Focusing on Neighborhood Traffic Safety
Lessons from Europe
and Canada (hey, they like the Queen)

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Portland Bureau of Transportation
PORTLAND’S APPROACH to SAFETY

Comprehensive Traffic Safety Approach

- (E)ngineering
- (E)ducation
- (E)nforcement
- (E)ncouragement
- (E)valuation
- (E)quity

Focus on the Most Vulnerable First

- Children and Seniors
  - In 2008, 23% of PDX population under 18
  - In 2008, 13% of PDX population over 65
- People with disabilities

Provide for Many Travel Options

PARTNERSHIPS: transportation, police, neighborhoods, schools, emergency response, business, advocates working together
SAFETY IS IMPROVING FOR EVERYONE

ALL TRAFFIC FATALITIES ARE A SYMPTOM OF THE SAME DISEASE

- **Traffic Fatalities** per 100,000 residents in Portland:
  - Going down 6 times faster than USA
  - Going down 3 times faster than State of Oregon

- The conditions that improve multi-modal transportation **improve safety for everyone**: speed reduction, less DUII, better compliance with traffic rules, better organization of modes
Bicycle and pedestrian traffic is estimated based on the best indicators available. For pedestrians, originating transit boardings are represented. For bicycle use, annual bicycle counts on 4 downtown bridges are represented. For bicycle use, annual bicycle counts on 4 downtown bridges are represented.
SAFETY IS IMPROVING FOR EVERYONE

The Netherlands

- +45% Bicycle distance travelled
- +39% Car distance travelled
- -235% Bicycle fatalities
- -245% Car fatalities

Number of passenger kilometres and number of deceased cyclists and car occupants
1980, 2001, 2005

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<tr>
<th></th>
<th>1980</th>
<th>2001</th>
<th>2005</th>
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<tbody>
<tr>
<td>Passenger km by bicycles</td>
<td>9.9 billion</td>
<td>13.1 billion</td>
<td>14.4 billion</td>
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<tr>
<td>Passenger km by car</td>
<td>107.1 billion</td>
<td>141.6 billion</td>
<td>148.8 billion</td>
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<tr>
<td>No. of deceased cyclists</td>
<td>426</td>
<td>195</td>
<td>181</td>
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<tr>
<td>No. of deceased car occupants</td>
<td>910</td>
<td>477</td>
<td>371</td>
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Source: Ministry of Transport, Public Works, and Water Management (The Netherlands)
BIGGEST THINGS WE CAN DO TO MAKE THINGS SAFER TODAY

- Slow down!
- Don’t operate under the influence!
- Reduce distracted driving
- Reduce rules violations
- Watch out for the most vulnerable!
  - Children
  - Seniors
  - People with Disabilities
TYPES OF ROADS IN OUR CITY
Regional Trafficways
Intended to serve interregional district movement that has only one trip end in a transportation district or to serve trips that bypass a district completely.
Major City Traffic Streets
Should provide motor vehicle connections among the Central City, regional centers, town centers, industrial areas, and intermodal facilities. Auto-oriented development should locate adjacent to Major City Traffic Streets, but should orient to pedestrians along streets also classified as Transit Streets or within Pedestrian Districts.
• 70% of Portland’s streets are residential.
• 20% of bicycle and pedestrian crashes happen on residential streets.
• As the speed and volume of a road goes up:
  • Increases likelihood of crash
  • More likely that crash will be severe if it does happen
District Collectors
Intended to serve as **distributors of traffic from Major City Traffic Streets** to streets of the same or lower classification. District Collectors serve trips that both start and end within a district.
Neighborhood Collectors

- Intended to serve as distributors of traffic from Major City Traffic Streets or District Collectors to Local Service Streets

- Function… All Neighborhood Collectors **should be designed** to operate **as neighborhood streets** rather than as regional arterials.
Local Service Traffic Streets

- Intended to distribute local traffic
- Provide local circulation for traffic, pedestrians, and bicyclists
- In some instances where vehicle speeds and volumes are very low (for example, woonerfs and accessways), Local Service Traffic Streets may accommodate both vehicles and pedestrians and bicyclists in a shared space.
COST EXAMPLES

1 mile of freeway: about $60,000,000
COST EXAMPLES

1 mile of European Cycle Track: about $2,750,000

Utrecht, The Netherlands
COST EXAMPLES

1 mile of Portland Bike Boulevard: about $250,000
SO LET’S TALK ABOUT BOULEVARDSD
What is a Bike Boulevard?
A Low Traffic Volume and Low Speeds Street Where Bicycles and Pedestrians are Given Priority

LET’S FOCUS ON 3 AREAS

- **Volume Management**: Reducing auto cut-through
- **Speed Management**: Reducing auto speeds
- **Crossings**: Helping people across busy streets

We’ll skip “Guidance” which is the 4th element of a bike boulevard

- **Caveat**: Some of these treatments could fit our city, others may wind up not fitting
What is a Bike Boulevard?
A Low Traffic Volume and Low Speeds Street Where Bicycles and Pedestrians are Given Priority

WHY ARE THEY A GOOD MODEL?

- Quickly provide a citywide, low-stress network
- Connect Schools, Parks, and Commercial areas
  - Safe Routes to School
  - Connecting Green
  - Portland Plan
- Address concerns about cut-through traffic and speed
- Provide new opportunities to safely cross busy streets
- More Eyes on the Street
New ones will be better: much wider island
Click this to see a video with the simple barrier device in a Dutch neighborhood.
Click to see a video of this Intersection, click the link below.

The good stuff starts 20 seconds in.
Click here for a view of riding a bike in Utrecht, The Netherlands on a residential route that uses techniques similar to this. In the video, I am riding with the lead Utrecht staff person for traffic safety as well as their bicycle coordinator. During this part of the ride, there is a long exchange between me and Ronald Tamse, traffic safety. Before working in Utrecht, Ronald was a traffic engineer for Amsterdam.
VOLUME MANAGEMENT

Vancouver, BC


Utrecht, The Netherlands
Cologne, Germany
VOLUME MANAGEMENT

Brussels, Belgium

590 NE 22nd Ave, Portland, OR, United States
Address is approximate
VOLUME MANAGEMENT

Brussels, Belgium
VOLUME MANAGEMENT

SE Morrison, from Grand to 11th
VOLUME MANAGEMENT: non-intuitive system in Utrecht

Click to see a video of riding a bike in a neighborhood like this.
VOLUME MANAGEMENT

A to B by Car:

A to B by Walk/Bike:
UNEVEN YEARS
VOLUME MANAGEMENT

To see a video of a Belgian planner explaining what’s happening here, see:
- [Underground, interview 1](#)
- [Above Ground, interview 2](#)

Leuven, Belgium
VOLUME MANAGEMENT

voor en na

Martelarenplein begin jaren '80

Martelarenplein 2005
Speed Dramatically Increases Fatality Rate

- 20 MPH: 5% Fatality Rate
- 30 MPH: 40% Fatality Rate
- 40 MPH: 90% Fatality Rate
SPEED MANAGEMENT

Utrecht, The Netherlands

Brussels, Belgium

Utrecht, The Netherlands

Brussels, Belgium
Utrecht, The Netherlands
Click to see a video that explains this device.
SPEED MANAGEMENT
Click to see a video example of a parking chicane in a residential area
SPEED MANAGEMENT

Click to see a video of me discussing this type of device with the lead traffic safety staff for Utrecht
SPEED REDUCTION & CROSSING TREATMENT

Amsterdam, The Netherlands
CROSSING TREATMENTS

Cologne, Germany
SPEED REDUCTION & CROSSING TREATMENT

Click to see a video of this crossing in operation
SPEED MANAGEMENT & CROSSING TREATMENT & SPEED CONTROL

OH MY!

Utrecht, The Netherlands

Click to see a video of this intersection in operation
SAFETY RESULTS

Recent British Journal of Medicine:

20 MPH Zones associated with:

• 42% decrease in all crash activity
• 46% decrease in serious injury & fatal crashes
• Biggest decreases in crash activity for ages 0-15

Effect of 20 mph traffic speed zones on road injuries in London, 1986-2006: controlled interrupted time series analysis
Cite: BMJ 2009;339:b4469
Spokane Bike Boulevard Project

1. Crossing Safety for Pedestrians and Cyclists
   - 20-mph business speed zone on 13th and 17th – Length determined with business input
   - Marked and signed crossings with Refuge Islands at 13th and 17th Ave

2. Reduced Traffic on Spokane
   - Median barrier on Spokane at 13th and semi-diverter on Spokane west of 13th Ave
   - Pinch point east of 7th and east of 15th Ave

3. Spokane easier to use by cyclist
   - Turn STOP signs at 9th, 11th and 15th with 3 added speed bumps
   - Extend traffic calming project east to 19th Ave
   - New bike boulevard markings at 300 to 500-foot spacing each direction
For a lot of photos and videos, see these resources

www.flickr.com/photos/gregraisman/collections

- Europe Photo Library
- British Columbia Collection:

www.youtube.com/user/gregraisman

- Collection of video interviews and explanations of traffic devices

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