No Turning Back: A City Club Report on Bicycle Transportation in Portland

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City Club members will vote on this report on Friday, June 7, 2013. Until the membership votes, City Club of Portland does not have an official position on this report. The outcome of the vote will be reported in the City Club of Portland Bulletin dated June 13, 2013, and online at www.pdxcityclub.org.

Executive Summary

Portland is a city where people travel by car, public transit, walking and bicycling. All of these transportation modes are viable ways for residents to get around, and each is here to stay. Charged with examining the current and future role of bicycles in Portland, your committee has determined, after a year-long study, that bicycling has become a fundamental component of a balanced transportation system. The city should plan for and encourage the continued growth of bicycling as a transportation mode in ways that optimize choice and efficiency, enhance opportunity and equity, address public perceptions and attitudes, and, especially, promote safety for all transportation modes.

Your committee believes bicycling is an affordable and efficient means of transportation that is essential to continued growth in the local economy and overall quality of life for Portland residents.

In short, your committee finds that the right question is no longer "Should we promote bicycle use?" It is: "How should we structure our transportation system to optimize choice, efficiency and safety for all modes of transportation, including bicycling?"

The primary challenge facing the City of Portland is logistical, integrating bicycling into multi-modal transportation in a way that is affordable, efficient and safe. A secondary challenge is tactical, relating to identifying stakeholders fairly and accurately, communicating the rationale and impact of proposed transportation projects to them, and providing appropriate avenues for input and feedback.

While Portland has made measurable progress in expanding bicycle ridership and improving bicycle and pedestrian safety, perception trails reality. Your committee heard repeated examples of poor stakeholder identification and engagement for bicycle planning projects, as well as poor communication of those projects' timelines and impacts. This lack of due diligence has made some projects needlessly controversial or vulnerable to delay and cost overruns.

The dozen members of your committee met at least once per week from May 2012 through May 2013, interviewing various stakeholders and experts, including Portland Mayors Sam Adams and Charlie Hales, Congressman Earl Blumenauer, Portland Business Alliance Vice President Bernie Bottomly, TriMet strategic planner Eric Hesse, and cycling advocate and former city bicycling coordinator Mia Birk, as well as academic researchers, neighborhood representatives and community leaders, and many other experts and interested

parties (see Appendix III for a complete witness list).

Your committee concludes that there is little organized opposition to bicycle use in Portland. However, there is latent, but pervasive, uneasiness among some residents that expanding bicycling opportunities will come at the expense of other modes of transportation. There is also widespread fear among many motorists of traffic collisions with bicycles. Active opposition to bicycling emerges primarily on a case-by-case or anecdotal basis. Today's reality stands in sharp contrast to the skeptical attitude toward bicycle use many Portland residents held just two decades ago, as well as to antagonism between bicycles and automobiles frequently portrayed in local media coverage of bicycle-related policies and proposals.

Portland2030 Bike Plan: Identified Benefits of Bicycling

Safer streets
Reduces the causes of global climate change and promotes a healthy environment
Limits the costs related to health care and obesity
Equity and access to affordable transportation options
Provides a viable transportation option
Creates fun, vibrant and livable neighborhoods
Supports Portland’s local economy

A range of witnesses and available research pointed to bicycling's positive benefits in promoting health, neighborhood livability, environmental quality, pedestrian safety and local economic expansion. When controversy arises over a project involving public investment in bicycling infrastructure, it is most often associated with a frustration over process and the details of how bicycle use affects other modes of transportation in a given area, or how spending on bicycle infrastructure rates against other perceived spending needs in the neighborhood.

Stakeholders vary widely in their priorities and vision for the future of transportation in Portland and balancing these interests is a major challenge facing the city. Although commonly portrayed as such, however, transportation is not a zero-sum game.

Improving bicycle infrastructure does not make the city "anti-car," any more than committing resources to mass transit or automotive infrastructure makes the city "anti-bike." Your committee concludes that increased bicycle ridership is an important element to a more prosperous, healthier, and happier Portland populace with increased economic and social mobility.

But how we get from here to there is very important.

To that end, your committee makes these recommendations:

Portland should establish specific criteria to determine the best way to incorporate bicycling into its overall strategic plan for transportation, and identify projects and priorities that promote bicycle use as a viable transportation alternative. All transportation planning should become multi-modal planning. Poor communication between different transportation planning teams and stakeholder groups has produced ongoing safety concerns and multiple conflict points throughout the city which future planning will need to address. Additionally, the Portland Bureau of Transportation (PBOT) should actively seek out reliable bicycle ridership data through an expansion of the use of automated bicycle counters, such as the one currently installed on the Hawthorne Bridge.

Bicycle infrastructure investments should move from opportunistic to strategic, and emphasize connectivity and safety. These may include turning low-traffic streets that parallel major thoroughfares into "bicycle boulevards," limiting some on-street parking, especially close to intersections where sightlines are impeded, and creating additional bicycle-friendly routes between neighborhoods, similar in design and function to the Springwater Corridor and the I-205 bike/pedestrian path. However, this also may include eliminating some current bicycle lanes on high-congestion streets and designing safer options for bicyclists that incentivize alternative routes and discourage direct interaction with motor vehicles where possible. Neighborhood-to-neighborhood connections should be prioritized.

As bicycling is further integrated into Portland's comprehensive transportation system, education and enforcement regarding traffic laws should improve. PBOT, the Portland Police Bureau, community organizations and other stakeholders should support a thorough bicycle safety and education program in schools, as well as develop ways to incentivize safe bicycle use and observance of traffic laws by all road users. Increased police patrolling of areas heavily trafficked by bicycle riders is recommended, as is a review of current traffic laws and enforcement strategies. The State of Oregon should include more detailed information on bicycle laws, signage, etc., in the Oregon Drivers Manual and in DMV tests. Your committee also recommends the mandatory distribution of bicycle registration forms and associated educational materials about bicycle registration at the point of retail sale for new and used bicycles.

Your committee recommends a three-part funding strategy for bicycle transportation:

1. The State of Oregon should enact a 4% excise tax on new bicycle sales. Revenue generated by this program is to be used specifically for the production and distribution of bicycle safety materials, bicycle safety programs at schools and community centers, and the purchase and installation of additional automated bicycle counters.

2. Portland should continue to pursue strategic funding for bicycle infrastructure from outside sources, so long as it promotes the overall safety of bicycling, as well as the criteria laid out in PBOT's Bicycle Strategic Implementation Plan.

i. Projects should provide a measurable improvement on transportation safety and access.

ii. Separated bicycle routes (cycletracks, paths, bike boulevards) should be prioritized over shared routes between bicycles and automobiles traveling at higher speeds or higher volume.

iii. Fixing unsafe gaps and conflict points in the existing bicycle network should be made a priority.

3. If Portland develops either a transportation services general obligation bond, or a Street Maintenance

Fee, it should include a specific allocation for bicycle projects commensurate with the city's stated goals for bicycle ridership.

PBOT's volunteer Bicycle Advisory Committee should expand to include representatives from various communities of color, youth-advocate organizations, and neighborhood organizations, as well as the Portland Business Alliance, the Portland Freight Committee, Portland Public Schools, and other relevant stakeholders. As part of its monthly review of bicycle policies and projects, this standing committee has an opportunity to provide valuable community oversight and stakeholder communication that is currently not utilized to its full potential. In general, there needs to be better communication and regular monthly meetings between the Bicycle, Freight, and other committees, and with relevant neighborhood representatives.

While even the most vocal bicycle advocates in Portland concede that the stated goal of bicycle use accounting for 25% of all trips under three miles by 2030 is extremely ambitious, there are real and measurable health, economic, social and environmental gains associated with expanded bicycle use, whatever that percentage turns out to be. By implementing these recommendations, your committee believes the city will increase its ability to meet its objectives in these areas, creating a safer, more efficient multi-modal transportation system that all Portlanders can benefit from and enjoy.

Recommendations of the Minority

Two members of your committee have elected to write a Minority Report, following disagreement on whether Portland should license bicycle riders and require mandatory registration of bicycles. A summary of the issue and reasons your committee disagrees with the Minority Report can be found at the end of this report. In short, the majority of your committee concludes that at this juncture, the mandatory licensing of bicyclists is unenforceable, unnecessary, and punitive, and that the costs associated with such a program would substantially outweigh the benefits.

Introduction

Portland has attracted national attention for its bicycle-friendliness.

The U.S. Census Bureau's American Community Survey for 2010 shows 6% of Portland residents cited bicycling as their primary commuting method, a 71% increase since 2005.[i] This average fluctuates by neighborhood, with significantly higher rates of bicycle use downtown and in the inner East side compared to West or East Portland.

In 2008, the League of American Bicyclists gave its Platinum "Bike Friendly City" rating to Portland, an honor shared only with the university-town of Davis, California (population 66,000). In 2012, Bicycling magazine ranked Portland as the most bike-friendly city in the country.

This has not happened by accident. It is largely the result of conscious decisions to encourage bicycling by both the city and the state, starting in 1971 with passage of Oregon's "Bicycle Bill" requiring the inclusion of facilities for pedestrians and bicyclists wherever a road, street or highway is built or rebuilt. In January 2009,

newly elected Mayor Sam Adams initiated the latest of several efforts by the City of Portland to build upon that commitment. Adams convened bicycle advocates, neighborhood representatives, and technical experts from the Portland Bureau of Transportation (PBOT) with the goal to "make bicycling a critical component of our city's overall transportation system."

The group produced the Portland Bicycle Plan for 2030, adopted by the City Council in February 2010. The Plan identified an ideal bicycle network that could be built over the next two decades at a total cost of $630 million, although this sum was an unallocated, non-binding cost estimate. The Portland Bicycle Plan for 2030 expands on the objectives of Portland's 1996 Bicycle Master Plan, aiming to "create conditions that make bicycling more attractive than driving for trips of three miles or less."

Currently, Portland has slightly more than 300 miles of bikeways.[ii] The Bicycle Plan for 2030 calls for the expansion of safe, comfortable bikeways to 630 miles by 2016, and to 962 miles by 2030, as well as the integration of those bikeways into a comprehensive network. The plan recommends three implementation strategies:

Short Term	Mid Term	Long Term
An "immediate strategy" (within 5 years) for development of bicycle boulevards using techniques to increase bicycle traffic on existing roadways	An "80 percent" strategy focused on providing low-stress bikeways, including bicycle boulevards and dedicated trails, within one-quarter mile of all Portland residents	A "world class" strategy that would place Portland on a favorable footing with leading international bike-friendly cities, especially those in Northern Europe such as Copenhagen and Amsterdam

Bicycle use is widely viewed by city leaders and many residents as a relatively simple, inexpensive personal transportation option. However, increased bicycle use has not been without controversy. Confrontations between users of bicycles and motorized vehicles are well documented, as are fatalities or serious injuries resulting from bicycle riders being struck by motorized vehicles.[iii] Additionally, some neighborhood associations and business groups have questioned the installation of bicycle infrastructure on the basis of various beliefs, such as that it misallocates city resources, disrupts the existing community, is unlikely to be sufficiently utilized, invites accidents, and further disadvantages the poor by catering to a disproportionately affluent ridership. The Bicycle Transportation Alliance, a non-profit advocacy group, and other representatives of Portland's bicycle-riding public strongly disagree with these arguments.

Newly elected mayor Charlie Hales, historically a proponent of bicycling with a strong professional background in transportation, faces challenges posed by the changing financial and funding landscape, the city's demographic and social makeup, and other issues likely to further complicate community debate over the true role of bicycling in Portland. Following his election, Mayor Hales has suggested he will refocus city resources on road maintenance. As discussed below, your committee recommends that city planners focus instead on integrating all modes of Portland's transportation system, with user safety as the top priority.

Study Charge

The City Club of Portland convened The Bicycle Transportation Study Committee [your committee] in May 2012 to determine the current and future role bicycling should play in Portland's overall transportation system. This included, but was not limited to: an examination of the demographic, social and equity implications of bicycling; the balance and relationship between bicycling and other modes of personal and commercial transportation; the current and potential economic effects; personal health and safety effects; neighborhood improvement; and other issues. Related questions included how the city should plan for, construct and pay for bicycle infrastructure, and how the city can safely integrate a growing population of people on bicycles with other modes of transit.

Objectives for the Bicycle Transportation Study include:

- A recommendation on the role bicycling should play in Portland's transportation system.
- Recommendations on the goals the city should set for bicycle ridership and the necessary deliverables and benchmarks to reach those goals.
- The identification of appropriate levels and sources of funding necessary to achieve the identified goals.
- The identification of rule or enforcement changes, if any, to improve safety.
- A determination of who rides bicycles according to age, race, gender and income, and a consideration of any potential equity issues that may arise from an increased focus on bicycling.

Your committee was also encouraged to make recommendations in related areas, including safety, governance, traffic enforcement, economic development, and community outreach.

Study Process

The all-volunteer committee was made up of 12 City Club members (8 men, 4 women) representing a range of ages, occupations, neighborhoods and income levels. The majority of committee members also regularly rode a bicycle, either recreationally or as part of their commute to and from work. All committee members were also car owners.

Your committee met regularly once per week for 12 months, with individual members attending public meetings and interviewing other witnesses as needed. Committee members heard testimony from 25 witnesses and researched bicycle usage, demographics, infrastructure, programs, businesses and policies in Portland and in other communities.

Your committee members further supplemented information provided by interviews, research and other documents with first-hand experience. Many committee members took it upon themselves to seek out and familiarize themselves with examples of bicycle infrastructure around Portland, such as "bicycle boxes," buffered bicycle lanes, "bike boulevards," and others.

Disclosure

In February 2013, former Portland Mayor Sam Adams was named as Executive Director of The City Club of Portland. Mr. Adams' appointment occurred after the first draft of this report had already been submitted to the City Club Research Board. While your committee interviewed Adams and key members of his staff while he was Mayor of Portland, his tenure as Executive Director of City Club has in no way influenced the findings, conclusions or recommendations of this report.

Background

Portland has received national and international recognition for its proactive approach and for being at the forefront of a national bicycling movement. The city's present success can be partially attributed to a multi-decade head start in bicycle policy, planning and advocacy, compared to other cities.

The 1971 passage of Oregon House Bill 1700 (ORS 366.514), commonly known as the "Bicycle Bill," required Oregon cities to spend a minimum of 1% of funds received from the Oregon State Highway Fund on bicycle and pedestrian infrastructure when constructing, repairing or relocating a road. The ensuing decades witnessed the establishment of a citizens' advisory committee on bicycle transportation as well as the beginning of a network of bike lanes, but the legislation was not strictly enforced.

Bicycling did see some growth in Portland in the following years. Between 1975 and 1992, the number of bicycle riders crossing the Hawthorne Bridge increased from 200[i] to 1,400 per day.[ii] Still, few efforts to accommodate bicycles were made during this period, despite the requirements of the Bicycle Bill. Portland's first Bicycle Master Plan in 1973, for instance, called for 190 miles of bikeways throughout the city, but for a variety of reasons, little action was taken toward implementing these recommendations. By 1992, only 83 miles of bikeways existed in the city.[iii]

In 1990, the Bicycle Transportation Alliance (BTA) was formed to advocate for improved bicycle infrastructure in Portland. In 1993, the BTA sued Portland to force it to meet its obligations under the Bicycle Bill during construction of the Rose Garden Arena. The BTA prevailed in its lawsuit and Portland's Bureau of Transportation (PBOT), led by then-Commissioner Earl Blumenauer, oversaw construction of bike lanes in the Rose Quarter.

The City of Portland then put community activists to work on setting a direction for bicycling in Portland, culminating in the Bicycle Master Plan adopted by the City Council in 1996. That plan called for construction of a 630-mile system of bike boulevards, lanes, and trails. The Bicycle Master Plan set forth an objective to "make the bicycle an integral part of daily life in Portland, particularly for trips of less than five miles, by implementing a bikeway network, providing end-of-trip facilities, improving bicycle/transit integration, encouraging bicycle use, and making bicycling safer."

Key Events

1971 – Oregon House passes "Bicycle Bill"

1973 – Portland's first "Bicycle Master Plan" created

1990 – Bicycle Transportation Alliance (BTA) formed in Portland

1993 – BTA sues City of Portland to meet obligations under the Bicycle Bill

1996 – Portland City Council adopts a new "Bicycle Master Plan"

2002 – Portland adopts “Transportation System Plan” with specific goals for bicycle transportation

2006 – Oregon Bicycle and Pedestrian Plan adopted

1993 to 2008 – $100M spent by Portland on bicycle infrastructure, greatly increasing ridership

2010 – City Council adopts Portland Bicycle Plan for 2030

2012 – Oregon Bicycle and Pedestrian Plan updated and renamed "Oregon Bicycle and Pedestrian Design Guide"

[i] Mia Birk, et al. Portland's Blue Bike Lanes. (Portland, Oregon: City of Portland Office of Transportation, 1999), 1.

[ii] 2011 Bicycle Counts Report. (Portland, Oregon: City of Portland Bureau of Transportation, 2011), 16.

[iii] "The Portland Bicycle Story." Initiative for Bicycle & Pedestrian Innovation. Accessed December 17, 2012. http://www.ibpi.usp.pdx.edu

Quantifying Available Bicycle Data

Between 1990 and 2000, the number of bicycle commuters in Portland increased approximately 90 percent, while the city's bicycle network increased approximately 256 percent.[i] Obviously, the rates of growth for bicycle transportation vary between cities, but attempts have been made to quantify the relationship between investments in bicycle infrastructure and ridership. A 1997 comparison of 18 different jurisdictions in the U.S. estimated that each mile of bikeways per 100,000 residents increased rates of bicycle commuting by 0.069%.[ii] A separate statistical model, specific to Portland, showed that in 2000, for each additional 1,000 feet of bicycle lanes per square mile, ridership increased 0.037%.[iii]

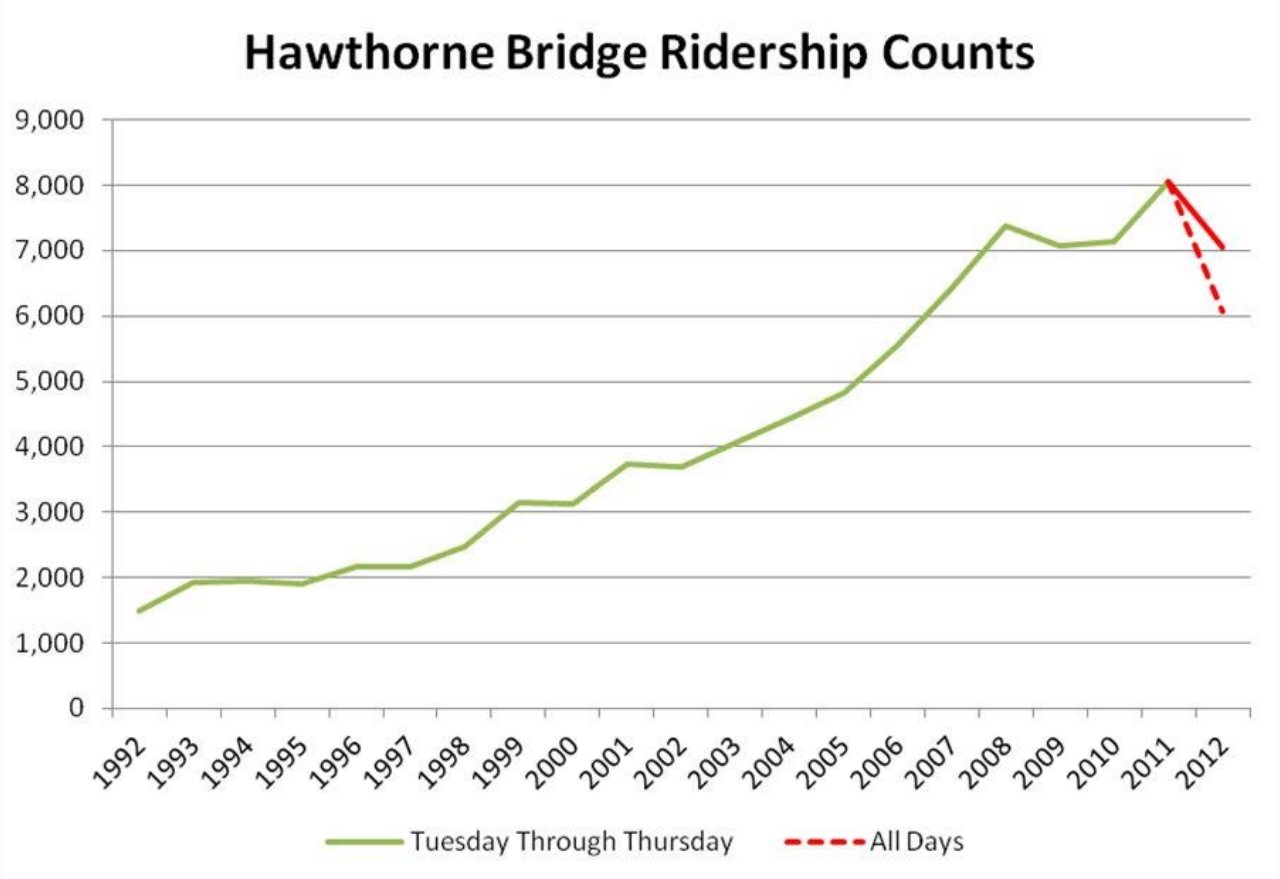
The quality of the bicycling data varies enormously. The most authoritative source of bike commuting data, the U.S. Census, doesn't include commuting to school – logically an important component of transportation at Portland State University. The City of Portland data surveys are taken in the summer – primarily by volunteers – and show great variability.

Ridership understandably varies depending on the area being measured. For instance Metro estimates the bicycling mode share within the Metro region to be approximately 2%. The American Community Survey (from the U.S. Census) estimates Portland's citywide bicycling mode share at approximately 6%. The Portland Business Alliance's survey of its members estimates commuting mode share in the central business district to be as high as 11%. It is worth noting that Metro has said that the surveys it bases its numbers on have a poor return rate for younger residents between 20-30 years old, so it is possible that the Metro data actually undercounts the number of bicyclists.

Bicycle ridership can be separated into three categories – commuters, customers, and recreational riders. For Portland's central business district, the impact of commuting on congestion and traffic planning is very important.

The installation of automated counting equipment on the Hawthorne Bridge in the Fall of 2012 provided the first consistently reliable data on the number of bicycle riders travelling across the Willamette. The automated counter is one of the first in the country and provides solid data on bicycle rides by direction and hour.

The average weekday ridership count since installation is 6,889 – compared to 8,044 over the same period in 2011. While this would appear to suggest that ridership actually declined between 2011 and 2012, the discrepancy could also be the result of the change in methodology from hand-counting, to automated counting. If this is the case, the city's previous estimates of bicycle traffic across the Hawthorne Bridge were likely higher than the actual number. The decline in Hawthorne Bridge bicycle traffic could also be the result of recently improved bike infrastructure on other downtown bridges.



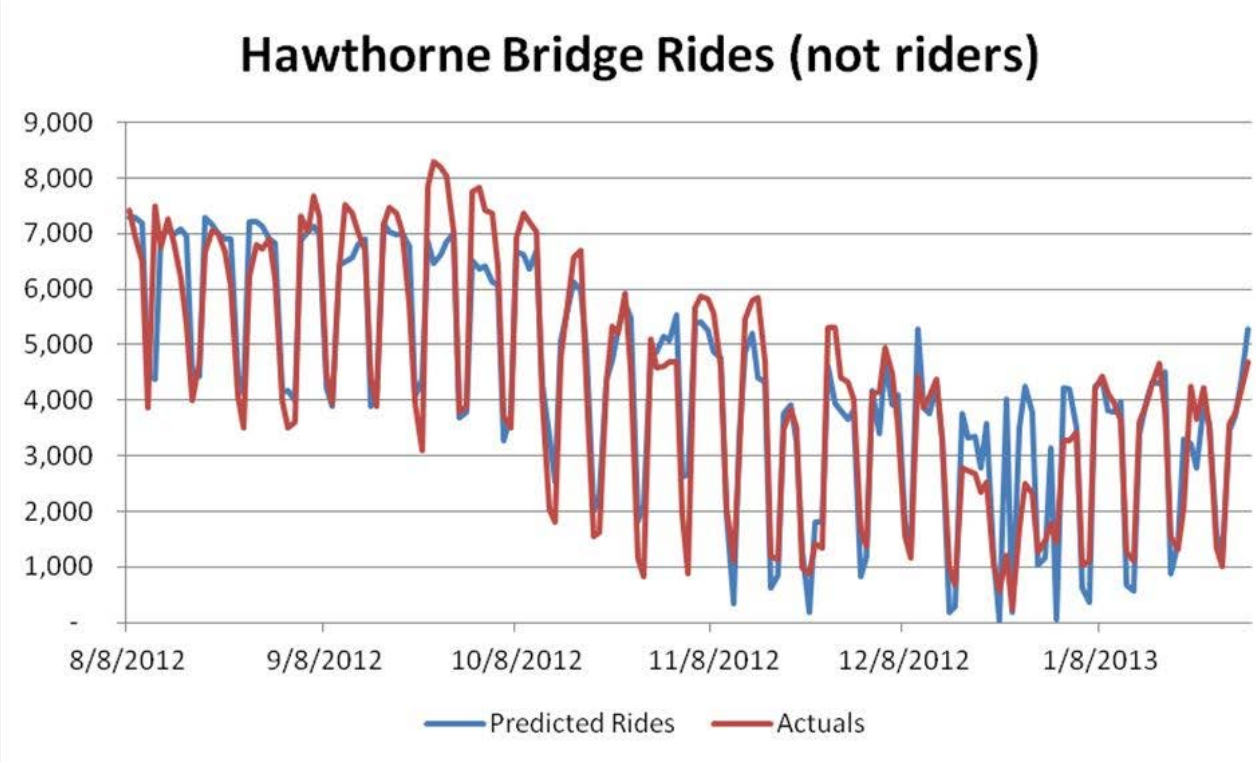
Developing a Ridership Model

Shortly after the installation of the bicycle counter, your committee began to receive the bicycle counts from the counter on the Hawthorne Bridge. The statistical model described in this report includes 177 days of daily data as well as 161 days of hourly data. Understanding who currently rides bicycles, and under what conditions, was determined by your committee to be critical to making informed recommendations on future bicycle investments and policy in the City of Portland.

Since standard models for the adoption of new products or behaviors tend to follow logistic curves – slow starts, rapid acceleration, and then a steady state, additional investments in bicycle infrastructure in Southeast Portland, for example, may be less impactful if bicycle trips have begun to reach the saturation point.

This ridership model uses a simple regression to explain daily rides from three weather variables, a variable for weekends and holidays, and the onset of dusk. Each weather variable appeared twice – the second entry was squared to allow for non-linearity in ridership. For example, weekday riders tend to drop off when it gets too hot as well as dropping off when it gets too cold. The second weather variable in each category allowed us to capture that effect.

The simple regression model is unusually successful when applied to the Hawthorne Bridge counter data. The eight explanatory variables explain 87% of the variance in ridership. The statistical properties are also very solid. All but one of the explanatory variables are significant at the 99% level, meaning that the odds of this happening by chance is 1%.



This model shows that ridership is negatively affected by cold, wet or windy weather, as well as sunset time, meaning ridership decreases when sunset occurs earlier, and increases when the sun sets later in the day.

Unsurprisingly, commuters are clustered around several hours in the morning and afternoon, while non-commuters show a traditional bell curve skewed toward the afternoon, approaching from the east and returning several hours later. If weather is not a factor (assumed 70-degrees, no precipitation) non-commuters make up approximately 32 percent of all bicycle trips across the bridge.

Your committee is confident in the model it has developed for the Hawthorne Bridge, but additional data is necessary to form a more comprehensive picture of where bicycle infrastructure is needed and what form it should take.

In 2002, Portland State University conducted a citywide study relating bicycle use to terrain, distance from the central business district, and the level of bicycle infrastructure.[iv] New data from Metro and the American Community Survey has allowed your committee to update that 2002 study, as well as disaggregate bicycle infrastructure by type and evaluate whether there was evidence that specific forms of bicycle infrastructure had a greater or lesser impact on ridership.

Regarding infrastructure, your committee analyzed rates of bicycle commuting by census tract point of origin (using ridership data provided by Metro) and compared it to different types of infrastructure investments in those census tracts (see Glossary for terms):

- Linear feet of Bike Boulevard
- Linear feet of Buffered Bike Lane
- Linear feet of Bike Lane
- Linear feet of Cycle Track
- Linear feet of Low Traffic Through Street
- Linear feet of Miscellaneous Facilities (crossings, connections, etc.)
- Linear feet of Path (Local, multi-use)
- Linear feet of Path (Regional, multi-use)
- Linear feet of Shoulder, Narrow
- Linear feet of Shoulder, Wide

Most types of infrastructure provided some positive correlation with increased ridership; however two types of infrastructure stood out as being particularly beneficial: Bike Boulevards and Low Traffic Through Streets. Shoulders – either wide or narrow – showed little relationship with increased ridership. Painted bike lanes were also not nearly as effective as separated lanes, such as Cycle Tracks or Buffered Bike Lanes. Overall, this analysis points to separated, low-car routes as being the most desirable form of infrastructure among Portland's bicycle riders.

These two studies conclude that bicycle commuting may not grow significantly without additional infrastructure, and that the type of infrastructure is critical to additional commuting. A detailed description of the data and the statistics used to reach these conclusions is contained in Appendix V, "Statistical Methodology."

[i] Jennifer Dill, Mauricio Leclerc and Jim Strathman. Bicycle Planning in the City of Portland: Evaluation of the City's Bicycle Master Plan and Statistical Analysis of the Relationship between the City's Bicycle Network and Bicycle Commute. (Portland, Oregon: Portland State University, 2002), 3.

[ii] Ibid.

[iii] Ibid, 26.

[iv] Ibid.

Influences on Current Bicycle Policy

Portland Mayor Sam Adams, speaking with your committee, described bicycles as "a key part of health, both environmental and personal, and a key to a connected city, with clusters of neighborhoods, services and amenities." Mayor Adams described bicycles as integral in achieving the four goals of The Portland Plan: prosperity, health, education and equity.

Currently, Portland's policies related to bicycle use are formed predominantly by the following:

Portland Bicycle Plan for 2030

Current bicycle use policy is best encapsulated by the Portland Bicycle Plan for 2030, adopted unanimously by the City Council on February 11, 2010.

The Portland Bicycle Plan for 2030 provides a policy framework as well as recommendations to enhance and expand bicycle transportation in Portland and it will inform an update of bicycle policy within Portland's Transportation System Plan (TSP).

Portland's first bicycle plan in 1996 served as a blueprint for developing programs and policies to encourage more people to use bikes, as well as an interconnected bicycle network. The original Bicycle Plan directly resulted in the creation of over 300 miles of new bicycle infrastructure throughout Portland.

The 2030 plan goes far beyond that, setting a target of 25% of all trips to be made by bicycle by 2030 and the expansion of the city's current bicycle network to 962 miles, as well as reductions in carbon emissions, improvements in neighborhood livability and better health of residents.

Key policy directives include the following:

- Design bicycle improvements to encourage new riders.
- Create conditions that make bicycling more attractive than driving for short trips (less than three miles).
- Fully integrate bicycling into long-term city planning, adopted policies, and development goals.
- Further integrate support for bicycling into existing City policies.

Portland Transportation System Plan (TSP)

The Transportation System Plan is a multi-agency, 20-year plan for transportation improvements in Portland. The TSP predicts the future transportation needs of Portland residents, visitors and businesses and recommends multi-modal options based on the transportation, development and livability goals of the city.

The Transportation Element (TE) is the policy basis for the TSP. Goals, policies and objectives in the TE are a subset of the Portland Plan, which guides the City's long term growth and development. The TE includes two comprehensive plan goals (Goal 6 Transportation, and Goal 11B Public Rights-of-Way), as well as the Central City Transportation Management Goal.

These include street classification maps and plans which ultimately influence decisions on such things as land

use, freight rights-of-way, parking availability, public transportation, and other factors.

An update to the Transportation System Plan is currently in progress.

Oregon Bicycle and Pedestrian Plan

This plan was drafted in 1995, but was incorporated into the Oregon Transportation Plan, adopted 2006.

The plan offers general principles and policies that the Oregon Department of Transportation (ODOT) follows to provide bikeways and walkways along state highways, a framework for cooperation between ODOT and local jurisdictions, and guidance to local districts for plans.

The overall goal of the plan is to "provide safe, accessible and convenient bicycling and walking facilities and to support and encourage increased levels of bicycling and walking." It includes background, statistics and legal regulations at the state level, governing implementation of plans and use of funds for bicycles for both transportation and recreational use.

The plan was updated in 2012 and retitled the Oregon Bicycle and Pedestrian Design Guide.

Metro 2035 Regional Transportation Plan (RTP)

The RTP presents the overarching policies, goals, transportation system concepts, funding strategies and local implementation requirements for the Metro region.

The plan recommends how to invest more than $20 billion in anticipated federal, state and local transportation funding in the Portland metropolitan area during the next 25 years. Among the goals is to promote healthy, active living by making walking and bicycling safe and convenient. The plan meets regional, state and federal planning requirements.

"Active Transportation," which is sometimes referred to in city, regional and state documents, and is a key component of the 2035 plan, typically refers to any type of human powered transportation, such as bicycling, walking, etc.

Discussion of Relevant Issues

Throughout the course of its research, your committee identified six overarching areas of interest related to bicycle policy and usage in Portland.

1. Demographics and Equity Issues
2. The Interaction of Bicycling with Other Transportation Modes
3. Economic Effects of Increased Bicycle Usage
4. Environment, Health and Safety
5. Current and Potential Future Funding Sources
6. Licensing and Registration for Bicycles or Riders

An examination of these areas shows both the benefits of Portland's focus on bicycle transportation, as well as current and future challenges the city will need to address.

1. Demographics and Equity Issues

The study charge tasked your committee with answering the following questions: Are bicycle users well distributed by gender, age, race and economic class, or does bicycle infrastructure benefit a narrow segment of the population? Do bikes provide Portlanders who cannot afford to drive an essential transportation option? Or is bicycling the lifestyle choice of people who can easily afford to drive? Is disproportionate use by certain segments of the population problematic, and how should Portland address equity issues, real or perceived? This section of the report seeks to address these issues.

Demographics

While the available ridership data and the model developed for this report provide insight into the numbers and origins of riders, who those riders are is more elusive. The demographic data available is incomplete, but does provide a usable overview of the characteristics of bicycle riders.

Unfortunately, census data in the American Community Survey report, Means of Transportation to Work by Age,[i] provided only combined numbers for those using bicycles, taxis, motorcycles and other means, so reliable age data for Portland bicyclists is not available using this source.

Other available data shows that the vast majority of those who ride a bicycle to work are male. Additionally, rates of bicycle use tend to be inversely proportional to age, with young people riding the most.[ii] Single households are also more likely to bike to work than married households and married households with children.[iii] Bicycle riders tend to earn less on average than other commuters; however, the income gap between those who ride a bicycle to work and those who drive or use transit is, for the most part, attributable to this age discrepancy.[iv]

Age

Your committee found evidence that younger people are driving less and that this is quite likely a long-term trend.

Over the past 25 years, the percentage of young people between the ages of 16 and 20 years with a driver's license has decreased from approximately 87% nationally in 1983, to approximately 76% in 2008. There is an overall decline in the number of licensed drivers among the younger generation – a trend that is expected to continue for the foreseeable future.[v]

While the American Community Survey data does not measure student commuters, many young people use a bicycle as their primary means of getting to and from their high school, college and university classes.

Nationally, miles driven by car peaked in 2004 and have been declining since. This trend can be attributed to a range of factors, including long-term increase in gasoline prices, new licensing laws, the rise in popularity of

smartphones and mobile internet devices, social networking and widespread internet access, changing values among younger generations, improved mass transit options, and a preference among younger people for denser urban living settings.[vi]

Your committee found some evidence that outside the United States, senior citizens represent a large segment of the bicycle-riding population.

Bicycling mode share among senior citizens 65 and older is 23% in The Netherlands, 15% in Denmark, and 10% in Germany. By contrast, bicycle mode share among the same age group is just 1% in the United Kingdom and 0.5% in the United States.[vii] This suggests that the barriers to bicycle use are centered on cultural norms and on transportation system design and policy, rather than age.

To make progress toward the 2035 plan, these barriers will need to be addressed over the next two decades. The Portland Metro area's population is expected to increase from approximately 2.23 million people in 2010, to 2.70 million people by 2025 – a 21% increase. However, the percentage of the population over 65 is expected to more than double.[viii] The age group that currently rides bicycles the most (those between the ages of 18 and 40) is expected to decline through 2030 as a percentage of the total population.

Gender and Race

By a wide margin, males ride bicycles more than females in the U.S. and Portland is no exception. According to census figures, 7.6% of Portland males commute by bicycle compared to 4.3% of females.[ix]

Women accounted for just under a third of the bicycle trips counted across Portland's downtown bridges in 2011.[x] There has been a gradual increase in this number since 1992 when women made up just 22% of the count.[xi]

Overall, approximately 6% of Portland residents regularly use a bicycle to get to work. Of that 6%, 65% are male, according to the most recent data from the American Community Survey. The majority of these individuals are white and college educated.

While minorities have historically represented a small segment of the city's population, ethnic diversity has increased steadily, from 15% in 1980 to 27% in 2010. Among young Portlanders (under 25), this trend is even more pronounced, with ethnic minorities accounting for 36% of Portland residents in this age group.[xii]

Findings from a study undertaken by the Community Cycling Center shed more light on ridership patterns and barriers to bicycle use among minority communities in Portland. For instance, approximately 62% of Hispanic residents surveyed, as well as 74% of African immigrant residents surveyed, specifically cited cost concerns as reasons they did not own a bicycle[xiii] – a notion that runs counter to the perception that bicycle use is a less expensive transportation option than other modes.

Safety concerns also appeared to be weighted more heavily among minority communities. Nearly all African Americans surveyed in the study cited potential hostility of drivers as the main reason why they did not regularly use a bicycle. Additionally, 29% of African Americans, 57% of Hispanics and 16% of African immigrants cited the lack of safe bicycle storage as a significant barrier to bicycling.[xiv]

Equity

Equity is broadly defined by the city as "access to the opportunities necessary to satisfy residents' essential needs, advance their well-being and achieve their full potential."[xv] As it relates to transportation, your committee interpreted this to mean that all Portland residents have the transportation options and abilities to move freely, efficiently and safely around the city.

A study of equity issues in Portland's draft bicycle master plan[xvi] examines existing and proposed access to bikeways in neighborhoods with an above average minority population. Overall, these neighborhoods score above average in terms of bicycle access, especially neighborhoods within inner-northeast and inner-southeast Portland.

Recently, the ongoing trend of gentrification has resulted in a flow of ethnic minorities from many inner neighborhoods to communities in East Portland and other parts of Multnomah County. These outer neighborhoods have far less access to bicycle and pedestrian infrastructure for neighborhood trips, although East Multnomah County does include a network of recreational trails. The equity study, however, analyzes only access to bicycle infrastructure and does not provide data on bicycle riding patterns among minority populations.

Gender barriers are also specifically mentioned, as are potential equity issues regarding Portland's elderly population.

The Portland Plan's strategies for promoting equity that relate to bicycling include the following:

- Emphasize transit and active transportation, including bicycle and pedestrian facilities.
- Expansion of the Safe Routes to School program with a focus on schools that serve a large number of students in poverty, students of color and ESL students.
- Expansion of access to affordable transportation options, including frequent transit service, vehicle sharing services and bicycle and pedestrian improvements.
- Promotion of "complete neighborhoods," which are built to be walkable and bikeable on a human scale and meet the needs of people of all ages and abilities.
- An emphasis on infrastructure improvements in East Portland, where services have not kept pace with housing development and population growth.
- A goal of 70% combined active transportation mode share for commuters by 2035. As outlined in the Climate Action Plan, this includes transit, 25%; bicycle, 25%; walk, 7.5%; carpool, 10%; work from home, 2.5%.[xvii]
- Ensure broad stakeholder inclusion in decision-making.

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[i] 2007-2011 American Community Survey 5-Year Estimates. "Means of Transportation to Work by Age." American Fact Finder (B08101).

[ii] Jennifer Dill, Mauricio Leclerc and Jim Strathman. Bicycle Planning in the City of Portland: Evaluation of the City's Bicycle Master Plan and Statistical Analysis of the Relationship between the City's Bicycle Network and Bicycle Commute. (Portland, Oregon: Portland State University, 2002), 19.

[iii] Ibid.

[iv] Ibid, 20.

[v] Brandon Schoettle and Michael Sivak. Recent Changes in Age Composition of U.S. Drivers: Implications for the Extent,Safety, and Environmental Consequences of Personal Transportation. (Ann Arbor, Michigan, University of Michigan Transportation Research Institution, 2011), 2-5.

[vi] Phineas Baxandall, Benjamin David and Tony Dutzik. Transportation and the New Generation: Why young people are driving less and what it means for transportation policy. (Santa Barbara, California: Frontier Group and U.S. PIRG, 2012), 7, 23-35.

[vii] Ralph Buehler and John Pucher, "Walking and Cycling in Western Europe and the United States" TR News, May-June 2012, 37.

[viii] Marvin Kaiser and Sheila Martin. Portland 2030: A Vision for the Future. (Portland, Oregon: visionPDX, 2008), 30.

[ix] 2007-2011 American Community Survey 5-Year Estimates. "Commuting Characteristics by Sex." American Fact Finder (S0801).

[x] 2011 Bicycle Counts Report. (Portland, Oregon: City of Portland Bureau of Transportation, 2011), 6.

[xi] Ibid, 29.

[xii] The Portland Plan. (Portland, Oregon: City of Portland, 2012), 9.

Case Study: North Williams Avenue

The North Williams Avenue project has been the most prominent recent example of the demographic, racial and equity issues related to bicycle use.

North Williams Avenue runs through the heart of Portland's traditionally African American community. According to multiple accounts heard by your committee, for many years the neighborhood received little infrastructure investment from the city, despite increasing problems of crime, neighborhood blight and poverty throughout much of the 1960s through 1990s. According to a November, 2012 Portland State University presentation by Thad Miller, Assistant Professor at the School of Urban Planning, and Amy Lubitow, Assistant Professor of Sociology, over the last decade, the demographic makeup of the neighborhood has begun to change dramatically. In 1990, the population living in the neighborhood around North Williams was approximately 20% white. By 2010, the percentage of the neighborhood population that was white had climbed to over 50%.[xviii] Many of these residents are new families and young people that regularly ride a bicycle.

Initially, the $370,000 North Williams project was introduced as a transportation safety project. In 2010, the street carried approximately 3,000 bicycle trips per day, as well as 8,000 cars and buses carrying 1,200 riders daily.[xix] Project organizers, through a consultant, conducted neighborhood outreach through

postcards, door-to-door knocking, and email, but also reached out to churches and other community leaders to find participants.

Despite North Williams running through a historically African American neighborhood, the citizen advisory committee formed for the project included 18 white members and only 4 non-white members.[xx] Bicycle advocates were well represented, though the project was not officially called a bikeway.

It is the assessment of your committee that the controversy surrounding bicycle improvements to North Williams, in brief, was the result of insufficient neighborhood engagement and poor communication at the outset of the project. Witnesses such as Alison Graves of the Community Cycling Center, Benjamin Adrian of the NE Coalition of Neighborhoods, and neighborhood advocate Sharon Maxwell-Hendricks, said many African American residents were also keenly aware of the legacy of earlier transportation projects that had profoundly negative effects on the existing community.

Specifically, the construction of Interstate 5 through North Portland in the 1960s and 1970s, along with the construction of Memorial Coliseum and expansion of Emanuel Hospital in the 1950s and early 1960s, were passionately cited by community members as extremely destructive projects justified as a way to modernize the city and develop the economy. These massive infrastructure and construction projects razed wide areas of the surrounding neighborhood and significantly altered the fabric of the community, without any significant input from community leaders at the time. According to witnesses, these events are viewed highly negatively by African American residents of the neighborhood as actions that uprooted families and local businesses, enabled an outflow of wealthier community members to suburban developments, and physically divided the community, decreasing walkability and neighborhood cohesion.

Over the past decade, those same neighborhoods have experienced what is broadly referred to as "gentrification," where young, white, middle class to affluent individuals and families have moved into those communities, attracted by affordable property values.

The product of these two events has been a fundamental change in the demographic makeup of Portland's historically African American neighborhoods. The installation of additional bicycle infrastructure was viewed by the remaining community members as another disruptive public project carried out without sufficient input from the affected neighborhoods, and as an event that would further erode the character of the community through gentrification.

Your committee heard testimony that many community members along North Williams had repeatedly called for pedestrian safety improvements over the past several decades, with little to show for it. The sudden interest in bicycle improvements in the neighborhood was perceived as the city catering specifically to the younger, white homeowners who had recently moved in.

While the proposed bicycle improvements have since been redesigned and approved, they were done so only after extensive stakeholder engagement and public discussion, demanded by the local community. Over the course of dozens of meetings, a reformed project committee created a guiding statement that included direct acknowledgment of a history of racism, disinvestment, and exclusion in the community. Additionally, the project scope was broadened beyond bicycles and pedestrians, to include issues such as affordable housing and community trust.

The end result was a bicycle and pedestrian project that had wider community input and support, however

your committee believes the lengthy stakeholder input process and redesign directly inflated the overall project cost and could have been avoided with better initial stakeholder identification and outreach.

In summary, the North Williams Avenue controversy over bicycle improvements was a proxy for current and historical conflicts between the affected neighborhoods and the city. The opinions of community members towards the proposed project, as well as the overall project budget and timeline, were negatively impacted by poor stakeholder identification, engagement and communication at the beginning of the project.

Understanding the Communication Breakdown

The North Williams case study is an example of the City inadequately identifying, engaging and communicating with stakeholders. Unfortunately, it is not the only example of this communication breakdown. Other high-profile projects not discussed above, but worth mentioning in this context, include the striping of buffered bicycle lanes on Southeast Holgate in East Portland, and the proposed bicycle improvements on Southwest 12th Avenue in the downtown business district. Both of these projects have been criticized by residents and business leaders, not on the merits of bicycle transportation, but rather on the city's poor job of communicating its intentions.

Your committee did not identify broad organized opposition to bicycle use in the city, but instead found opposition to be centered on objections to specific projects and their inclusive elements or planning process, such as those identified above.

Regardless of potential long-term changes in the demographic makeup of bicycle use in Portland, the current perception (justified or unjustified) of bicycling as benefiting an already privileged segment of the population cannot be ignored.

Community outreach efforts in North and Northeast Portland have seen some success in increasing bicycle use among underserved and low-income minority youth. Additionally, many witnesses reported to your committee that separate infrastructure and bicycle safety improvements greatly improved the percentage of women using bicycles.

Essentially, the greater the investment in safety, outreach and separated bicycle facilities, the greater diversity in bicycle ridership. Portland has invested substantial money and political capital in promoting bicycling, and greater ridership diversity is necessary if the city is going to meet its bicycle mode share and equity goals.

The Bicycle Advisory Committee (BAC)

In addressing communications and stakeholder input challenges, it is worth noting that the Portland Bureau of Transportation currently consults with a standing Bicycle Advisory Committee (BAC). This all-volunteer committee is made up of ordinary citizens and advises PBOT, and other agencies, on bicycling projects and policies. While it is not explicitly composed of "bicycling advocates" the potential applicants' attributes are weighted in such a way as to select for similar people, as opposed to selecting for a diversity of opinions and backgrounds.

The following are the weighted attributes used to select potential applicants to the BAC, provided by a representative of PBOT:

- Knowledge, skills and abilities (30 points)
- Demonstrated interest in bicycling (30 points)
- Volunteer experience (20 points)
- Diversity (gender, age, ability, geographic) (20 points)

Potential candidates are ranked based on their scores in these categories, interviews are conducted with the top candidates and a final list is made available to the commissioner in charge of transportation who makes the final decision on committee membership.

While these are all fine qualities for seeking balance in a committee, noticeably and surprisingly absent from the selection criteria are any consideration of professional background, race or ethnicity, organizational affiliation, and preferred mode of transportation. The inclusion of these factors in the selection process would likely yield a wider diversity of opinion regarding bicycle project planning.

[xviii] Nikole Hannah-Jones, "In Portland's heart, 2010 Census shows diversity dwindling," The Oregonian; April 30, 2011.

[xix] Amy Lobitow and Thad Miller, "Bikes and Race in Portland: The North Williams Ave. Controversy" (presented at Citywise Breakfast, Portland State University, November 14, 2012).

[xx] Ibid.

Lessons Learned

Current methods of communicating bicycle transportation project objectives, costs and outcomes to affected neighborhoods are insufficient, as is the mechanism of soliciting stakeholder input.

From neighborhood leaders left out of the planning process, to confusion over road signs and markings, your committee repeatedly heard examples of poor communication and outreach that directly increased the monetary and political cost of bicycle transportation projects. Many of these problems may have been avoidable, or could have been mitigated with better outreach and communication processes.

As bicycling in Portland further integrates into the city's multi-modal transportation system, and as the bicycle infrastructure network expands to cover a wider area of the city, input from neighborhoods, businesses and stakeholders is essential.

In speaking with your committee, Portland Mayor Charlie Hales said "The price of doing business is getting input. Having a good citywide plan is more acceptable to people than pure opportunism."

Better communication of the objectives, scope, timeline and end results of bicycle projects and policies will substantially improve bicycling in Portland, by ensuring transportation systems are designed to accommodate all users, and do not disproportionally benefit one transportation mode at the expense of others.

The Portland Bureau of Transportation's volunteer Bicycle Advisory Committee should expand to include representatives from various communities of color, youth-advocate organizations, and

neighborhood organizations, as well as the Portland Business Alliance, The Portland Freight Committee, Portland Public Schools, and other relevant stakeholders.

As part of its monthly review of bicycle policies and projects, this standing committee has an opportunity to provide valuable community oversight and stakeholder communication that is currently not utilized to its full potential. In general, there needs to be better communication and regular monthly meetings between the Bicycle, Freight, and other committees, and with relevant neighborhood representatives.

For example, the following adjustments to the BAC would help mitigate similar future conflicts:

- Identify specific individual representatives from the above organizations to participate in the Bicycle Advisory Committee and restructure the BAC to best facilitate their participation.
- Weight BAC selection criteria to encourage greater diversity of economic and social backgrounds, professions and transportation preferences.
- Establish procedural rules for information sharing, approving actions, scheduling regular meetings and other logistics.
- Ensure various state, regional, county and city policies and plans related to transportation are aligned.

2. The Interaction of Bicycling with Other Transportation Modes

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Your committee set out to determine the current and future role of bicycling in Portland's multi-modal transportation system, as well as its relative strengths and weaknesses versus other transportation alternatives.

Bicycling in the current transportation system

Bicycle use in and of itself is not a solution to current citywide congestion problems, given the limited average range of people using bicycles (typically less than 3-4 miles). However increased bicycle usage substantially increases the carrying capacity of existing roads and transit networks by diverting trips made using transit or personal motor vehicles to trips made using bicycles. This frees up space on road networks for automobile commuters, freight service and motor vehicles travelling longer distances. Encouraging expanded bicycle use can potentially offset future demands for road-widening projects and general maintenance. In several areas of Portland, the average trip length for households is short enough where a bicycle could theoretically be used, provided other conditions were favorable.[i]

Past, Current and Projected Trips by Region

	Households 1994	Households 2011	Households 2020 (projected)	Households 2035 (Metro Forecast)	Trips/hhold	Avg.Trip Length 1994	Avg.Trip Length 2011
Central Business District	7,078	15,783	20,700	28,075	6.0	2.1	7.4

Central (not CBD)	4,237	6,526	14,599	26,710	5.7	3.9	3.5
East to I-205	126,181	346,768	167,462	198,503	9.4	3.7	3.2
West	36,664	45,693	51,182	59,415	8.2	3.8	3.8
East PDX	42,100	55,011	68,726	89,297	10.9	5.8	4.6
Citywide	216,260	269,781	322,668	402,000	9.2	4.2	3.6

There is some duplication of service between bicycles and transit among persons needing to travel short distances. If a developed, interconnected bicycle network is available, it has the potential to significantly reduce automobile and transit trips of less than 3-4 miles. Exceptions to this scenario would include those physically unable to use a bicycle or those simply not interested in using a bicycle. Other forms of transportation would still be necessary as a means of providing equality of access.

Overall, bicycle use has increased dramatically versus other mode shares and is expected to continue to do so, according to projections from PBOT.[ii]

City of Portland Transportation Mode Shares

	1994	2011	Change	% Change
Walk	13.0%	15.0%	2.0%	15.0%
Bike	1.6%	6.0%	4.4%	268.0%
Transit	5.5%	6.6%	1.1%	19.0%
Auto	79.8%	72.4%	-7.4%	-9.3%

Currently, PBOT plans and prioritizes bicycle projects based on criteria laid out in the 2030 Bicycle Plan. The Bicycle Strategic Implementation Plan consists of seven parts[iii]:

- Equity: How well does the project serve areas that are deficient in bicycle facilities or access, or disadvantages based on the Equity Gap Analysis.
- Community Support: Is the project supported by neighborhood residents, businesses and associations?
- Connectivity, access and barrier reduction: Does the project address barriers to bicycling or fill in gaps in the city's bicycle network?
- Visibility of bicycling: Does the project increase the visibility of bicycling as a viable transportation option?
- Innovation: Does the project highlight a new type of design or provide other innovation in transportation design?
- Leverage: Does the project enhance existing investments or encourage new ones?

- Return on Investment: Is this project affordable and what is the expected return on investment as it relates to ridership?

Both the "Equity" and "Community Support" criteria directly relate to the aforementioned challenges posed by the North Williams controversy, and other similar communication problems.

Noticeably absent from this list is safety. In fact, the "Innovation" criteria may actually create more safety problems by propagating a wide variety of non-standard road signs and markings that are not well understood by either drivers or bicycle riders.

Automobiles

Portland residents consistently drive fewer miles per day than the national average. In 1990, Portland residents drove an average of 18.8 miles per day, compared to 20.6 miles per day nationally. Average miles driven per day for Portland peaked in 1996 at 21.7, and has since fallen to 19.15 in 2010. The national average miles driver per day was 22.7 per driver in 2008[iv] (the most recent year for which data is available).

Automobiles and bicycles have a complicated relationship, exacerbated by local media stories depicting bicyclists and motorists perpetually at odds with one another.

Accounts on television, online articles, and The Oregonian, focus on points of conflict (real or perceived). An Oregonian investigation on Portland's seeming inability to fill potholes in city streets and maintain a basic level of road quality[v] implies bicycle funding (as well as funding for transit projects, such as the Portland-Milwaukie light rail line), is to blame for this failure.

The reality of transportation funding in Portland, as well as in every other city, is significantly more complicated (see Current and Potential Funding Sources), but suffice it to say, this type of reporting presents a false dichotomy between automobile and bicycle transportation modes. Nevertheless, this perception has proven to be widespread.

Funding aside, there are legitimate safety issues concerning automobile and bicycle interaction. The relative high speed of motor vehicles compared to bicycles has necessitated the adoption of new types of road signs, street markings and traffic calming tools, in an effort to increase awareness and communication between motorized and non-motorized vehicle operators.

However, your committee heard multiple witnesses say there are high levels of confusion regarding the meaning of non-standard road signs and markings. This appears to be a communication and road-user education problem.

Another repeated point of contention in balancing the needs of bicycles and automobiles relates to motor vehicle parking. Many businesses have expressed concern that replacing on-street parking with a bicycle lane negatively affects their business. There is little evidence to substantiate this claim. In fact, for certain types of businesses, there are indications that there is no variation in the spending habits of customers based on their method of travel (see Economic Effects of Increased Bicycle Usage).

Finally, regarding the perception that persons on bicycles are more likely to violate traffic laws than persons in

motor vehicles, your committee could not find evidence to substantiate this claim. Representatives from the Portland Police Bureau did not report to your committee that they cited persons on bicycles for traffic violations at a higher rate than motor vehicle operators. When asked if this was a matter of looser enforcement, they responded that the bureau prioritizes enforcement of traffic violations relating to motor vehicles, since those violations are potentially more dangerous.

Furthermore, your committee was unable to procure any third-party data, beyond anecdotal observations, to support the perception that persons on bicycles violated traffic laws more frequently than motor vehicle operators. Your committee still recommends expanded safety education and enforcement for bicycle riders, however, since they are considered vulnerable road users and have a greater risk of injury from otherwise minor collisions.

Mass Transit

Integrating bicycles into transit is a challenge, both in Portland and in other metro areas. Gaps exist in both the bicycling and mass transit networks in Portland and the surrounding areas. Several witnesses testified that TriMet's "Bikes Onboard" strategy, which provides space for transit riders to bring their bicycles on board TriMet vehicles, reaches a limit quickly. Busses that have been retrofitted with these bike storage systems can carry a maximum of two bicycles, for instance. Low-floor light rail vehicles can carry just four bicycles per train car.

A spokesperson for TriMet testified that the agency sees bicycles as a way to solve transit's "last mile problem," which refers to the distance between a residence and a transit stop, or a transit stop and a destination. TriMet views bicycle ridership as a fundamental element of its transportation plan, both as a complement to transit and an alternate travel mode. In this role, TriMet views its bus and light rail service as the backbone of a broader transportation network, particularly in areas where bicycle transportation is inhibited by geography.

TriMet recently unveiled a multi-modal trip planning tool, which allows users to include walking and bicycling when making transit trips, and is investing in bicycle improvements at its facilities, including $1 million for bike-and-ride infrastructure at Beaverton Transit Center, Sunset Transit Center and Gateway Transit Center.

Bicycle integration with busses offers the potential for a mutually beneficial relationship. Tighter integration could potentially alleviate transit's "last-mile" problem while, at the same time, encouraging higher rates of bicycle use.[vi]

Freight

Improving and expanding bicycle infrastructure does not necessarily equate to reduced access for trucks. Increased bicycle use has the potential to make road conditions safer and more efficient for trucks, for instance, by reducing the number of cars.

In areas where bicycles and trucks need to share streets, redesigning the street can mitigate potentially hazardous interactions. These changes could include, but are not limited to, a designated freight loading and unloading zone, the elimination of a lane of on-street parking, and the creation of a buffered, separated bicycle lane.

Current infrastructure changes made to date are insufficient to accommodate bicycle and freight coexistence. Particularly with regard to freight, road markings delineating a bicycle lane or route do not conform to the Manual on Uniform Traffic Control Devices, which is the nationally-recognized planning guide for traffic engineers. Multiple accounts heard by your committee said this generates widespread confusion on the part of freight vehicle operators, resulting in negative and unnecessary bicycle-freight interactions. Bicycle users who do not observe the rules of the road or do not allow freight vehicle operators appropriate space, awareness and respect can exacerbate these negative interactions.

But where the City has made a concerted effort to work with freight interests, it has found compromises that appear to balance the needs of bicyclists and freight users. One such example is on Northeast 12th Avenue near the Interstate 84 overpass, one of the few freeway crossings in the area. By working with freight interests such as Franz Bakery, and bicycle advocates, the City was able to find a design solution that mitigated earlier concerns about bicycle infrastructure interfering with smooth and safe freight operations.

Portland has entered into a partnership with 15 other cities called The National Association of City Transportation Officials (NACTO), which has the goal of cooperating on bicycle signage and traffic control devices among the participating cities. The partnership has drafted the Urban Bikeway Design Guide, which is a collection of best practices available to transportation planners from any city.

A 2010 letter to Mayor Sam Adams regarding Portland's 2030 Bicycle Master Plan from the Portland Freight Committee expressed the following concerns (summarized):

- A significant increase in bicycle ridership would impede the movement of freight services and undermine manufacturing, freight and industrial areas in the city. The net effect of this would be the movement of these businesses outside of Portland, increasing suburban sprawl and potentially undermining the effectiveness of the Urban Growth Boundary.
- While some freight may be possible to move through non-motorized modes, the majority of freight will still require motorized transportation. Therefore, any prioritization of non-motorized transportation, as outlined in the 2030 Bike Plan should plan to accommodate, and if possible avoid, key freight routes.
- The assumption of increased bicycle use and bicycle infrastructure on routes currently owned or heavily used by trucking and rail interests was included in the plan without consulting those stakeholders, which have significant safety, economic and logistics concerns regarding bicycle access to those areas.
- There is currently no process in place where conflicts between the Bicycle Plan and the Freight Plan can be resolved.

Some new bicycle and pedestrian improvements, such as the Burnside-Couch couplet on the East bank of the Willamette River, are at odds with design principles and adopted positions of the Freight Master Plan. While this is an example of a project that has improved safety and traffic flow for bicycles, pedestrians and automobiles, it has done so by significantly limiting the usability of a designated freight corridor, according to representatives from the Central Eastside Industrial Council. Trucks that do attempt to use the designated corridor must now engage in sharper turns, use narrower lanes, and interact with increased numbers of vulnerable road users, resulting in an environment that has new and significant safety challenges.

Future bicycle, pedestrian and transportation planning projects must take into account the needs of the existing businesses and freight routes or risk creating streets that have a veneer of safety, but lack the informed design to present a truly safe and equitable streetscape.

[i] Roger Geller, "What does the Oregon Household Activity Survey Tell Us About the Path Ahead for Active Transportation in the City of Portland?" (Portland, Oregon: City of Portland Bureau of Transportation, March 2013), Appendix 2.

[ii] Ibid.

[iii] Portland Bicycle Plan for 2030. (Portland, Oregon: City of Portland Bureau of Transportation, 2011), 118.

[iv] "Metro: Daily vehicle miles of travel per person for Portland and the United States," last modified 2012, http://www.oregonmetro.gov/index.cfm/go/by.web/id=26796

[v] Beth Slovic, "Why can't Portland repave its rutted roads?" The Oregonian; February 26, 2012.

[vi] David R. Ragland and Phyllis Orrick. Transportation and Health: Policy Interventions for Safer, Healthier People and Communities; (Berkeley, California: Safe Transportation Research and Education Center, 2011), Ch. 2, 26-27.

Bicycling's Potential Transportation Role

While bicycle use has little impact on current automobile traffic congestion, it may mitigate future congestion.

As explained to your committee by representatives from Portland State University's College of Urban and Public Affairs, any reduction in the number of cars on the road – or alternatively, a widening of roads to include additional lanes – represents "induced demand," meaning it incentivizes more trips by automobile by making it easier for people to drive. Conversely, high levels of traffic congestion discourage trips by automobile. In the absence of alternative means of transportation (whether that is bicycle use, public transit, or walking) high levels of congestion simply means people travel less. Therefore, providing transportation alternatives, such as bicycle routes and lanes, does not alleviate congestion, but instead incentivizes travel even when automobile congestion is prohibitively high.

Increased bicycle (and active transportation) use allows for increases in road capacity without the need to conduct expensive road widening or expansion projects. In that way, bicycles increase the efficiency of the city's existing roads by accommodating a larger number of road users without a proportional increase in road size. Even in areas that have undergone a "road diet" where the lanes have been reconfigured to allow for a dedicated bicycle right-of-way, there is no measurable increase in congestion along those roads. In fact, roads that have been retrofitted in this manner are actually capable of accommodating more users.

To enable this increase in road carrying efficiency, it is time for the design and planning for bike infrastructure to move from opportunistic to strategic.

Future transportation planning should be multi-modal. Planning for bicycle, transit, freight, automobile and pedestrian improvements separately does not accurately capture the needs, interrelatedness and eventual uses of each mode, and the city has much to gain in efficiency and

cost reduction by taking a comprehensive approach to transportation planning. Further, all transportation planning should be intimately linked with land use and housing plans and policies.

The Portland Plan and 2030 Bicycle Plan are aspirational documents that the Hales Administration (and future administrations) will need to implement through future updates to the Portland Comprehensive Plan and Transportation System Plan.

Better coordination, earlier in the planning process, between bicycle, freight, transit and motor vehicle stakeholders is needed.

The days of opportunistic bicycle planning, where Portland identified bicycle lane placement based on road repaving schedules and excess shoulder space on roadways, are behind us. While former Portland Bicycle Program Manager Mia Birk's Joyride quoted the saying "it is sometimes better to ask forgiveness than permission,"[vii] the challenges present in the North Williams controversy, as well as the challenge of integrating bicycling into the city's comprehensive transportation network, necessitate a focus on careful planning and stakeholder engagement. Permission is essential to the process.

Additionally, PBOT should identify and encourage appropriate use of separate priority corridors for bicycles, personal motor vehicles, freight vehicles and other forms of transportation to improve traffic flow and increase safety. The goal here is to improve the flow of all forms of transportation and increase traffic safety, especially in highly congested areas such as downtown and the inner Eastside. This includes the development of a communications strategy to make sure the corridors are used as intended, an assessment program to determine whether it is working, and the flexibility to make adjustments as necessary. To the greatest extent possible, potential bicycle corridors should not impede existing freight corridors and separation is highly encouraged, wherever possible – especially along high-speed roads.

The following would result in improvements to bicycle rider safety and better integration of bicycling in Portland's transportation system:

- PBOT's Strategic Implementation Plan criteria for bicycle projects should be updated to emphasize safety.
- Portland should prioritize physically separated bicycle infrastructure for streets where the posted speed limit exceeds 20 miles per hour, with well-engineered connections and crossings. Intervention sites should be evaluated before and after implementation, as well as at regular intervals after that.
- Barrier or grade-separated bicycle lanes should be prioritized over painted lanes for high-speed or high-capacity streets. In planning bicycle or street improvements, the Bureau of Transportation should assess the need for these types of high-capacity bicycle routes. Doing so will increase safety for bicycle users and motor vehicle users by reducing potential unsafe interactions.
- The city should discourage bicycles on certain major arterials at least during peak-use times of day. This should be accomplished through the development of attractive parallel/alternative routes for bicycle users and/or through increased enforcement along designated high-capacity motor vehicle or freight corridors.
- Portland should clearly display through a uniform system of easily-readable signs which transportation mode has priority on a given street.

The city should develop and maintain a transparent, reliable system for assessing the success of its bicycling infrastructure, and use these lessons to improve future infrastructure investments. If necessary, the city should

work with outside researchers, such as at Portland State University, to ensure accuracy.

[vii] Mia Birk and Joe Kurmaskie. Joyride. (Portland, Oregon: Cadance Press, 2010), 42.

3. Economic Effects of Increased Bicycle Usage

What are the economic effects of increased bicycle ridership on Portland residents and the city as a whole? Overall, bicycle ridership appears to stimulate more frequent neighborhood shopping trips and casual dining, facilitating the growth of many of Portland's small businesses, restaurants, bars and coffee shops.

Portland's bike economy

In terms of upfront personal savings, Portland's bicycle, transit and pedestrian improvements mean city residents drive their cars significantly less than residents in comparable cities. Portland's 235,508 households save a total of $1.1 billion on personal transportation annually, approximately $800 million of which stays in the regional economy.[i]

Biking also plays a significant role in the "branding" of Portland as an attractive, prosperous, friendly city to visit and move to. The growth of both bicycling and bicycle-related businesses in Portland can be largely attributed to the city's bicycle reputation, which attracts bicycling-focused people from around the country. Improving conditions for bicycle use creates an environment attractive to young, educated individuals, particularly those with creative, skilled labor, or technical proficiencies. These individuals provide a significant and growing contribution to Portland's economy, and attract companies that seek to hire them.

Additionally, there is a relatively small but growing industry of bicycle and apparel manufacturers and designers, as well as bicycle retail and rental operations in the City of Portland. In 2008, Alta Planning estimated the overall impact of Portland's bicycle economy at around $90 million annually, with the largest proportion ($52 million) devoted to retail and rentals. It also found that manufacturing was the fastest growing segment in the local bicycle industry and that broadly, the bicycle industry in Portland supports between 850 and 1,150 jobs.[ii]

Economic Benefits to Infrastructure

While difficult to measure, many experts interviewed testified that increased bicycle use avoids higher costs for automobile-related infrastructure.

For example, bicycle traffic across the Hawthorne Bridge increased between 1993 and 2012 from approximately 1,920 trips to 6,889 trips per weekday, according to data from an automated bicycle counter installed in 2012 and manual bicycle count data from PBOT.[iii] Despite a city population increase over the same period from approximately 471,000 to approximately 593,000 people (a 26% increase), automobile traffic over the bridge has remained virtually unchanged. If the increase in bicycle traffic had instead been an increase in car traffic, the bridge – built in 1910 – would have needed substantial repairs, upgrades or, possibly, replacement according to several transportation experts interviewed by your committee.

Bicycle and pedestrian infrastructure projects have also been shown to create more jobs per dollar spent than automobile-centric infrastructure projects. A comparison of 58 projects in 11 U.S. cities found that bicycle improvement projects created 46% more jobs per dollar than road-only projects. On average, a roadway improvement project can be expected to create 7.8 jobs per $1 million spent, compared to a bicycle improvement project that creates an average of 11.4 jobs per $1 million spent.[iv]

Effects on Businesses and Consumer Behavior

New data is emerging that more accurately quantifies the effects of increased bicycle use on local businesses. The School of Urban Studies and Planning at Portland State University recently completed research focused on the relationship between money spent by customers at businesses and the mode of transportation used to get there.

Results from data collected at 89 businesses in the Portland metropolitan area indicated that bicycle riders are competitive consumers, once trip frequency, demographic, and socioeconomic factors are controlled for. In fact, for all businesses other than supermarkets, those consumers who rode a bicycle or walked to a business spent more per normalized than those who drove.[v] While businesses such as bars or coffee shops, convenience stores, and high-turnover restaurants saw a measurable spending increase per customer for those who rode a bicycle compared to those who drove, the opposite was true for supermarkets. For supermarkets, bicycle riders spent an average of 17 percent less per trip than those who drove.[vi] Even taking into account a higher number of trips for bicycle riders versus drivers, there is still lower overall spending among this group.

Variables included the accessibility of stores by bicycle as well as the quality of available bicycle infrastructure and the urban pattern (i.e. city grid versus suburb).

In effect, the study found that there is no discernible difference in the spending habits of consumers using bicycles or personal automobiles for the types of retail stores used in the study, when the data is controlled for the number of trips per customer. A consumer spending benefit to local businesses was only noticeable for drinking establishments (bars, coffee shops, etc.) or when "bike corral" parking racks were nearby (within 200 feet).

Many retail businesses, both in the downtown core and elsewhere, are wary of projects that are perceived to negatively impact automobile access or parking, believing automobile access to be equivalent to customer access. While this has been true under the traditional development pattern, your committee finds that in most cases (except grocery and bulk retail) consumer spending habits are independent of travel mode choice.

Bicycling is not a detriment to local retail/business and may be positive in some areas or for some businesses.

Some businesses, particularly non-bulk retail or service-oriented businesses, benefit from increased bicycle use, versus automobile use. Since their profitability is not necessarily tied to the consumption of large bulk goods, the increased carrying capacity of streets with bicycle improvements, as well as the increased density of bicycle parking (versus automobile parking) leads to more customers.

It is possible that by replacing automobile use with bicycling or walking for short, neighborhood trips, there is an increase in the ease of travel to these types of grocery and retail stores, but more study in this area is

necessary to make further conclusions. If the goal is to foster the growth of small, neighborhood businesses, however, bicycle use appears to be a very effective tool.

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[i] Joe Cortright, "Portland's Green Dividend," CEOs for Cities, July, 2007.

[ii] "The Value of the Bicycle-Related Industry in Portland," (Portland, Oregon: Alta Planning + Design, September 2008).

[iii] 2011 Bicycle Counts Report. (Portland, Oregon: City of Portland Bureau of Transportation, 2011), 3.

[iv] Heidi Garret-Peltier. Pedestrian and Bicycle Infrastructure: A National Study of Employment Impacts. (Amherst, Massachusetts: Political Economy Research Institute, University of Massachusetts, 2011), 6-7.

[v] Kelly Clifton et al. Consumer Behavior and Travel Mode Choices. (Portland, Oregon: Oregon Transportation Research and Education Consortium, 2012), 23-26.

[vi] Ibid, 33.

4. Environment, Health and Safety

Your committee sought to determine the effect of active transportation – specifically bicycle use – on environmental and physical health, as well as safety for all road users.

Bicycles and the health of people and places

Your committee found numerous environmental, health and safety benefits to increased bicycle use, and also identified several key safety issues that need to be addressed.

Environmental Health

Transportation accounts for approximately a third of all U.S. greenhouse gas emissions. Exposure to traffic emissions have been linked to many adverse health effects including: premature mortality, cardiac symptoms, exacerbation of asthma symptoms, diminished lung function, increased hospitalization and others.

The 2009 City/County Climate Plan was adopted by Portland City Council and Multnomah County Commission, which aims to reduce carbon emissions 40% from 1990 levels by 2030, and 80% by 2050.

By itself, increased bicycling is unlikely to have a significant impact on the region's or city's climate emissions and air pollution. Yet taken together with other strategies to reduce driving, improve fuel efficiency, and adopt cleaner fuels, as well as land use policies that enable shorter trips, bicycling does have a role to play in meeting the region's goals for climate change mitigation and better air quality – particularly as a substitute mode of transportation for short, neighborhood trips.

Physical Health

Like much of the nation, Oregon is currently facing an obesity crisis. Overweight and obese individuals are at substantially higher risk for numerous chronic diseases. Obesity is the second-highest cause of preventable death in Oregon, contributing to approximately 1,400 deaths per year in the state.[i] Over 1.7 million Oregonians (approximately 60% of the population) are obese, with the state's adult obesity rate increasing 121% since 1990.

In Oregon, medical costs related to obesity among adults were estimated to have reached $1.6 billion in 2006. It is imperative that efforts be undertaken to halt and reverse this trend.[ii]

For all its ill effects, obesity is an entirely preventable disease. The Oregon Task Force for a Comprehensive Obesity Prevention Initiative concluded "it occurs in predisposed children and adults living in environments that promote eating too many calories and too little physical activity." In fact, only 57% of Oregon adults met the minimum physical activity recommendations in 2009 (30 minutes per day, five days per week).[iii]

The direct relationship between increased bicycle use and improved health in Portland was the subject of a research study conducted by the Institute of Social and Preventive Medicine at the University of Zurich, Switzerland. The study found that, by 2040, bicycle and pedestrian investments in Portland of between $138-605 million will directly result in health care cost savings of $338-594 million and fuel savings of between $143-218 million, as well as additional economic benefits from a reduced mortality rate.[iv]

Land use and development patterns that encourage automobile use exacerbate trends toward physical inactivity and must be addressed when discussing physical health issues. A focus on retrofitting communities to encourage active transportation, including the use of bicycles and other human-powered modes, potentially alleviates the negative health effects currently associated with personal transportation.

Bicycle and pedestrian improvements have been shown to directly increase walking and bicycling, particularly when paired with programs, policies and other incentives to encourage their use.

Most witnesses interviewed by your committee testified to the personal health benefits of bicycle usage. When compared to a similar amount of time spent sitting stationary in a car, or other mode of transit, bicycling allows for low-impact exercise that can help reduce obesity, hypertension, diabetes, and numerous other health problems.

Once again, bicycling alone will not solve the current health crisis. Not everyone can bike and not everyone will bike. But, reducing barriers and improving the attractiveness and safety of bicycling will help some portion of the population be healthier.

Ongoing issues in safety

Public Safety

While bicycles may interact more freely with pedestrians than other transportation modes, when they are using streets, roads and other public rights of way they are required to follow all traffic laws.

Representatives from the Portland Police Bureau reported that between 1-1.5% of traffic tickets written are

for people riding bicycles. Contrary to conventional wisdom, this is not due to the lack of license or identification among bicycle riders, as Portland Police representatives testified almost all stopped bicycle riders carry some form of identification, and that they have other ways of identifying those who don't. Instead, the perception among many law enforcement officials is that bicycles are less of a danger to other road users than automobiles – or other forms of transportation – and are therefore, a lower priority for traffic officers.

However, this does not alter the fact that improper and unsafe bicycle use and road violations do pose a significant danger to individual riders. Or, that traffic enforcement rates for bicycle riders are lower than those for motor vehicle operators, proportionally.

Personal Safety

From a safety perspective, while people on bicycles are subject to all of the same rights and responsibilities of other vehicle operators, they should be considered vulnerable road users. Bicycles offer virtually no protection in the event of a traffic collision and the potential for serious injury or death exists in even low-speed interactions between motorized and non-motorized vehicles. Although wearing a helmet can protect against certain kinds of injury, this does not reduce risk of a variety of other types of injury.

Both nationally and locally, residents of many neighborhoods do not feel safe as a pedestrian or bicycle rider. Transportation projects have traditionally been (and continue to be) predominantly automobile-centric, prioritizing motor vehicle travel efficiency at the expense of pedestrians and other human-powered transportation. The lack of available bicycle infrastructure is a major barrier to increased bicycle use – primarily as it relates to safety. A 1994 survey of Portland residents showed that 88 percent of those surveyed listed the lack of bikeways as a barrier to more bicycling.[v]

To its credit, the City of Portland has made commendable strides in improving road safety over the past two decades for all users of the roadway and sidewalks. PBOT reports that the overall bicycle fatality rate is declining, and seven of the twelve years since 1999 have seen no bicycle fatalities in the city. Still, while your committee was doing its work, two bicyclists were killed in the city – in very different circumstances. Clearly there is more work to do.

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[i] Victoria Buelow and Duyen Ngo. Oregon Overweight, Obesity, Physical Activity and Nutrition Facts. (Portland, Oregon: Oregon Health Authority, 2012), 4.

[ii] Ibid, 4.

[iii] Ibid, 7.

[iv]Thomas Gotschi, "Costs and Benefits of Bicycling Investments in Portland, Oregon," Journal of Physical Activity and Health (2011), S54-S56.

[v] Jennifer Dill, Mauricio Leclerc and Jim Strathman. Bicycle Planning in the City of Portland: Evaluation of the City's Bicycle Master Plan and Statistical Analysis of the Relationship between the City's Bicycle Network and Bicycle Commute. (Portland, Oregon: Portland State University, 2002), 1.

Case Study: A Veneer of Safety

Some infrastructure may give riders an illusion of safety. For instance, shortly after your committee began its work, 28-year-old Kathryn Rickson was struck and killed by a freight vehicle at SW 3rd and Madison. The accident was a "right-hook" collision, an all-too-common type of accident that is supposed to be mitigated by green bike boxes at these intersections. In this case, the light had already turned green and Ms. Rickson was riding downhill behind and to the right of the truck when it turned into her path. Though she had the right of way, the District Attorney's Office chose not to file charges against the truck driver, who reported having looked as the law required. Regardless of who was at fault, this type of accident demonstrates the need to improve safety and education and reduce these incidents. Thus far, the response of the city has been to simply add written warnings to the painted bicycle lane.

One of the outstanding challenges that remains involves non-standard bicycle markings and signage. Confusion over markings and rights of way need to be addressed, particularly where they are encountered by non-Portland residents.

Separate infrastructure is proven to dramatically increase bicycle user safety, as well as increase bicycle ridership. However, gaps in these networks are potentially dangerous.

For example, some have alleged that the buffered bicycle lane on SW Broadway near Portland State University reduces visibility of both bicycles and motor vehicles, since parked cars are used to form a barrier between the flows of bicycle and motorized traffic.

Separated infrastructure that abruptly ends or merges with motor vehicle traffic creates situations where both bicycle and motor vehicle users must quickly react to one another and such situations present a high risk of collisions and other negative incidents. Often, the points where separate motor vehicle and bicycle infrastructure intersect lack sufficient warnings or signage to properly inform both types of users.

Bicycle, pedestrian and traffic-calming improvements represent a small addition to the overall cost of a street improvement project, but produce a high rate of return in benefits to physical health, the economy, the environment and traffic safety.[vi]

Within reasonable distances, most bicycle riders tend to choose routes based on bicycle infrastructure improvements, rather than travel distance, particularly if those improvements provide added safety. They are most effective at encouraging bicycle use for trips between two and five miles.

[vi] David R. Ragland and Phyllis Orrick. Transportation and Health: Policy Interventions for Safer, Healthier People and Communities; (Berkeley, California: Safe Transportation Research and Education Center, 2011), Ch. 2, 13-28.

Areas For Improvement in Health and Safety

Your committee finds that there is a positive correlation between bicycle use (as well as active transportation in general) and good health.

There is little information to support society-wide health benefits that can be traced back to bicycling alone. However the average bicycle trip does satisfy the minimum recommended daily exercise level of 30 minutes and studies have shown a correlation between bicycle commuting and overall personal health in certain populations. While there is some concern about increased exposure to air pollution while riding a bicycle – particularly if bicycles are intermixed with automobile traffic – the few studies that have looked at the overall health benefit-cost ratio have found that health benefits outweigh health costs, including risk of injury.

These benefits are obviously rendered moot if riding a bicycle is fundamentally unsafe. To that end, there is still substantial progress to be made in improving safety for bicycle riders.

Education and enforcement for drivers, bicyclists and pedestrians needs to improve and increase.

Broadly, there needs to be more emphasis on safety education for all road users. This should begin in the classroom at a young age and continue throughout primary and secondary education. Bicycle safety instructions should be incorporated into drivers'-education programs and given a more prominent role in the Oregon Drivers Manual. Finally, the State of Oregon needs to ask additional questions about bicycles in its DMV tests and consider creating a "refresher test" to be taken when Oregonians renew their licenses. As laws, technologies, and communities change, the lack of continuing education and testing for drivers imperils all users of the roadway.

The Portland Bureau of Transportation (PBOT), in conjunction with the Oregon Department of Transportation (ODOT), and other federal, state, regional, county and city agencies, should integrate bicycling into all transportation planning and implementation decisions. This means protecting vulnerable road users through better education of motorists and cyclists, smarter street and traffic pattern design, more stringent enforcement of traffic laws and, when it is logistically and economically feasible, incorporation of infrastructure improvements that serve the needs of cyclists, pedestrians and motorists.

Specific actions by PBOT to improve bicycle safety should include:

- Support a thorough bicycle education program in the schools and elsewhere to train people about infrastructure and to assess how well infrastructure is working for safety. Coordinate with Portland Public Schools and organizers of Safe Routes to School, community bicycling advocates (such as the Community Cycling Center, Bicycle Transportation Alliance, or Willamette Pedestrian Coalition), and other stakeholders to actively engage children in bicycle and pedestrian safety education.
- Work with regional and state partners to include more detailed information on bicycle laws, signage, etc., in the Oregon Drivers Manual and in DMV tests. Develop recommendations and an advocacy strategy for testing motor vehicle users on changes to Oregon laws regarding road use.
- Work with business, non-profit and community partners to create incentive programs to encourage safe and responsible road use. These can include, but are not limited to, possible auto insurance discounts for people who take some sort of voluntary online bicycle safety course, incentives for employees to ride safely, or fines and citations for not using bicycle lights or safety equipment.

Integrating bicycle use into a comprehensive transportation system for Portland will necessitate greater enforcement of traffic laws to ensure the safe interaction of all traffic modes. To that end, PBOT and the

Portland Police Bureau should make an aggressive effort to hold bicyclists accountable for their own safety, and that of others, through the expansion and enforcement of common-sense measures such as night-lighting and observance of traffic laws, including:

- Work with City Commissioners and Portland Police Department to develop a strategy for efficient and regular patrolling of areas heavily trafficked by bicycle riders (such as, but not limited to, Ladd Circle, bridge entrance and exit ramps, Portland State University campus, Old Town, Central Business District, Central Eastside Industrial District, 82nd Avenue, North Vancouver/Williams Avenues, etc.)
- City Commissioners, in conjunction with Portland Police Department and PBOT should conduct a review of current traffic laws that apply to bicycle riders and agree on a strategy for improving enforcement of those applicable laws. This can include a review of fines for citations, efforts to improve traffic safety education, and other measures.
- Better enforcement of requirements that bicycle riders display clearly visible and functioning front and rear lights at night and during severe weather.
- Improve coordination between current bicycle registration program and bicycle safety/education initiatives in schools and through bicycling advocacy/outreach organizations.

5. Current and Potential Funding Sources

Your committee examined how bicycle infrastructure is currently funded and what future funding options may include.

Funding overview

All transportation systems are heavily subsidized at all levels of government. Contrary to popular belief, user fees, including gas taxes, do not pay all – or even most – of the cost of any transportation infrastructure, from highways to rail lines. Below is a brief summary of funding mechanisms at the Federal, state and local levels.

Federal

Since 1947, the amount of money spent on highways, roads and streets has exceeded the amount raised through gasoline taxes and other so-called "user fees" by $600 billion (2005 dollars) representing a massive transfer of general government funds to highways. Currently, revenue from the gasoline tax – as well as other user fees, such as vehicle registration – pays for approximately half (53%) of the cost of road construction and maintenance,[i] with the remainder coming from a variety of other sources, including the general fund.

Historically, federal gas taxes have not been devoted exclusively to highways and were originally conceived as a way to reduce the federal deficit. Between 1956 and 1973 Congress specifically authorized gas tax revenue to construct the interstate highway network.[ii] Following that period, gas tax revenue has been used to fund a variety of projects and programs.

Federal transportation funding underwent changes in June 2012 when Congress passed Moving Ahead for Progress in the 21st Century (MAP-21). MAP-21 reauthorizes federal highway, transit, and transportation safety programs for federal fiscal years (FY) 2013 and 2014 and makes significant changes to federal transportation policy. MAP-21 supersedes the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU).

SAFETEA-LU and its predecessor, the Transportation Equity Act for the 21st Century (TEA-21) made relatively minimal changes to the basic structure set in place in 1991 by the Intermodal Surface Transportation Efficiency Act (ISTEA). MAP-21, on the other hand, wiped the slate clean, significantly restructuring the surface transportation programs and making major policy changes in many areas.

MAP-21 maintains funding for federal surface transportation programs at current levels by again transferring general fund resources in the Highway Trust Fund. Oregon Federal Highway Funding under MAP-21 for FY 2013 is $483 million, versus $484 million under SAFETEA-LU during FY 2012. This was the fourth such transfer since 2008. These transfers now total about $55 billion. However, because MAP-21 did not raise the user fees that feed the Highway Trust Fund, it did nothing to address the trust fund's long-term fiscal imbalance.

As a result, in 2015 and beyond, Highway Trust Fund revenues will be insufficient to cover current program funding levels and Congress will have to bring funding into line with available resources, either by providing additional resources, or by cutting funding by 25% or more. This creates a significant risk of cuts to the funding streams that help states and local governments preserve and improve their transportation systems.

In accordance with MAP-21, bicycle and pedestrian programs will fall under the new Transportation Alternatives Program (TAP). Nationwide, 2% of total highway funds will be set aside for the TAP, with states required to sub-allocate funding to metropolitan planning organizations (MPOs) with populations larger than 200,000 and distribute the remainder as a discretionary grant program.

Overall, federal funding for bicycle and pedestrian programs will likely decrease since TAP funding is less than the amount formerly dedicated to the three major bicycle and pedestrian programs.

In Oregon, the Recreational Trails ($1,503,186 in FY 2012) and Safe Routes to School ($1,832,689 in FY 2012) programs are eliminated under the new legislation, but TAP funding can potentially be used for both types of projects. Oregon TAP funding for FY 2013 is $9 million (roughly 2%) versus Transportation Enhancements of $11 million in FY 2012. However, states retain flexibility to spend more on these projects, as Oregon has done.

State

In 2001-2004, driver license and vehicle registration fees increased to fund the $3 billion Oregon Transportation Investment Act known as the OTIA Program. In 2009, the Oregon Jobs and Transportation Act created a stable funding base of $300 million per year for city, county and state transportation infrastructure projects through increases in vehicle license and registration fees and a timetable for increases in state fuel taxes.

Oregon faces major challenges in providing adequate and stable funding for non-roadway transportation modes: transit, freight and passenger rail, ports, aviation, bicycle paths and facilities, and pedestrian ways.

Funding these transportation modes has been perennially difficult for Oregon given constitutional restrictions that limit motor vehicle fees and taxes exclusively to roadways and the absence of a State sales tax, a primary source for transportation funding in many other states.

To address these challenges, Governor Kitzhaber convened the Non-Roadway Transportation Working Group in November 2011. They issued their report in May 2012 which showed an annual funding gap pertaining to fully-funding bicycle and pedestrian programs of $7.8 million, or 1.5% of the total funding shortfall. The working group considered a voluntary tax on bicycle operation or purchase that could be potentially used to fund non-roadway transportation improvements. They concluded that adequate authority currently exists to administer such a program and that it warranted further consideration.[iii] A similar conclusion was reached by the Oregon Legislative Fiscal Office in 2007.

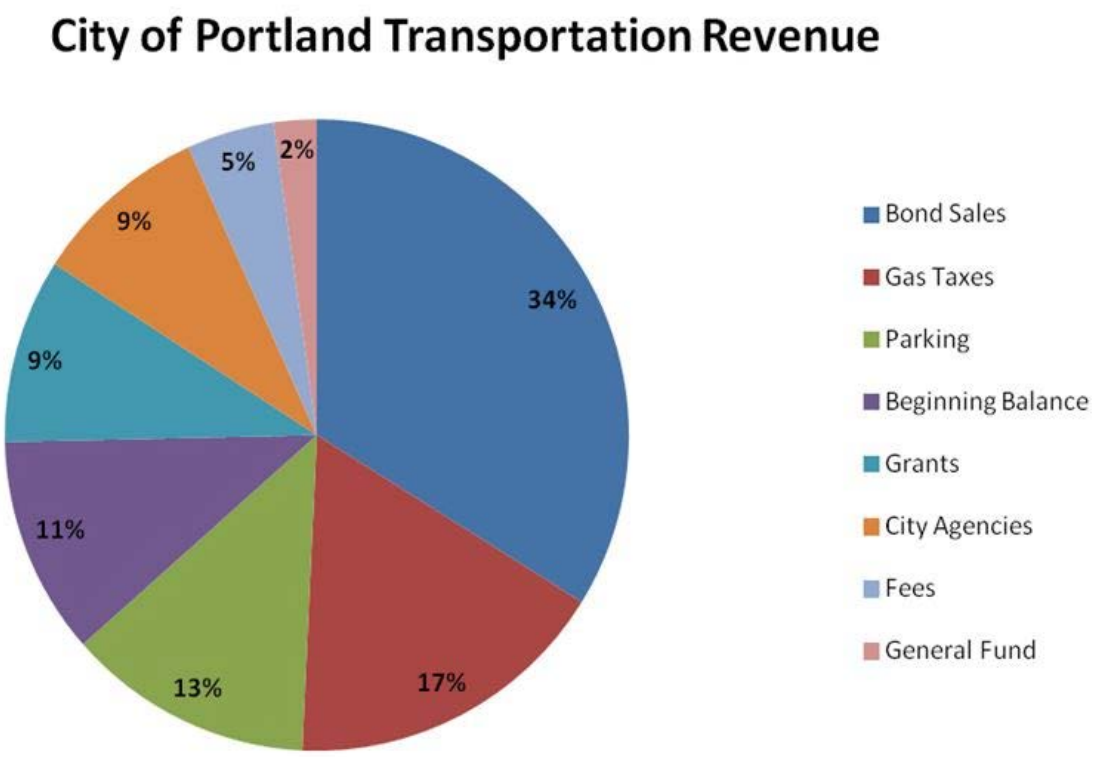
Local (Metro)

Metro is the Metropolitan Planning Organization (MPO) in the Portland area charged with deciding how to spend Regional Flexible Funds which come directly from the federal government (i.e., the dollars do not flow through the state first). The decision is made by the Joint Policy Advisory Committee on Transportation (JPACT). These funds account for about 4% of transportation spending across the region each year and because they can be invested in a wide variety of ways, are a critical source of spending for active transportation.

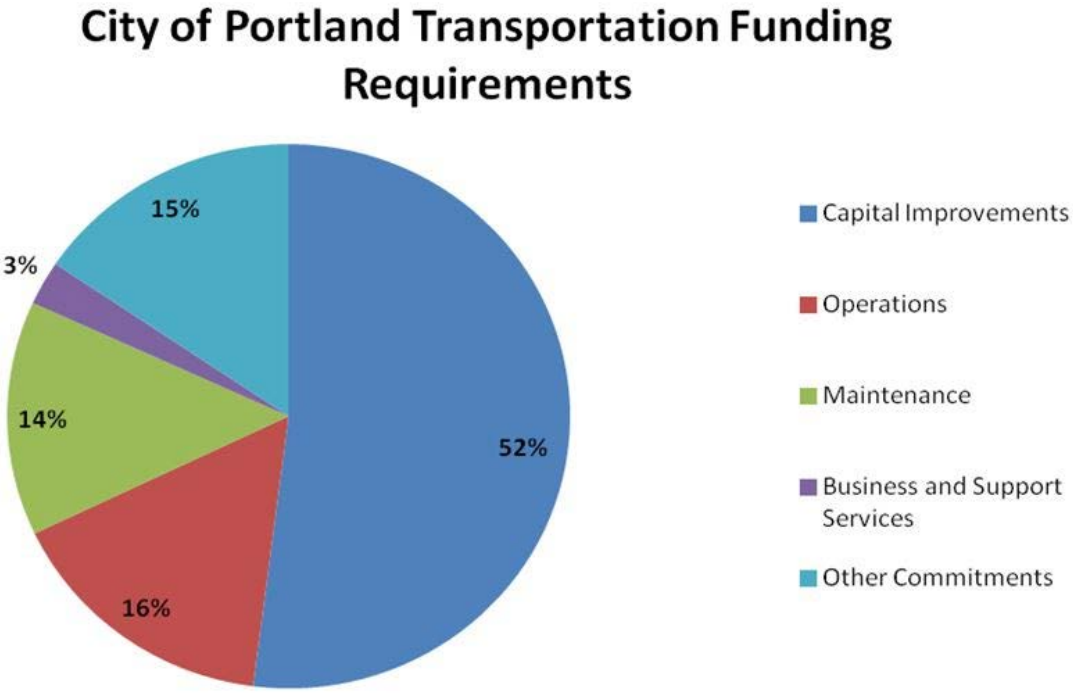
JPACT agreed in 2010 to a 75% – 25% discretionary funding split for active transportation. This split will result in about $11 million in discretionary spending in 2014-15 for active transportation. However, when the committee met in October 2012, they voted against maintaining this 75-25 split for the extra $12.6 million a year in discretionary money for 2016-18. Instead, the Regional Economic Opportunity Fund will receive this amount. In December 13, 2012, JPACT approved an equal distribution of this fund - about $8.3 million each toward freeway projects in Clackamas County and Washington County, and pedestrian improvements in East Portland. The Port of Portland will receive $8 million for a new road. It is obvious from this recent development that active transportation projects face very stiff competition for funding.

Local (Portland)

For FY 2012-13, transportation revenue for the city consists of: bond sales $115 million (34%), gas taxes $57.4 million (17%), parking meters and garages $43.3 million (13%), beginning fund balance $37.9 million (11%), grants $32.1 million (9%), city agencies $31 million (9%), fees $15.4 million (5%), and city general fund $7.6 million (2%) for a total of $339.7 million. Note that gas taxes and grants, two of the major revenue sources, are not controlled by PBOT.



For the same year, the total $339.7 million in requirements for the city consists of: capital improvements $176.7 million (51%), operations $54 million (16%), maintenance $47.3 million (14%), business and support services $8.9 million (3%), and other contractual/fund level commitments $52.8 million (16%).



The capital budget swells when high-cost projects funded with outside dollars are managed by PBOT. The capital budget has grown relatively large over the past few years due to an infusion of federal money for stimulus spending and streetcar construction and proceeds from bond sales.

The State Highway Trust Fund (state gas tax, weight/mile tax, and vehicle registration fees) is allocated: 50%

to the state, 30% to counties, which is then allocated based on vehicle registrations per county and then allocated based on lane miles (Portland gets 80%), and 20% to cities. This is then allocated based on population per city (Portland gets 80% less amount for Willamette River bridges, Multnomah County the remaining 20%). The same 80-20 city-county split applies to the county's 3-cents gas tax.

PBOT's Budget Advisory Committee for FY 2013-14 is preparing for a $4.4 million budget gap. The further cuts are necessary due to the forecasted decrease from the State Highway Trust Fund ($1.8 million), increase in retirement and health benefit costs ($1.4 million), and debt service obligations of $1 million, primarily for bonds taken out for the Sellwood Bridge and Portland Milwaukie Light Rail projects.

PBOT proposed that $1.5 million of the $4.4 million cut come from active transportation – $1 million from projects and $0.5 million from programs and staffing, affecting Sunday Parkways, Safe Routes to School, neighborhood greenways, etc.

PBOT is also currently exploring multiple alternative funding sources, although nothing has been finalized as of this writing.

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[i] Phineas Baxandall, Benjamin David and Tony Dutzik. Do Roads Pay for Themselves? Setting the Record Straight on Transportation Funding. (Santa Barbara, California: Frontier Group and U.S. PIRG, 2011), 2.

[ii] Ibid, 2.

[iii] Non-Roadway Transportation Working Group; Oregon Non-Roadway Transportation Funding Options: Report to the Governor; Economic & Planning Systems, Inc. 2012

Potential Funding Options for Bicycling in Portland

While your committee concluded that state and federal money will continue to represent the best means of funding bicycle transportation projects and policies, it also explored the possibility of self-financing alternatives.

User Fees

User fees for bicycles typically refer to some type of registration or licensing fee. Because registration and licensing relates to several other topics as well (such as safety and law enforcement) it has been moved to a separate section of your committee's report.

Taxes

Several cities, such as Colorado Springs, have successfully implemented a bicycle excise tax to fund bicycle infrastructure and programs. The tax, charged at the point of sale for new bicycles and bicycle parts, can either be a flat fee or a percentage of the total sale.

Colorado Springs enacted its bicycle excise tax in 1988,[iv] where $4 from the sale of every new bike is used to build bike lanes, trails, and improve bikeways. The first priority of this revenue is the construction of off-street bicycle paths designated by the City Bicycle Plan. The $85,000 generated annually (about $2 million since 1988) has been matched with other funds such as federal enhancement and Trails, Open Space and Parks (TOPS) funds. The City says the excise tax has been an excellent source of revenue for bicycle transportation needs, enabling the city to build a significant number of bikeway projects each year. The program has received support from the community, bicyclists and non-bicyclists alike.

Honolulu also has a tax component to its bicycle registration fee system, requiring payment of a $15 fee on new bicycles with 20-inch or larger wheels. These funds go to support bicycle infrastructure improvement projects. A $25 sales fee on bicycles worth more than $500 has also been proposed in Washington State.

Notably, this financing system also effectively counters arguments from detractors that bicyclists are "getting a free ride" and is viewed by some bicycling advocates as a way to increase the credibility of bicycles as a legitimate transportation option. Several experts interviewed by your committee, including Roger Geller, Earl Blumenauer and several sources at Metro were receptive to the idea.

Both Metro and the Bicycle Transportation Alliance supported a 2008 recommendation by then Governor Ted Kulongoski's Transportation Vision Committee to create a "point-of-sale excise tax on the purchase of adult bicycles." The proposed fee, in the range of $5-$20 per bike, was to be used to enhance bicycle transportation, including Safe Routes to Schools. The BTA estimated that a bike excise tax might raise as much as $2 million annually for the state, leaving $1.5 million after administrative costs to fund the Safe Routes to Schools program, allowing it to expand its reach from 5,000 kids to 55,000 kids per year. This recommendation was never implemented.

In November 2011, Governor Kitzhaber convened the Oregon Non-Roadway Transportation Funding Working Group to assess options for dedicated funding for non-roadway transportation, which includes transit, freight and passenger rail, ports, aviation, bicycle paths and facilities, and pedestrian facilities. The working group identified a funding gap for bicycle/pedestrian programs in Oregon of $7.8 million.

The working group determined that a targeted sales tax, which would levy a sales tax on goods and services linked to transportation, would be realistic sources of revenue for the state.[v] The targeted sales tax was not one of the final recommendations by the working group, given concerns that costs to administer the program would be greater than revenue generated, and that the tax itself would be regressive. A user fee for bicycles – which would include either a tax on bicycle purchases (an excise tax) or on bike bicycle operation (bicycle licensing) – was recommended for further consideration, with the group preferring the excise tax.

Considerations Regarding Excise Tax

Pros	Cons

• May help alter perception that bicyclists don't pay their share of infrastructure costs • May enhance perception of bicycling as a legitimate form of transportation • Provides some dedicated funding for bicycle infrastructure and education and safety programs • Potential for obtaining matching federal funds	• Potential deterrent to increasing bicycle use • Potentially decreases government funding by creating perception that bicycle infrastructure can/should be self financed • Potentially discriminatory • Administrative costs to small bicycle businesses and retail outlets • Singles out bicycle industry for a sales tax in a state with no sales tax

The transportation funding outlook

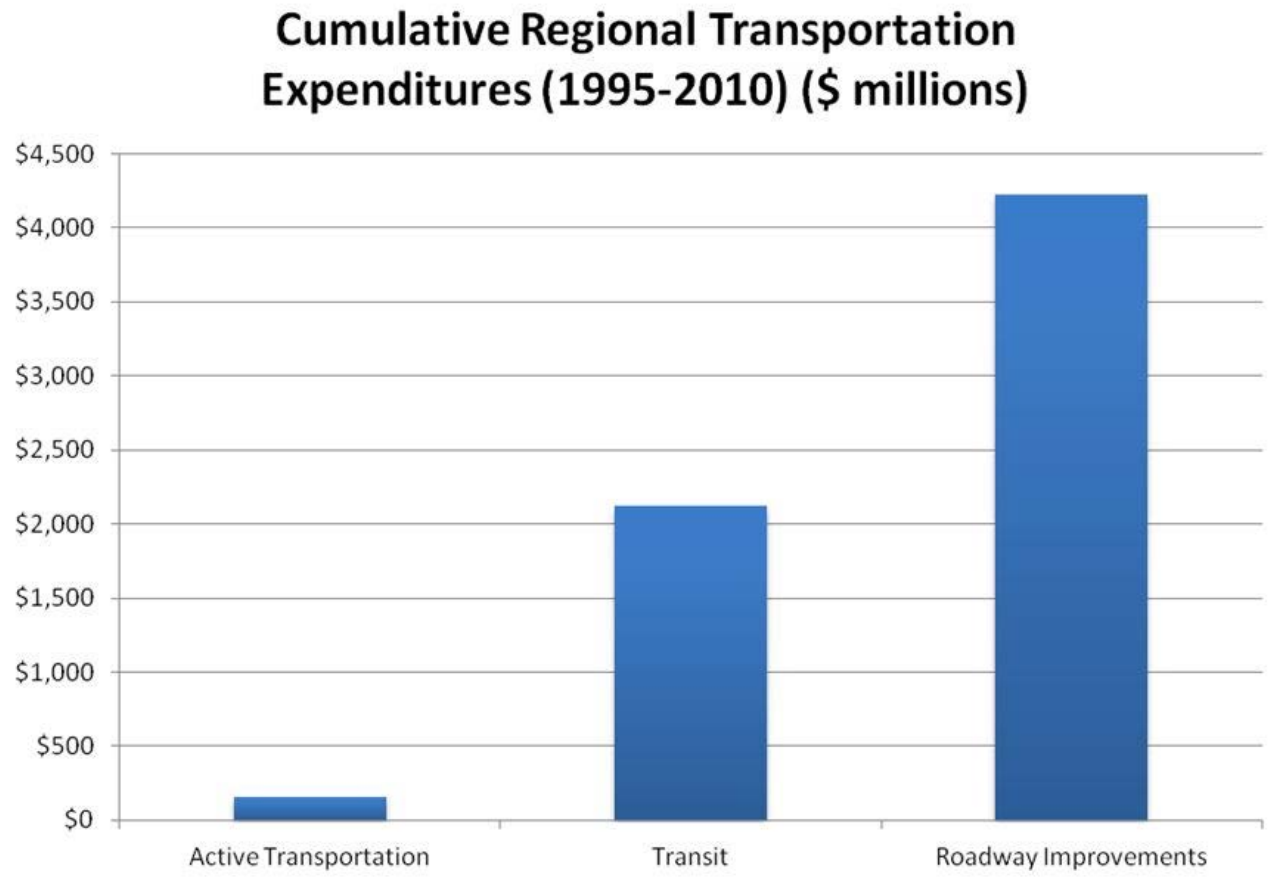
In summary, the transportation funding picture at all levels of government is inadequate and growing more so by the year.

Even though that is likely to remain the case for the foreseeable future, bicycle investments represent a cost effective way to retrofit current roads to increase their carrying capacity. The relatively low cost of bicycle improvements relative to other infrastructure projects, as well as the minimal wear and tear on roads incurred by bicycle riders, leads your committee to conclude that bicycling is a sound investment for Portland's transportation planners.

It is best to think of transportation infrastructure, whether roads, rails, runways or bicycle lanes, as a public good and part of a multi-modal transportation system, rather than singular, self-contained entities. Focusing only on the individual components of a transportation system provides an incomplete picture and discounts the symbiotic benefits of other transportation modes.

Between 1995 and 2010, $6.5 billion from federal and state sources was invested in transportation in the Portland-Metro area. Bicycle infrastructure is a tiny piece of the pie, but it is the mode of transportation with the highest potential return on investment, consistent with the 2030 Bicycle Plan's Strategic Implementation Plan criteria adopted by PBOT.[vi]

Over this period, $4.2 billion of this sum was spent on roadway improvements, corresponding with an overall decrease of 72 million trips by car; $2.1 billion was spent on transit, which corresponded with an increase of 20 million transit trips; and finally, $153 million[vii] from these sources was spent on active transportation, which corresponded with an increase of 83 million trips by both bicycling and walking.



In short, investments in bicycling provide a higher return on taxpayer dollars versus other transportation modes.

Still, bicycle funding has emerged as a point of controversy for some residents concerned with the City of Portland's allocation of resources. This debate revolves around (1) how to prioritize limited funding and (2) public right of way.

Presented as a dollar figure without context, the non-binding $630 million outlined for bicycle-related infrastructure and policy (per the 2030 Bicycle Master Plan) is viewed negatively or skeptically by a significant number of Portland residents. It is important to note however, that these funds were never allocated, and the figure quoted was intended to be an estimate of the cost of completing the projects in the 2030 Bike Plan, rather than an actual project budget. For instance, the total replacement cost of Portland's current 300 miles of bikeways is estimated to be $60 million – the approximate cost of 1 mile of a four-lane freeway.[viii]

In addition to the above funding research by your committee, several witnesses testified that both the city's and the state's transportation funding systems are not adequate to maintain current assets. Faced with the lack of sufficient road maintenance funding, Portland has opted to allocate resources toward improving safety and reducing vehicle speeds – both of which reduce overall wear on roadways, reducing long-term maintenance costs.

To accommodate the current funding reality, Portland should pursue a three-pronged strategy with regard to bicycle investments:

The City of Portland should raise revenues for (1) bicycle safety programs and (2) additional

automated bicycle counters (such as the one currently installed on the Hawthorne Bridge) by working with the State of Oregon to enact a statewide 4% excise tax levied on new bicycles at the point of sale.

According to Rob Sadowsky of the Bicycle Transportation Alliance, the bike industry in Portland had total revenues in 2009 of approximately $100 million dollars – including manufacturing, tourism, and bike and bike accessory sales. Alta Planning estimated bike industry revenues at nearly $90 million in 2008, with retail, rental and repair accounting for $52.3 million.[ix] New bike sales represent 41% of total sales with the rest comprising service and repair, accessories, rentals and miscellaneous – in other words, new bike sales account for approximately $21 million in annual bicycle industry revenue.

A 4% excise tax on $21 million would raise $840,000 annually. Obviously, this revenue stream will not pay for infrastructure as it is too small, but it can still make a contribution to safe bicycle usage. Enacting the tax at the state level would guard against excise tax evasion by making purchases outside the Portland City limits. It should also be noted that the 4% excise tax is still half of Washington's statewide sales tax.

This committee recommends an excise tax be enacted to be used as a dedicated stream of revenue for the creation and distribution of safety programs and materials, as well as the purchase and installation of automated bicycle counters to gather more accurate ridership data.

As Portland continues to pursue transportation funding from Federal, state and local sources, it should ensure that proposed projects are aligned with the goals of a multi-modal transportation system that acknowledges the positive role bicycling plays in Portland. Portland should continue to pursue strategic funding for bicycle infrastructure from outside sources, so long as it promotes the overall safety of bicycling, as well as the criteria laid out in PBOT's Bicycle Strategic Implementation Plan. Projects should provide a measurable improvement on transportation safety and access and fixing unsafe gaps and conflict points in the existing bicycle network should be made a priority.

Finally, if Portland develops either a transportation services general obligation bond, or a Street Maintenance Fee, it should include a specific allocation for bicycle projects commensurate with the city's stated goals for bicycle ridership, to be determined at a later date.

[iv] "Colorado Springs Bike Tax." Trails and Open Space Coalition. Accessed January 2, 2013. http://www.trailsandopenspaces.org/biketax.html.

[v] Non-Roadway Transportation Working Group; Oregon Non-Roadway Transportation Funding Options: Report to the Governor; Economic & Planning Systems, Inc. 2012

[vi] Portland Bicycle Plan for 2030. (Portland, Oregon: City of Portland Bureau of Transportation, 2011), 118.

[vii] Roger Geller, Bicycle Coordinator, Portland Bureau of Transportation, white paper. "What Does the Oregon Household Activity Survey Tell Us About the Path Ahead for Active Transportation in the City of Portland?" January 2013.

[viii] Roger Geller, Bicycle Coordinator, Portland Bureau of Transportation, white paper. "Build it and they

will come: Portland Oregon's experience with modest investments in bicycle transportation" April 2011.

[ix] "The Value of the Bicycle-Related Industry in Portland". (Portland, Oregon: Alta Planning + Design, September, 2008).

6. Licensing and Registration for Bicycles or Riders

Your committee identified 61 bicycle registration or licensure programs across the country that have been implemented by either a local government or a university. Two states, Hawaii and Utah, have registration programs on the books. The majority of these programs (72%) do not include user fees, and of those that do, the most expensive is a $15 registration fee (see Appendix VI).

Your committee heard testimony from several sources that argued in favor of a minimal registration, licensing, and/or fee system for political reasons. Implementing a fee structure comparable to Oregon's gas tax or vehicle registration fee, they argue, would neutralize criticisms that "bicycles don't pay their fair share," and help to legitimize bicycle use among those politically opposed to bicycle improvements.

Many other witnesses, however, dismissed this idea as punitive, ineffective, harmful to expanding bicycle ridership, and potentially discriminatory.

Arguments in Favor of Licensing or Registration

A perceived potential benefit of registering and licensing bicycles and/or bicycle riders is the allocation of dedicated funding for bicycle-related infrastructure and programs.

The City and County of Honolulu, Hawaii, for instance, requires registration and a $5 fee when bicycle ownership changes. The owner is given a decal to attach to the bicycle's frame. Fees go to support a special fund that can be used only for bicycle-related city projects and programs. The funds have generally been used to paint bike lanes, construct bike paths, and to fund BikeEd Hawaii, a bicycle safety program jointly sponsored by the City and County of Honolulu and the Hawaii Bicycling League.[i]

There are also potential political benefits to licensing or registration. Such programs potentially mitigate criticism that bicyclists are enjoying a "free ride" with the presence of modest user fees legitimizing bicycling as a viable mode of transportation. Since user fees do not fully fund any mode of transportation, the actual amount of revenue generated by such a program is less important than ending the perception of bicycle riders as a tax-exempt special interest.

Those same licensing and registration proponents also argue that these programs offer benefits to safety and law enforcement. Mandatory licensing of bicycle riders and/or registration of bicycles would enable a more effective communication of safe bicycling practices and rules of the road to riders, as well as providing law enforcement with additional tools to both identify bicycle riders not obeying rules of the road and to return

stolen bicycles to their rightful owners.

Arguments Against Licensing or Registration

Of the nation's largest cities, very few have a mandatory bicycle licensing fee. Those that do have recently begun repealing them – often at the request of local police and community advocates. Such cities include Washington, Detroit, Los Angeles, San Jose, and San Diego. In Oregon, the City of Medford recently repealed its bicycle license at the request of the Police Chief, who said it was unenforceable. Other cities where a fee has been proposed, including New York City, have seen the proposals rejected by local governments and cycling advocates. Bicycle licensing legislation was introduced in Oregon in 1999, 2003, 2009, and 2011.

In Davis, California, bicycle licenses cost $8 for three years and support bicycle programs and part of the city bicycle coordinator's salary, but are insufficient to construct new infrastructure.

Similarly, Madison, Wisconsin has a mandatory bicycle registration program in which registrations cost $10 for four years (reduced to $8 for each bike after two at the same address). The primary purpose in Madison is theft deterrence and recovery, with the infrastructure and maintenance needs of the bicycle program far outpacing revenue generated by fees.

In 2006, the City of Toronto decided against reinstating a mandatory bicycle license law in part because it found that it would require the creation of several dozen new full-time positions to process an estimated 200,000 applications per year for the online proposal. This was in addition to increased enforcement costs. City staff estimated 2,000,000 bikes were present in the City of Toronto, and assumed a 10% compliance rate in the first year. The City Manager urged rejection of the proposal based on these projections.[ii]

A similar study in Ottawa in July 2011 urged rejection of a bicycle license scheme for the same reason, estimating an overall cost of $100,000 annually with far lower revenue generation. City staff also estimated that eight to ten law enforcement officers would need to be dedicated to enforcement of the program, which would increase costs beyond the $100,000 referenced above.[iii]

PBOT has estimated that 70% of Portland's 600,000 residents own a bicycle and more than half own more than one.[iv] Conservatively, that would mean at least 800,000 bicycles are present in the city.

If the City of Portland were to incorporate a mandatory fee for registering all those bicycles that is comparable to fees in other cities – for example, $10 for three years – it could theoretically raise $2.7 million per year if there was 100% compliance. However, compliance is likely to be far lower, putting those revenues in doubt.

Given that your committee has been told by Portland Police officers that the Bureau isn't interested in enforcing a mandatory licensing program, it is unlikely that such a program would be very successful at raising sufficient revenues for building new infrastructure.

Additionally, many bicycle advocates believe user fees implemented for this purpose would deter people from biking. The Bicycle Transportation Alliance's official position on user fees is highly skeptical of their value, saying 'The Bicycle Transportation Alliance does support road-funding reform based on 'users pay'

principles. While bicyclists currently pay more than their share of road costs, the BTA is willing to consider a reasonable user pay tax on bicycling in conjunction with comprehensive reform of road funding."

Considerations regarding Licensing and/or Registration

Pros	Cons
• May help alter perception that bicyclists don't pay their share of infrastructure costs • May enhance perception of bicycling as a legitimate form of transportation • May decrease thefts and aid recovery of stolen bikes • Provides some dedicated funding for bicycle infrastructure, education and safety programs • Accountability	• Potential deterrent to increasing bicycle use • May be viewed as punitive • Administrative costs • Enforcement challenges and costs • Few examples of successful implementation of licensing in other locales • Potentially decreases government funding by creating perception that bicycle infrastructure can/should be self-financed • Potentially discriminatory

Your Committee's Assessment of a Potential Licensing or Registration System

While there appear to be political and safety benefits associated with the licensing and/or registration of bicycles, there does not appear to be a revenue benefit.

Bicycle registration does not ensure that stolen bikes will be recovered, but registration has seen modest success in some places. In Eugene, for instance, where registration is free and mandatory on the University of Oregon campus and optional elsewhere, local police report that 14% of stolen bikes that are registered are recovered, versus only 5% of non-registered bikes.[v] This is still a low recovery number overall, but it is a significant difference.

In a report last April, the Portland Police Bureau stated that a total of 2,214 bicycle thefts were reported in 2011, clustered primarily in downtown, the Lloyd District, Interstate Ave., University of Portland, and Foster Road areas. The average value of a stolen bicycle was around $500. In its analysis, PPB recommended that bicyclists use better locks (particularly U-locks) and consider double-locking, and urge that bikes never be left in places where they are not clearly visible from the street or nearby businesses or residences. They also strongly recommended that riders note their bikes' serial numbers, since only 28% of reporting parties knew the serial number.[vi]

Compliance with a registration program would likely encourage the use of more anti-theft measures by bicycle riders (better locks, locking in safer locations, etc.). To that end, the Portland Police Bureau already has a simple online form it invites cyclists to fill out and keep in a safe place.

Better safety education in schools for all bicycle riders focused on safety and responsible bicycle usage –

modeled on the Department of Motor Vehicles driver education – has high support. Community-focused bicycle programs, such as "Sunday Parkways" or "Safe Routes to School," also have high support. Since these programs require a substantially lower budget than infrastructure improvements, education and outreach efforts could conceivably be funded through minimal user fees in a manner similar to BikeEd Hawaii.

An expansion of the Portland Police Bureau's voluntary bicycle registration program, would likely be a more cost effective means of meeting some safety and enforcement goals, but is not likely to have a positive revenue contribution until a point in the future when bicycling achieves a critical mass.

However, the mandatory distribution of bicycle registration forms and associated educational materials about bicycle registration at the point of sale for new and used bicycles would be a useful tool for law enforcement in the curbing of theft and the tracking of stolen bicycles.

While mandatory licensing of bicycle riders is not feasible in the near term, there are positive gains to safety, theft prevention and asset recovery, and education that can be had from an expanded bicycle registration program. The expansion of the current voluntary registration program will help deter, track and return stolen bicycles.

The Portland Police Bureau should be encouraged to work with the national bicycle registry to enable the return of stolen bicycles both inside and outside the city of Portland. Online communication should be encouraged between the bureau and registry if feasible. This system could also be used by pawn shops and other resellers of used bicycles as a way to check for stolen merchandise. Current bicycle owners would be encouraged to register their bikes, but would not be required to do so.

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[i] "Bicycle Registration." City and County of Honolulu Department of Transportation Services. Accessed December 22, 2012. http://www1.honolulu.gov/dts/bikereg.htm

[ii] Shirley Hoy, Toronto City Manager, memo to Toronto Planning and Transportation Committee. "Staff Report: Implementation of an On-Line Bicycle Licensing System", May 10, 2006.

[iii] City of Ottawa, Council Member Inquiry Form. "Bicycle Licensing", July 13, 2011.

[iv] Regulatory Improvement Code Package 5. (Portland, Oregon: City of Portland Bureau of Planning and Sustainability, April 2010), 156.

[v] "Responses to the Problem of Bicycle Theft." Center for Problem-Oriented Policing. Accessed January 5, 2013. http://www.popcenter.org/problems/bicycle_theft/3

[vi] "2011 Portland Bike Thefts." Portland Police Bureau Crime Analysis Unit. Last updated April 2012. http://bikeportland.org/wp-content/uploads/2012/04/Bike_Thefts_Written_A...

Response to the Minority Report

Your committee heavily debated the topic of mandatory licensing and registration for bicycles and/or bicycle riders.

Numerous witnesses told your committee that licensing riders and/or bicycles would be highly problematic if not utterly unworkable on a wide variety of grounds. A licensing program would be more costly to institute and maintain than any income it produces, require an unrealistic level of attention from police who devote less time than they would like to enforcing existing laws, and more than likely result in fewer bicyclists especially in underserved neighborhoods where even a nominal fee is likely to prove prohibitive. Instead of promoting safety by having police focus on bicyclists who violate traffic laws as your committee proposes in this report, it would likely divert enforcement efforts to checking law-abiding bicyclists. Restricting licensure to a subset of riders such as regular commuters would present even more logistical challenges and discriminate against low-wage bicycling commuters. At least in the near term, the costs of licensure substantially outweigh any benefits.

However, these conclusions were not shared by all members of your committee. As a result, two members of your committee have elected to produce a Minority Report recommending (1) the mandatory licensing of bicycle commuters over the age of 21; (2) the creation of a mandatory, web-based safety education course for all bicycle riders; (3) an annual license fee of $30, which would fund the program and bicycle safety education, enforcement and infrastructure; and (4) a one-time free registration of bicycle serial numbers as part of the licensure program.

Your committee strongly disagrees with these recommendations for the following reasons:

1. The Minority Report specifically singles out bicycle commuters as the intended targets of licensure and enforcement; however your committee heard testimony from Portland Police Bureau (PPB), Portland State University, and PBOT that emphasized the difficulty of differentiating between bicycle commuters, students, recreational riders, or those running neighborhood errands. The committee members drafting the Minority Report have also endorsed a recommendation for the purchase and installation of additional automated bicycle counters throughout the city, which is in itself an admission that we do not yet have sufficient means of identifying the types of bicycle riders or their intended destinations. As currently written, the Minority Report would single out bicycle commuters traveling to downtown, potentially creating uneven enforcement based on location or type of employment. This also assumes that the Portland Police Bureau has the manpower, resources, or will to stop individual cyclists for enforcement actions, which they assured your committee, they do not. The PPB representatives that testified before your committee rejected unequivocally the idea of licensing bicyclists. PPB does not perceive bicycle traffic violations to be a road hazard on the same level as motor vehicle traffic violations.

2. The Minority Report specifically models the safety education course (as well as the need for such a system) on current All-Terrain Vehicle (ATV) safety and licensing courses. However, your committee believes this represents a false-equivalency between bicycles and motor vehicles. ATVs and other motor vehicles, travel at higher speeds, are heavier, and necessitate greater safety education, precautions and regulations than human-powered vehicles traveling between 10-20 miles per hour. While your committee recommends greater safety education for bicycle riders, it believes the safety risks posed by bicycles are not sufficient to warrant the level of regulation and enforcement required for motor vehicles.

3. The Minority Report proposes a $30 annual fee for bicycle licenses, which your committee believes is

needlessly punitive. Oregon drivers pay a one-time $77 vehicle title fee and a $86 vehicle registration every two years. In addition, the overwhelming majority of bicycle riders (according to testimony from both PPB and PBOT) either have a driver's license or an equivalent state-issued ID card. Your committee believes $60 worth of fees every two years approximate the cost of a separate motor vehicle registration, when the two modes are not equivalent. Your committee believes the fees associated with a licensure system would be prohibitively high to deter people from bicycling, or alternatively would simply create large numbers of "illegal" cyclists. Your committee also believes these fees would disproportionately harm low-income residents and would contribute to the perception that bicycle commuting is reserved for upper-middle-class professionals. Additionally, the Minority Report does not consider the costs associated with raising this revenue – either initially to develop the safety training program, nor the ongoing administration of the licensing system and enforcement of it. Such costs could significantly reduce any revenue that licensing will provide.

The recommendations of the Minority Report are inconsistent with the other recommendations outlined in this report. Your committee (including the members drafting the Minority Report) have recommended that bicycling be integrated into a multi-modal transportation network, and yet the Minority Report singles out bicycle use for separate fees, education and regulation that are not present for transit, pedestrians, users of car-sharing programs, or other transportation modes. All members of your committee (including those drafting the Minority Report) recommend the creation of an excise tax on bicycle sales to begin to address funding issues relating to bicycle investments. Your committee believes the adoption of licensing fees in addition to that tax would be both redundant and overly punitive. Furthermore, your committee has recommended separate, well-designed bicycle infrastructure as the best solution to solving unsafe interactions between bicycles and motor vehicles.

Concluding Remarks

Bicycle transportation in Portland is no longer purely the domain of the most dedicated advocates. Bicycles represent an affordable, efficient means of transportation for a large – and growing – segment of Portland's population. With measurable benefits to health, pedestrian safety, and neighborhood-level economic development, expanding bicycle ridership is an important component of successfully accomplishing Portland's development goals over the coming decades.

While it is clear that bicycling is here to stay and likely to grow as a transportation mode in the future, there are several significant challenges relating to safety, integration and funding that must be addressed if momentum in this area is to be maintained.

Specifically, Portland should work to seamlessly integrate bicycling into the city's multi-modal transportation portfolio. This means integrating or significantly improving communication between citizen advisory committees, planning teams and departments within PBOT; improving stakeholder identification when planning new projects to include representatives from the business community, neighborhood associations, freight interests, and under-served or under-represented minority populations; placing greater emphasis on multi-modal planning of projects to accommodate all transportation options; and refrain from engaging in opportunistic bike lane striping, or other similar types of projects that do not include adequate community input or contribute to a disjointed, unsafe transportation network.

Additionally, the City of Portland faces education, outreach and communications challenges with regard to bicycling. While also improving the quality and utility of transportation projects, the previously mentioned stakeholder identification and communications recommendations will have the added benefit of diffusing much of the criticism of bicycling as a viable transportation option among some Portland residents. By seeking the input and endorsement of stakeholders outside of traditional bicycle advocacy and planning circles, many of the pervasive misconceptions about persons on bicycles will likely dissipate.

Separately, communication and education of all road users should be improved for safety reasons, particularly with regard to non-standard road signs and markings. By expanding early-childhood bicycle education programs and by working with ODOT to include bicycle safety best-practices in driver education and testing, road safety will improve for all users and altercations between persons in motor vehicles and persons riding bicycles will be minimized.

It has also become apparent that transportation funding – both in Portland and at the regional and state level – is in a state of flux. While outside sources of transportation funding will likely continue to represent the largest available funding sources for the foreseeable future, rigorous competition and shifting stipulations on the use of these funds have prompted your committee to recommend that Portland begin to lay the groundwork for local funding options for bicycle transportation.

Specifically, your committee recommends the working with the State of Oregon to levy a modest excise tax to support bicycle safety education materials, programs and staff, as well as the installation of more automated bicycle counters for reliable ridership data collection; and an emphasis on maximizing the safety and access benefits of limited outside transportation funds available.

In closing, your committee finds that bicycling has an essential role to play in Portland's balanced transportation portfolio, and, while challenges persist in further integrating this mode into the fabric of the city, successfully doing so will lead to a more vibrant, livable and productive Portland.

Conclusions

1. Bicycling is an emerging and promising tool for accomplishing Portland's long-term development and livability goals.
2. There is little organized opposition to increased bicycle ridership and expanded bicycle infrastructure. What opposition exists tends to be case-specific, revolving around specific safety concerns and frustration with the public planning process.
3. The majority of current bicycle commuters are middle- and upper-class white males.
4. Perceptions that bicycling is unsafe are a commonly-cited barrier to ridership for women, minorities and senior citizens.
5. Bicycle routes that are physically separated from automobile traffic (cycletracks, paths, bicycle boulevards) produce higher levels of ridership than painted lanes or road shoulders.
6. Street and road improvements to accommodate bicycles also improve road safety for pedestrians and motor vehicles, including improved signage, safer travel speeds, and clearly defined intersections and rights of way.
7. Bicycle riders are economically beneficial to many local businesses, especially neighborhood shops and small businesses, and can be just as robust consumers as individuals in automobiles and users of public

transit.

8. Funding bicycle infrastructure and programs is significantly less expensive than other modes of transportation, such as automobile roadways or public transit, and provides a high return on investment of taxpayer dollars.
9. Transportation funding for bicycles is not commensurate with Portland's adopted goals and policies. Based on the growth in annual ridership numbers, cycling is actually underfunded in Portland.
10. The mandatory licensing of bicyclists (as recommended in the Minority Report) is currently unenforceable, unnecessary, and the fees associated with such a program, overly punitive.

Recommendations

Based on the research and discussion highlighted above, your committee makes the following recommendations:

1. PBOT, Metro and relevant City Commissioners should establish specific criteria to incorporate bicycling into an overall strategic plan for transportation, and identify projects and priorities that promote bicycle use as a viable transportation alternative. PBOT should also add safety criteria to its Strategic Implementation Plan.

2. Separate routes (such as cycletracks or paths) and low-speed routes (such as bicycle boulevards) should be prioritized over alternatives, even if it means eliminating bicycle lanes on high-speed or high-capacity streets. PBOT should perform a city-wide audit of traffic corridors and intersections that are difficult and/or unsafe for bicycle riders and pedestrians.

3. PBOT should prioritize bicycle routes between neighborhoods over routes to downtown and the central city. Broadly, bicycle infrastructure investments should move from opportunistic to strategic and emphasize connectivity and safety.

4. PBOT should purchase and install additional automated bicycle counters (such as the one currently installed on the Hawthorne Bridge) to gather accurate bicycle ridership data.

5. As bicycling is further integrated into Portland's comprehensive transportation system, PPB, PBOT, Portland Public Schools, and other relevant partners, improve education and enforcement regarding traffic laws.

6. PBOT, Metro, and relevant community organizations should work with businesses, non-profits and community partners to create incentive programs to encourage safe and responsible road use.

7. City Commissioners, in conjunction with Portland Police Department and PBOT, should conduct a review of current traffic laws that apply to bicycle riders and agree on a strategy for improving enforcement of those applicable laws, as well as for improving bicycle rider visibility.

8. Local bicycle retail businesses should distribute bicycle registration forms and associated educational materials about bicycle registration at the point of sale for new and used bicycles.

9. The City of Portland should implement a three-part funding strategy that includes the following:
    a. Working with the State of Oregon to enact a 4% excise tax on the sale of new bicycles at the state level, with revenue going to fund school safety programs, the installation of automated bicycle counters and the creation and distribution of safety programs and materials.
    b. Portland should continue to pursue strategic funding for bicycle infrastructure from outside sources, so long as it promotes the overall safety of bicycling, as well as the criteria laid out in PBOT's Bicycle Strategic Implementation Plan.
    c. If Portland develops either a transportation services general obligation bond, or a Street Maintenance Fee, it should include a specific allocation for bicycle projects commensurate with the city's stated goals for bicycle ridership.

10. PBOT should revise the Bicycle Advisory Committee selection criteria to reflect a greater diversity of economic and social backgrounds, professions and transportation preferences.

11. TriMet should improve integration of bicycle parking, storage, and other infrastructure into existing transit vehicles and facilities.

Majority Signatures

Craig Beebe

Rob Brostoff

Pat Flynn

Pam Kane

Andrew Lee

Nancy Thomas

Carl von Rohr

Traci Wall

Henry Leineweber, lead writer

Daniel Keppler, chair

Minority Report

Court opinions often include dissents or concurrences to clarify specific points. This minority report resembles a concurrence since we strongly support the recommendations of the committee. The amount of hard work and careful thought that went into the report speaks for itself. The point of this minority report is that the

committee did not go far enough.

At the heart of the problem is the City of Portland's 2010 Bicycle Plan. It proposes making bicycles a mainstream mode of transportation. Its goals are quite radical – 25% of all trips under three miles by bicycle – but it gives little guidance on how this goal is to be reached.[1] As is clear from the majority report, this is unlikely to occur if our planning for bicycles continues to be underfunded, haphazard, and poorly communicated to bicyclists and the community at large.

Adding to this report a requirement of licensing and registration of bicyclists and their bicycles will help the City of Portland to reach this goal in a manner that ensures the safety of everyone on the road.

Let's start with safety:

A central issue in committee discussions has been safety. Safety issues include bicycle to car collisions, bicycle to bicycle collisions, and bicycle to pedestrian collisions. One key to addressing safety concerns is additional education and enforcement.

The statistical evidence suggests that the lynchpin of bicycle commuting in Portland is the Hawthorne Bridge. On an average summer weekday we have measured 4,000 riders going west in the morning and returning east in the late afternoon. This represents approximately 40% of the bicycle commuters in the downtown area and slightly less than 25% of bicycle commuters for the city.[2]

The west side terminus of this route is a busy intersection for buses, cars, pedestrians, and bicycles. In fact, all four modes of transportation meet at the northwest corner of First Avenue and Main. Bicyclists must cross from the right side of the road, across the path of buses and cars, and then proceed on a lane between the right lane and the middle lane of Main. The potential for collisions between bicycles and motorized traffic is quite high.

This picture from Google Maps, amply displays the problem. Two cars are simultaneously in the pedestrian crossing. The westbound vehicle is in the bicycle lane. The bicyclist may be taking the bicycle lane across the intersection, crossing over a lane of traffic used for cars turning right onto Second Avenue and a destination for buses to discharge passengers. This picture was apparently taken in the afternoon with the sun overhead so that few commuters were present.

Many of these concerns can be addressed with better planning and better infrastructure – if we have the

funding – but most require education and enforcement. The demographic information places most commuters as males between 25 and 44.[3] [4] Our only existing form of education for this demographic group is the Oregon Driver's Manual which assumes that bicyclists are also drivers and that they have taken the driving test in recent years when some information on bicycles has been added to the manual.

Education as a key component of safety is mentioned in the committee report, but little is said on how to bring education on bicycle safety to current bicycle riders. The critical point is that the ATV model presented below brings education on safety directly to current ATV drivers.[5]

The ATV Model

A useful model can be found on the web at http://www.rideatvoregon.org/. In Oregon, all-terrain vehicles require a license -- $10.00 – and a short web based safety training program.[6] The requirements are not onerous and seemingly have not discouraged riders of all-terrain vehicles from pursuing their avocation.

As discussed in the body of this report, licensing and registration schemes are currently underway in many cities, two states, and Japan. They are the exception to the rule, but hardly uncommon. A survey of licensing and registration programs currently in place is contained in Appendix VI to the Majority Report.

Hawaii and Utah have state level registration programs. Registration programs are common at many universities and often extend to the surrounding community. Larger cities, including Honolulu, Salt Lake, Madison, and Milwaukee also have mandatory licensing programs.

The structure of licensing and registration programs across the U.S. are highly idiosyncratic. Many programs are voluntary. The mandatory programs appear primarily focused on crime deterrence with safety a much lower priority.

There are more than enough programs that establish that they are feasible. Interestingly, the fees charged in most programs are less than $10.00 per bicycle indicating that cost effectiveness is not a significant issue either.

This is an area where Portland might lead, rather than follow, other major cities.

The Difference between Licensing and Registration

The two terms – licensing and registration – are not synonymous. Colloquially, drivers are licensed and cars are registered. In the model described above for all-terrain vehicles, the drivers are licensed. All-terrain vehicles can be registered at the Oregon Department of Motor Vehicles, but it is not mandatory since ATVs are not operated on roads.[7]

In the case of bicycles, it is appropriate to license riders in order to enhance education and raise revenues. It is also appropriate to register bicycles in order to discourage theft and identify riders who do not follow the rules of the road.

Licensing

A common refrain in our research was that licensing bicyclists was impractical, unenforceable, or that the benefits were simply outweighed by the difficulties. In Oregon we issue licenses on a state, county, and city level. The word "license" is used in a variety of applications ranging from your driver's license, your automobile license – most applicable to our discussions – to gambling licenses, hunting and fishing licenses, dog and cat licenses, gun licenses, marriage licenses, and a bewildering array of professional and vocational licenses.

Every level of government has assigned offices to keep track of licensing. The state of Oregon has a website that provides information on 1,191 different forms of licenses issued by 113 agencies.[8] Multnomah County has a 47 page pamphlet that describes license fees that references 43 types of licenses.

The City of Portland has centralized collections at the Bureau of Revenue, an agency tasked with collecting license fees in a variety of areas ranging from poker games to secondhand stores.[9] The Bureau's mandate includes licenses – including the Portland business license – and billing for city-owned utilities. Their responsibilities also cover diverse areas like the arts tax, gambling, leaf pickup, and payday lenders.

Specific licensing – bicycle commuters, for example – would seem easy to identify and enforce. While we have little statistical data on recreational bicycle riders, we know that bicycle commuting is highly centralized with half of bicycling commuting occurring in the urban core and a significant fraction of the remainder in the near eastside areas.

Registration

An even more radical idea is bicycle plates. The increasing use of video monitoring to enforce traffic laws requires that vehicles be identifiable. Mainstreaming bicycling – at 25% of all rides – and simultaneously making identification of bicycle traffic law offenders more difficult than other forms of transportation doesn't seem reasonable. The cost of a bicycle license plate is low. Personalized license plates are currently available on the web for nominal prices.[10]

Enforcement

Enforcement of the licensing of bicycle commuters is relatively easy. Since over half of bicycle commuters must cross the river at a very limited number of locations, it does not require a significant police presence to simply ticket bicyclists who have not contributed to Portland's bicycle development.

Theft

There is a strong perception that theft is a serious problem, and little data exists on the scale of the problem or its cost to the bicycling community. A recent Oregonian report on the recovery of sixteen bicycles from the apartment of a bicycle thief provided a web link to help the victims identify their stolen property.[11] At the time, two of the sixteen bicycles had been returned to their owners, which would seem to indicate that only 12% of the stolen bicycles were registered. The absence of a centralized mandatory bicycle registration system makes the job of the thief easier and the plight of the victim much harder. The lack of an effective registry system also removes one of the most effective obstacles in the marketing of stolen property since

resellers cannot be held responsible for selling stolen property.

It should be noted that the two police witnesses in our research supported registration as a crime prevention program.[12]

Education

The most significant reason for licensing bicyclists is to educate current bicycle riders. The Majority Report offers only a school program. By having a test with the license we enable some education of the bicyclist. Additional funding would allow many educational steps such as billboards to educate drivers and bicyclists.

Arguments Against Licensing and Registration

If we as a city seriously envision mainstreaming bicycles as a transportation choice, we also have to envision educating bicyclists (and motorists and pedestrians) about the rules of the road and then enforcing the rules of the road on all members of the community.

There is a fear that a registration fee will discouraging to bicycling. There is no evidence that bicyclists lose heart so easily. However, there is substantial, and vocal, evidence that bicycle advocates dislike such measures. For that matter, there is little evidence that owners of any vehicles like such measures.

The argument that car ownership by bicycle riders constitutes a funding contribution is faulty. All modes of transportation are subsidized, and the amount of this subsidy is difficult, if not impossible, to estimate. Registering your first car does not excuse you from registering your second or third car.

As for the argument that the police may be reluctant to enforce licenses; the police have many assignments which are insufficiently enforced ranging from distracted driving, DUI, speeding, running lights and stop signs, and even licensing and insurance checks. This does not mean that we should get rid of those laws.

We suspect that if pitched correctly the program could get a lot of people complying without enforcement because of the positive nature of what is happening. Licensing and registration provides a chance for the bicycle community to be part of the solution, and to counter those that complain about bicycle infrastructure paid for out of money that they think they may have contributed.

A possible framework for implementing this tax follows:

1. The City of Portland would license Portland bicycle commuters. The license would require a web based safety education program similar to that for ATV drivers. The license fee could be $30.00 per year.
2. Bicycles owned by the licensees would require registration of the frame number of the bicycle(s), and bicycle commuters would be issued an inexpensive bicycle license plate attached to their bicycle.
3. The revenues from the fee would be earmarked for bicycle infrastructure, measurement, education, and enforcement.

Minority Recommendations:

The minority recommends adding the following Recommendation to the Majority Recommendations as 9d.

9 d. Portland should adopt bicycle user license fee and testing to be earmarked for bicycle infrastructure, measurement, education, bicycle registration, and enforcement; implementing a model similar to that used for the registration and licensing of Oregon's All-Terrain Vehicles.

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[1] http://www.portlandoregon.gov/transportation/article/345419

[2] Maximum ridership from the Hawthorne Bridge monitor on September 25, 2012 was 8,302 rides. Not all rides are commuters judging by "off-peak" ridership outside of commuting hours. The number of bicycle commuters from the Portland Business Alliance was 9,635.

[3] 2011 American Community Survey 1-Year Estimates, Table S0801.

[4] Means Of Transportation To Work By Age Universe: Workers 16 years and over, 2011 American Community Survey 1-Year Estimates, Table

[5] Although outside the charge to the committee, there was an oft expressed sentiment that continuing education on the ATV model would be a good idea for the drivers of all vehicles.

[6] http://www.oregon.gov/oprd/ATV/Pages/Permits.aspx.

[7] http://www.oregon.gov/ODOT/DMV/pages/vehicle/atv.aspx#reg

[8] http://licenseinfo.oregon.gov/

[9] http://www.portlandonline.com/omf/index.cfm?c=44301

[10] http://www.personalizedbikeplates.com/personalized-bike-plates-for-adults.htm, for example. Amazon.com lists bicycle license plates for as low as $3.50.

[11] Old Town hotel eviction leads to suspected bicycle thief, Oregonian, February 28, 2013.

[12] Minutes of 10/16/2012

Minority Signatures

Robert McCullough

Byron Palmer

Appendices

I. Witness List

Benjamin Adrian, Community Planning Specialist, Northeast Coalition of Neighborhoods

Sam Adams, Mayor (2009-2013), City of Portland

Roger Averbeck, Transportation Committee Chair, Southwest Neighborhoods, Inc.

Earl Blumenauer, Congressman, United States Congress

Bernie Bottomly, VP, Government Relations & Economic Development, Portland Business Alliance

William Burgel, Principal, Burgel Rail Group

Mia Burk, President, Alta Planning + Design

Catherine Ciarlo, Transportation Director, Office of Mayor Sam Adams, City of Portland

Kelly Clifton, Associate Professor of Civil Engineering, Portland State University

Chris Davis, Lieutenant, Portland Police Bureau, Traffic Division

Mark Edlen, CEO, Gerding Edlen

Ty Engstrom, Officer, Portland Police Bureau, Traffic Division – Motor Unit

Martina Fahrmer, Owner, Clever Cycles

Roger Geller, Bicycle Coordinator, Bureau of Transportation, City of Portland

Alison Graves, Executive Director, Community Cycling Center

Dave Guettler, Founder and Owner, River City Bikes

Charlie Hales, Mayor (2013-present), City of Portland

David Hampsten, Transportation Committee Chair & Director #2, Hazelwood Neighborhood Association

Eric Hesse, Coordinator, Strategic Planning; Planning & Policy Development, TriMet

Bob Kellett, Neighborhood Planning Program Manager, Southeast Uplift

Juliana Lukasik, President, Central Eastside Industrial Council

Jeff Mapes, Political Reporter, the Oregonian

Jonathan Maus, Editor and Publisher, bikeportland.org

Sharon Maxwell-Hendricks, CEO, Boanerges Group, Neighborhood Advocate

Lake McTighe, Project Manager, Active Transportation, Metro

Rob Sadowsky, Executive Director, Bicycle Transportation Alliance

Chris Smith, Internet Technologist, Xerox Corp., Member of Portland Planning Commission

Sacha White, Owner, Vanilla Bikes

II. Acknowledgements

City Club of Portland Liaisons

Kathy Black (Research Advisor)

Ed Hershey (Advocacy Advisor)

Greg Wallinger (Research & Policy Director)

Martha Bennett, Chief Operating Officer, Metro

Dan Bower, Bureau of Transportation, City of Portland

Kelly Clifton, Portland State University, School of Urban Studies

Jennifer Dill, Portland State University, School of Urban Studies

April Economides, Green Octopus Consulting

Mike Hogland, Metro Research Center

Tom Miller, Bureau of Transportation, City of Portland

Bud Reiff, Metro Research Center

Molly Vogt, GIS Program Supervisor, Metro Data Resource Center

III. Glossary

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20 Minute Neighborhood (Complete Neighborhood) – A neighborhood in which retail shopping, entertainment, services and employment can all be found within a 20 minute walk from a residence.

Active Transportation – Traditionally refers to human-powered transportation such as walking or bicycling.

American Community Survey – A detailed survey of demographics and lifestyle habits conducted by the U.S. Census Bureau.

Bicycle Advisory Committee – A 13 member volunteer committee that advises the Portland Bureau of Transportation on bicycle projects and policies.

Bicycle Boulevards (Bike Boulevards) – A bicycle route on low-speed neighborhood streets in which bicycle and auto traffic intermix.

Bicycle Boxes (Green Boxes) – Brightly colored areas at intersections intended to increase bicycle visibility and deter "right-hook" collisions.

Bike Corral – A series of densely-packed bicycle racks installed in place of a automobile parking space.

Bicycle Lane (Bike Lane) – A striped lane along the shoulder of a road in which bicyclists have the right of way.

Bicycle Plan for 2030 – A report outlining the benefits of bicycling in Portland and advocating for an expanded role for bicycling in the city.

Bicycle Transportation Alliance (BTA) – A non-profit pro-bicycling advocacy organization formed in 1990.

Bioswale – A curb extension or drainage area intended to collect and remove silt and pollutants from runoff water using a system of plants and sediment grades.

Cycletrack – A bicycle lane that is separated from automobile traffic by a physical barrier.

Highway Trust Fund – A federal transportation fund directly supported by fuel tax revenues.

Manual on Uniform Traffic Control Devices – A system of rules and standards for road design developed by the Federal Highway Administration, intended to support a unified, cohesive transportation system in the U.S.

MAP-21 – Moving Ahead for Progress in the 21st Century. A 2012 law passed by Congress funding surface transportation projects in FY 2013 through FY 2014.

National Association of City Transportation Officials (NACTO) – A multi-city program to exchange ideas

and innovations in street design and multi-modal traffic control.

Right-Hook Collision – A specific type of automobile/bicycle collision in which a right turning vehicle strikes a bicycle travelling straight. These are common since bicycle lanes are typically installed to the right of right-turn vehicle lanes.

Safe Routes to School – A national program that encourages and assists children to bike or walk to school.

SAFETEA-LU – The Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users. A 2005 Federal surface transportation funding program that dedicated money to highway safety and public transportation.

Sharrows – A white outline of a bicycle capped with two white, directional chevrons. Used to indicate to drivers that bicycle riders frequently use the street, and typically can be found on Bicycle Boulevards.

TEA-21 – Transportation Equity Act for the 21st Century. Federal surface transportation funding act in place between 1998-2003.

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V. Statistical Methodology

The following provides expanded analysis and a description of the methodology used to quantify and analyze available bicycle data, as well as develop a ridership model. For a summary of this information, as well as your committees conclusions, see the "Quantifying Available Bicycle Data" section of this report.

To analyze ridership, your committee used a simple regression model, attempting to explain daily rides from three weather variables, a dummy variable for weekends and holidays, and the onset of dusk. Each weather variable appeared twice – the second entry was squared to allow for non-linearity in ridership. For example, weekday riders tend to drop off when it gets too hot as well as dropping off when it gets too cold. The second weather variable in each category allowed us to capture that effect.

The simple regression model is unusually successful. The eight explanatory variables explain 87% of the variance in ridership. The statistical properties are also very solid. All but one of the explanatory variables are significant at the 99% level.

Statistical significance reports the likelihood that the results are simply due to random chance. If you reported that your coin toss got a "heads" on one toss, this would not be significant since everyone knows that there was a 50% chance that this would happen by sheer chance. If you reported that you had tossed the coin seven times and "heads" occurred each time, this would be significant, since the chance of this happening is less than 1%. A statistician would say that this would be significant at 99%.

The output from a standard statistical package – the one supplied with Microsoft Excel – is reproduced below. The results show the quality of the overall regression in the first two blocks – "Regression Statistics" and "ANOVA." The specific variables used are:

Tmean:	Daily average tempurature
Tmean^2:	Daily average tempurature squared
Prcp:	Daily average precipitation
Prcp^2:	Daily average precipitation squared
Windavg:	Average daily wind

The term dummy variable means a variable that is simply one or zero. In this case Holiday is one for weekends and holidays. On weekdays it is zero.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.9375036
R Square	0.8789131
Adjusted R Square	0.8737604
Standard Error	741.34366
Observations	197

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	8	749973007.1	93746626	170.5754	6.50863E-82
Residual	188	103323000	549590.4		
Total	196	853296007.1			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 99.0%*	*Upper 99.0%*
Intercept	-9791.29	1840.619725	-5.31956	2.94E-07	-13422.21202	-6160.368293	-14581.01146	-5001.56885
tMean	245.3765	40.31298195	6.086786	6.34E-09	165.8525841	324.9004151	140.4727294	350.2802697
tMean^2	-1.761608	0.380452528	-4.6303	6.8E-06	-2.512112376	-1.01110336	-2.751633974	-0.771581762
prcp	-2476.546	496.6542672	-4.98646	1.39E-06	-3456.277209	-1496.814521	-3768.955966	-1184.135763
prcp^2	975.68152	381.8957463	2.554837	0.011416	222.3300309	1729.033013	-18.10017428	1969.463218
windAvg	-221.5301	61.19021116	-3.62035	0.000378	-342.2377827	-100.8224894	-380.76132	-62.29895208
windAvg^2	11.491773	3.698681011	3.106992	0.002183	4.195522714	18.7880228	1.866943139	21.11660237
Holiday	-2722.863	115.6119282	-23.5518	5.52E-58	-2950.926654	-2494.799979	-3023.712486	-2422.014147
Sunset	459.76908	96.81315686	4.749035	4.04E-06	268.7893742	650.7487796	207.8386897	711.6994641

The coefficient next to the variable name represents the variable's impact on ridership. In this case, ridership goes up with temperature, but falls off at higher temperatures since the square of temperature is negative. The dummy variable for holidays is negative, representing the fact that 2,722 more rides occur, on average, during weekdays than on weekends.

The statistical package also reports how likely the coefficient might be in error. If the standard error is large compared to the coefficient, it would be appropriate to doubt the value of that variable in an explanation of ridership. In the language of the statistician, we can use the error estimate to decide whether to "reject the hypothesis that the coefficient is different than zero." In this regression, we can reject the null hypothesis for all of the variables except for the square of temperature.

Translated into normal English, this means that the coefficients appear reliable, although reductions of ridership due to the square of temperature appear slightly less reliable.

Ridership on the Hawthorne Bridge falls off dramatically during bad weather. Since the regression provides a very good fit, we can answer a more interesting question: are more riders showing up than we would expect given the weather? If ridership was growing over time, we would expect to see more riders today, after adjusting for the weather.

When you add a variable for time, the regression results for that variable is not statistically different than zero. Given this result, we would reject the hypothesis that ridership on the Hawthorne Bridge has grown since August 8, 2012 after adjusting for weather and dusk.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.937995
R Square	0.879834
Adjusted R Square	0.87405
Standard Error	740.4917
Observations	197

ANOVA

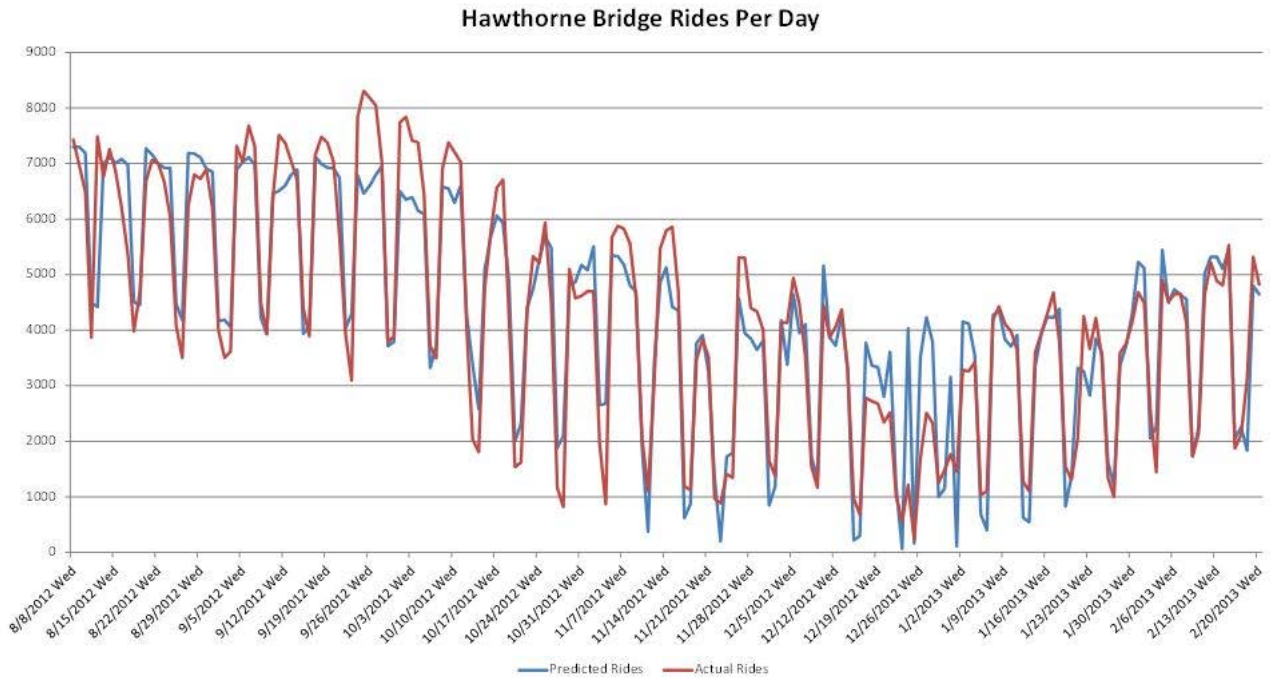
	df	*SS*	*MS*	*F*	*Significance F*
Regression	9	750758692.1	83417632	152.1309	4.3202E-81
Residual	187	102537315	548327.9		
Total	196	853296007.1			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 99.0%*	*Upper 99.0%*
Intercept	-8669.87	2063.433419	-4.20167	4.1E-05	-12740.47256	-4599.274279	-14039.70203	-3300.044815
tMean	237.7128	40.77244471	5.830232	2.39E-08	157.2797412	318.1458752	131.6075964	343.81802
tMean^2	-1.75945	0.380019573	-4.62988	6.83E-06	-2.509122673	-1.009769863	-2.7483999	-0.770492636
prcp	-2470.41	496.1099656	-4.97956	1.44E-06	-3449.100351	-1491.7173	-3761.473252	-1179.344399
prcp^2	971.6164	381.4719584	2.547019	0.01167	219.0748716	1724.158013	-21.11684173	1964.349727
windAvg	-223.379	61.13939167	-3.6536	0.000336	-343.9902067	-102.7670561	-382.4862872	-64.27097556
windAvg^2	11.38729	3.695461224	3.081425	0.002371	4.097135916	18.67743799	1.770309151	21.00426476
Holiday	-2734.23	115.8685407	-23.5977	5.77E-58	-2962.803459	-2505.648527	-3035.759446	-2432.69254
Sunset	433.4311	99.17347595	4.370434	2.05E-05	237.7885504	629.0737377	175.3445186	691.5177696
Time	-2.39562	2.001303775	-1.19703	0.232811	-6.343649359	1.552418769	-7.603759237	2.812528646

The new variable, named "Time" is simply the number of days since the installation of the bicycle counter on the bridge. The standard error is approximately the same size as the coefficient. This variable is not statistically different from zero – very much in contrast with the other variables.

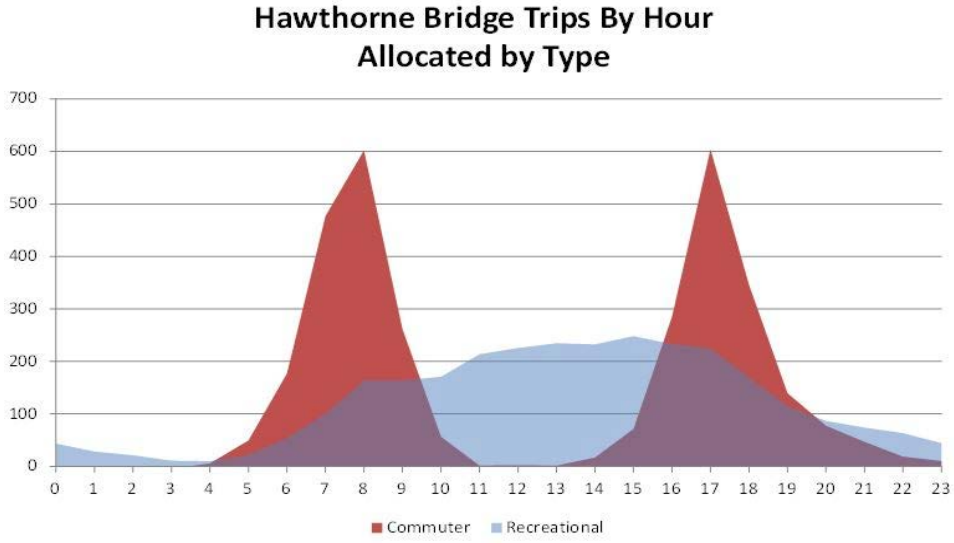
Your committee tested variables for both sunrise and sunset. The impact of sunset is far more important. We interpret this as indicating that riders are concerned about riding back home after dark. Our review of the hourly data indicates that there is a statistically significant result that 88% of riders prefer daylight for the journey home.

The next chart shows a comparison between our forecast of rides on the Hawthorne Bridge and actual data since August 8, 2012. As can be seen, the model matches very well – although our fit around Christmas was poor. We interpret the poor fit around Christmas as reflecting holiday behavior that would not show up elsewhere in our data set.



The hourly data shows very solid patterns consistent with our prior expectations. Commuters – taken from weekday and non-holiday data – cluster their trips at 8:00 A.M. and 5:00 P.M. Recreational traffic clusters around the early afternoon. Interestingly, bicyclists are very consistent in their habits. Approximately balanced numbers of commuters arrive from the east and depart to the west. Recreational bicyclists tend to ride west earlier in the day and return east several hours later.

Analysis of this data has allowed us to segregate commuters (peaking at 8:00 A.M. westward and 5:00 P.M. eastward, versus recreational rides which peak during the mid-day. This gives a small amount of evidence on the numbers of these two groups entering the central business district from the east side of Portland.

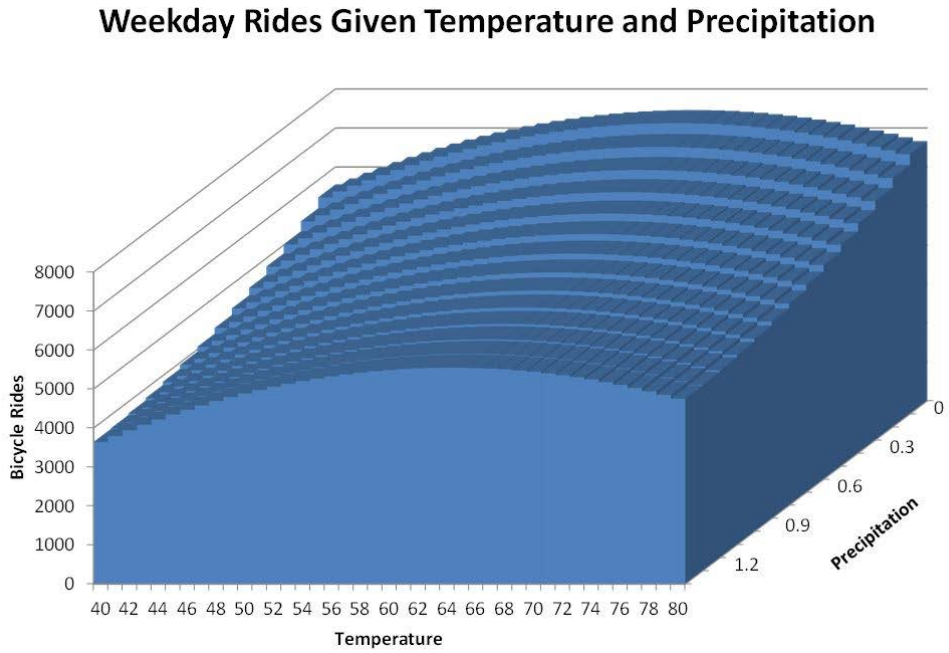


We would expect that the logistic curves for the two groups will be very different. Commuting reflects a specific geographic focus – primarily close in east Portland where population growth is slight or negative and average age is increasing rapidly. Non-commuters are less constrained by time and distance so we would expect.

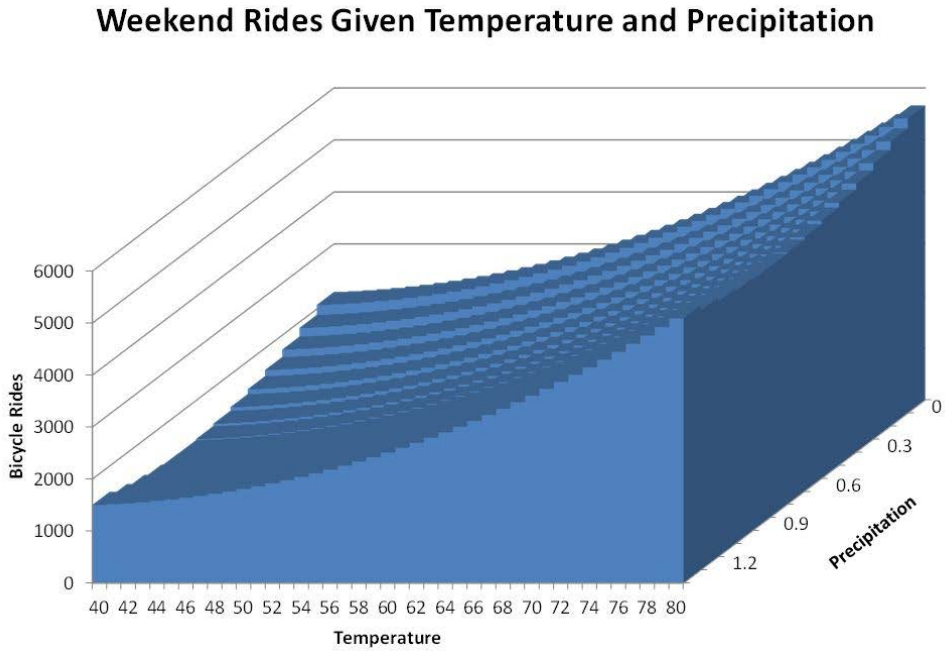
We have enough hourly data now to create indicators for commuters and recreational riders. The indicator for commuters is the maximum hourly westbound count before noon. The indicator for recreational riders is the minimum hourly westbound count between the commuter peaks.

Interestingly, the behavior of the two groups is very different when temperature and precipitation is analyzed.

Commuters are highly responsive to both temperature and precipitation with a rapid reduction in trips at higher temperatures and more precipitation:

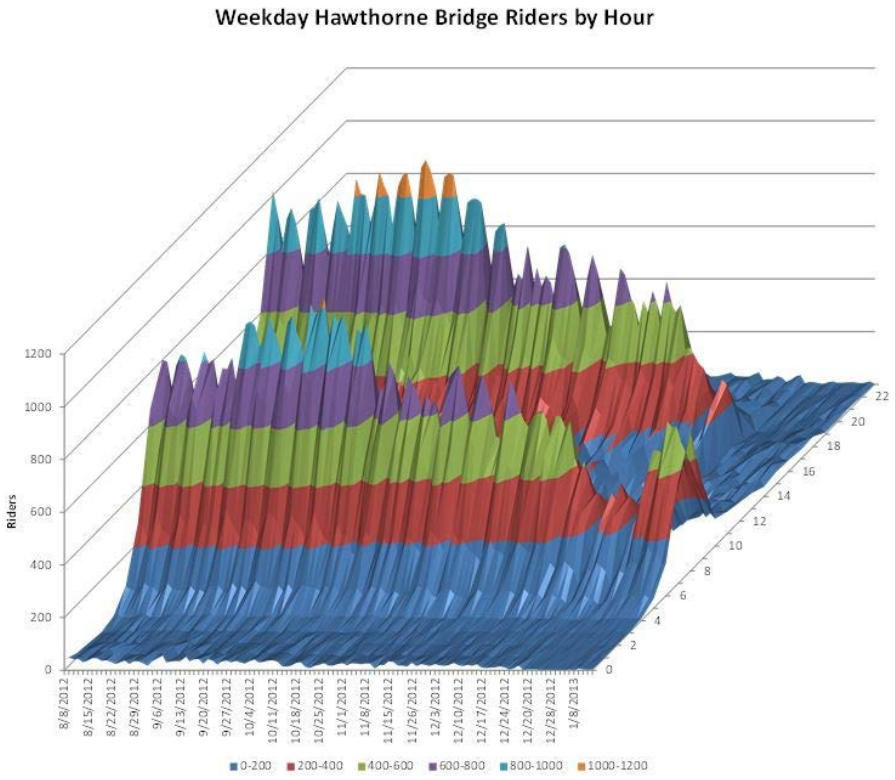


Recreational riders are less likely to be dissuaded from bicycling by the elements:

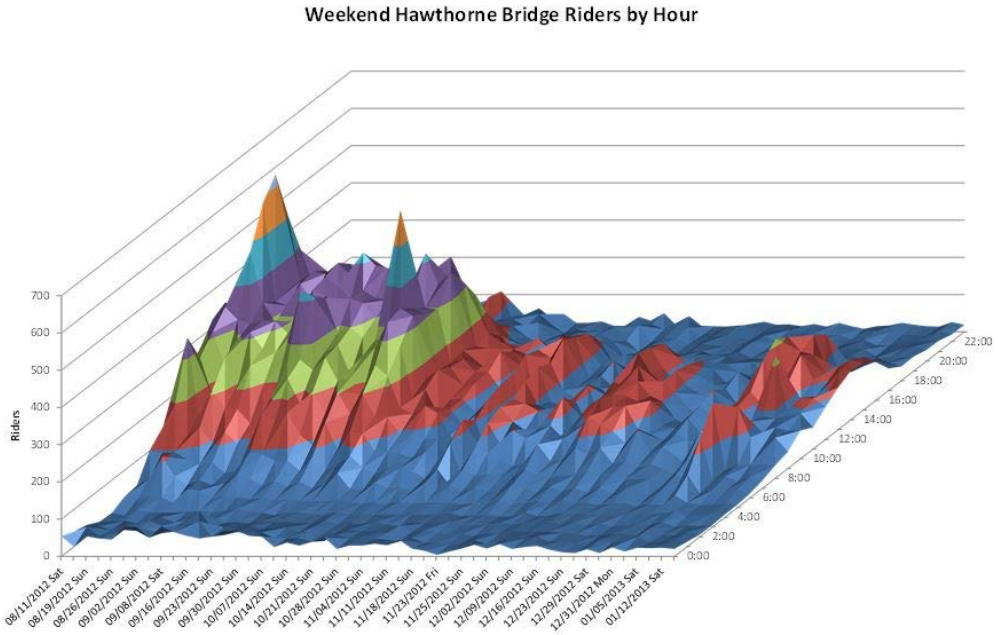


Although the data set is inadequate for the estimation of a logistic curve – and is likely to remain so for some months to come. We should be able to estimate an impact of time on ridership once environmental factors are corrected for when sufficient data is available.

The next chart shows the hourly shape of weekday rides:



Weekend and holiday ridership has fallen off even more sharply in mid-winter:



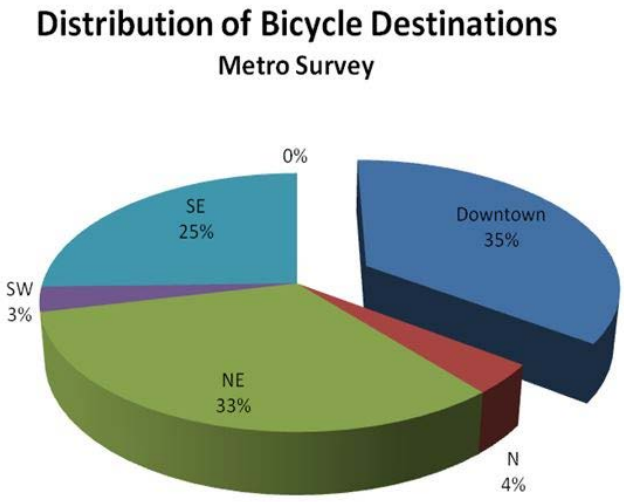
We can get an estimate of commuting versus non-commuting ridership on the Hawthorne Bridge by using the mid-day minimum as non-commuting ridership. The average ridership on the Hawthorne Bridge can be estimated by taking the shape of weekend rides and applying that shape to the mid-day minimum during weekdays. This is a rough estimate, but it indicates that during weekdays, 69.2% of riders are commuters – fitting into the two peaks in the morning and late afternoon. If we attribute all rides on weekends and holidays to non-commuters, the breakdown during an average week is 54.4% commuters and 45.6% non-commuters.

A major conclusion from analysis of the Hawthorne Bridge data is that existing reporting of bicycle ridership focusing on the summer – and specific days and hours within the summer – gives a very different impression than actual data.

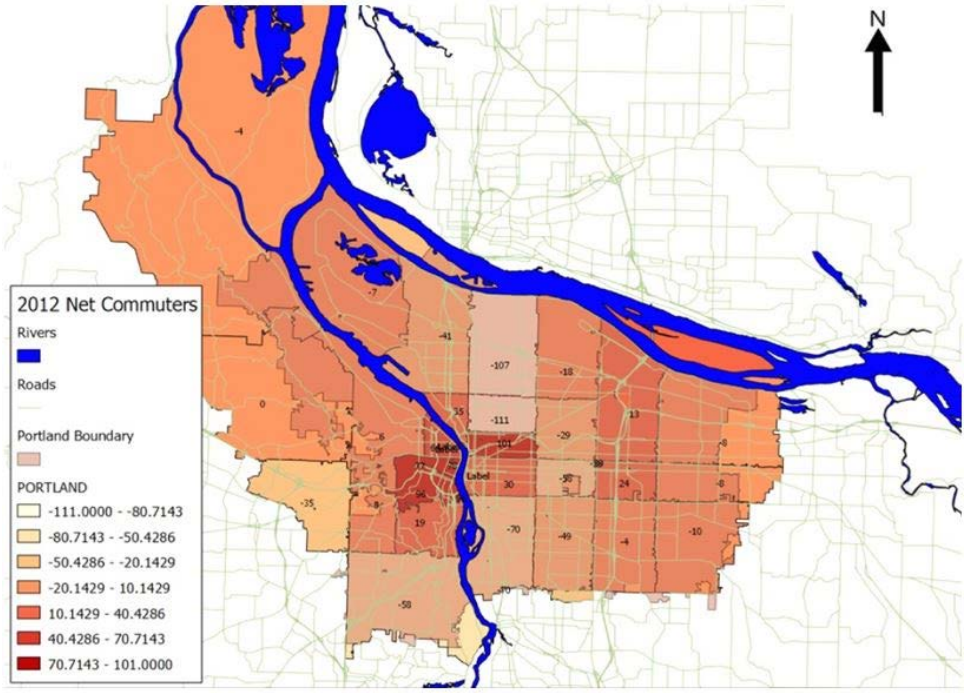
Bicycle Infrastructure Utilization

New data from Metro and the American Community Survey has allowed us to update a 2002 Portland State University Study examining the relationship between bicycle ridership and terrain, distance from the central business district, and the level of bicycle infrastructure. We were also able to disaggregate bicycle infrastructure by type and evaluate whether there was evidence that specific forms of bicycle infrastructure had a greater or lesser impact on ridership.

Metro's recent survey has provided invaluable evidence on commuting paths by zip code:

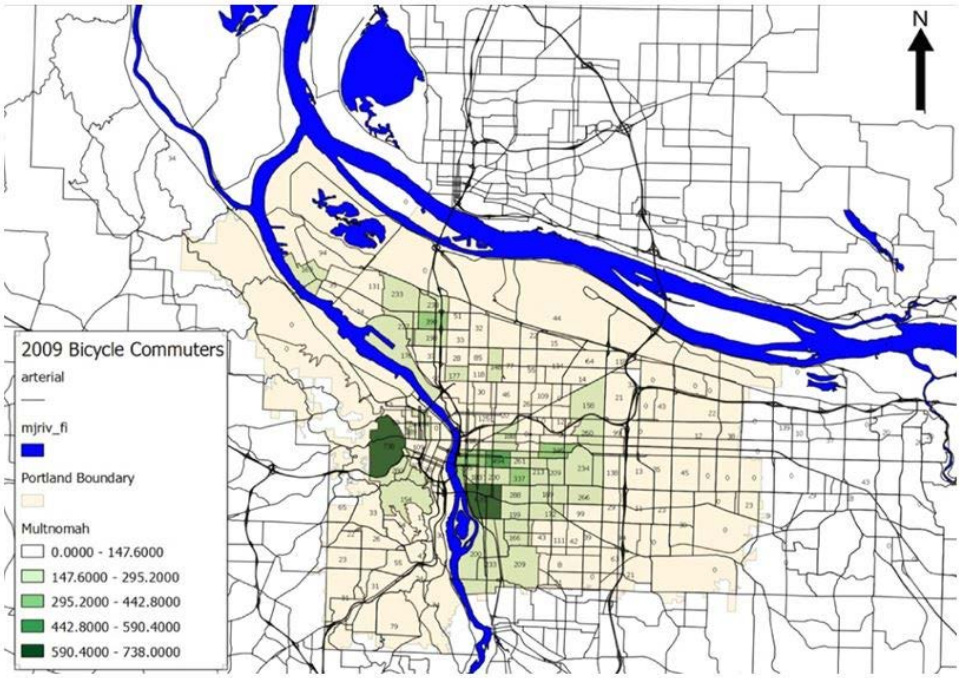


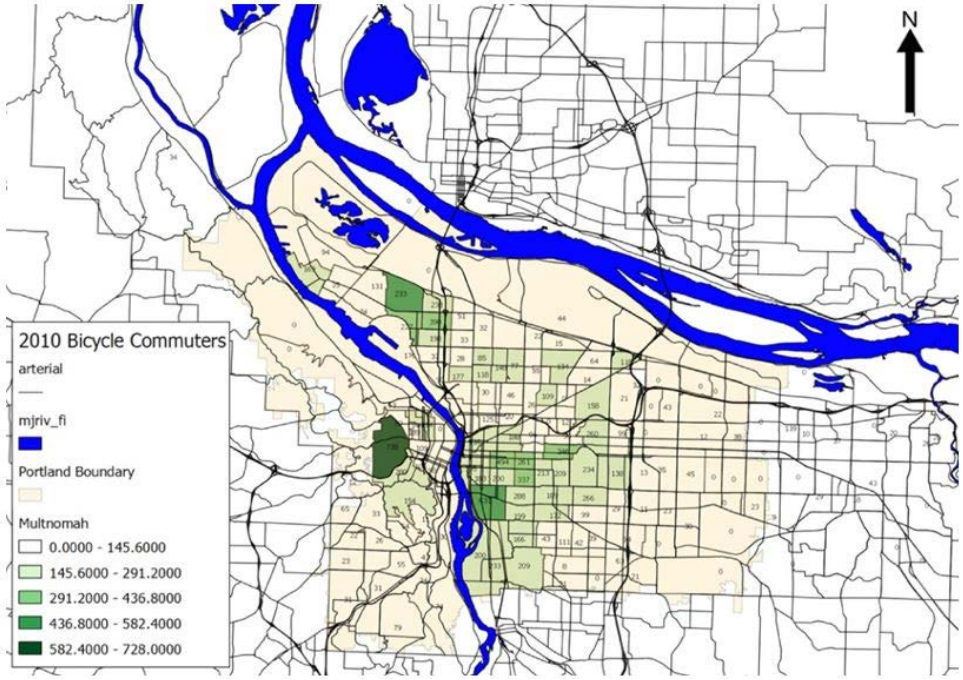
The following chart shows the net paths by zip code. The primary destinations are the city center. The primary origins are the neighborhoods surrounding the city center – primarily to the east:

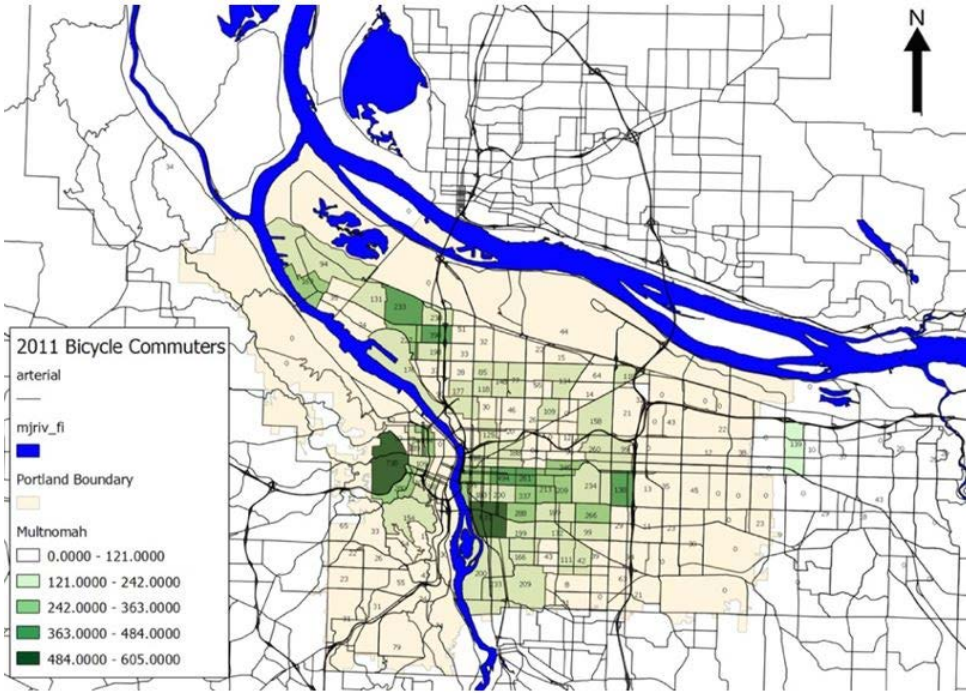


This chart shows positive numbers for the destination for commuters and negative numbers for the source of the commuters. The primary destinations are the center city and the near southeast commercial areas.

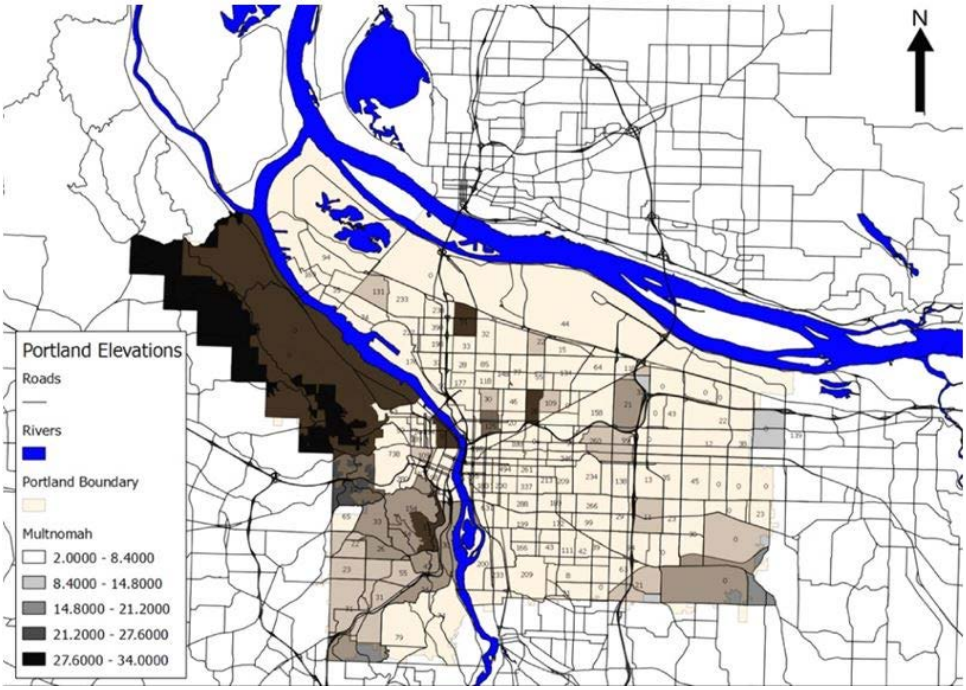
The American Community Survey provides census tract by census tract counts of bicycle commuters across Portland. The most recent detailed data set represents surveys from 2007 through 2011. The ACS also provides similar data for 2006 through 2010 and 2005 through 2009. The following charts show the location of bicycle commuters for these periods:







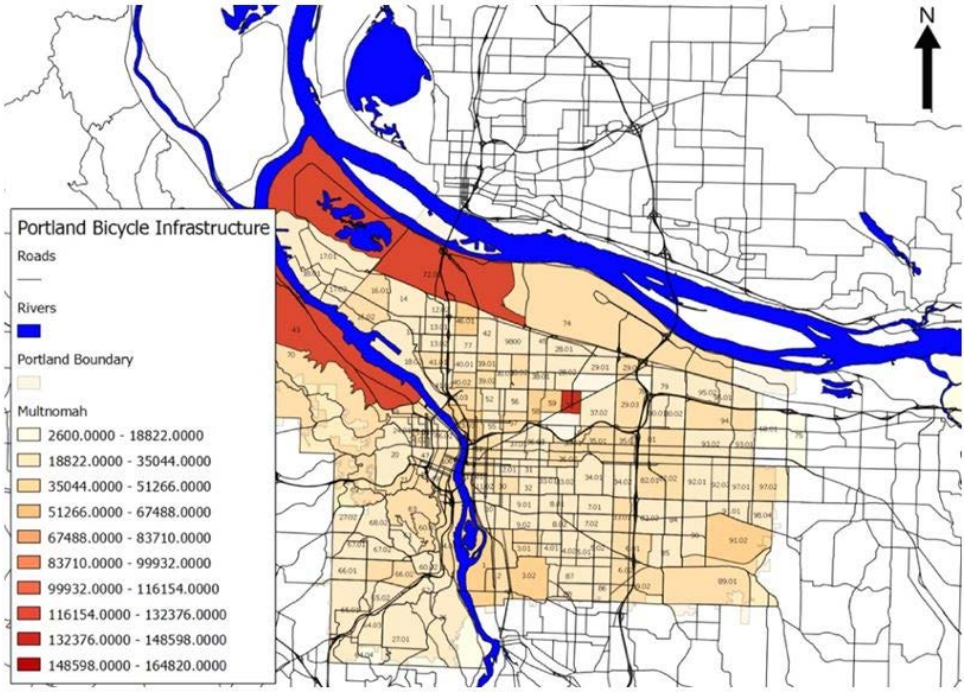
The primary determinants of bicycling commuters reflect terrain – especially slope, distance to the central business district, and the age in the census district. The following chart shows slopes across Portland:



Metro provided us with disaggregated data on bicycle infrastructure for Portland. The categories included ten different categories of facilities:

- Linear feet of "Bike Boulevard"
- Linear feet of "Buffered Bike Lane"
- Linear feet of "Bike Lane"
- Linear feet of "Cycle Track"
- Linear feet of "Low Traffic Through Street"
- Linear feet of "Miscellaneous Facilities (crossings, connections, etc.)"
- Linear feet of "Path - Local, multi-use"
- Linear feet of "Path - Regional, multi-use"
- Linear feet of "Shoulder, Narrow"
- Linear feet of "Shoulder, Wide"

The following chart shows the location of all types of facilities summed by length:



The existing bicycle infrastructure does not reflect the census data. For most categories of infrastructure there is little correlation between facilities and riders.

We approached this analysis is a fashion similar to the 2002 PSU study, regressing ridership as a function of geography, age, and types of infrastructure. The results of the regression were positive overall, but only two types of infrastructure were significant at the 99% level:

2011 ACS Regression

Regression Statistics	
Multiple R	0.730603
R Square	0.53378
Adjusted R Square	0.479838
Standard Error	88.65022
Observations	136

ANOVA

	df	*SS*	*MS*	*F*	*gnificance F*
Regression	14	1088722	77765.87	9.895311	2.14E-14
Residual	121	950922.2	7858.861		
Total	135	2039644			

	Coefficient	*tandard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 99.0%*	*pper 99.0%*
Intercept	542.136	73.76269	7.349732	2.57E-11	396.1033	688.1687	349.0937	735.1782
Average of miles_to_CBD	-32.7967	4.707259	-6.96726	1.82E-10	-42.116	-23.4775	-45.116	-20.4775
Average of mean_slope	-8.36598	2.151458	-3.88852	0.000165	-12.6254	-4.1066	-13.9965	-2.73546
Average of mean_elevation	0.108165	0.092051	1.175053	0.242281	-0.07407	0.290405	-0.13274	0.349071
Age	-7.47753	1.960424	-3.81424	0.000217	-11.3587	-3.59635	-12.6081	-2.34696
Linearfeet of "Bike Boulevard"*	0.007365	0.003144	2.342287	0.020799	0.00114	0.01359	-0.00086	0.015594
Linearfeet of "Buffered Bike Lane"*	-0.02241	0.012518	-1.79041	0.075889	-0.0472	0.00237	-0.05517	0.010348
Linearfeet of "Bike Lane"*	-0.00295	0.001565	-1.88616	0.06167	-0.00605	0.000147	-0.00705	0.001144
Linearfeet of "Cycle Track"*	-0.09117	0.029415	-3.09927	0.002413	-0.1494	-0.03293	-0.16815	-0.01418
Linearfeet of "Low Traffic Through Street"*	0.00483	0.00151	3.198699	0.001762	0.00184	0.007819	0.000878	0.008781
Linearfeet of "Miscellaneous Facilities (crossings, connections, etc.)"*	0.025042	0.021678	1.155206	0.250282	-0.01787	0.067959	-0.03169	0.081774
Linearfeet of "Path - Local, multi-use"*	-0.00196	0.003061	-0.64006	0.523341	-0.00802	0.0041	-0.00997	0.006051
Linearfeet of "Path - Regional, multi-use"*	0.003769	0.002217	1.700327	0.091638	-0.00062	0.008158	-0.00203	0.009571
Linearfeet of "Shoulder, Narrow"*	-0.01998	0.056648	-0.35272	0.724915	-0.13213	0.09217	-0.16823	0.128272
Linearfeet of "Shoulder, Wide"*	-0.00322	0.007376	-0.43644	0.663293	-0.01782	0.011384	-0.02252	0.016085

The regression indicates that Bike Boulevards and Low Traffic Through Streets are highly correlated with ridership. Shoulders – either wide or shallow – show little relationship to ridership.

Removing the remaining eight infrastructure variables from the regression yields:

2011 ACS Regression

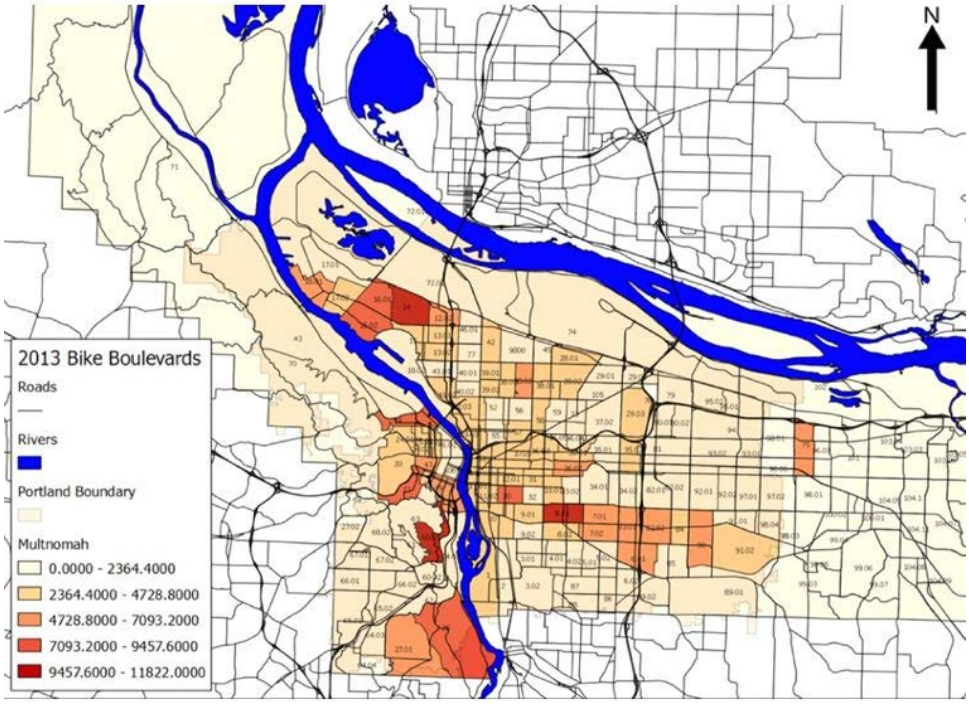
Regression Statistics	
Multiple R	0.669288
R Square	0.447947
Adjusted R Square	0.426714
Standard Error	93.06704
Observations	136

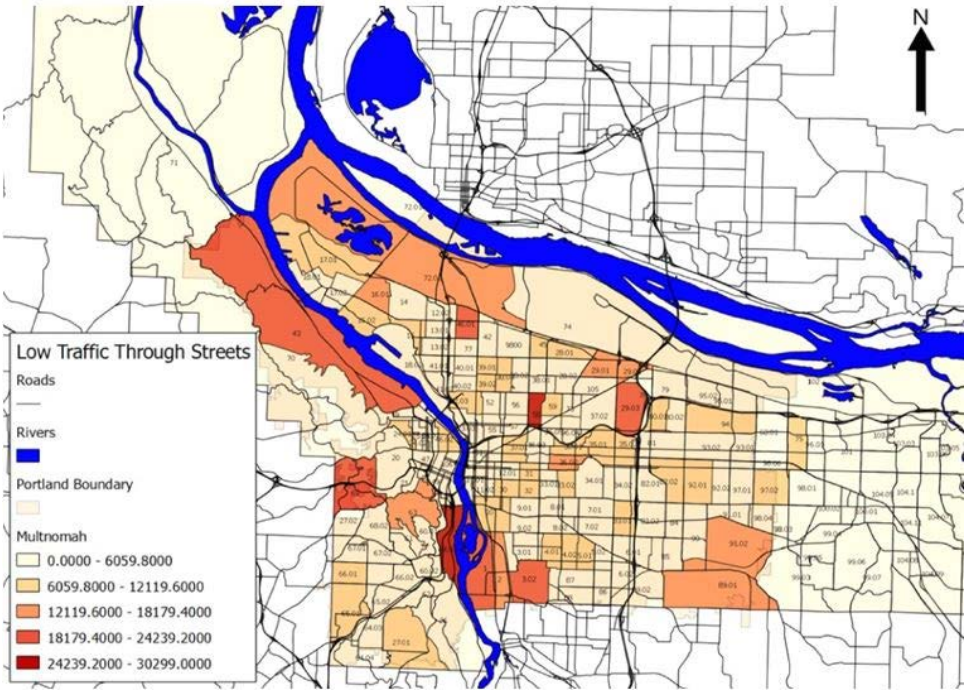
ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regression	5	913652.7	182730.5	21.09693	2.12E-15
Residual	130	1125992	8661.475		
Total	135	2039644			

	Coefficients	*andard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 99.0%*	*Upper 99.0%*
Intercept	466.9251	72.87187	6.407481	2.49E-09	322.7568	611.0934	276.4251	657.4251
Average of miles_to_CBD	-29.01972	4.10137	-7.07561	8.27E-11	-37.13379	-20.90564	-39.74142	-18.29801
Average of mean_slope	-5.702735	1.413051	-4.03576	9.24E-05	-8.498287	-2.907183	-9.3967	-2.008769
Age	-6.328541	1.945711	-3.25256	0.001457	-10.1779	-2.479185	-11.41497	-1.242108
Linear feet of "Bike Boulevard"*	0.009085	0.003131	2.901924	0.004358	0.002891	0.015279	0.000901	0.017269
Linear feet of "Low Traffic Through Street"*	0.005362	0.0015	3.575325	0.000492	0.002395	0.008329	0.001441	0.009282

The existing locations of Bike Boulevards and Low Traffic Through Streets are charted below:





This data suggests that riders choose to ride in areas where safer infrastructure is present. This corresponds strongly with the theory that only the most dedicated riders will brave less secure riding environments.

Bicycle Utilization Charts and Data

Fig. 1: American Community Survey Ridership Rates

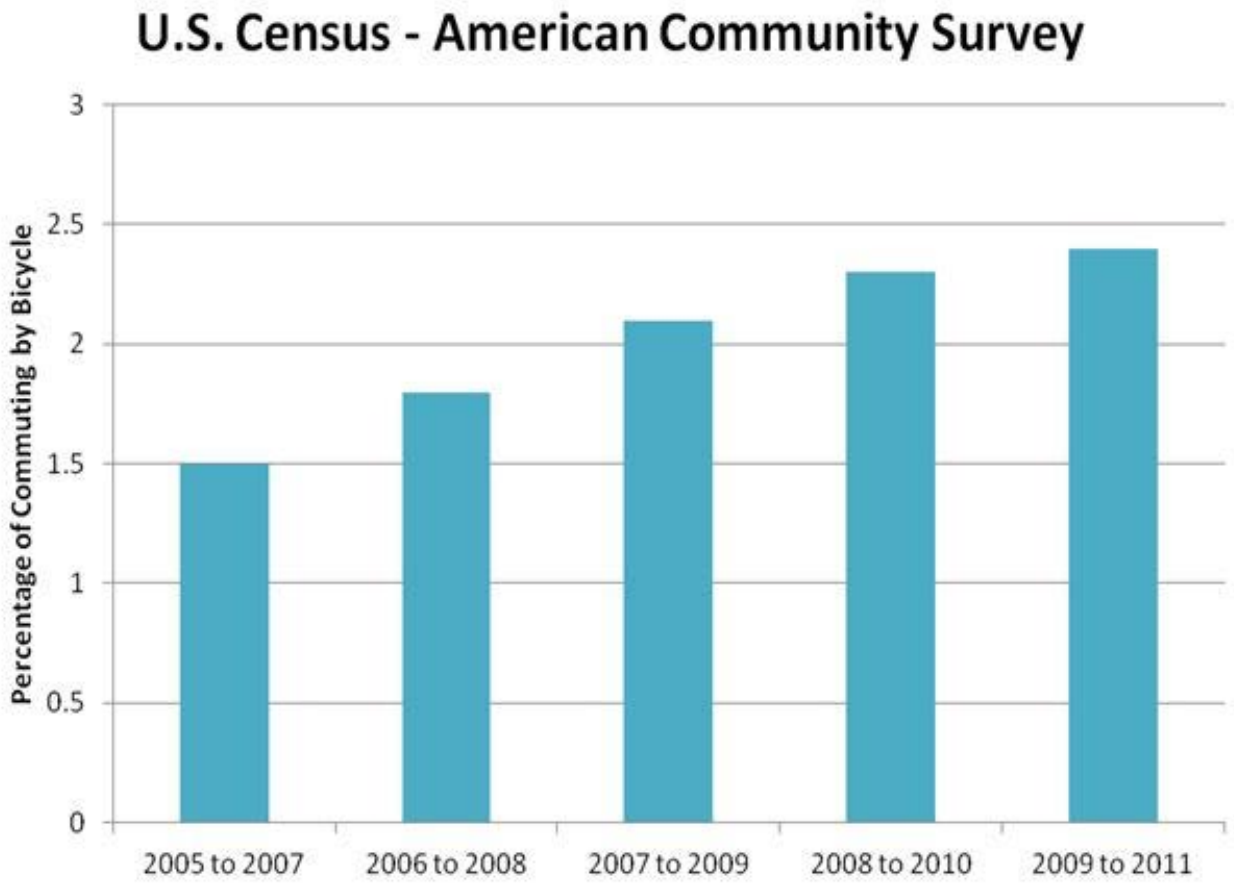


Fig. 2: Portland Business Alliance Ridership Rates

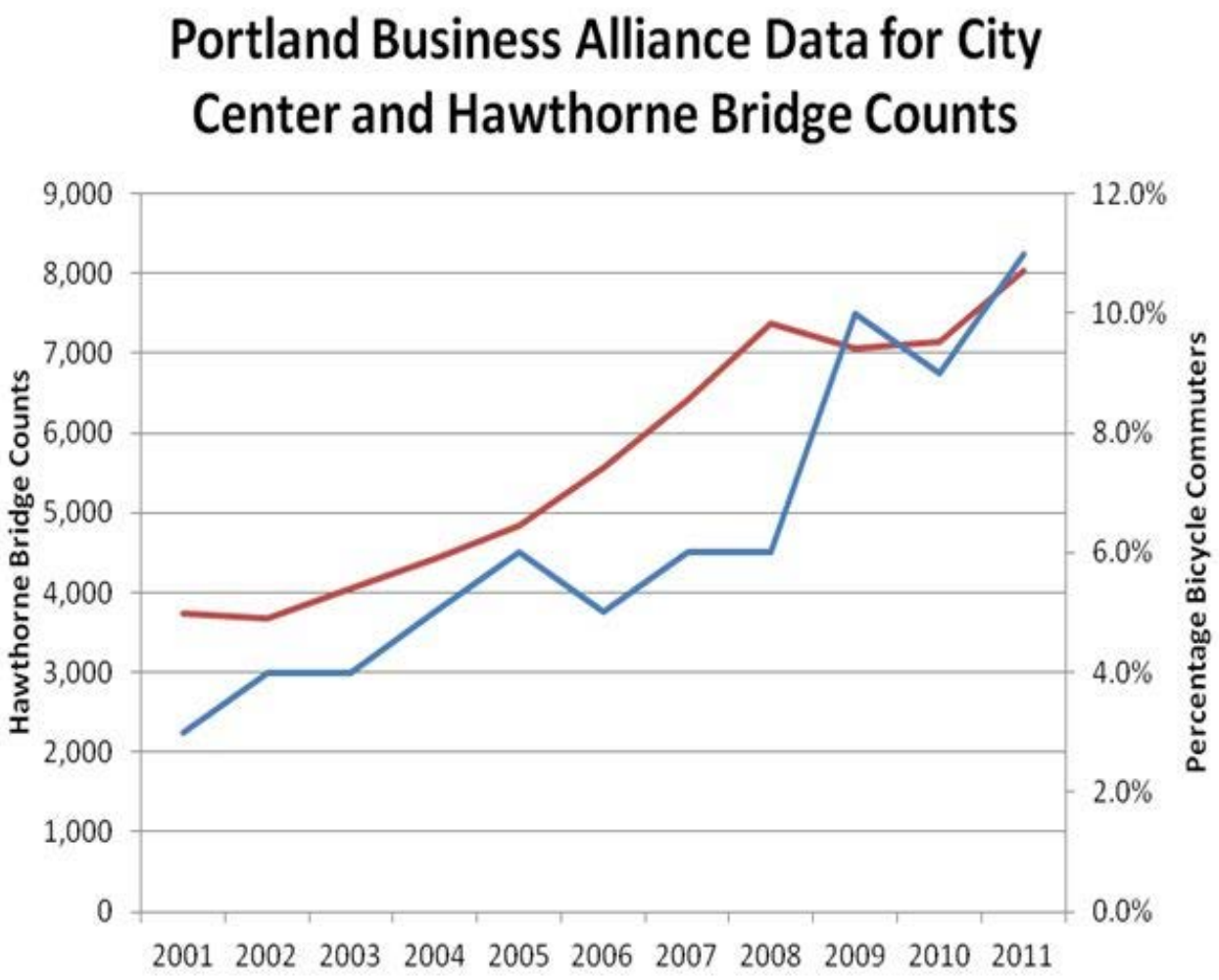


Fig. 3: City of Portland Bicycle Counts, Year-over-Year

Non-Bridge Counts: 2011 Compared to 2010 and 2001

DISTRICT/ LOCATION	% CHANGE SINCE 2000/01	# OF LOCATIONS	% CHANGE SINCE 2010	# OF LOCATIONS
Citywide Total	**225%**	29	**7%**	123
Central City (west side)	253%	5	3%	16
North	280%	5	11%	14
Northeast	130%	5	16%	18
Southeast	233%	7	2.5%	24
East	Na	Na	18%	16
Northwest*	187%	3	7%	7
Southwest*	209%	4	3%	28

*excludes Central City

Fig. 4: American Community Survey Rate of Bicycle Commuting by Sex

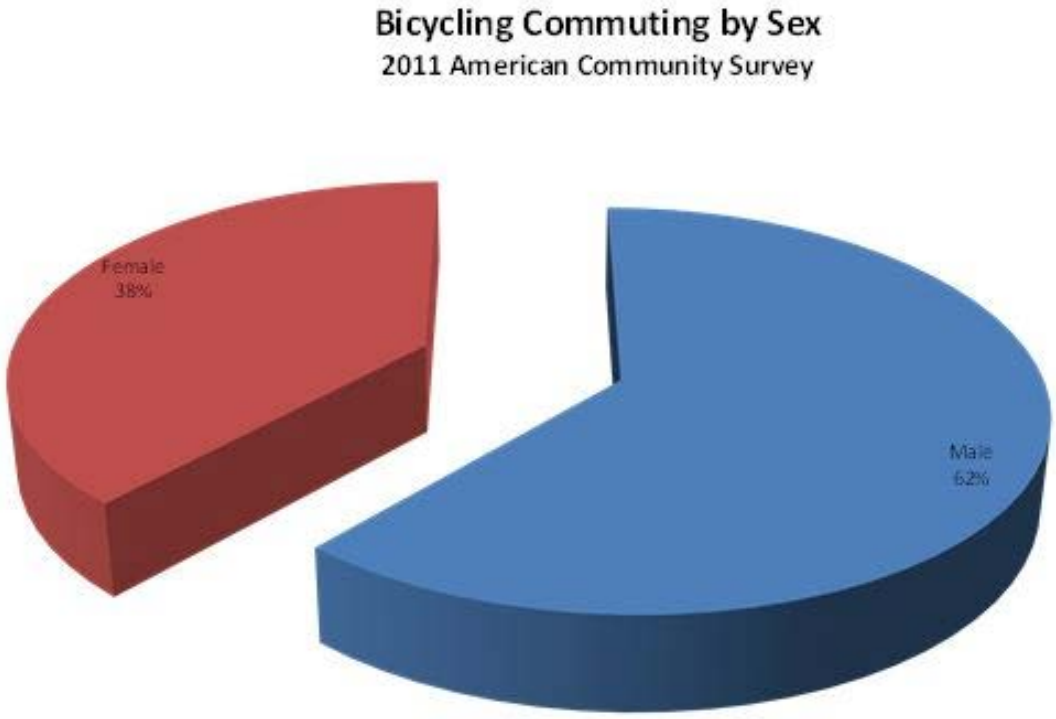


Fig. 5: American Community Survey Rate of Bicycle Commuting by Ethnicity

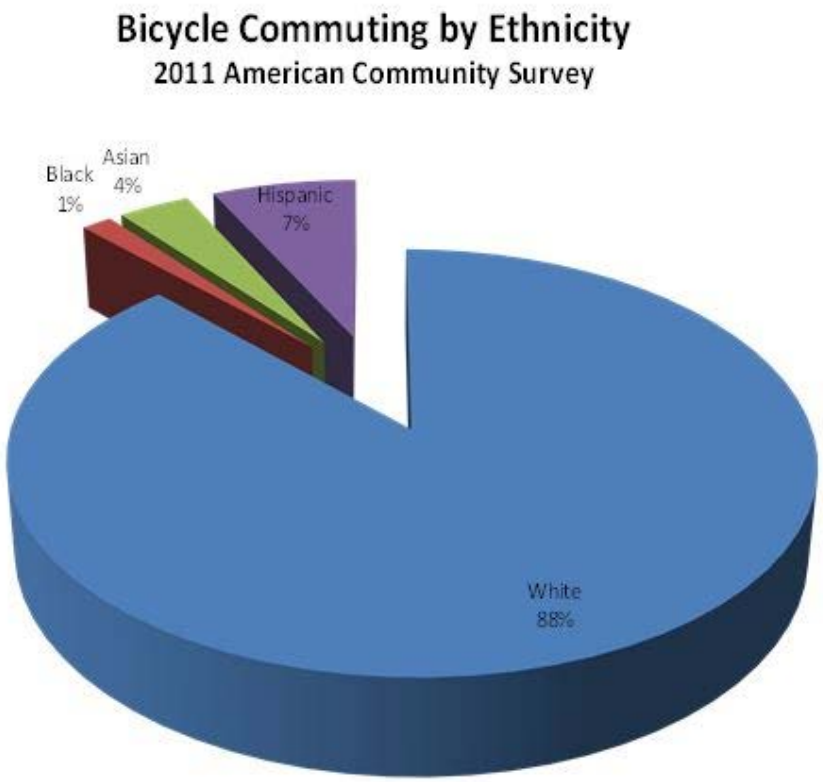


Fig. 6: American Community Survey Rate of Commuting by Median Age

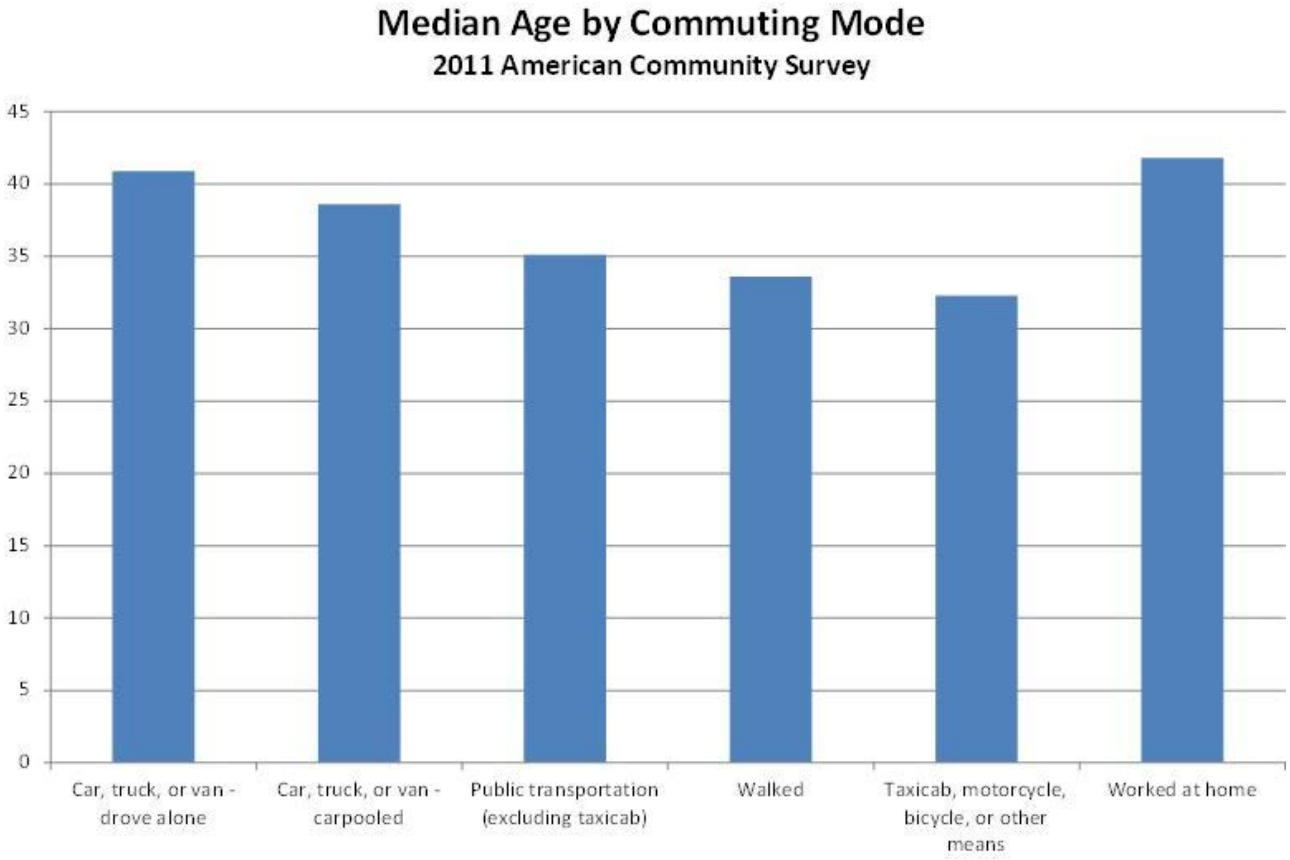
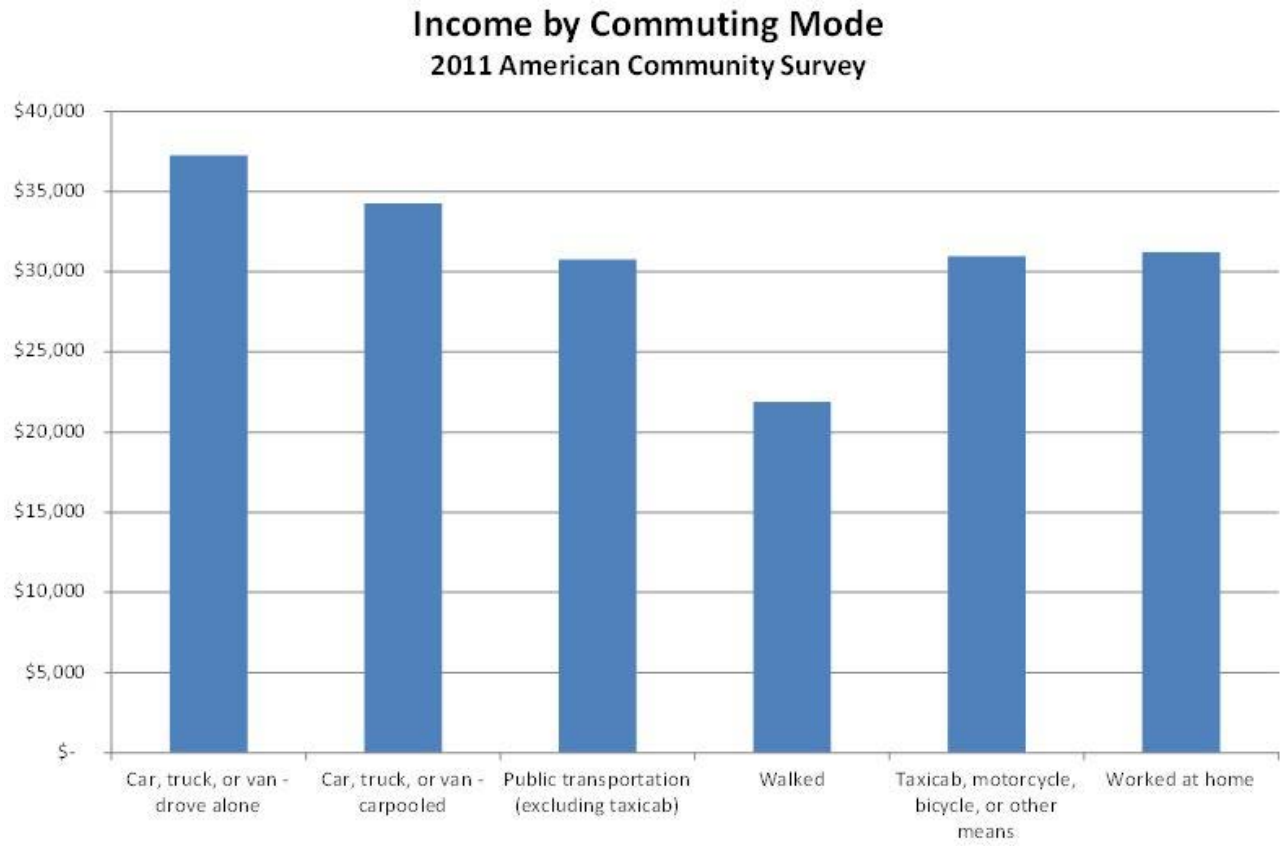


Fig. 7: American Community Survey Rate of Commuting by Income



VI. Identified Licensing or Registration Programs

State	County	City	University	Bicyclist	Bicycle	Identification	Price	Voluntary
Alabama			University of Alabama		Yes			No
Arizona		Mesa			Yes			No
Arkansas			Arkansas Tech University		Yes	Sticker		No
Arkansas			University of Arkansas		Yes			No
California			California		Yes	Decal		No
California			Stanford University		Yes	Sticker	$3.50	No
California		Santa Cruz			Yes			No
California			University		Yes		$10.00	No
California		Davis	Davis		Yes		$10.00	No
Colorado			Colorado State University		Yes	Decal	$10.00	No
Colorado			California		Yes	Sticker		No
Colorado		Longmount			Yes	Sticker		No
Florida		Fort Lauderdale			Yes			No
Hawaii		Honolulu			Yes	Decal	$15.00	No
Hawaii	Honolulu				Yes		$15.00	No
Hawaii	Hawaii				Yes			No
Hawaii					Yes		$15.00	No
Indiana		Bloomington	Indiana University		Yes	Sticker	$10.00	No
Iowa		Ames	Indiana State University		Yes	Sticker		No
Iowa		Dubuque			Yes		$5.00	No
Iowa		DeWitt			Yes	Sticker		No
Iowa		Cascade			Yes	Sticker		No

Iowa		Perry			Yes	Sticker		No
Kansas		Augusta			Yes			No
Kansas		Arkansas City			Yes			No
Kansas		Belleville			Yes			No
Kansas		Derby			Yes			No
Kansas		Great Bend			Yes			No
Kansas		Hays			Yes			No
Louisiana		Lake Charles			Yes		$1.00	No
Louisiana			Louisiana Tech University		Yes			No
Maine		Brunswick			Yes			No
Maine		Westbrook			Yes			No
Maryland			University of Maryland		Yes			No
Massachussetts			Smith College		Yes	Decal		No
Missouri		Columbia	University of Missouri		Yes			No
Montana		Missoula			Yes		$10.00	No
Nebraska		Norfolk			Yes			No
New Jersey			Princeton		Yes	Decal		No
New Jersey			Seton Hall University		Yes	Sticker		No
New York		Syracuse		Yes	Yes	Sticker		No
North Carolina			Carolina		Yes			No
Oklahoma			University		Yes			No
Oklahoma			University of Oklahoma		Yes			No
Oregon			University of Oregon		Yes			No
Oregon		McMinville			Yes		$3.00	No
Oregon		Philomath			Yes		$5.00	No
Pennsylvania	Centre				Yes			No
Pennsylvania		Bethlehem			Yes	Sticker	$0.50	No
Pennsylvania			Messiah College		Yes	Sticker		No
Texas			Austin		Yes	Sticker		No
Utah					Yes			No
Utah	Salt Lake County				Yes			No
Utah		Moab			Yes			No
Utah		Salt Lake City			Yes		$2.00	No
Virginia	Henrico				Yes		$1.00	No
Virginia			Virginia Tech		Yes	Decal		No
Virginia			Virginia Tech		Yes			No
Wisconsin		Madison			Yes			No
Wisconsin		Madison			Yes	Decal	$10.00	No
Wisconsin		Milwakee			Yes			No