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Bicycle Strategy - The Portland experience

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By 2003, bicycle use in Portland was climbing and had been for years—ever since the early 1990s when the city began to track the number of bicycle trips in our central city (See Appendix). Despite this positive trend I was anxious about the future. I knew that bicycle use would not continue to grow unabated unless we began to make the types of improvements that matched our ambitions, grand as they were, of achieving the levels of bicycle use I had seen in Amsterdam in the late 1990s. I began to wonder who was currently riding and why. I needed to know what we should do to attract ever more people to bicycle transportation.

Looking out of my figurative window I began to imagine who were the different types of people riding bicycles—and perhaps more importantly—the types of people who were not riding. I knew there were the stereotypical messenger-types—the road warriors: clad in black leather, adorned with piercings and coloured wherever hair grew. I knew that they—like I once did—self-identified as "Cyclists" and that they would ride under any conditions, regardless of our modest efforts. I also knew there were very few of them in Portland—or in any city. Growth would not come from that sector. So, who was riding? Who were the people that were being enticed to try bicycling and then stick with it over time?

Thus began the musings that resulted in a typology of Portland's citizens based on their willingness to use a bicycle as "part of their daily life", as our city policy called for. This typology, which we call the "Four Types of Transportation Cyclists," now influences our considerations about how to advance our goals and also informs our analysis of where we've found success in advancing bicycle use from 1.1% of commute trips in 1990 to 6.4% 20 years later. Recent research, conducted by Jennifer Dill at Portland State University,

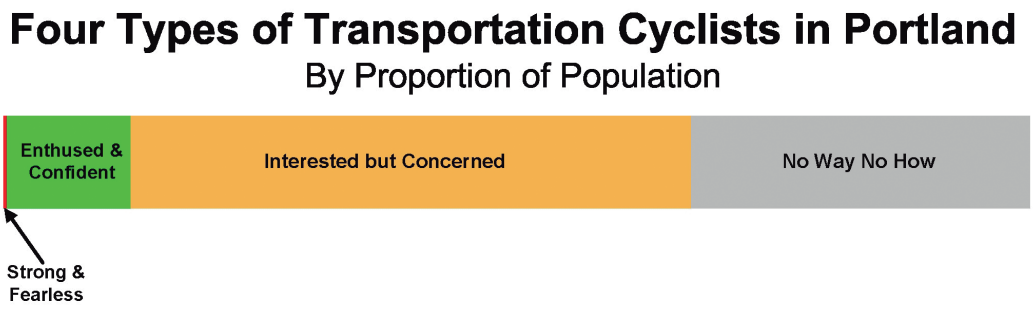

Figure 1. Four types of transportation cyclists

confirms this typology and advances the question about who rides and why (See Appendix). These "Four Types" as I formulated them are now widely accepted throughout North America and perhaps in Australia and New Zealand, too (See Appendix). Figure 1 displays the types proportionate to their estimated number in the overall adult population. The "strong and the fearless," stereotyped above as "messenger-types," are just people who will ride under what most would consider the worst of conditions: busy streets with many fast cars and no bicycle facilities. There are not many of them, but they're in every city where there are bicycles. The "enthused and confident" group was, in 2003, the principal answer to the question "who's riding?" Though this group will not ride in the absence of a bicycle facility, provide them with a conventional bicycle lane on a collector street and they will ride. There are still not many of them, but there are quite a few more than the "strong and fearless." Together, these two groups constitute perhaps up to 15% of the adult population.

Clearly, these two types did not and would not account for the overwhelming ubiquitousness of people bicycling in a city like Amsterdam. Just as clearly, bicycling in the world's best cycling cities transcend "bicyclists" and is common among average people—the people I call the "interested but concerned." What are they interested in? Bicycling. About what are they concerned? Interactions with automobiles. This group makes up the bulk of the population, perhaps 50-60%. With the right inducements and conditions they would ride; but a standard 5-foot (1.5-meter) bicycle lane on a busy street is not enough for them. Finally, the fourth type of "cyclist" isn't a cyclist at all. This group—the "no way,

Figure 2. Portland Bicycle Boulevard (photo: greg Raisman/flickr)

no how"—is either not interested in using or is unable to use a bicycle for transportation. We estimate that they are perhaps as much as one-third of the adult population.

How then can this analysis inform a strategy to increase bicycle use? In retrospect, Portland gained recognition as the most bicycle-friendly North American city largely through our success in building a bikeway system that appealed to the "enthused and confident" cyclists. Though a relative small minority of the population, they are numerous enough that if you build a well-connected network of bicycle lanes it is possible for a city to capture a relatively high percentage of this group. Better yet, because bicycle lanes tend to be on the collector streets that are used for much of a city's transportation behaviour, bicycling became a visible transportation activity. This visibility of bicycling served Portland well and contributes to the further improvements we continue to be able to make to our bikeway network.

In our current thinking about bicycling, we consider the "interested but concerned" to be our design vehicle. This is consistent with the idea of creating "8-80 cities," cities that can be comfortably and safely navigated by those who are potentially the most vulnerable in traffic: the very young and the very old. This is influencing our policies, our bikeway designs and our strategies about what types of facilities to prioritise as well as our encouragement and education efforts.

Build to your strengths

Though we didn't consider it at the time, or in these terms, Portland was building to our strengths in developing a bikeway network.

Much of Portland's inner city (within 4 miles [6.5 km] of our downtown) was built along a tight grid pattern. Our roadways, even those designed to carry high volumes of traffic,

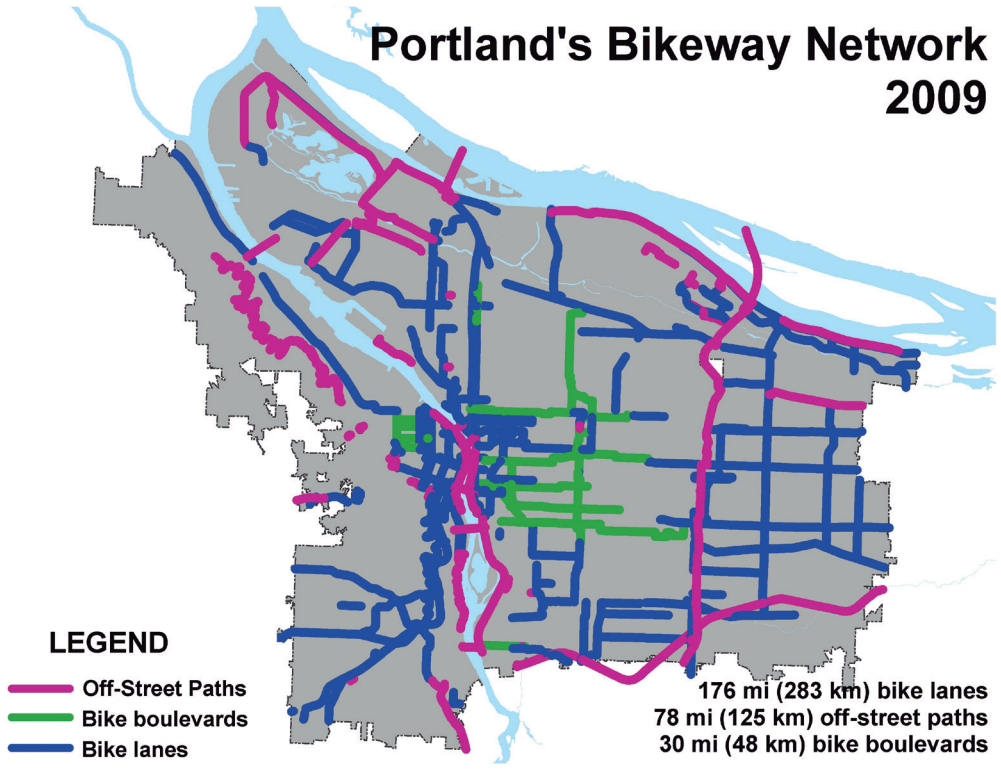

Figure 3. Portland's bikeway network 2009

tend to be relatively narrow. An 80-foot (24 m) right-of-way is the exception in this part of town. More typical are 60- or 70-foot (18- or 21-meter) rights of way with roadway widths of 36-44 feet (11-13 m). While this can produce challenges in finding width for bicycle facilities, it also means that the traffic conditions are typified by relatively low volumes of cars traveling at relatively slow speeds. Inner Portland is not a city of 5-lane arterials with speed limits of 45 mph (72 kph). Rather, we have two-lane roadways with posted speeds generally no greater than 30 or 35 mph (48 or 56 kph.) This is complemented by our downtown, which follows this tight grid and uses signals on almost every block (approximately every 260 feet [80 m]) to progress traffic at speeds ranging from approximately 12-16 mph (19-26 kph). In this regard, Portland's downtown may be unique among large North American cities.

Our initial strategy to encourage more bicycling was to stripe bicycle lanes on main streets and principal arterials. In the early- and mid-1990s, bicycle lanes were the best

tool we had and they aligned with our philosophy to make Portland's main streets work for people on bicycles. Though of understandably limited appeal, these simple bicycle lanes perhaps attracted a larger proportion of Portland's population than they would have had they been developed in other locales simply because the nature of our collector roadways is less intimidating than are collector roadways in other cities. As a result, we attracted a fair number of the "enthused and confident" type and our cycling numbers grew. We didn't know this was a strength for our city, though in retrospect it seems to be. Figure 3 shows Portland's bikeway network as it existed in 2009 with its emphasis on bicycle lanes.

In 2007, we began to turn our focus ever more to the "interested but concerned." Recognizing the importance of the Dutch bikeway design principles, where "comfort" is as important as "safety", and "directness" to destinations and "cohesion" in the network were equally important, we understood that cycle tracks on main streets were the gold standard of bikeway facilities. They provided direct access to major destinations while creating supreme comfort through separation from motor vehicles. Unfortunately, these facilities also came with a high degree of difficulty both in terms of dollars and politics (the necessary removal of travel lanes is always difficult on Portland's narrow roadways and in North America's auto-oriented transportation systems and culture). Thus, we refocused on a facility type that was well-loved if relatively little used in Portland at the time: the bicycle boulevard. Though a shared roadway facility, bicycle boulevards are designed to keep both traffic volumes and speeds low. Because of that we felt they would appeal to more of the interested but concerned than would bicycle lanes. Because Portland has such a tight grid network we could develop these boulevards proximate to principal commercial streets and at least get people close to common destinations.

Portland's focus on bicycle boulevards has been well-received by both the public and politicians. It also reflects our building to an inherent strength of our closely-spaced street grid. In much of Portland, we have long corridors of these low-volume residential streets that can carry people long distances under conditions where we bring speeds down to 20 mph (32 kph) and traffic volumes to fewer than 1,500 cars per day—typically many cars fewer. Not many cities have such extensive opportunities to develop boulevards as does Portland and, as shown in Figure 4, we are actively exploiting that opportunity.

The idea of building to ones strengths takes different forms in different cities. New York City's street network on Manhattan is characterised by wide, broad avenues that include multiple wide travel lanes. There, the city has been able to remove the occasional travel lane without undue adverse effect on the movement of automobiles and create wide cycle tracks or buffered bicycle lanes. On other roadways they have been able to narrow existing multiple travel lanes enough that they can maintain the same number of lanes and still provide a wide buffered or protected bicycle lane. That is their strength.

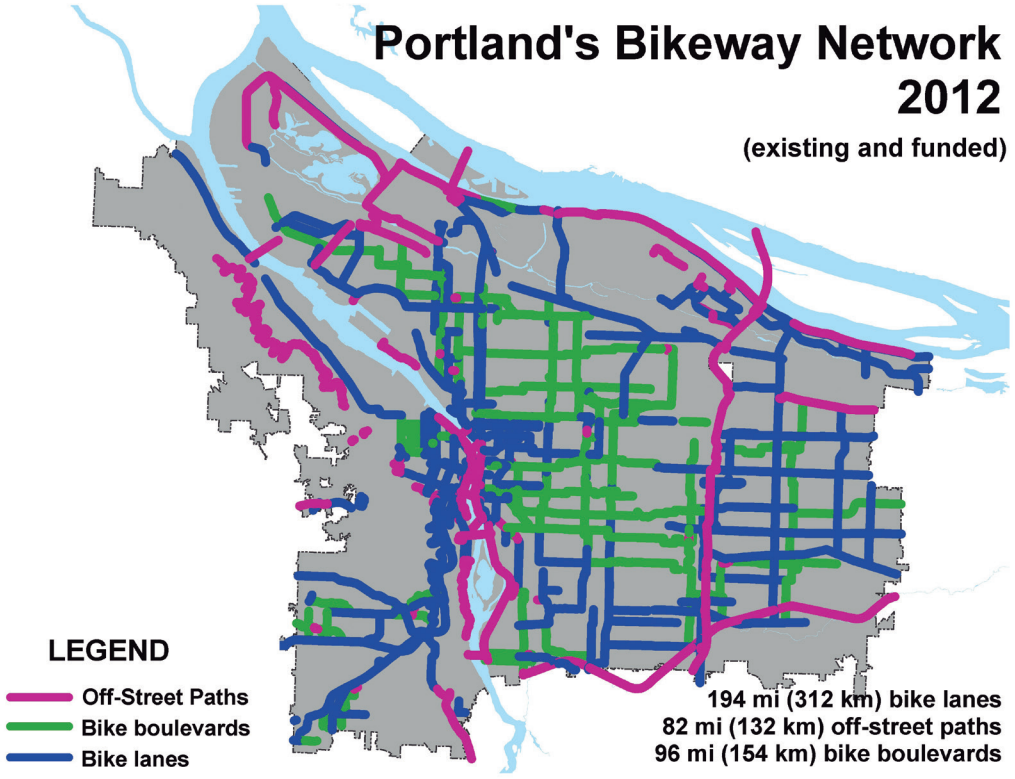

Figure 4. Portland's bikeway network 2012

Boulder, Colorado has many streams with wide areas adjacent to them for flood control. They have capitalised on this strength and used these areas to build a network of urban trails in parts of their town.

Table 1 shows the relative strengths of various facility types in terms of providing main street access and creating comfortable riding conditions. The "difficulty" in the final column reflects both financial and political difficulty. This chart is representative of conditions in Portland, Oregon. The difficulties for other locales will vary based on the particular characteristics of the local roadway and levels of political support for bicycle transportation.

Separation (comfort) v. Proximity (access) and degree of difficulty

Facility Type	Separation	Proximity	Difficulty
Shared route		★★★	
Share lane marking	½	★★★	½
Bicycle lane	★	★★★	★
Buffered bicycle lane	★★	★★★	★★½
Bike Boulevard	★★	★★	★★
Off-street path	★★★		★★★
Cycle track	★★★	★★★	★★★

Table 1. Interplay between comfort, access and difficulty of implementation

Make bicycling visible

Bicycle transportation is aided both operationally ("safety in numbers") and politically from increased visibility of people bicycling. Portland benefitted from our initial strategy of developing bicycle lanes on collector streets because of the visibility it created. Over time, critics of Portland's efforts to encourage bicycle transportation could no longer state the often-heard canard, "Why are you wasting money on bicycling? Nobody ever rides."The undeniably growing presence of people bicycling provided supportive talking points for politicians, journalists and advocates interested in advancing bicycling. I'm not sure that we would have progressed as quickly as we did in the political realm had our initial network development focused on bicycle boulevards. Though having more universal appeal than bicycle lanes, boulevards also tend to be on less-traveled streets where people bicycling in any numbers are not as likely to be seen by the general public.

Making bicycling visible is also a function of encouraging bicycling and reporting on bicycle use. Portland's successful encouragement programs accomplish two principal goals: 1) they highlight the benefits of using the city's bikeway system as a means of transportation and 2) they capture the public's imagination about the joy of bicycling. Portland also provides extensive annual reports about our ever-growing bicycle use and complements those with less frequent reports and analyses about the benefits that accrue to Portland as a result of bicycling. Because decisions about investments in bicycle transportation are ultimately political, these efforts that highlight both bicycle use, success and benefits have as important a role to play in advancing bicycling as do advanced design elements like cycle tracks, bike boxes and dedicated bicycle signals.

Conclusion

The principal strategies that have contributed to Portland's success in bicycle transportation are:

- Build an appealing network
- Identify your target audience and understand their needs
- Build to your strengths, and
- Make bicycling visible.

Portland's lesson is to build the most complete and highest quality system possible at any particular moment in time and then continue to improve it as conditions allow.

Essential to our ability to consider and implement these strategies has been a solid foundation of policies that support bicycling, politicians that made key funding, planning and design decisions to advance bicycling, a strong advocacy for bicycling and a talented bureaucracy that was given the tools and support to succeed. The periods when Portland has advanced the most has been when bicycle transportation enjoyed the strong support of local politicians. Some of the key elements in our strategy have been and remain:

Be opportunistic and go after the low-hanging fruit

Our initial focus on bikeway projects that were the least controversial was the way to get our foot in the door. We have always striven to achieve the best we can at the time, recognizing that we will not always build the best and highest design in the face of competing demands for limited space and funding and political realities.

Innovate and do not ask "what is allowed," but rather "what is best?"

Portland has successfully introduced and/or popularized many bikeway designs in North America. We have often used design elements that were not formally allowed by standard traffic engineering guidelines.

Design for the hordes

Portland is now suffering from our own success. Much of what we've built in the past 20 years is now too small or otherwise deficient for the people currently bicycling and for those we're working to attract to bicycling. We are actively retrofitting bicycle lanes built long ago: widening them, eliminating any gaps and improving their operation at intersections.

The world has changed much since Portland began earnestly building a bicycle transportation system 20 years ago. Today, there exists a growing recognition that bicycling can be the "silver bullet" that addresses many of the urban and global ills that challenge us. Increased bicycle transportation has a positive effect on public health, climate change, air quality and other environmental concerns. Bicycle transportation provides affordable mobility in cities in a manner that enhances both the quality of urban life and economic activity. Twenty years ago few countries appreciated these benefits. Today these changing conditions and growing appreciation of bicycling allow planners, advocates and politicians to adopt strategies that promise rapid advances in implementing bicycle systems that reflect international best practices. For these reasons it behooves today's planners to pursue a strategy that promotes policies and designs that are as bold as they can be. This is why Portland's proposed bicycle transportation policy—adopted in the city's 2010 update of its bicycle plan—calls for the city to "create conditions that make bicycling more attractive than driving for trips of three miles (5 km) or less (See Appendix). " That is our goal for advancing bicycling and reflects a key element of our strategy to make Portland one of the world's better and most livable cities.

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