Road Diets and Roundabouts

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“Classic Road Diet”

4 to 3 lanes
San Antonio TX
Road diets: reclaim street space for other uses

3 crash types can be reduced by going from 4 to 3 lanes: 1 – rear enders

Road Diets and Traffic Operations
3 crash types can be reduced by going from 4 to 3 lanes: 2 – side swipes

3 crash types can be reduced by going from 4 to 3 lanes: 3 – left turn/broadside
Road Diets in Seattle
(4 to 3 lanes)

<table>
<thead>
<tr>
<th>Roadway Location</th>
<th>Date Change</th>
<th>ADT Before</th>
<th>ADT After</th>
<th>Collision Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greenwood Ave N</td>
<td>Apr-95</td>
<td>11872</td>
<td>12427</td>
<td>24 to 10 58%</td>
</tr>
<tr>
<td>N 80th St to N 50th</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N 45th Street</td>
<td>Dec-72</td>
<td>19421</td>
<td>20274</td>
<td>45 to 23 49%</td>
</tr>
<tr>
<td>Wallingford Area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8th Ave NW</td>
<td>Jan-04</td>
<td>10549</td>
<td>11650</td>
<td>18 to 7 61%</td>
</tr>
<tr>
<td>Ballard Area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Martin Luther King Jr W</td>
<td>Jan-94</td>
<td>12336</td>
<td>13161</td>
<td>15 to 6 60%</td>
</tr>
<tr>
<td>North of I 90</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dexter Ave N</td>
<td>Jun-91</td>
<td>13606</td>
<td>14949</td>
<td>19 to 16 59%</td>
</tr>
<tr>
<td>Queen Ann Area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24th Ave NW</td>
<td>Oct-95</td>
<td>9727</td>
<td>9754</td>
<td>14 to 10 28%</td>
</tr>
<tr>
<td>NW 85th to NW 65th</td>
<td></td>
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</tr>
</tbody>
</table>

Benefits of road diets for bicyclists and pedestrians?

- Provide space to add bicycle lanes
- Reduce crossing distance
- Eliminate or reduce “multiple threat” crash types
- Install crossing island to cross in 2 simple steps
- Reduce top end travel speeds
- Buffer sidewalk from travel lanes (parking or bike lane)
- Reclaim street space for “higher and better use” than moving peak hour traffic
Before

Reclaiming road space creates room for bicycle lanes and pedestrian islands

Charlotte NC

After

07/31/2006

Charlotte NC
Case study: Edgewater Drive Resurfacing Project (Orlando, FL)

- $589,000 project scheduled in FDOT 5-year work plan
- FDOT open to 3-lane option if City takes over jurisdiction
- Changes must be accepted by neighborhood and business associations; before/after studies
Before/after studies: 1. Crash rate

<table>
<thead>
<tr>
<th>Crash Rate (per MVM)</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.6</td>
<td>8.4</td>
<td></td>
</tr>
</tbody>
</table>

34% Reduction

1 crash every 2.5 days (146 per yr)
1 crash every 4.2 days (87 per yr)
Before/after studies: 2. Injury rate

- Before: 3.6 injuries per MVM
  - 1 injury every 9 days (41 per yr)
- After: 1.2 injuries per MVM
  - 1 injury every 30 days (12 per yr)

**68% Reduction**

Before/after studies: 3. Speeding analysis

- North End:
  - Before: 15.7%
  - After: 7.5%
- Middle:
  - Before: 9.8%
  - After: 8.9%
- South End:
  - Before: 29.5%
  - After: 19.6%
Before/after studies: 4. Traffic volumes

Before
20,500

After
18,100

Now
21,000+

Before/after studies: 5. On-street parking utilization

Before
29%

After
41%
Before/after studies: 6. Pedestrian volumes

Number of Pedestrians

\[
\begin{array}{cc}
\text{Before} & \text{After} \\
2,136 & 2,632 \\
\end{array}
\]

23% Increase

Before/after studies: 7. Bicyclist volumes

Number of Bicycles

\[
\begin{array}{cc}
\text{Before} & \text{After} \\
375 & 486 \\
\end{array}
\]

30% Increase
Road Diet — Before  
Pottstown, PA

Road Diet — After  
Pottstown, PA
There’s potential on one-way streets too:
Is this street operating at capacity?

Road Diet on one-way street: This area was recaptured from a 4th travel lane; the street took on a whole new life
La Jolla Boulevard, Bird Rock, San Diego, California

Before

68 Feet

La Jolla Boulevard, Bird Rock, San Diego, California

After

14 Feet
**Roundabouts**

**Benefits:**
- Injuries and crashes reduced 90%
- 30% more traffic capacity
- Gateway entry
- Pedestrian-friendly
- Low traffic speeds
- Reduced noise
- Reduced emissions
- Reduced maintenance
- Business-friendly

**Roundabout design characteristics**
- Slow speed entry with yield
- Slow speed exit
- Splitter island
- Crosswalk 1 car length back
- Lots of deflection for slow speeds throughout
- Separated sidewalk to direct peds to crosswalks
- Truck apron
Roundabouts are safer


Conflicts At Roundabouts

“Results of this study indicate that converting conventional intersections from stop sign or traffic signal control can produce substantial reductions in motor vehicle crashes.”

March 2000 Study by the Insurance Institute for Highway Safety

Before
One pedestrian fatality per year

After
Zero pedestrian fatalities in over 8 years

Bradenton Beach, FL, Intersection of State Routes 684 and 789

Conflicts At a Four-Way Intersection

32 vehicle-to-vehicle conflicts
24 vehicle-to-pedestrian conflicts

8 vehicle-to-vehicle conflicts
8 vehicle-to-pedestrian conflicts
Roundabouts and Pedestrians
Roundabouts and Bicyclists
Roundabouts, Trucks and Fire Departments

Petaluma, CA — Roundabout at Corona Road and Sonoma Mountain Parkway
Petaluma, CA — Roundabout at Corona Road and Sonoma Mountain Parkway

Fire Station #2, 1001 N. McDowell Blvd.

Mountable Curb for large trucks, emergency responders
Mountable Curb can be used by large trucks, emergency responders

Roundabout problems for blind pedestrians:

- Circulating traffic masks the sound cues the blind use to identify gaps and masks the sound of yielding vehicles
- Tangential circulating roadway, tangential exit => high speed (worse at 2-lane roundabouts)