

### Background

- Metro sought tool improvements that allow assessment of the effectiveness of investments in bicycle infrastructure compared to investments in other modes.
- Bicyclists' route preferences were recorded by a 2007 GPS survey led by Portland State University.
- Metro contracted with PSU to build a bicycle route choice model based upon the GPS survey, then with PTV America to incorporate the algorithms into our modeling software.

### How the tools are applied

- Code bicycle network. Bicycle travel is modeled on all streets allowing bikes, plus multi-use paths.
- Calculate route attractiveness for bicycle mode between all locations.
- Feed bicycle route attractiveness into the mode choice model.
- Assign bicycle trips on the bicycle network. Bicycle assignments represent 24-hour flows.
- Prepare evaluation measures.

### Future initiatives

- Active Transportation Plan
- Multimodal network
- Regional Transportation Plan
- Bicycle count program

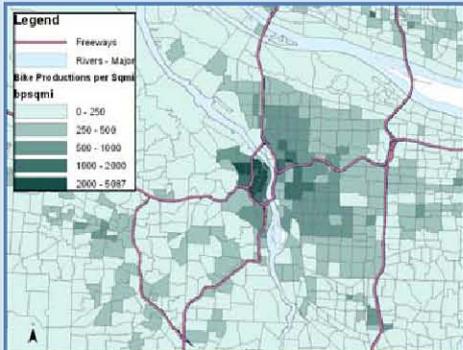
**Bicycle network**  
Bike lanes, boulevards, and paths



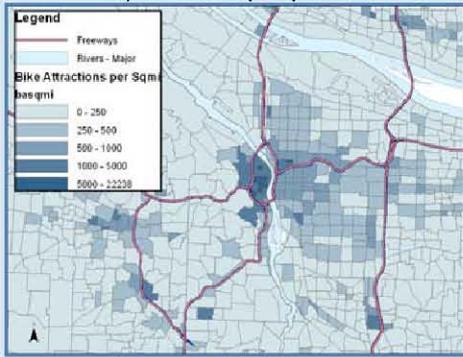
### Variables affecting bicycle attractiveness

- Distance (importance varies by trip purpose—commute or non-commute)
- Proportion of route on off-street paths, bike boulevards, bike lanes
- Proportion of route on links with grade 2% to 4%, 4% to 6%, greater than 6%
- Proportion of route on arterials without bike lanes
- River crossing bridges with separated bike facility, bike lane, no bike facility
- Turns and through movements at intersections by intersection type, per mile
- Stop signs per mile

**Bicycle mode share results**  
Bicycle productions per square mile



**Bicycle attractions per square mile**



**Bicycle assignment results**  
Modeled bicycle commute flows



Select link: Westbound on the Hawthorne Bridge



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