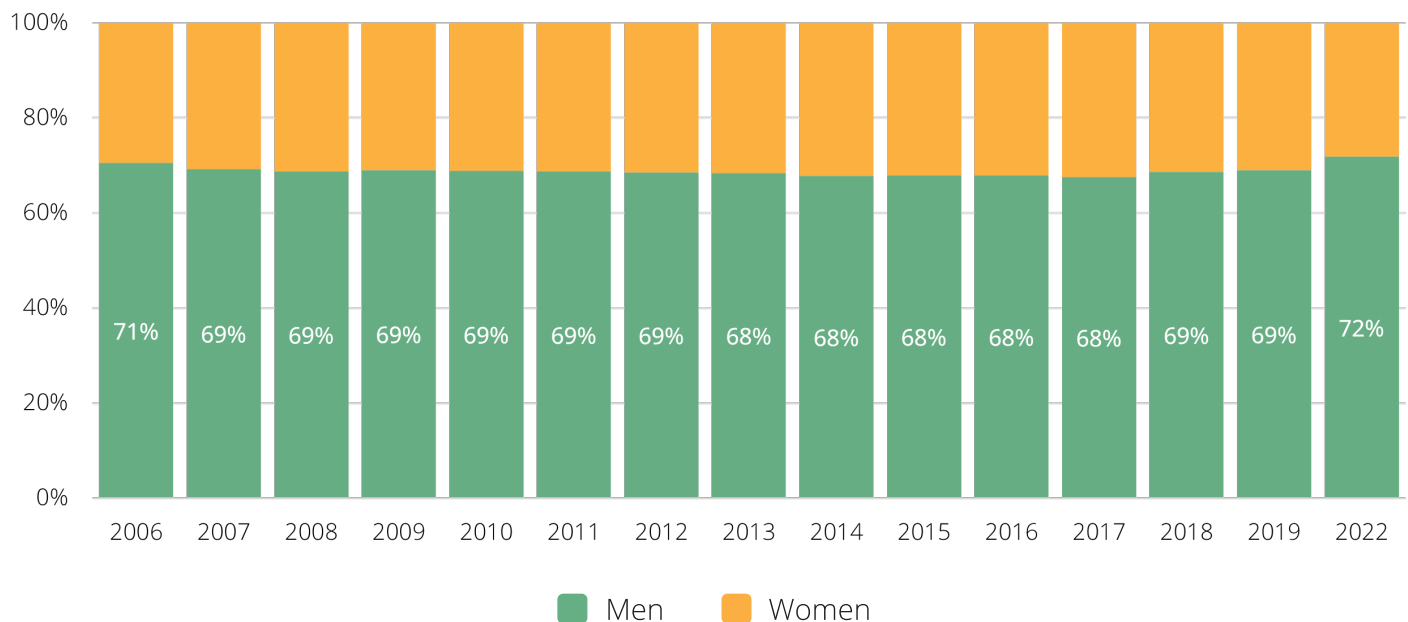
Gender split

In most U.S. communities, women cycle at lower rates than men. Areas with demonstrably safer, more comfortable, and conducive conditions for bicycling, however, tend to have more gender parity in cycling.^{1,2} (See Maps in Appendix A and Tables 2 and 3.) This is why, as part of PBOT's annual bike counts, volunteer counters are asked to capture rough gender data as it provides important information about the perceived safety and availability of Portland's bike network. That is, during counts, in addition to helmet use and other factors, volunteers mark down their assumption about the gender of people bicycling. This is for both adults and youth. Although the majority of people observed biking are adults, the references to women or men in the charts below are rough approximations of the number of women (and girls) and men (and boys) cycling.

Since the start of the pandemic, the gender split in people biking widened. After ridership held relatively steady around 31% women/69% men since 2003, the share of riders citywide who volunteers identified as women dropped to about 28% in 2022. Previous low points were 29% in 2006 (Figure 1) and between 20-27% in the period 1992-2002 (not shown).

Looking at the gender share by district (Table 2) tells a more nuanced story. In 2013, 2016, 2019, and 2022, Northeast Portland consistently had the highest share of riders who volunteer counters identified as women, although the share dropped by about 5% over that period. In 2019, North Portland was tied with Northeast. Conversely, East Portland consistently had the lowest share of riders who volunteers identified as women.

Figure 1: Gender distribution by year, 2006-2022



1 Akar PhD, G., Fischer, N. & Mi Namgung. 2013. *Bicycling Choice and Gender Case Study: The Ohio State University*, *International Journal of Sustainable Transportation*, 7:5, 347-365, DOI: 10.1080/15568318.2012.673694.34.

2 Garrad, J., Handy, S., and Jennifer Dill. 2012. "Women and Cycling," in *City Cycling* edited by Pucher, John and Buehler, Ralph, Massachusetts Institute of Technology, pp 211-234.

Between 2019 and 2022, the bridges saw the largest drop (10%) in the share of riders who volunteers identified as women. North Portland saw an 8-point drop. Meanwhile, East Portland saw a 2% increase.

Table 3 shows the count locations with the largest and smallest share of riders who volunteers identified as women. These are locations where at least 50 people biking were counted in 2022. Southeast Portland features prominently in the top, accounting for seven of the 10 locations. The bottom 10 are more evenly distributed, with at least one location in each sector. Southwest Portland is the most represented in the bottom 10 with three locations. (See Maps 5-7 in Appendix A).

The 2022 counts also had the lowest percentage of sites with 40% or more women biking and the highest percentage of sites with fewer than 20% of women biking since the 2006 counts. (Table 4 and Maps 5-7 in Appendix A).

Table 2: People biking who volunteers identified as women by district

District	% women***			
	2013	2016	2019	2022
East	21.0	19.7	16.4	18.2
Northeast	35.3	34.1	32.6	30.8
Southeast	31.7	32.9	31.8	29.7
North	34.3	33.6	32.6	26.3
Northwest	29.4	30.3	30.5	28.0
Southwest	25.8	30.5	28.7	26.1
Central City*	31.8	31.2	30.5	25.2
Bridge**	32.0	32.0	34.2	24.3
City Center	31.8	31.1	30.1	25.3
Portland	31.5	32.1	31.0	28.2

*Bridge and Center City are combined under Central City.

**Only the Morrison and Burnside bridges are included here.

***Only includes the 127 sites that were counted during each of the four years.

Note: East Portland refers to areas east of I-205, while Northeast and Southeast are west of I-205.

Figure 2: Gender distribution by sector, 2022

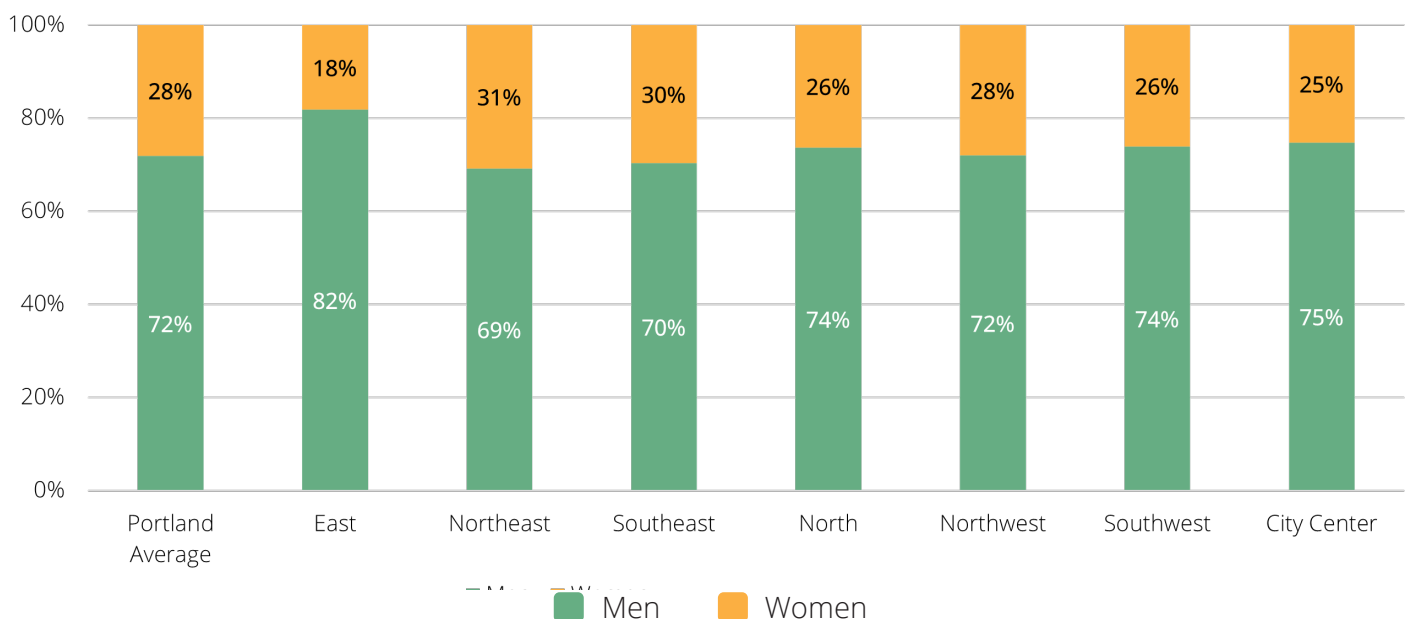


Table 3: Rank of locations by share of women biking in 2022 compared to 2019.

			2022		2019	
Rank*	Location	Sector	Women (%)	Total people biking**	Rank (168 sites)	Women (%)
Top 10 sites for women						
1	SE Taylor & 41st Ave	Southeast	41.7	720	16	38.5
2	SE Salmon & 34th	Southeast	41.2	1360	30	35.6
3	S Bond & Curry	South	40.0	450	6	40.5
4	SE Woodstock & 52nd	Southeast	39.6	455	125	26.1
5	E Burnside & NE 86th	Northeast	38.7	310	71	32.1
6	SE Taylor & 53rd	Southeast	38.7	530	32	35.5
7	SE Salmon & 29th	Southeast	37.4	855	73	31.9
8	NW Overton & 11th	Northwest	37.3	670	--	--
9	SE Clinton & 13th	Southeast	37.1	1725	14	38.7
10	SE Lincoln & 41st	Southeast	36.1	1330	66	32.2
Bottom 10 sites for women						
133	NE Irving & 12th	Northeast	19.6	840	92	30.0
134	N Willamette & Waud Bluff Trail	North	19.4	670	147	21.1
135	SW Barbur & Terwilliger	Southwest	19.3	545	150	18.8
136	SE Milwaukie & Mitchell	Southeast	16.7	270	143	22.1
137	NW Thurman & 14th	Northwest	16.4	275	36	34.7
138	SE Springwater Trail & SE 92nd	East	16.3	400	163	13.0
139	SW Stark & 4th	City center	16.1	560	--	--
140	E Burnside & 122nd	East	14.7	340	156	17.7
141	SW Humphrey Blvd & Patton	Southwest	13.0	270	160	13.2
142	SW Canyon Ct & Skyline	Southwest	9.8	460	162	13.2

*Excludes sites where fewer than 50 people were counted biking.

**Extrapolated total people biking.

Note: East Portland refers to areas east of I-205, while Northeast and Southeast are west of I-205.

Table 4: Sites with less than 20% or more than 40% women biking, 2006, 2013-2022

Year	Total locations counted	Sites with <20% women		Sites with >40% women	
		# of sites	% of sites	# of sites	% of sites
2006	78	19	24%	3	4%
2013	215	48	22%	15	7%
2014	216	44	20%	14	6%
2015	234	48	21%	12	5%
2016	254	54	21%	20	8%
2017	276	72	26%	18	7%
2018	293	65	22%	10	3%
2019	240	61	25%	14	6%
2022	239	61	26%	9	4%

Helmet use

The use of helmets had been rising from a low of 75% in 2006 to a high of 85% in 2018 and 2019 (Figure 3). That trend stalled as overall helmet use dropped slightly in 2022. As in the past, there are significant differences in helmet use by district (Figure 4). Based on similar count data going back to 2006, helmet use remains highest in Southwest Portland and lowest in East Portland.

Since we began collecting data in Portland, women

have consistently worn helmets at higher rates than men. That trend continued in 2022 with 87% of women wearing helmets compared to 78% for men (Figure 4). East Portland had both the lowest overall helmet use (56%) and the greatest difference in helmet use by gender (23 percentage points). Southwest Portland was the opposite with the highest rate of helmet use (90%) and the smallest difference in use by gender at 4 percentage points (Figure 5).

Figure 3: Helmet use by year, 2006-2022

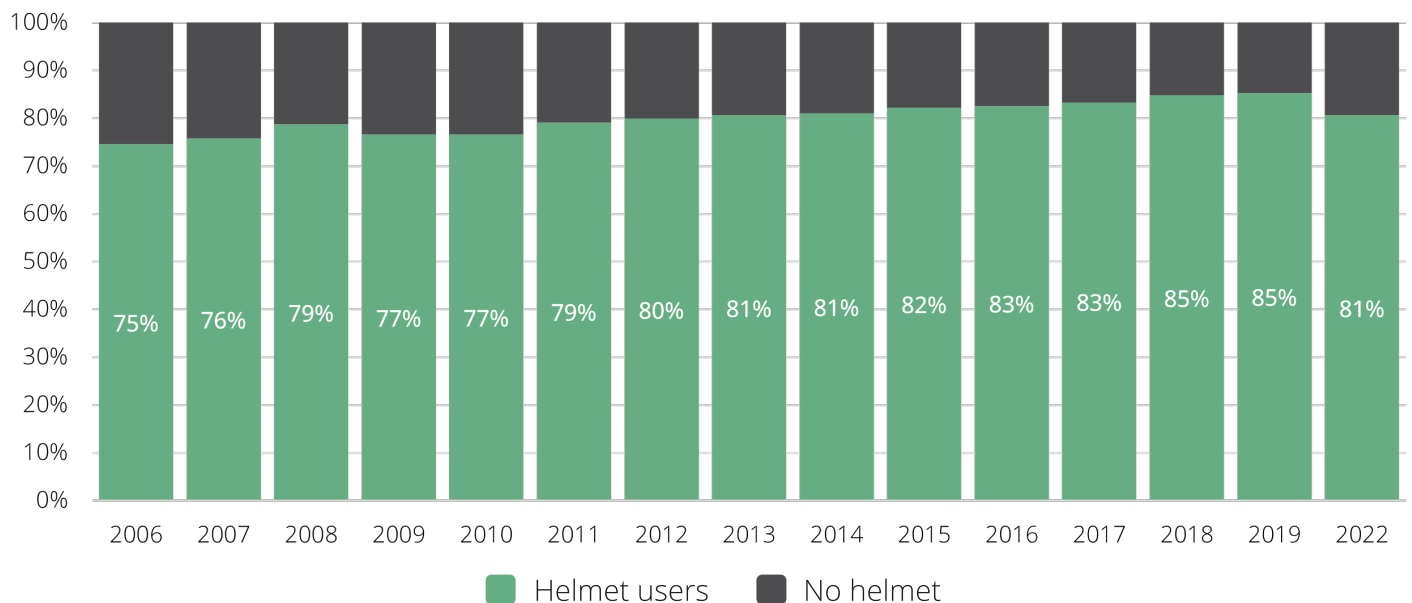


Figure 4: Helmet use by sector, 2022

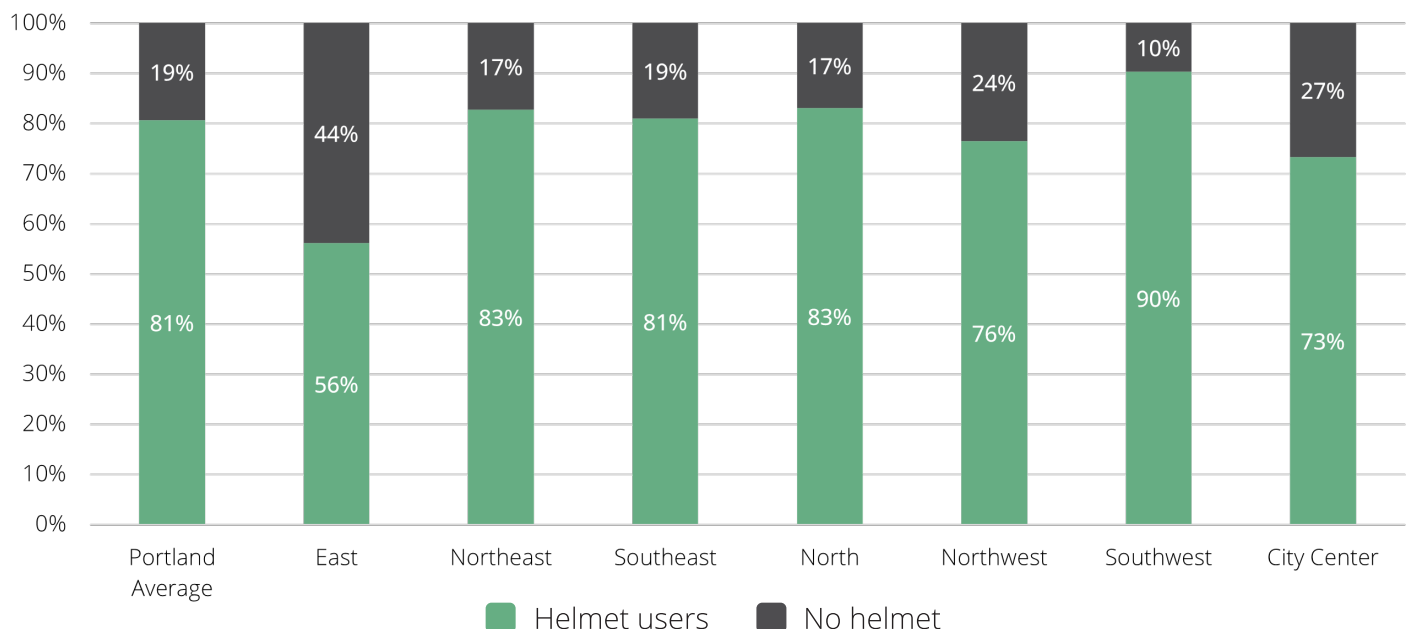
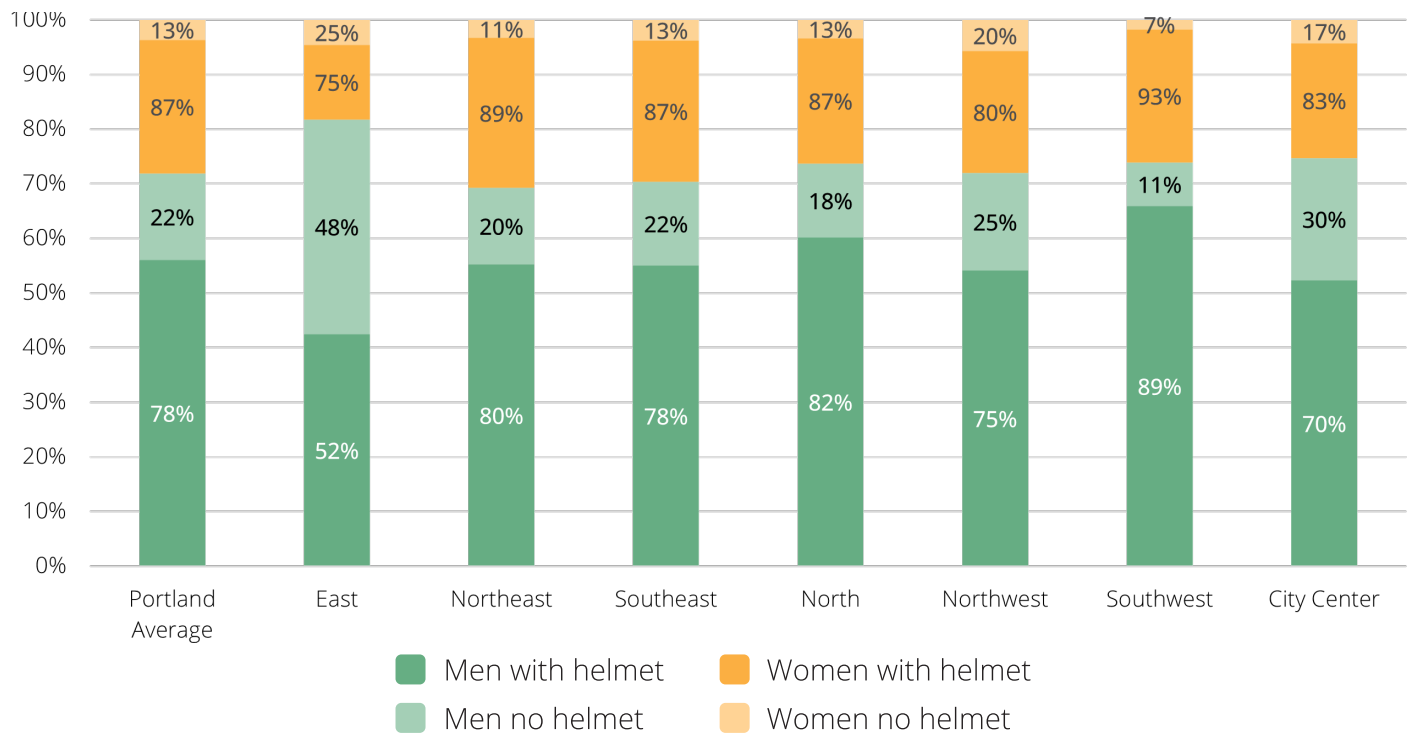


Figure 5: Gender and helmet use by sector, 2022

Census commute data

The U.S. Census Bureau tracks the principal means by which people get to work and provides additional context for the shifts in biking over the last few years. The most recent year for which data is available is 2021. Working from home grew tremendously between 2019 and 2021 while every other mode of transportation saw significant decreases (Tables 5 and 6).

The number of people who walked or biked to work in 2021 were at levels last seen in the 2005-2007 period. The number of people driving alone to work similarly dropped to 2005-2006 levels. The number of people taking transit to work in 2021 dropped to levels not seen in the data below, which goes back to 1990. The drop in bicycle commuting to numbers of people last seen in the 2005-2007 period is consistent with 2022 count data. Many of the summer bicycle counts in 2022 recorded levels of bicycling last seen in approximately 2006.

At less than 48%, the number of people driving alone to work in 2021 was the lowest level recorded in modern times. Reflecting the significant increases in Portland's population, the 160,000 people driving alone to work in 2005 represented

about 62% of all commuters. That same number of commuters driving alone in 2021 represented less than half of all commuters.

The work commute is not the only measure that matters, yet it is one we can measure. Anecdotally, it appears that all travel has decreased across all modes of transportation, but the scale of that change is harder to quantify.

The number of people who walked, biked, or drove alone to work in 2021 were at levels last seen in the 2005-2007 period.

Table 5: Modes split for the journey to work, percentage

	Drove alone	Carpooled	Transit	Walked	Bicycled	Worked at home
1990	65.0	12.9	11.0	5.6	1.1	3.4
1996	65.2	12.2	11.7	4.3	1.7	4.2
1997	64.0	11.7	14.0	3.8	2.2	3.7
1998	65.4	10.7	12.1	4.4	2.0	4.6
1999	63.8	11.0	12.3	5.5	1.9	4.8
2000	63.6	11.9	12.3	5.2	1.8	4.3
2001	62.8	11.0	13.0	5.0	2.8	4.6
2002	64.4	10.2	12.2	4.8	2.6	5.0
2003	62.4	12.0	12.9	3.8	3.0	4.9
2004	62.2	11.0	13.3	3.7	2.8	5.8
2005	62.3	10.4	13.3	4.3	3.5	5.3
2006	60.6	10.5	12.6	5.2	4.2	6.1
2007	63.6	9.8	11.2	4.4	3.9	6.4
2008	60.4	8.4	12.6	5.3	6.0	6.5
2009	61.6	8.5	11.5	5.6	5.8	5.9
2010	58.8	9.6	12.1	5.3	6.0	7.4
2011	57.8	9.2	13.0	4.9	6.3	7.9
2012	58.5	8.4	11.1	6.9	6.1	7.9
2013	57.4	9.9	11.9	6.1	5.9	7.1
2014	57.6	9.1	11.8	5.4	7.2	7.6
2015	57.2	8.2	13.4	6.0	7.0	7.2
2016	58.2	8.1	12.9	5.8	6.3	7.8
2017	56.7	8.6	12.6	5.7	6.3	8.6
2018	58.5	7.6	12.0	5.7	5.3	9.6
2019	56.4	8.2	13.4	6.3	5.2	9.1
2020	55.7	7.9	11.4	5.5	5.4	12.7
2021	46.8	6.2	4.4	3.7	2.8	34.9

Source: US Census Bureau; Decennial Census or One-Year American Community Survey in non-decennial years; 5-year ACS for 2020 (Table S0801).

Table 6: Modes split for the journey to work, number

	Drove alone	Carpooled	Transit	Walked	Bicycled	Worked at home	Total Commuters
1990	139,246	27,594	23,475	12,058	2,453	7,243	214,270
1996	160,928	30,080	28,794	10,622	4,254	10,311	246,860
1997	159,965	29,182	34,983	9,626	5,435	9,180	250,077
1998	165,165	26,958	30,589	11,213	5,026	11,628	252,428
1999	162,966	27,995	31,530	13,928	4,900	12,202	255,363
2000	172,491	32,197	33,410	14,192	4,775	11,780	271,234
2001	165,727	29,015	34,278	13,092	7,378	12,181	264,054
2002	162,621	25,840	30,815	12,054	6,647	12,599	252,701
2003	161,544	31,133	33,422	9,911	7,776	12,754	258,889
2004	160,364	28,315	34,235	9,627	7,207	14,930	257,766
2005	160,686	26,781	34,249	11,073	9,013	13,648	257,768
2006	167,559	28,895	34,948	14,264	11,477	16,758	276,465
2007	178,588	27,600	31,465	12,232	10,987	17,841	280,933
2008	176,252	24,450	36,666	15,482	17,365	18,929	291,579
2009	178,332	24,753	33,431	16,125	16,846	17,235	289,700
2010	168,231	27,375	34,544	15,078	17,035	21,139	286,228
2011	174,457	27,631	39,180	14,753	18,977	23,876	301,584
2012	180,107	25,736	34,289	21,336	18,912	24,308	307,935
2013	178,980	30,831	37,002	19,017	18,337	22,160	311,588
2014	187,726	29,651	38,529	17,615	23,347	24,681	325,907
2015	191,822	27,651	44,855	20,081	23,432	24,053	335,447
2016	202,102	28,196	44,691	19,986	21,982	27,180	347,260
2017	202,718	30,687	45,028	20,303	22,647	30,843	357,258
2018	214,405	27,972	43,800	20,859	19,553	35,313	366,445
2019	206,585	30,168	49,103	23,084	19,052	33,516	366,463
2020	201,533	28,584	41,247	19,900	19,538	45,951	361,818
2021	164,795	22,008	15,385	13,001	9,985	122,913	352,391

Source: US Census Bureau; Decennial Census or One-Year American Community Survey in non-decennial years; 5-year ACS for 2020 (Table S0801).

Discussion

Portland's two principal sources of bicycle use data—the annual volunteer counts and U.S. Census data—both tell of declining bicycle use since approximately 2014-2015. That a decline is occurring in both numbers of people bicycling and in mode split is undeniable. Why it is happening is difficult to determine.

Portland has long been recognized as a leading North American bicycling city. That reputation has been based on investments in both infrastructure and programs and on high ridership levels. Investments in infrastructure and programs have continued without pause since Portland's 2014 peak in bike commute share (at 7.2% of all commute trips).

Since 2014 Portland has built 121 miles of new bikeways, which added 77 miles to the city's bikeway network. Most of those miles (58%) were either low-traffic streets known as neighborhood greenways, protected bicycle lanes, or off-street pathways. These three facility types are considered the most family-friendly of the city's infrastructure. Another 30% of new infrastructure consisted of buffered bicycle lanes. It is easy to argue that Portland's bikeway network is of higher quality and reaches into more parts of the city than in 2014-2015 when bicycle commute mode split and the number of people biking to work peaked.

Similarly, since 2014 Portland has continued with its many programs designed to encourage bicy-

cling. PBOT has hosted numerous annual cycling encouragement events both large and small (Sunday Parkways and smaller community rides and bike fairs). The Bureau has also continued to send encouragement materials promoting walking, biking, and transit use to those who've moved to or within Portland. More than 2,100 Portlanders ordered such materials in 2022. PBOT's Safe Routes to School programming is active in five school districts and more than 120 schools, reaching more than 67,000 students per year.

In 2016 Portland introduced BIKETOWN, its shared bike program, which now has 1,500 electric-assist bicycles serving more areas of the city and which has recorded more than 2.2 million trips since its launch. There were more than 560,000 BIKETOWN trips made in 2022. The program has lowered access barriers through BIKETOWN for All, which dramatically reduces costs for riding BIKETOWN bikes for those who qualify and through PBOT's Transportation Wallet program, which can be used to pay for shared bike rides. Those programs had 2,630 and 1,403 participants, respectively, in 2022.

Despite these efforts, bicycle use—as reflected in both commute data and the city's annual counts—has continued to drop. The pandemic can explain much of the recent, precipitous drop in biking, but it does not explain the downward trend before 2020.



Left: A person biking north on an e-bike in a protected, two-way bikeway along N. Greeley Ave near N Sumner St.



Appendix A: Bike counts mapped (2013, 2014, 2019, and 2022)

The following seven maps provide a visual assessment of estimated daily ridership at locations counted at key times over the past decade. Maps 1-4 show counts for 2013, 2014, 2019, and 2022. Maps 5-7 show the percentage of women riding at each count location as recorded in 2014, 2019, and 2022.

In maps 5-7, only locations with 50 or more people biking in the 2-hour peak were considered for “top 10” (or “lowest 10”) rankings. Thus, some locations with fewer than 30-40% women biking were identified as a “Top 10” location while locations identified as having more than 40% women biking were not. This is the case in both 2019 and 2022.

Bicycle Count Form

use different form for each hour

Location: NE 12th & Tillamook 1

Date: 7/25/06 Time: 4:00 - 5:00 pm

Weather: 80's, sunny Name: John Doe

Notes: _____

	Masculine	Feminine	Total
with helmet	THL THL THL THL THL THL THL II THL THL II	THL THL THL THL II	59
without helmet	THL III 5	THL III	16
Totals →	6 45	30	75 7

Indicate movement thru intersection by using arrows to show direction of travel (left turns, through, etc.). Indicate north, label legs of intersection. If not standard intersection, use blank form and draw in design.

NE Tillamook

NE 12th Ave

NE 12th Ave

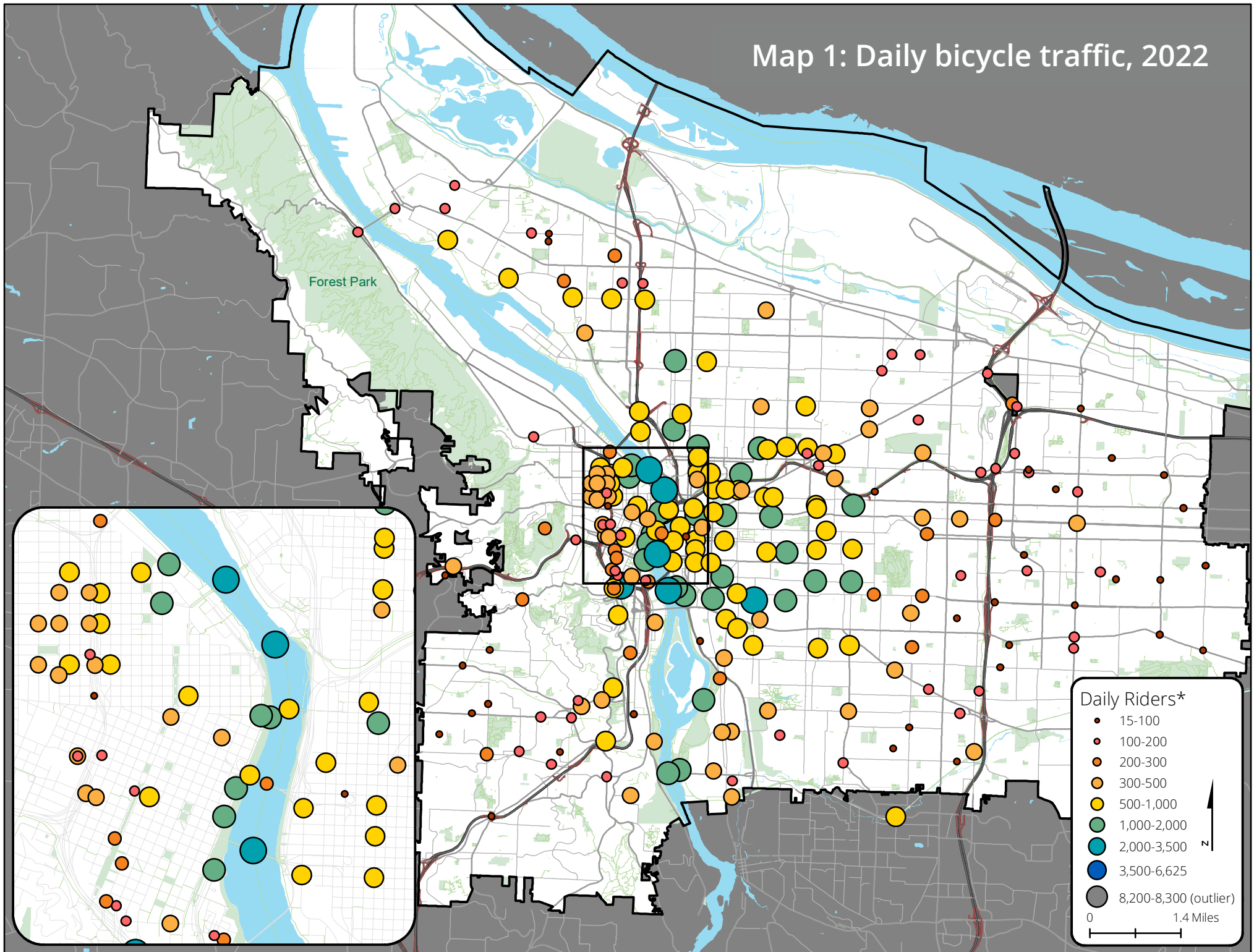
NE Tillamook

Above: An example bicycle count form that volunteers use to conduct counts.

Below: An adult and child biking along SE Division St near SE 89th Ave.

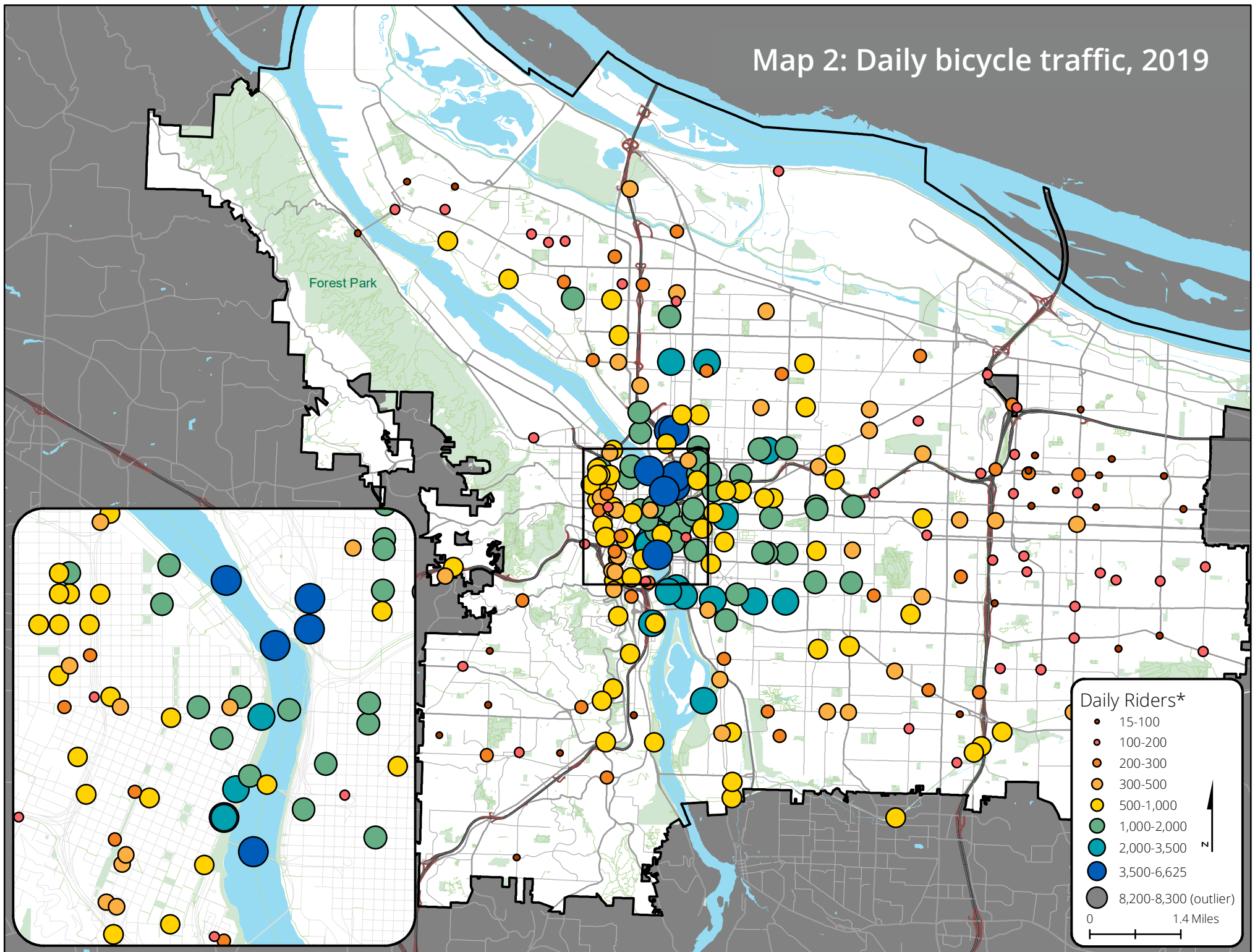


Map 1: Daily bicycle traffic, 2022



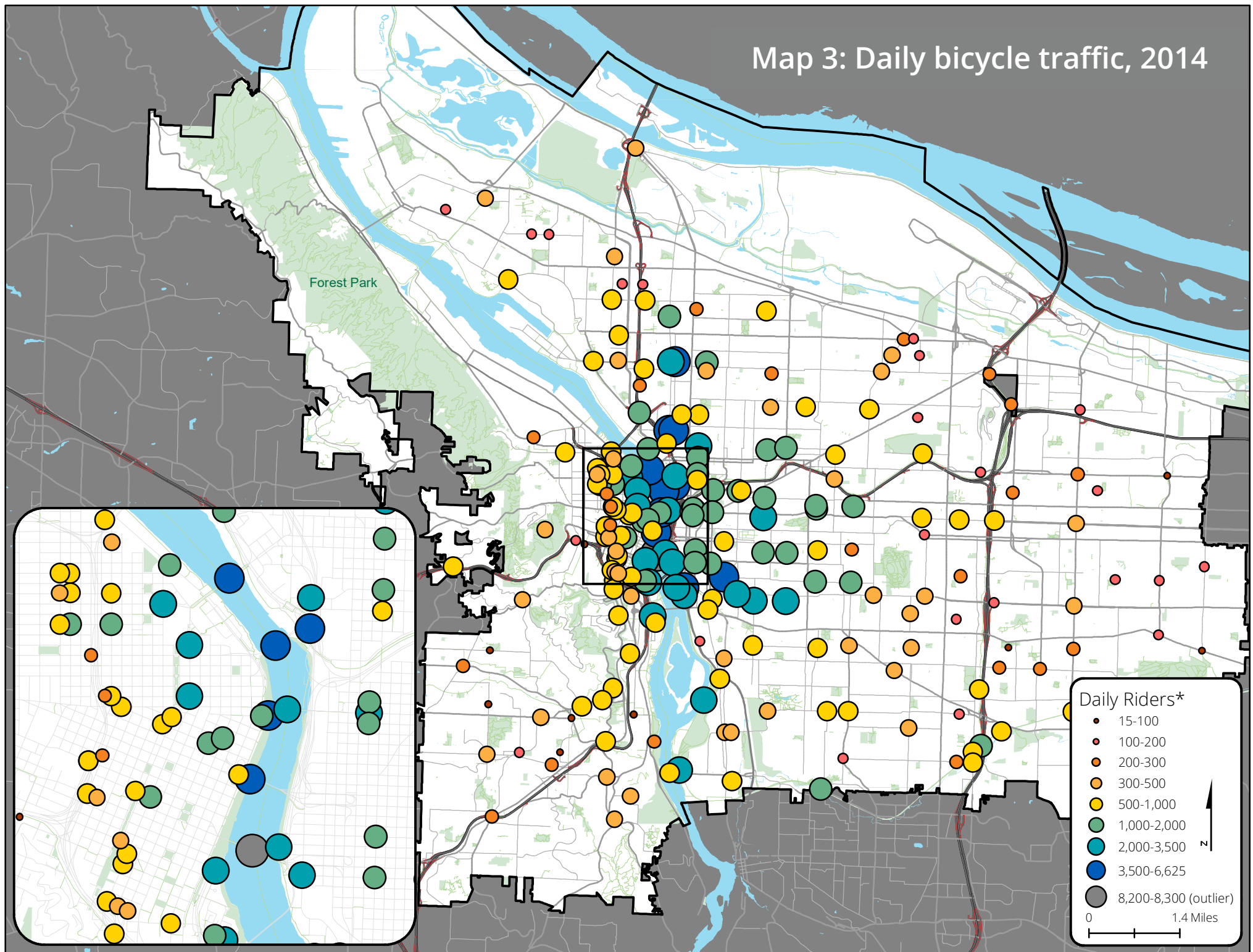
*Extrapolated from 2 hour counts

Map 2: Daily bicycle traffic, 2019



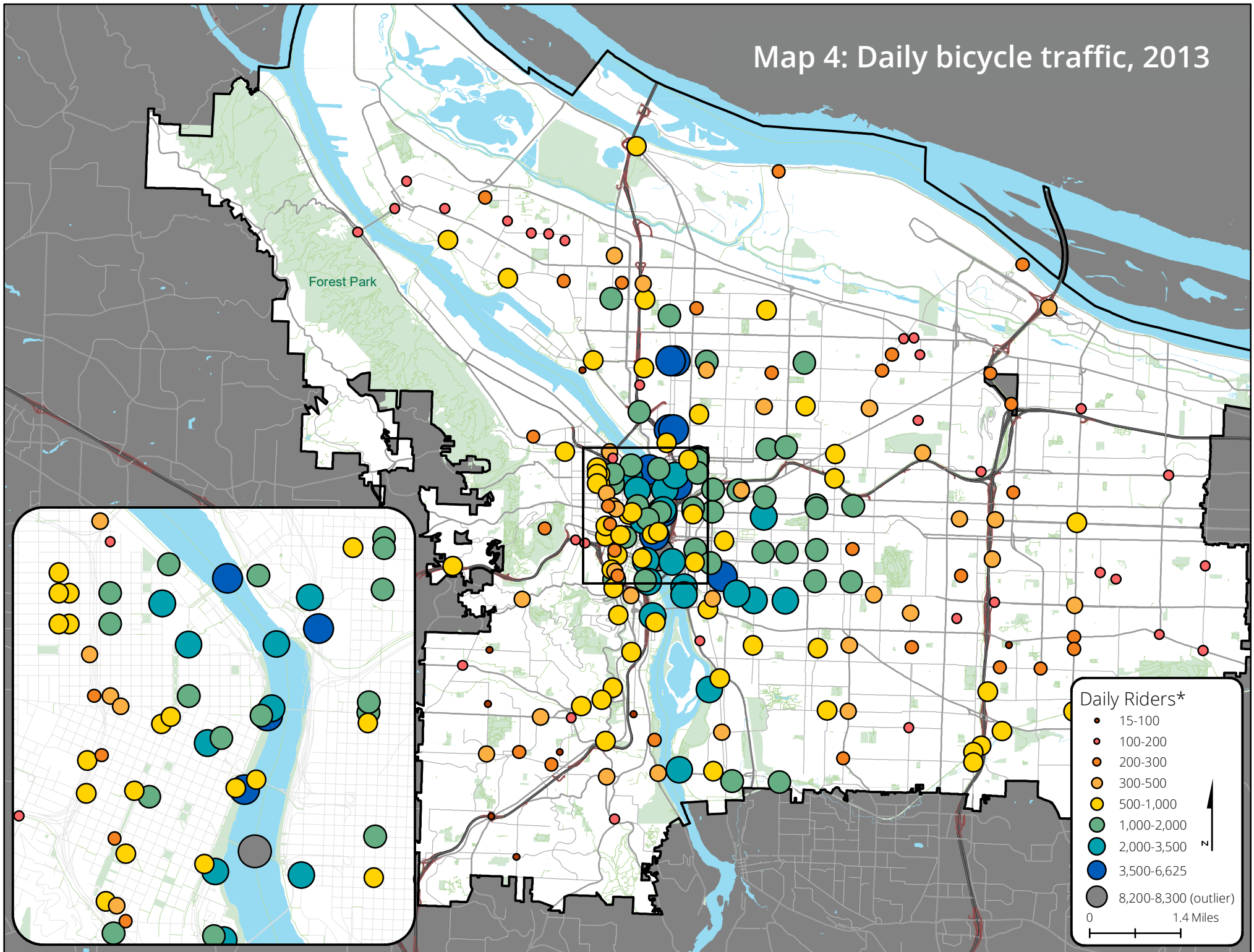
*Extrapolated from 2 hour counts

Map 3: Daily bicycle traffic, 2014



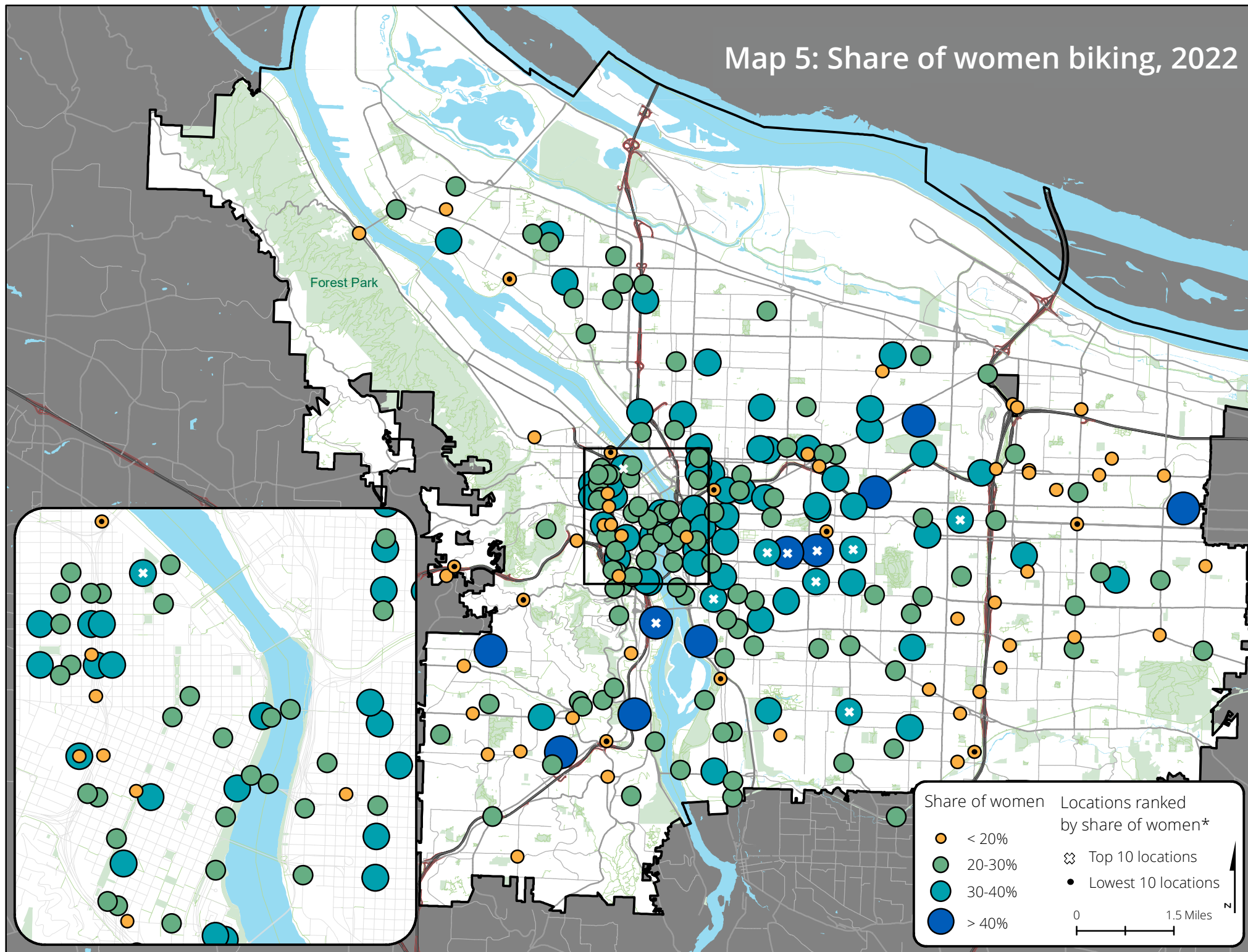
*Extrapolated from 2 hour counts

Map 4: Daily bicycle traffic, 2013



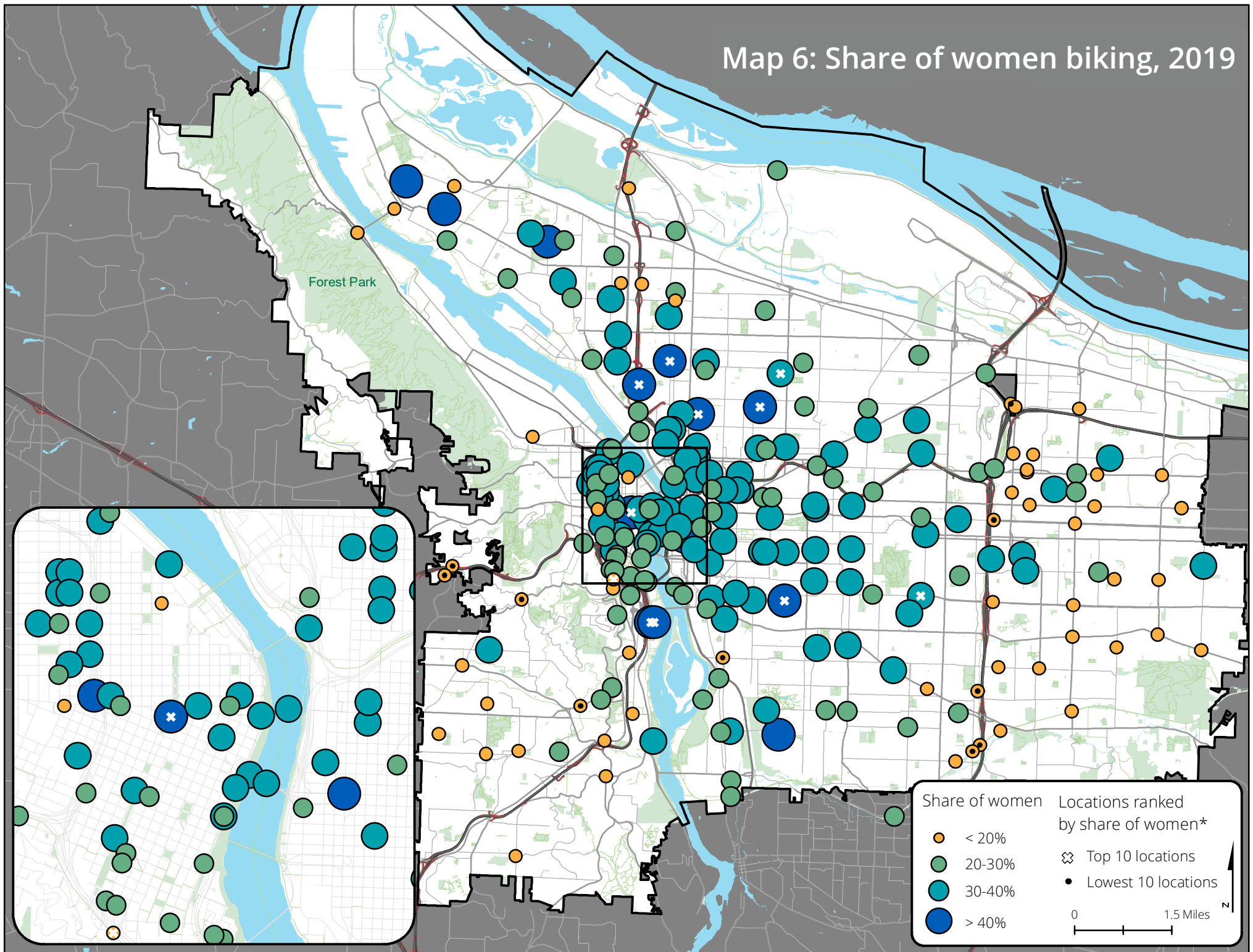
*Extrapolated from 2 hour counts

Map 5: Share of women biking, 2022



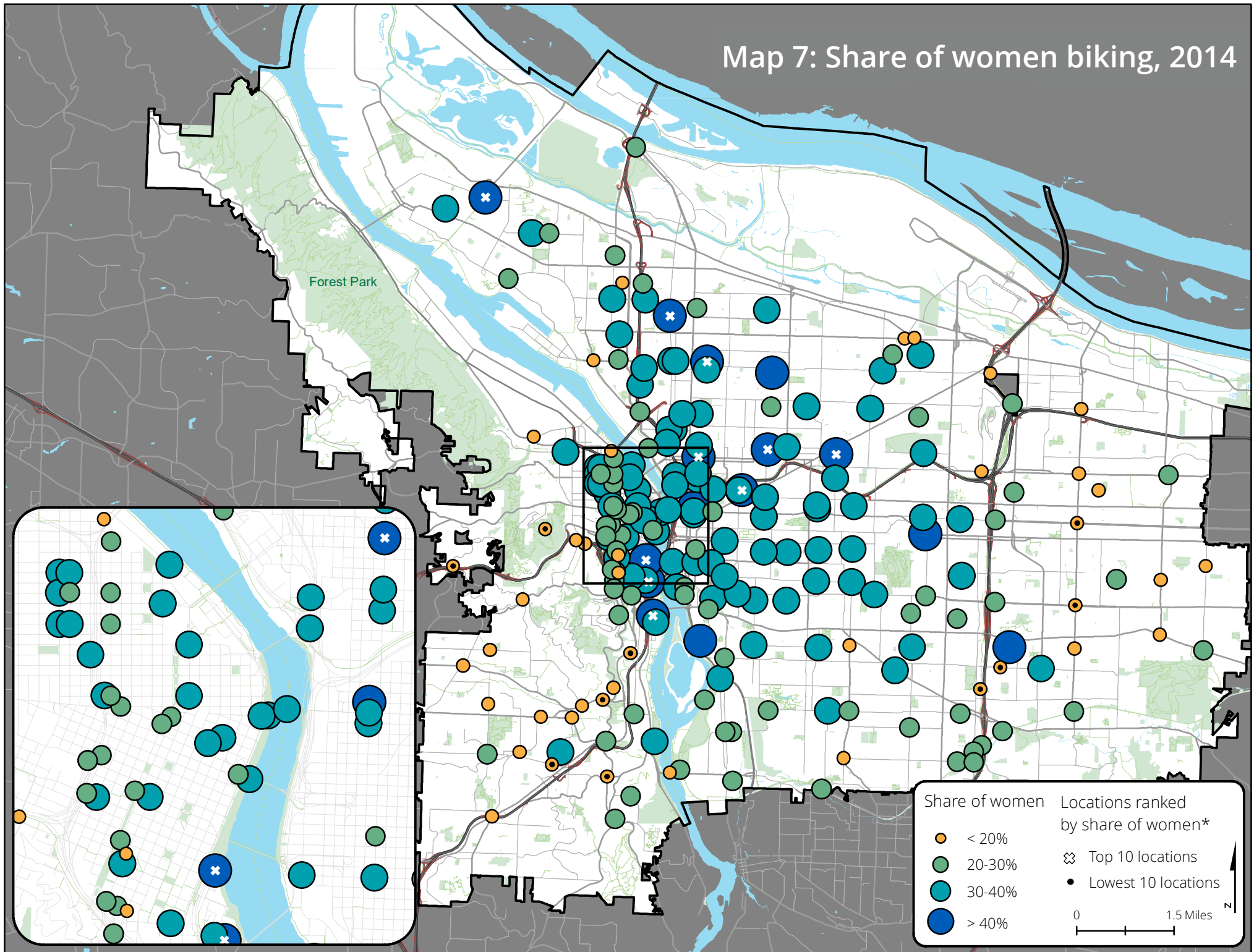
*Only ranks locations with 50+ riders counted

Map 6: Share of women biking, 2019



*Only ranks locations with 50+ riders counted

Map 7: Share of women biking, 2014



*Only ranks locations with 50+ riders counted

Appendix B: Highest and lowest bicycle counts at each location

The figures in Appendix B show the highest and lowest extrapolated counts recorded at each location as well as the 2022 count. Locations where 2022 was the only count were excluded. The year of the high count is displayed above each location. All charts use the same scale.

- Highest Count
- Lowest Count
- ✕ 2022 Count

Note: East Portland refers to areas east of I-205, while Northeast and Southeast are west of I-205.

Figure B.1: Highest and lowest bicycle counts per location (2006-2019) compared to 2022 - Central City

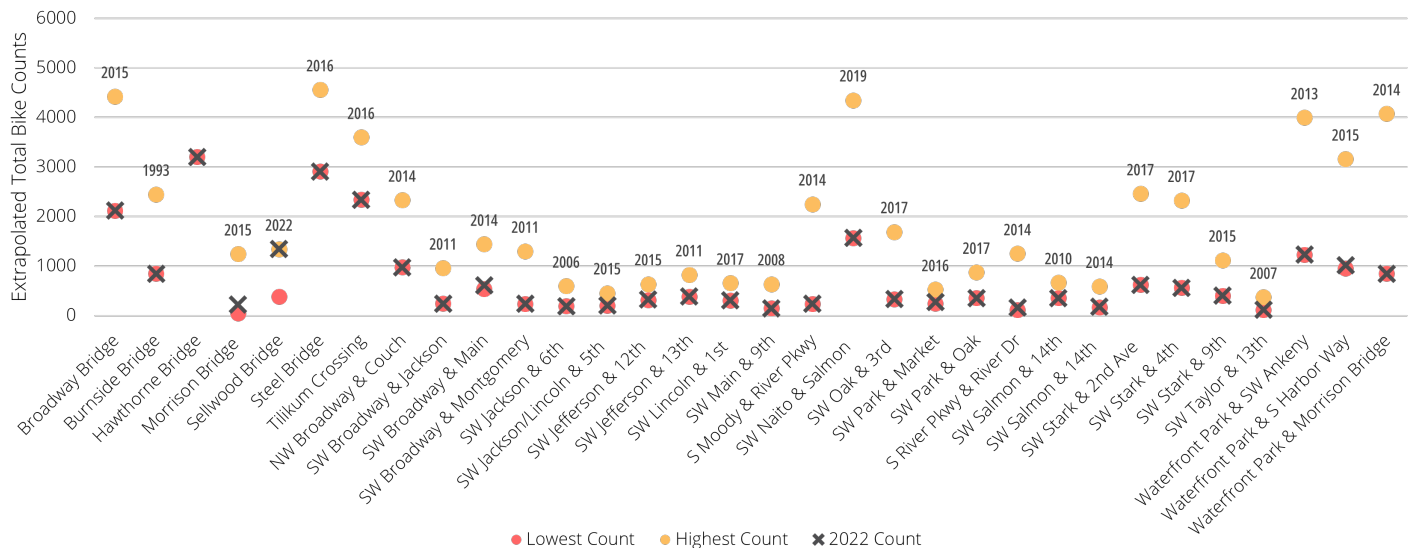


Figure B.2: Highest and lowest bicycle counts per location (2006-2019) compared to 2022 - East Portland

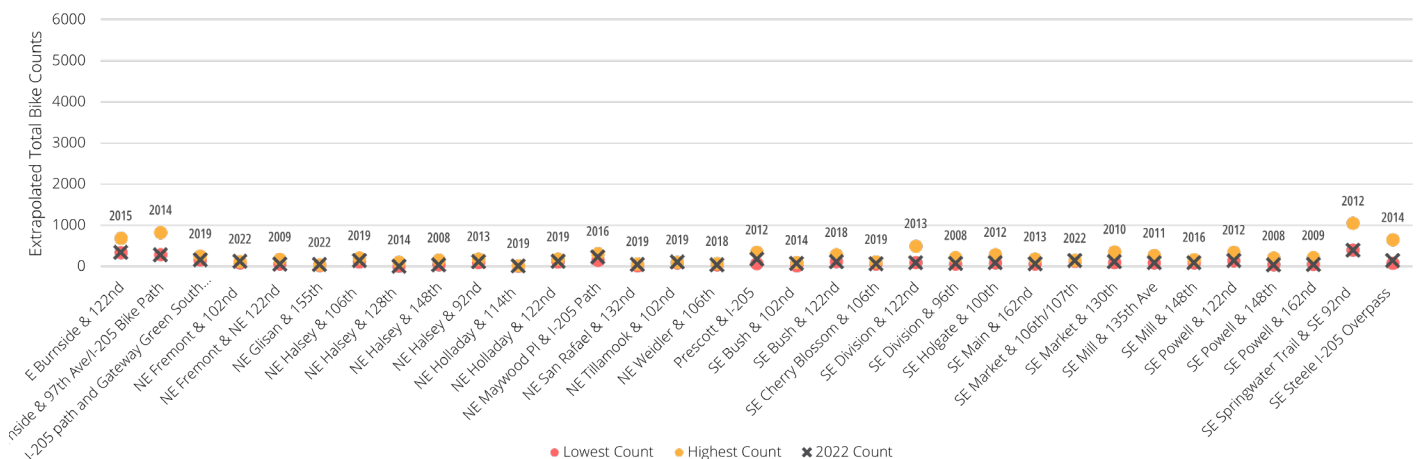


Figure B.3: Highest and lowest bicycle counts per location (2006-2019) compared to 2022 – North Portland

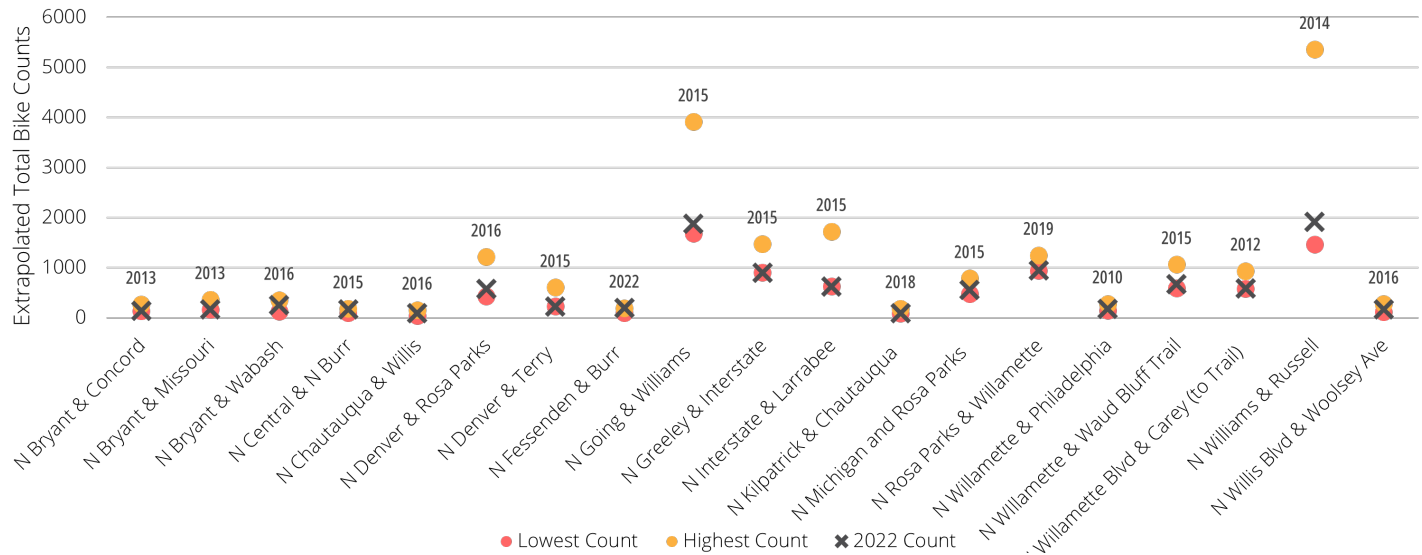


Figure B.4: Highest and lowest bicycle counts per location (2006-2019) compared to 2022 – Northeast, Part I

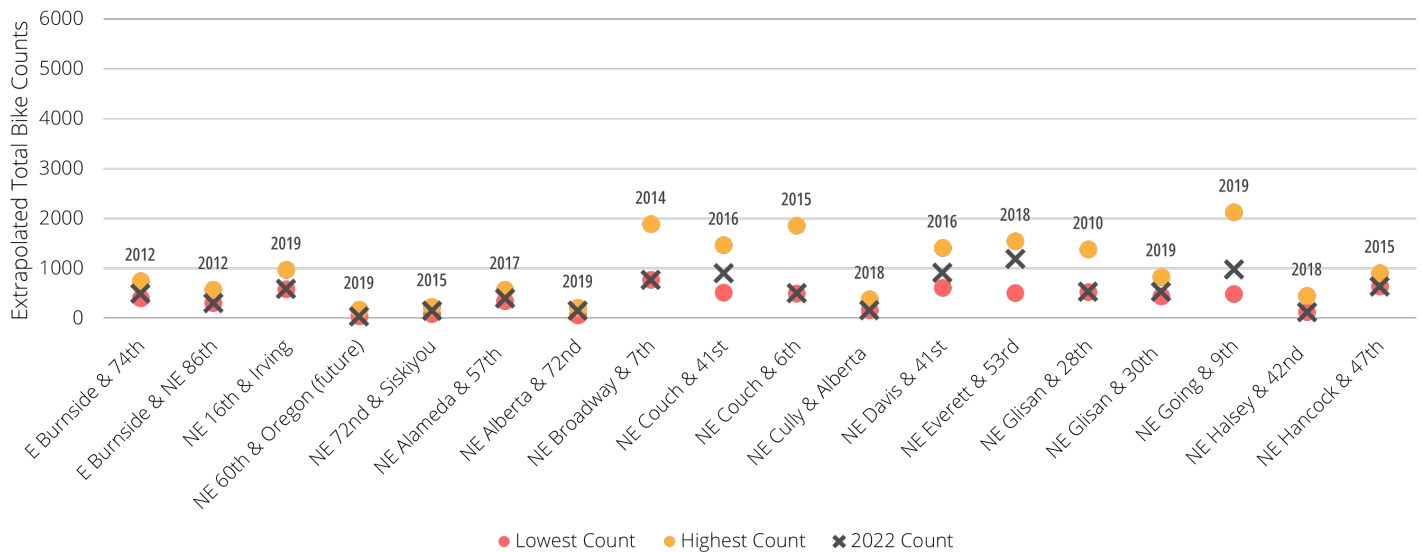


Figure B.5: Highest and lowest bicycle counts per location (2006-2019) compared to 2022 – Northeast, Part II

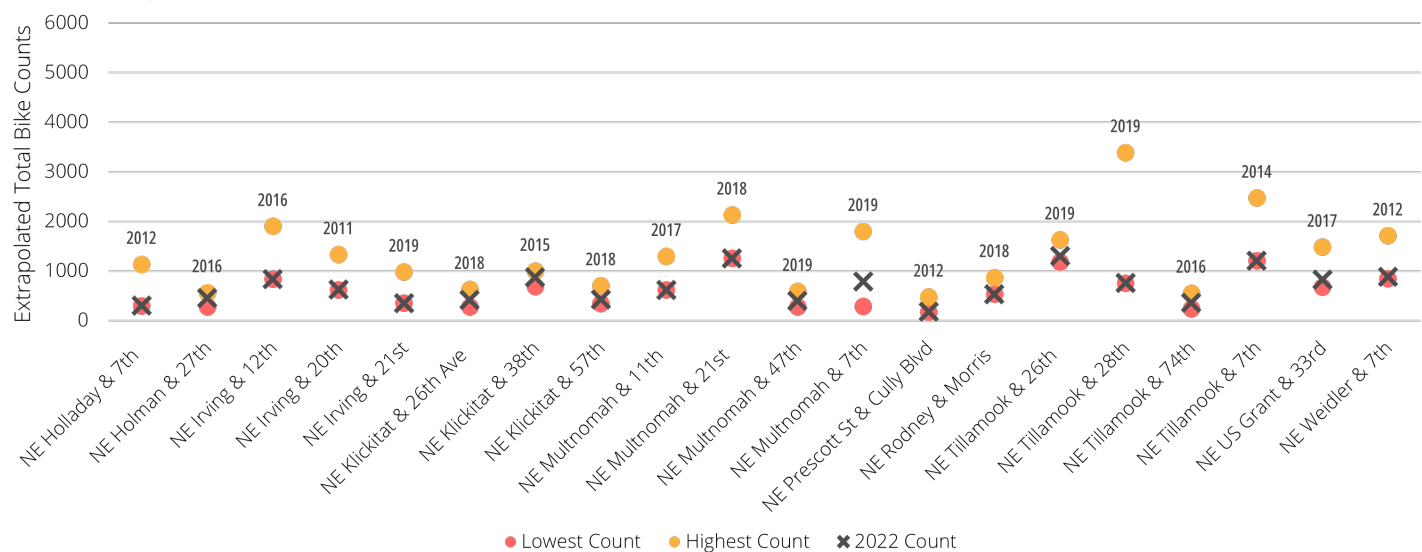


Figure B.6: Highest and lowest bicycle counts per location (2006-2019) compared to 2022 – Northwest

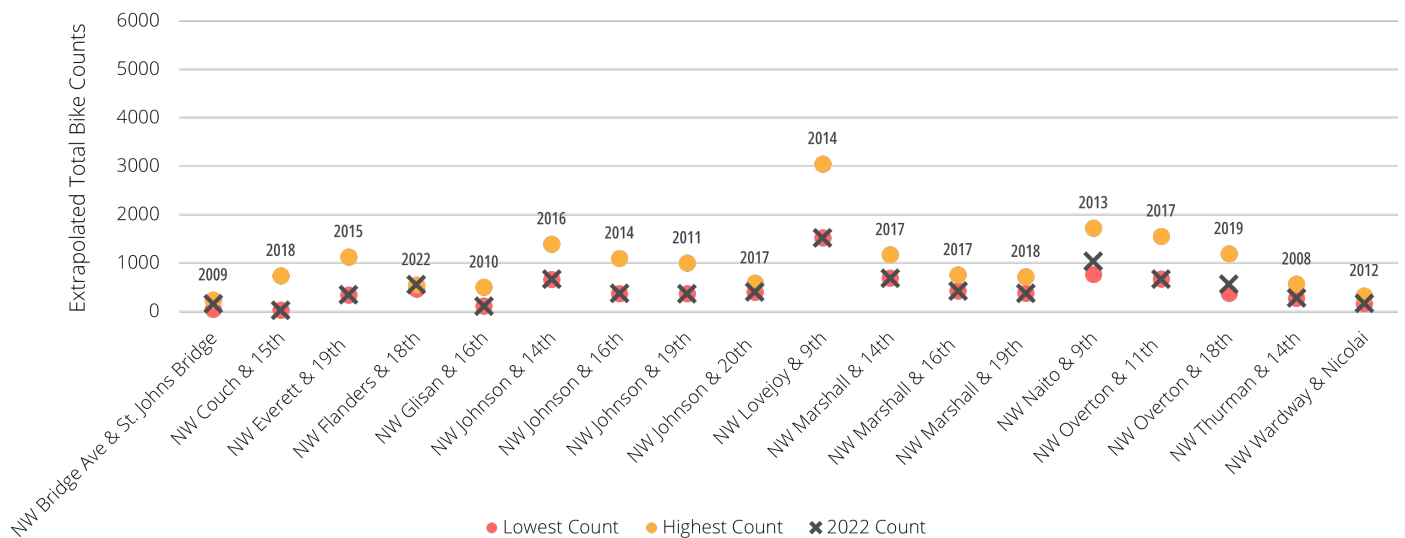


Figure B.7: Highest and lowest bicycle counts per location (2006-2019) compared to 2022 – Southeast, Part I

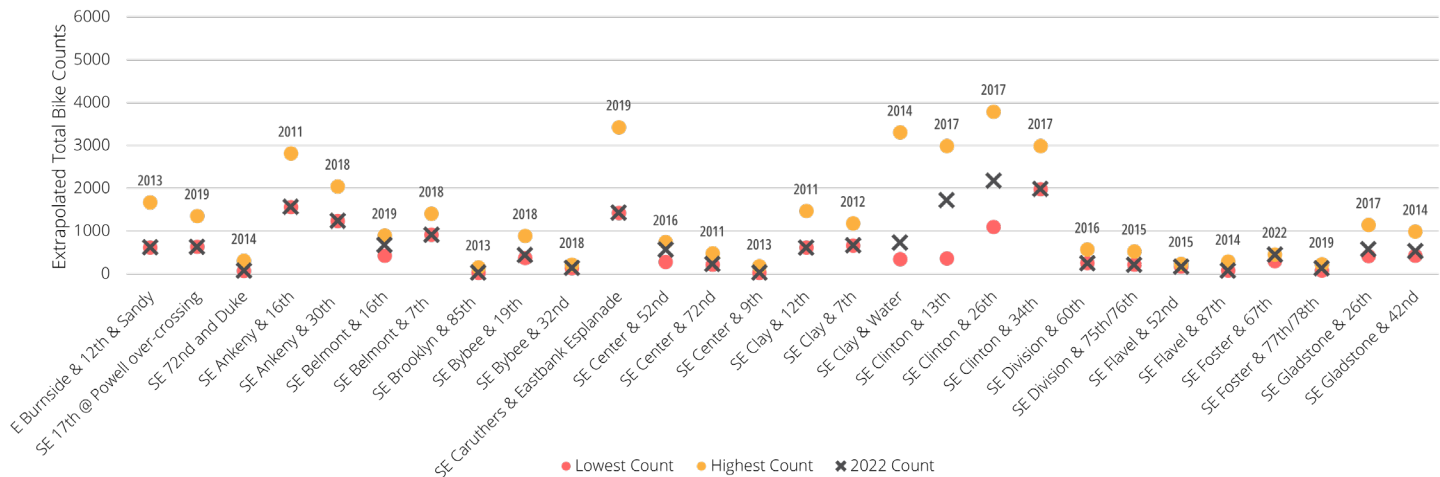


Figure B.8: Highest and lowest bicycle counts per location (2006-2019) compared to 2022 – Southeast, Part II

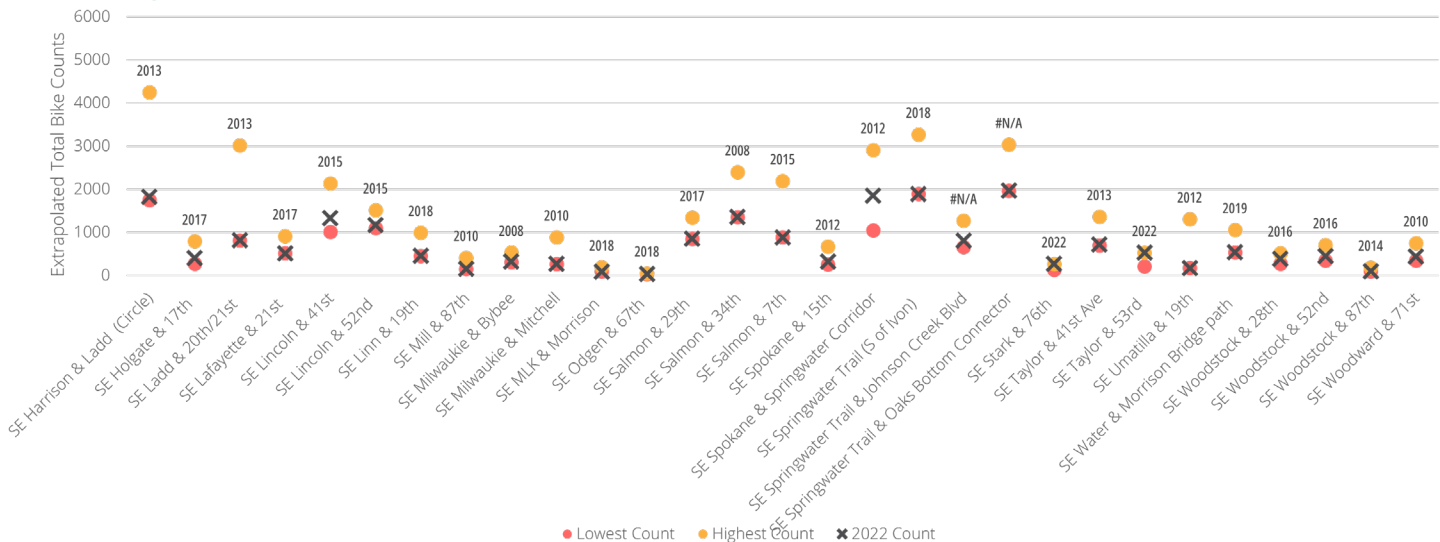
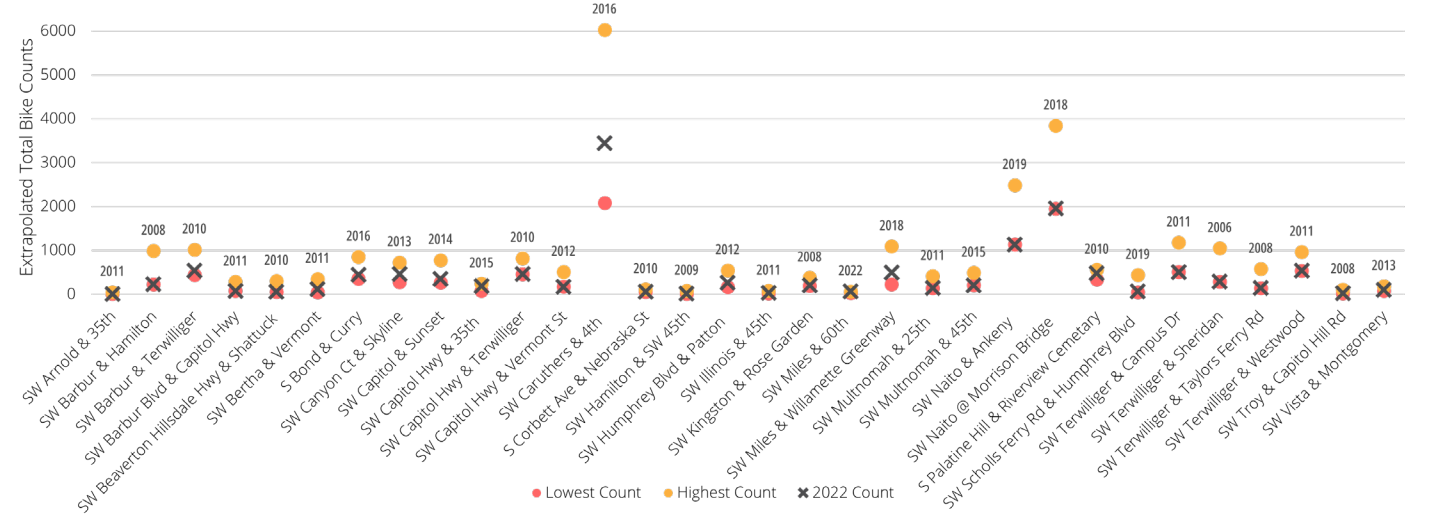


Figure B.9: Highest and lowest bicycle counts per location (2006-2019) compared to 2022 – South/
Southwest



Appendix C: Historical counts compared to 2022 by location

The following charts display the 2022 extrapolated count compared to four periods: 2006-2008, 2009-2012, 2013-2016 and 2017-2019. Not every count location has data for each year. If data was not available for each year in a range, it was averaged using the number of years that were available. If no data was available for a period, no bar is shown. At a plurality of locations (82 of 211 with counts across all periods), the number of people counted peaked in the 2013-2016 time frame. All charts use the same scale.

- 2006- '08 Count Average
- 2009- '12 Count Average
- 2013- '16 Count Average
- 2017- '19 Count Average
- 2022 Count

Note: East Portland refers to areas east of I-205, while Northeast and Southeast are west of I-205.

Figure C.1: Historical counts (2006-2019) compared to 2022 – Central City

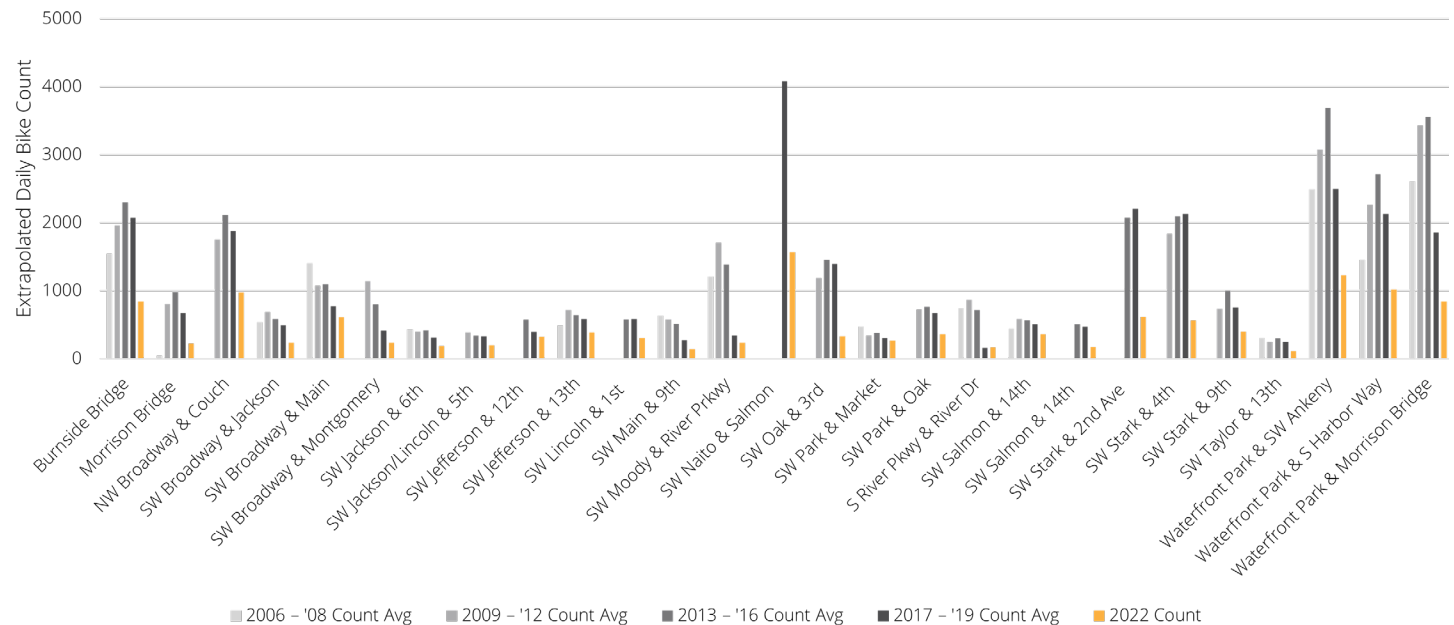


Figure C.2: Historical counts (2006-2019) compared to 2022 – East Portland

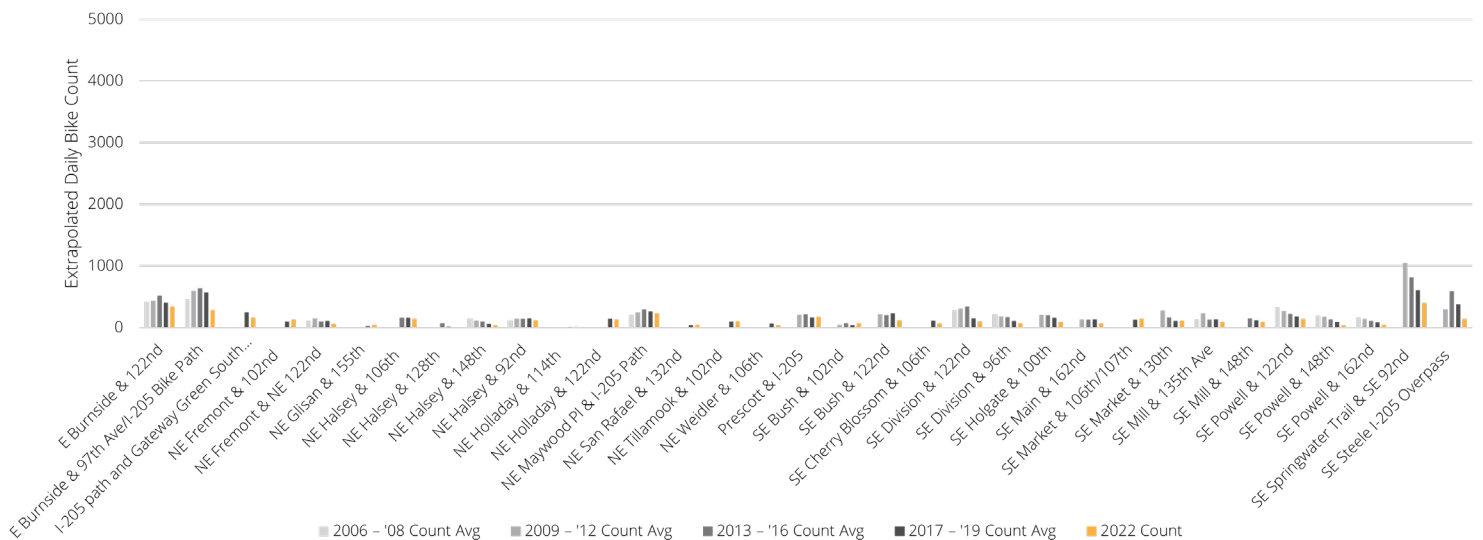


Figure C.3: Historical counts (2006-2019) compared to 2022 – North Portland

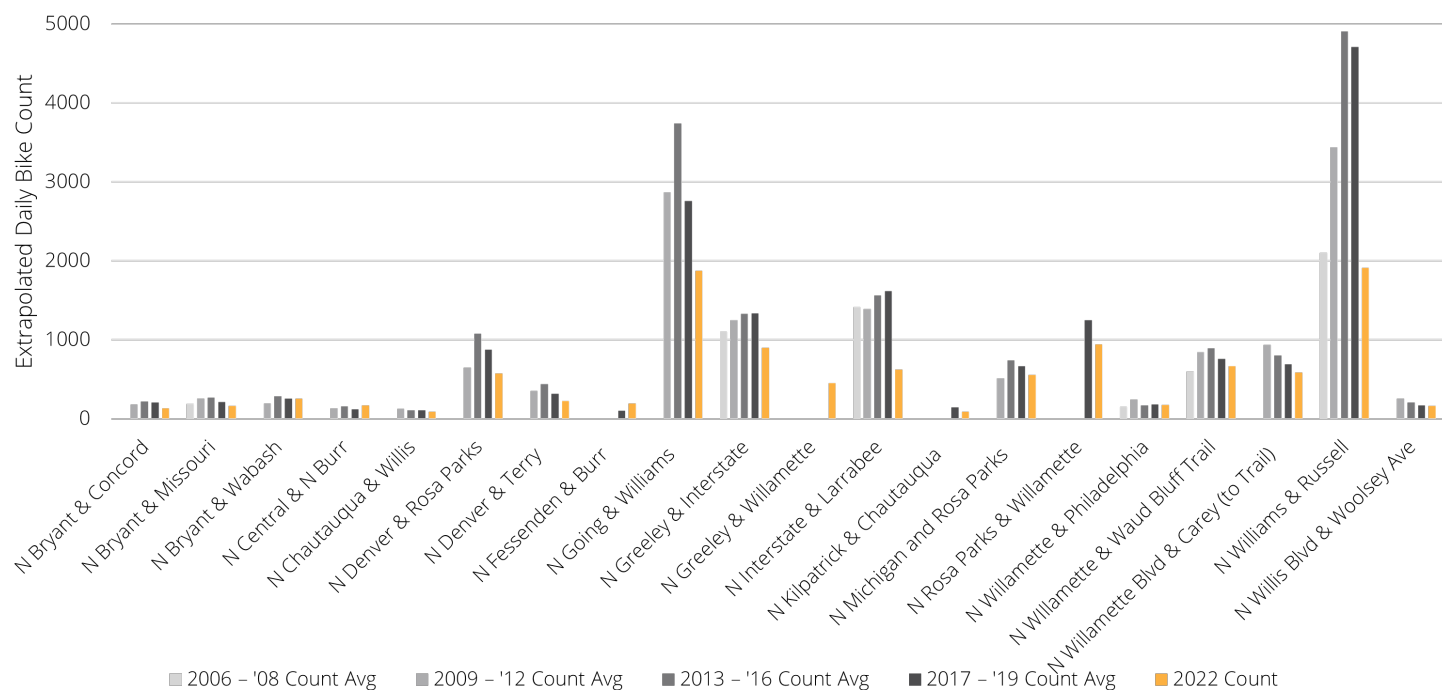


Figure C.4: Historical counts (2006-2019) compared to 2022 – Northeast, Part I

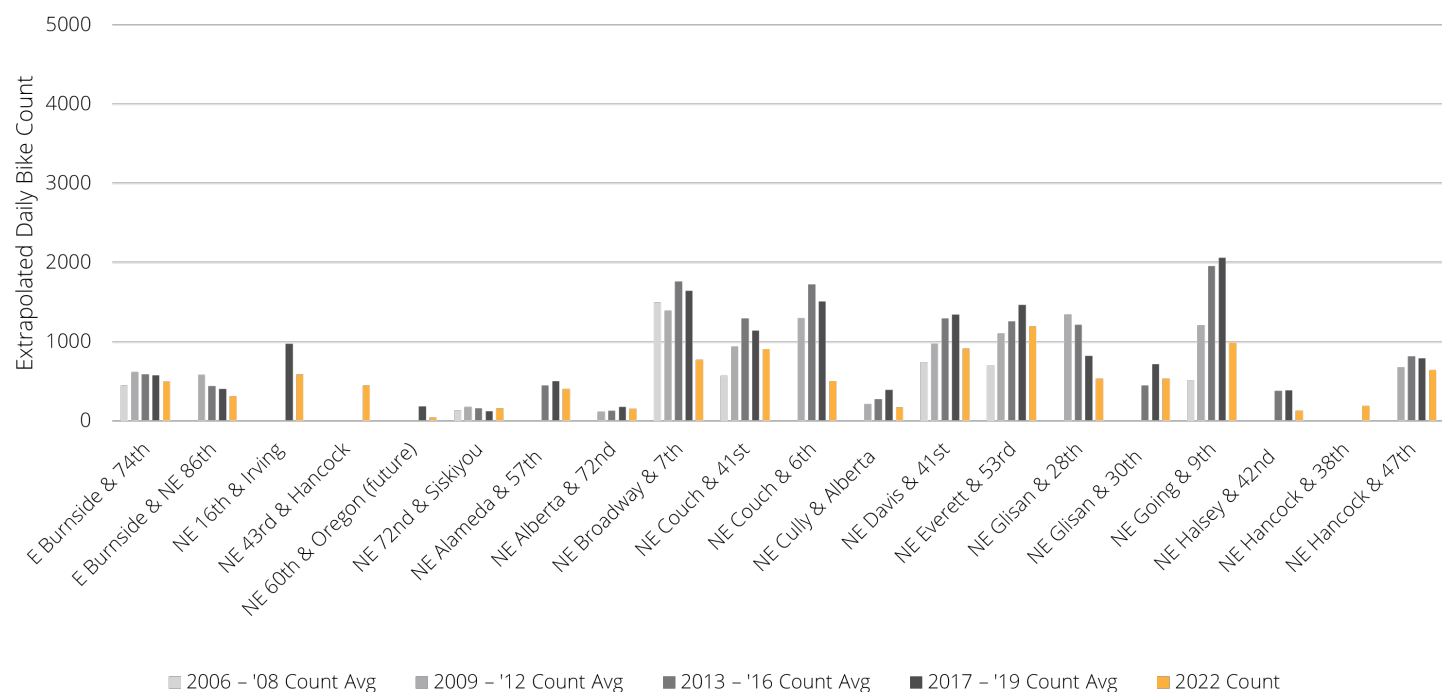


Figure C.5: Historical counts (2006-2019) compared to 2022 – Northeast, Part II

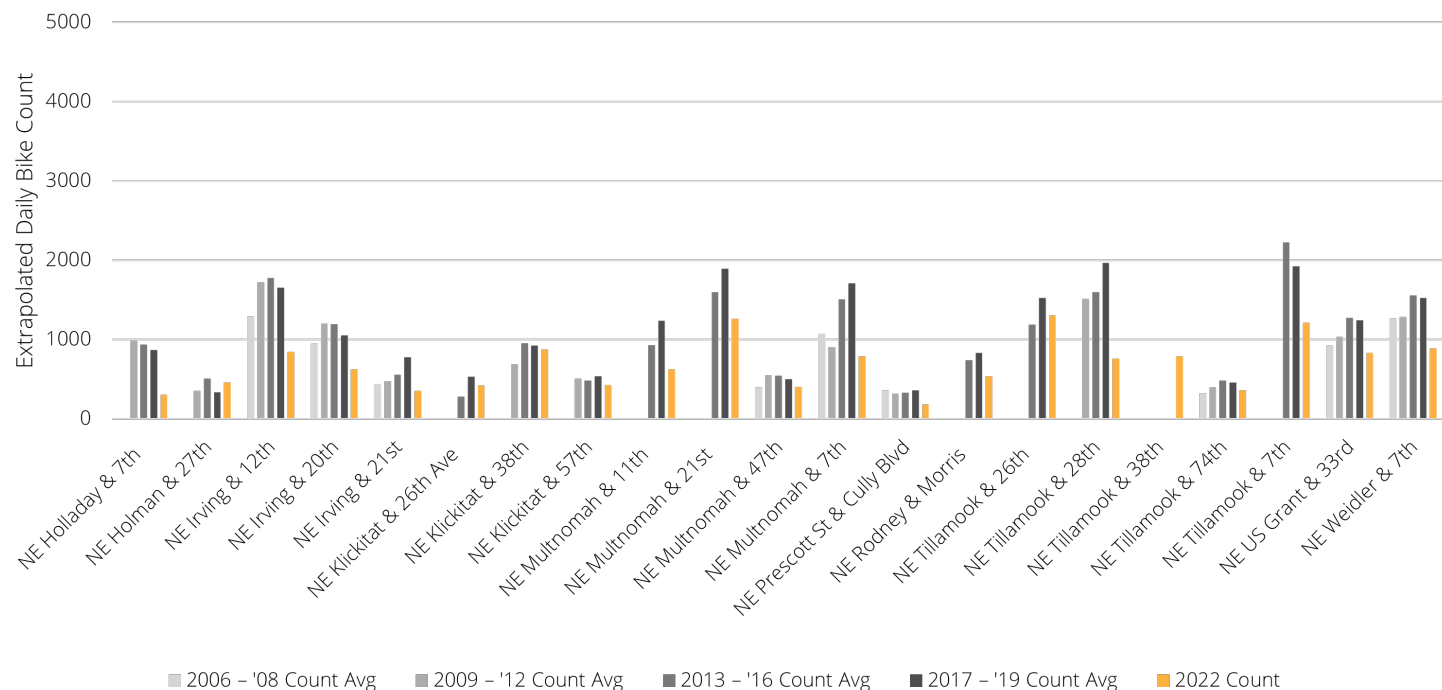


Figure C.6: Historical counts (2006-2019) compared to 2022 – Northwest

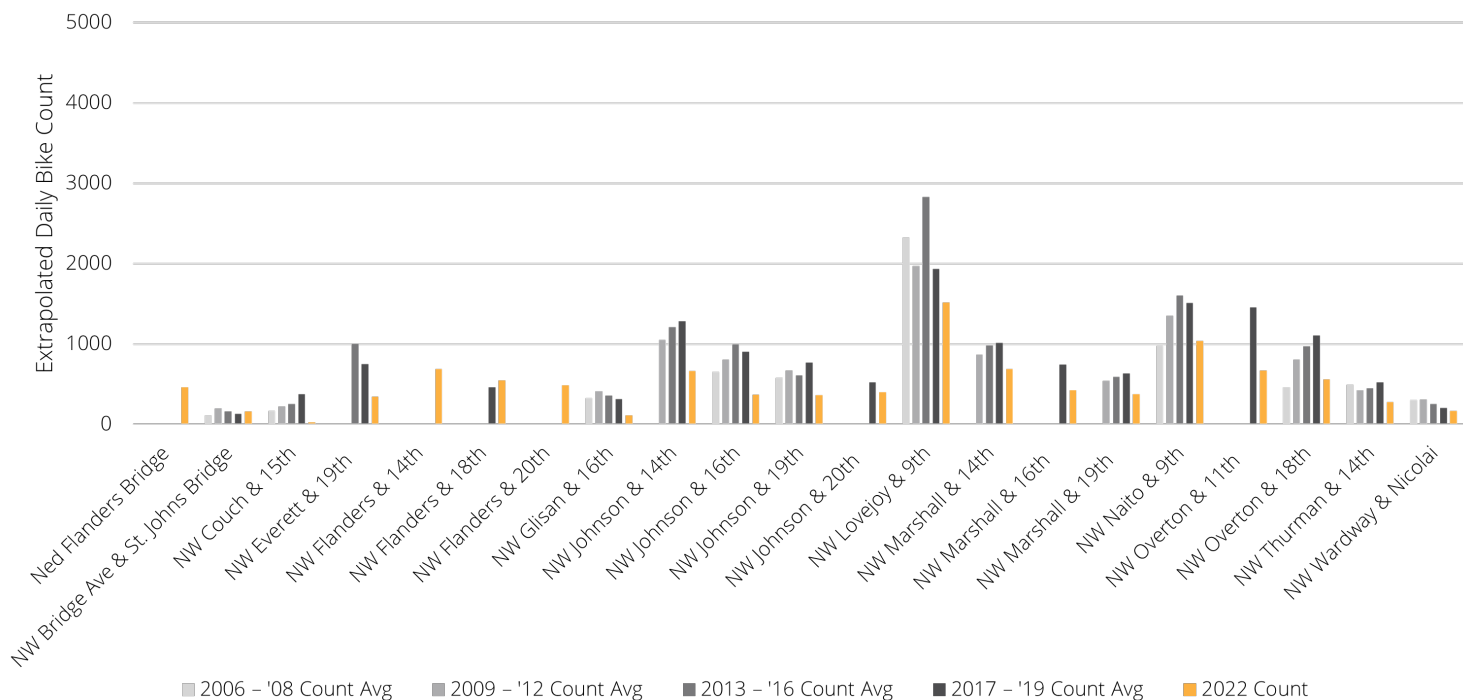


Figure C.7: Historical counts (2006-2019) compared to 2022 – Southeast, Part I

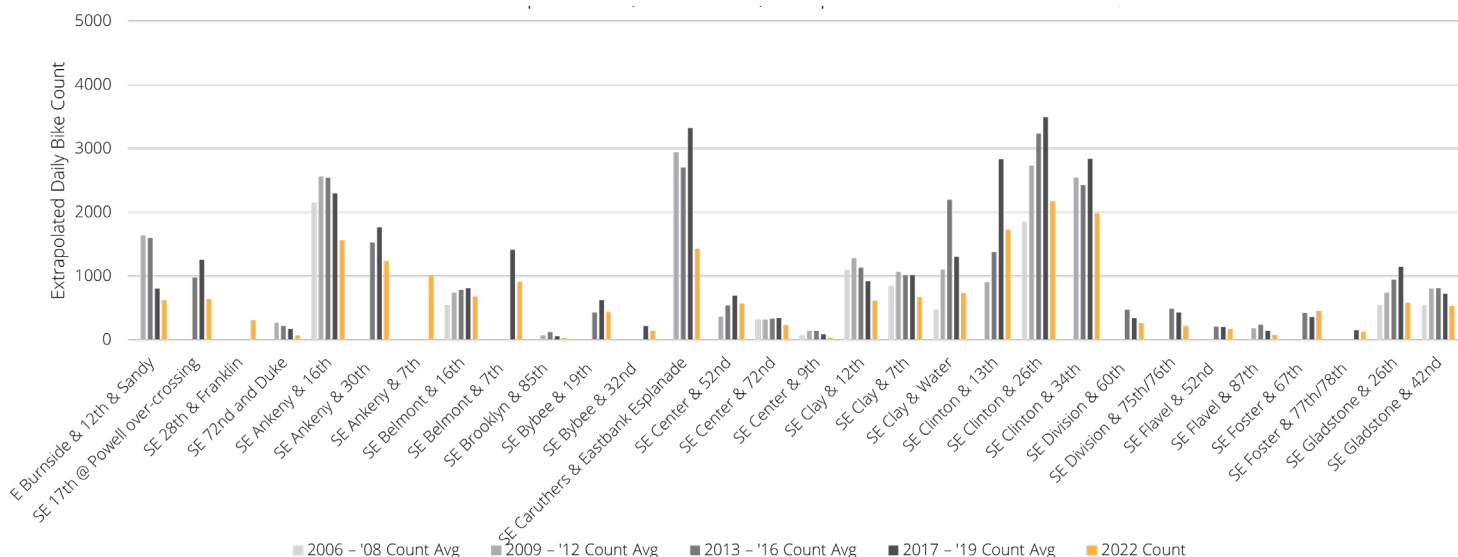


Figure C.8: Historical counts (2006-2019) compared to 2022 – Southeast, Part II

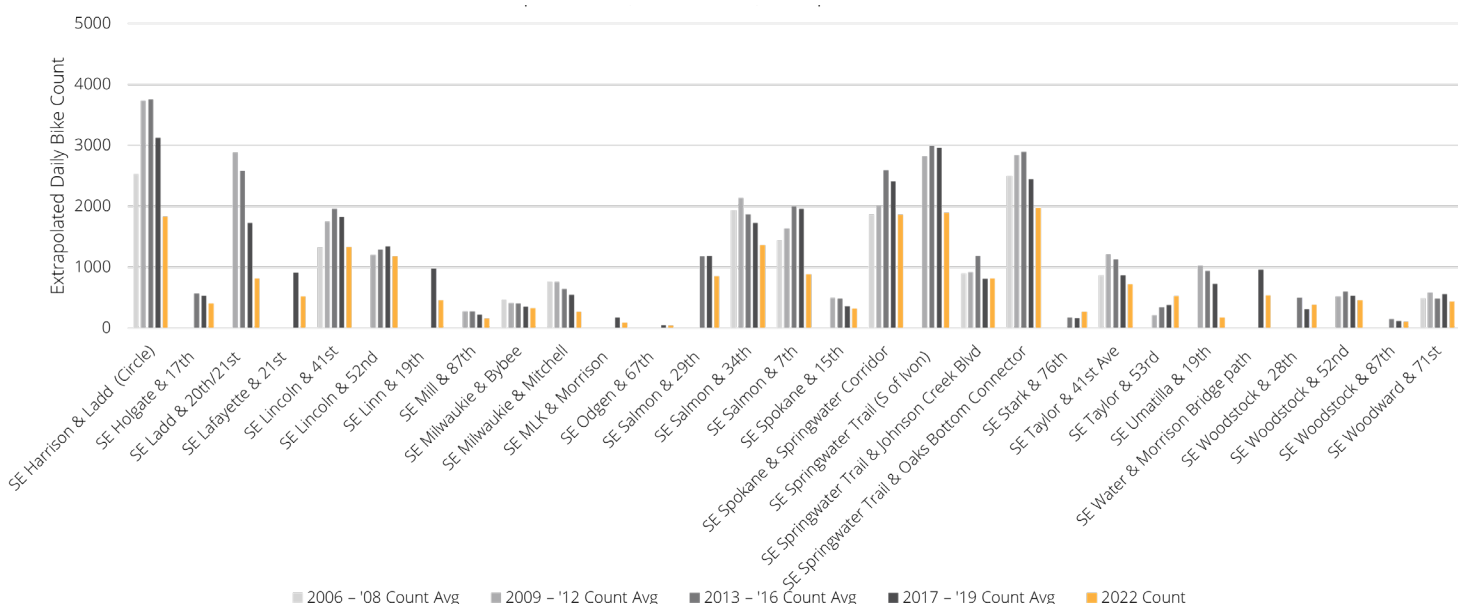
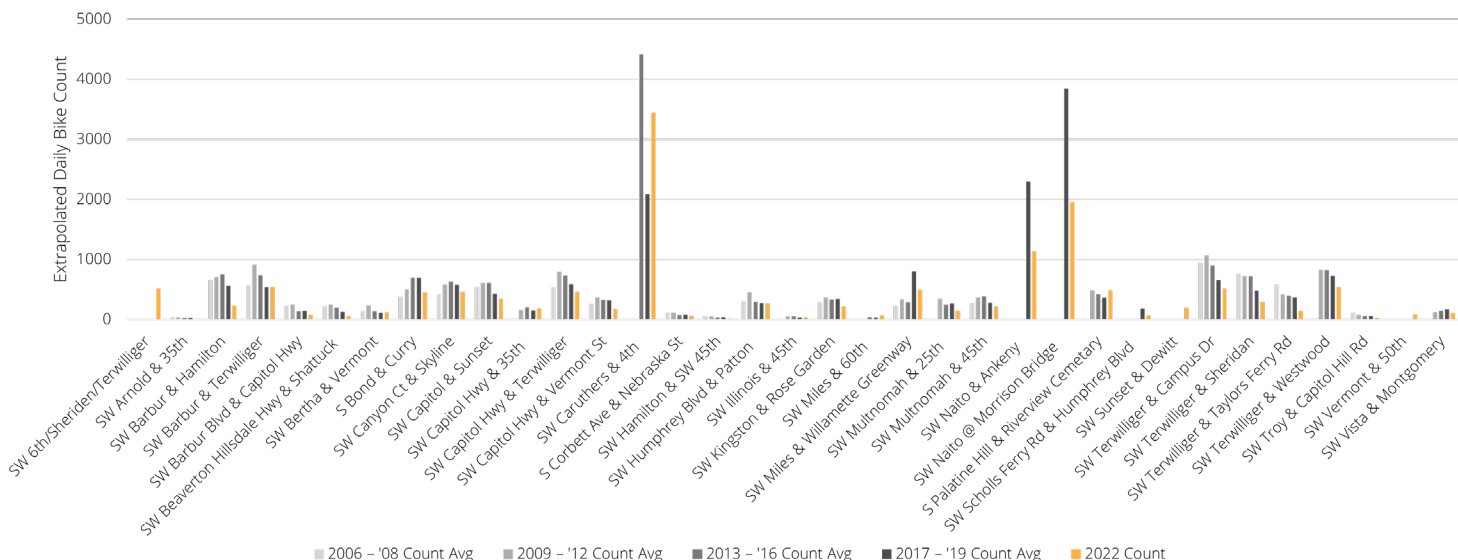


Figure C.9: Historical counts (2006-2019) compared to 2022 – South/Southwest



Appendix D: Justification of count methodology

2022 Counting Strategy

In late September 2022, PBOT completed its first volunteer bicycle counts after a two-year pandemic hiatus. One hundred and five volunteers counted 234 locations. Completed count sites are shown in Figure D.1. While we didn't hit the entirety of the 323 locations in one summer (we never do), we were able to achieve a good spread across the city.

These counts have always been conducted on weekdays (typically Tuesdays-Thursdays) during peak times, usually 4-6 p.m. or, for one-way roads headed into the central city, between 7-9 a.m. It's long been a standard traffic engineering rubric that the two-hour peak represents 20% of all traffic at a location. We've calibrated this relationship for bikes in the past, typically using 24-hour bridge hose counts.

Recognizing the pandemic altered travel patterns, PBOT staff had several conversations about when to conduct the counts in order to collect data about more than the commute trip. Our assumption in these discussions was that the peak period principally reflects commuting behavior and is no longer relevant in our work-from-home world. We assumed that peak hour counts would not capture the universe of bicycle use.

After multiple conversations with PBOT staff working on BIKETOWN bike-share and e-scooters, and looking at available data about peak e-mobility use, nothing stood out enough to justify changing our counting stratagem.¹ The 2022 volunteer bike counts were thus conducted at the same peak hour periods as in previous years. If nothing else, it would allow us an apples-to-apples comparison.

Summer 2022 bicycle hose counts

During the same period that volunteers were counting bikes (June 1-Sept. 30), PBOT was collecting 24-hour hose count bicycle data at 67 locations. Hose counts use pneumatic tubes to detect and tally bikes as they cross. Those count locations are shown in Figure D.2 on the next page. Of those 67 locations, 50 were on existing bikeway streets. Looking across all 67 sites, the number of bikes counted in the 4-6 p.m. period represented 21% of all bicycle traffic at those sites. That was the case even including those 39 sites when the two-hour peak differed from 4-6 p.m.

Two-hour peak times other than 4-6 p.m. were most commonly either 5-7 p.m. (20 instances) or 3-5 p.m. (seven instances). The data is summarized in Table D.1.

A percentage significantly less than 20% would indicate much higher cycling activity outside the commute hours, while a percentage significantly higher

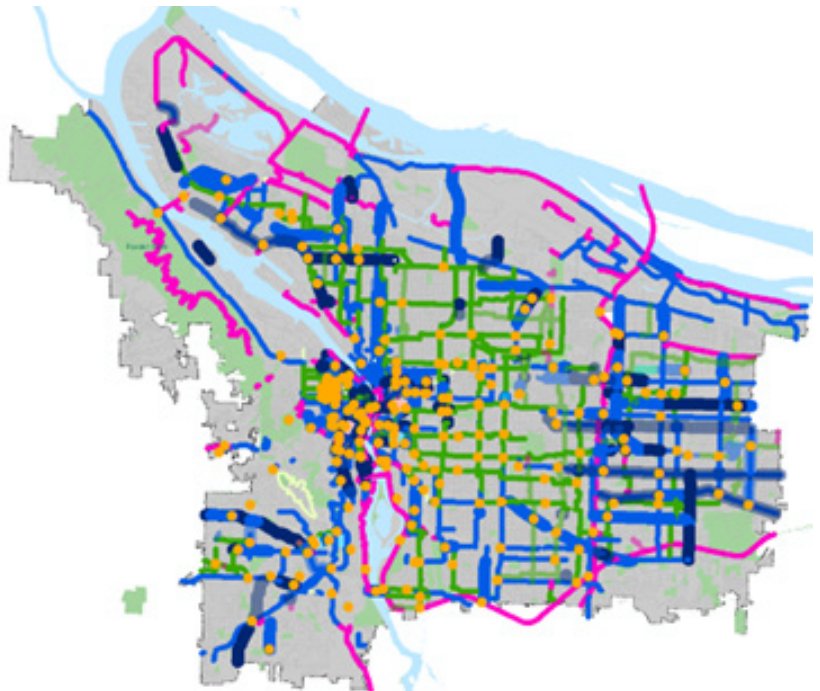


Figure D.1: Summer 2022 bicycle count locations. Orange dots show 234 locations at which volunteers counted people bicycling at the peak hour.

¹ One period of time that stood out for e-scooters was 9-10 p.m. on Saturday nights. PBOT decided not to ask volunteers to count at that time.

than 20% would indicate lower cycling activity outside commute hours. Our early staff conversations indicated we expected peak hour volumes to be lower than 20%. Overall, the data from the 24-hour hose counts reinforces the historic relationship in which counts done 4-6 p.m. represent 20% of all daily bicycle traffic at a location. While Table D.1 shows a wide range, the median peak hour percentage across all sites—even those with other than a 4-6 p.m. peak—is 20%.

There is variability by sector reflected in the counts. Some of that may be due to a low number of data points. In the case of Southeast Portland, it may be that two of the five counts were on SE Hawthorne Boulevard west of 11th Avenue and two were on SE

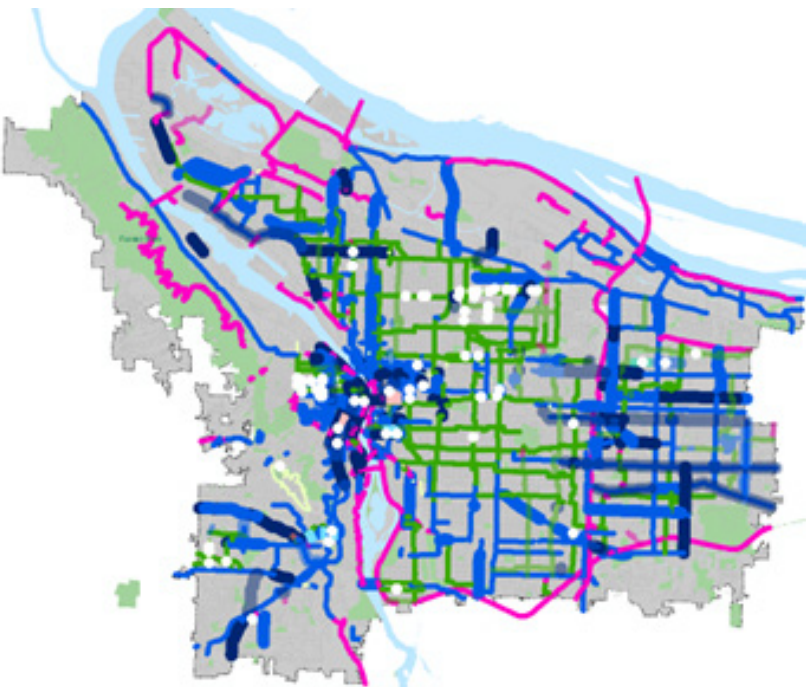


Figure D.2: Hose count locations.
White dots show the locations of 75 24-hour bicycle hose counts conducted June 1-Sept. 30, 2022.

		All sites	Sites with 4-6pm peak	Sites with other 2-hour	Northeast	Southeast	Northwest	Southwest	City Center	East Portland
# of sites		67	28	39	34	5	12	9	3	4
% of daily bicycle trips	4-6pm	21%	24%	18%	21%	30%	18%	16%	22%	19%
	at other peak	22%								
weighted % of daily bicycle trips	4-6pm	23%								
	at other peak	21%								
% range	4-6pm	13-30%	13-28%							
	other peak			16-30%						
	median peak hour percentage	20%	22%	22%						

Table D.1: Data based on 24-hour bicycle hose counts. This shows continuing strong connection between 4-6 pm peak representing approximately 20% of daily bicycle traffic.

Umatilla Street near 13th Avenue. Those locations showed 4-6 p.m. percentages of 35%, 34%, 26% and 33%, respectively. Those high values indicate those corridors² were being used disproportionately for commuting. The lone Southeast count in a neighborhood (at SE 41st Avenue, south of Hawthorne Boulevard) had a 4-6 p.m. percentage of 19%.

Regardless, PBOT sees nothing in the hose count data to indicate either shifting to a different time of day or to suggest that the 20% assumption for the 4-6 p.m. no longer holds.

Summer 2022 permanent count data

Data from four permanent bicycle counters on the Steel Bridge, Hawthorne Bridge, Broadway Bridge, and S Moody Avenue bikeway showed a similar pattern. Looking only at counts from June 1 to Sept. 30, 2022 we see that 4-6 p.m. peak hour counts for all weekdays were as follows:

Location	Steel Bridge	Hawthorne Bridge	Broadway Bridge	S Moody Ave bikeway
Percentage of daily bicycle trips taken 4-6pm	20%	19%	20%	20%

Table D.2: Counts at 4-6 p.m. as proportion of all day bicycle trips; average of all weekdays 6/1/2022 to 9/30/2022

This data further reinforces the long-standing relationship between the two-hour peak and all-day bicycle use.

Below: Two girls biking along SE 130th Ave near SE Market St.



² SE Umatilla Street is an on-street connection between two legs of the Springwater Corridor.

2022 | Portland Bicycle Counts

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