



# PORLAND, OREGON NEIGHBORHOOD GREENWAY INITIATIVE

to decrease motor-vehicle speed and increase bicycling and walking<sup>1</sup>  
*A Community Speed Reduction Case Study*

DECEMBER 2013

*Credit: Photo used with permission from Greg Raisman, Portland Bureau of Transportation*

## THE PROBLEM

For years, community members and bicycle and pedestrian advocacy groups have expressed concern about high motor vehicle speeds in Portland, especially on residential roads. The Portland Bureau of Transportation's (PBOT) crash data indicate that speed is a major factor in both the number and the severity of crashes on all roads. Between 2006 and 2011, 654 bicyclists and pedestrians have been injured and 162 have been killed in Portland.<sup>2</sup>

Existing infrastructure did not fully address the needs of residents interested in walking and biking more but had concerns for their safety. PBOT sought to enhance its designated bike route roads to improve pedestrian and cyclist safety.



Health Resources in Action  
*Advancing Public Health and Medical Research*

# THE SOLUTION

In its Neighborhood Greenways plan, PBOT developed an approach that addresses a number of issues:

- the number of speed-related crashes,
- levels of walking and biking, and
- resident access to green space in parts of the city

Portland residents preferred bicycling on the city's Bicycle Boulevards, which were designated as bike route roads. These Bicycle Boulevards had a 25 mph speed limit, traffic volume of less than 3,000 cars per day, traffic calming measures, and engineering treatments for major road crossings, but there were not a sufficient quantity to create a connected network, and the 25 mph speed limit was still too high for some users.<sup>3</sup> Furthermore, evidence from northern Europe showed that routes with a speed limit of 18 mph and very low motor vehicle volume are safer for children.<sup>4</sup> PBOT's Neighborhood Greenways plan converted and expanded the Bicycle Boulevards into a network of Neighborhood Greenways in order to decrease crashes and address the needs and wants of residents who were interested in walking and biking more but were concerned for their safety when traveling on high speed/high volume roads. Additional non-traffic related benefits contribute to the city's quality of residential life.

By 2015, PBOT hopes to complete a network of greenways that are within ½ mile of 80 percent of Portland homes and also support Portland's goal to increase the number of all trips by bike from eight to 25 percent by 2030.<sup>5</sup>



## Neighborhood Greenways are residential streets designed to PRIORITY BICYCLES and PEDESTRIANS over AUTOMOBILE TRAFFIC.

*Neighborhood Greenways are residential streets designed to prioritize bicycles and pedestrians over automobile traffic.* Typically, greenway speed limits are 20 mph and traffic volume is 250–1,000 cars per day. Evidence from programs in Northern Europe shows that routes with a speed limit of 18 mph and very low motor vehicle volume are more appropriate for children. Automobile cut-through and speeds are reduced by installing speed bumps and diverting traffic. Where greenways cross higher speed and busier roads, the City has installed infrastructure to protect cyclists and pedestrians. Pavement markings and signage provide users with information about greenway routes and nearby parks and businesses. The signage also raises driver awareness about sharing the road with bicyclists and pedestrians. Neighborhood Greenways incorporate best practices for residential traffic safety, include community building elements, serve as a platform for sustainable stormwater management, and increase the density of the urban tree canopy.

# THE PROCESS

## Planning and implementation

In 2011, the Oregon state legislature passed HB 3150, which allows local jurisdictions to pass ordinances to reduce speed limits by 5 mph on streets with average measured automobile speeds of less than 30 mph, 2,000 or fewer daily motor vehicle trips per day, and markings to indicate the road presence of pedestrians and bicycles.<sup>6</sup> PBOT was then able to lower speed limits from 25 mph to 20 mph on Neighborhood Greenways. PBOT created shared lanes on residential streets by painting sharrows on the road.

In planning for the implementation of Neighborhood Greenways, PBOT sought to understand the needs and concerns of community members and how they experienced the roadways in their community. Planners biked the streets and reached out to local bike or pedestrian advocates and neighborhood coalitions. Staffers from the PBOT held town hall-like forums to explain the Neighborhood Greenways concept and present goals for successful implementation of the greenways, including the following benchmarks:

- slower vehicle speeds,
- minimized cut-through traffic,
- improved crossing and intersection safety,
- improved Safe Routes to Schools bicycle and walking routes for children, and
- safe and comfortable access to parks and businesses.

Community members' input helped identify the streets that would become the Neighborhood Greenway system. The street network was designed to connect to parks, to provide a foundation for Safe Routes to Schools programs, and to improve access to businesses and transit. PBOT developed an implementation plan that included a goal of creating 15 new greenway miles each year.

## Costs

PBOT estimated that each mile of the Neighborhood Greenway would cost \$250,000 — as little as one-tenth the cost of creating physically separated bike lanes on busy roads. Because the city was able to use existing trail connections and routes with signals, greenway creation costs were lowered to \$150,000 per mile.

Funding for Portland's Neighborhood Greenways comes from a variety of sources, including general transportation revenue and transportation grant-funding, as well as Safe Routes to Schools grants. Since 2009, the City has dedicated \$500,000 annually to bicycle transportation as part of an Active Transportation Fund. Beginning in 2010, the City dedicated another \$1 million from general transportation revenues.<sup>7</sup>

## Partners

PBOT partnered with the Portland Parks and Recreation Department to build paths that provide better access to green spaces. Through a partnership with a local non-profit Friends of Trees, the Bureau of Environmental Services (BES), and PBOT have provided free street trees along Neighborhood Greenway routes, improving the urban tree canopy and making the routes more pleasant. BES also provides resources to integrate sustainable stormwater management facilities into traffic safety improvements.

# CONCLUSION

Through the Neighborhood Greenways initiative, PDOT has integrated several goals designed to address pedestrian and cyclist safety with a desire to create a more livable city.

1. **Reducing motor vehicle speed:** PBOT's evaluation goal is to reduce the 85th percentile speed — the speed at which 85 percent of drivers are travelling and a common way to set speed limits — to 20 mph on residential portions of a number of greenways. The Neighborhood Greenways initiative uses speed bumps to achieve the desired 20 mph operating speed, and PBOT continues to collect motor vehicle speed and volume data from all neighborhood greenways.
2. **Reducing injuries and fatalities:** One goal of the Neighborhood Greenways is to move the majority of bicycle travel from roadways without improved bike facilities to the low conflict and low exposure Greenways where crash activity is more infrequent and less severe. There is not yet enough data to measure a reduction in injuries and fatalities. Previous PBOT experience with transferring trips from a higher risk to lower risk environments has proven to reduce crashes and injuries.
3. **Increasing bicycle volume:** Bicycle volume increased by approximately 6.4 percent between 2010 and 2011.<sup>8</sup> Within the same timeframe, 61 percent more bicycles were counted at 11 locations on newly developed neighborhood greenways.<sup>8,9</sup>
4. **Providing greater access to bicycle infrastructure:** In 2009, approximately 25 percent of Portland homes were within ½ mile of a Neighborhood Greenway. Since 2009, PBOT has completed 40.1 miles of Neighborhood Greenways. An additional 34.1 miles of projects having been approved but are in various stages of installation. According to a 2013 City of Portland analysis, about 65 percent of homes are within a half mile of a Greenway, and all routes are integrated into the existing bicycle transportation system.

PBOT's efforts illustrate that speed reduction can be successfully integrated into a multi-faceted program that engages residents in achieving a safer and more inviting road environment for pedestrians and bicyclists.

## To learn more about how speed reduction can benefit public health:

- Public Health Impact: Community Speed Reduction
- Speed Reduction Fact Sheet: Opportunities to Improve Current Practice
- Community Speed Reduction and Public Health: A Technical Report

## Case Studies:

- Chicago, Illinois: Child Safety Zones
- Columbia, Missouri: Lowering The Posted Speed Limit On Residential Streets
- New York City: Neighborhood Slow Zones
- Seattle, Washington: A Multi-Faceted Approach To Speed Reduction
- Washington, DC: Automated Speed Enforcement

*Disclaimer: This project is supported by Cooperative Agreement Number 3U38HM000520-03 from the Centers for Disease Control and Prevention to the National Network of Public Health Institutes (NNPHI). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or NNPHI.*

## ACKNOWLEDGEMENTS

The documents were authored by a team of individuals from Health Resources in Action, Inc. and the Metropolitan Area Planning Council. A number of individuals and organizations contributed their time and expertise to the development of these products. For a complete list of those partners, please visit [www.hria.org](http://www.hria.org)

**For more information, visit  
WWW.HRIA.ORG or call  
HEALTH RESOURCES IN  
ACTION at 617-279-2240.**

## REFERENCES:

- <sup>1</sup> Unless otherwise cited, information in this case study is provided during an interview with the Director of Traffic Safety Programs and subsequent communication with staff at the PBOT.
- <sup>2</sup> Greater Portland Pulse. Total pedestrian and bicyclist fatalities and injuries in the greater Portland area, 2006-2011. 2013. Available: [http://www.portlandpulse.org/traffic\\_fatalities\\_and\\_injuries](http://www.portlandpulse.org/traffic_fatalities_and_injuries)
- <sup>3</sup> Broach J, Dill J, Griebel J. Where do cyclists ride? A route choice model developed with revealed preference GPS data. Transportation Research Part A: Policy and Practice. 2012 12//;46(10):1730-40.
- <sup>4</sup> US Department of Transportation, Federal Highway Administration. National Bicycling And Walking Study. Publication No. FHWA-PD-93-028 Case Study No. 19 Traffic Calming, Auto-Restricted Zones and Other Traffic Management Techniques — Their Effects on Bicycling and Pedestrians. 1994. Available: [http://safety.fhwa.dot.gov/ped\\_bike/docs/case19.pdf](http://safety.fhwa.dot.gov/ped_bike/docs/case19.pdf)
- <sup>5</sup> City of Portland Bureau of Transportation. What is a Neighborhood Greenway. Available from: <http://www.portlandoregon.gov/transportation/article/348902>.
- <sup>6</sup> Oregon State Legislature. House Bill 3150. 2011; Available from: <http://www.leg.state.or.us/11reg/measpdf/hb3100.dir/hb3150.intro.pdf>.
- <sup>7</sup> Portland Bureau of Transportation. Portland Bicycle Plan for 2030: One Year Progress Report. 2011; Available from: <http://www.portlandoregon.gov/transportation/article/345419>.
- <sup>8</sup> Portland Bureau of Transportation. 2011 Bicycle Counts Report. 2012; Available from: <http://www.portlandoregon.gov/transportation/article/386265>.
- <sup>9</sup> Portland Bureau of Transportation. NE Going, Vancouver to 33rd Greenway Traffic Data. 2006–2012.