Before

ROAD DIETS MODULE 10

After

Learning Objectives

- Describe how pedestrian crash risk increases with number of travel lanes and speed.
- Explain why reducing number of travel lanes reduces risk, and makes it easier to cross the street.
- Demonstrate how reducing lanes frees space for higher & better use:
  - Streets exist 24/7; peak traffic may be a concern for as little as 30 minutes a day.
“Classic Road Diet”

San Antonio TX

4 to 3 lanes
On-street parking  Median  Bike Lanes  Center Turn-Lane

Road diets: reclaim street space for other uses
Road Diets and Traffic Safety
3 crash types can be reduced by going from 4 to 3 lanes: which ones?
3 crash types can be reduced by going from 4 to 3 lanes: 1 – rear enders
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
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

Concept
Reality: Before
Reality: After

Orlando FL
Before/after studies: 1. Crash rate

Orlando FL

- **Before**: 1 crash every 2.5 days (146 per yr)
- **After**: 1 crash every 4.2 days (87 per yr)

**34% Reduction**
**Before/after studies: 2. Injury rate**

- **Before:**
  - Injury rate: 3.6
  - 1 injury every 9 days (41 per yr)

- **After:**
  - Injury rate: 1.2
  - 1 injury every 30 days (12 per yr)

68% Reduction
Before/after studies: 3. Speeding analysis

Orlando FL

<table>
<thead>
<tr>
<th>Percent of Vehicles Traveling over 36 MPH</th>
<th>North End</th>
<th>Middle</th>
<th>South End</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before/after studies: 3. Speeding analysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before</td>
<td>15.7%</td>
<td>9.8%</td>
<td>29.5%</td>
</tr>
<tr>
<td>After</td>
<td>7.5%</td>
<td>8.9%</td>
<td>19.6%</td>
</tr>
</tbody>
</table>
Before/after studies: 4. Traffic volumes

Orlando FL

Vehicles per Day

20,500
20,000
18,100
15,000
10,000
5,000
0

Before
After

Before:
- 21,000+

After:
- 20,500
- Now
- 21,000+
Before/after studies: 5. On-street parking utilization

Orlando FL
Before/after studies: 6. Pedestrian volumes

Orlando FL

- Before: 2,136
- After: 2,632

23% Increase
Before/after studies: 7. Bicyclist volumes

Orlando FL
### Before/after studies: Evaluation matrix

<table>
<thead>
<tr>
<th>Measure of Effectiveness</th>
<th>Objective Accomplished?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoid Increasing Traffic On Neighborhood Streets</td>
<td>YES</td>
</tr>
<tr>
<td>Reduce Speeding on Edgewater Dr.</td>
<td>YES</td>
</tr>
<tr>
<td>Increase Bicyclist Volumes</td>
<td>YES</td>
</tr>
<tr>
<td>Increase Pedestrian Volumes</td>
<td>YES</td>
</tr>
<tr>
<td>Reduce Crashes</td>
<td>YES</td>
</tr>
<tr>
<td>Increase On-Street Parking Use Rates</td>
<td>YES</td>
</tr>
<tr>
<td>Increase Pedestrian Satisfaction (Residents)</td>
<td>YES</td>
</tr>
<tr>
<td>Increase Parking Satisfaction (Residents)</td>
<td>YES</td>
</tr>
</tbody>
</table>

Also: Noise levels went down…
1. Which road carries more traffic?

2. Which road produces the higher speed?
   - With a 4-lane road a fast driver can pass others
   - With a 2-lane road the slower driver sets the speed

3. Which road produces the higher crash rate?

4. Which is better for bicyclists, pedestrians, businesses?
Road Diet CMF = 0.47 & 0.71 (CRF = 53% & 29%)

Source CMF Clearinghouse

<table>
<thead>
<tr>
<th>CMF</th>
<th>CRF (%)</th>
<th>Quality</th>
<th>Crash Type</th>
<th>Crash Severity</th>
<th>Area Type</th>
<th>Reference</th>
<th>Comments</th>
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</thead>
<tbody>
<tr>
<td>0.47</td>
<td>53</td>
<td>★★★★</td>
<td>All</td>
<td>All</td>
<td>Suburban</td>
<td>Persaud et al., 2010</td>
<td></td>
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<tbody>
<tr>
<td>0.71</td>
<td>29</td>
<td>★★★★</td>
<td>All</td>
<td>All</td>
<td>Urban</td>
<td>Harkey et al., 2008</td>
<td></td>
</tr>
</tbody>
</table>
What are some benefits of road diets for pedestrians?

- 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 ped islands

Charlotte NC
Reclaiming road space creates room for ped islands
This 5-lane Main Street was converted to...
Name 4 things that changed

- Fewer travel lanes;
- Added bike lanes;
- Parallel to back-in diagonal parking on one side;
- New pavement.
There’s potential on one-way streets too:

Is this street operating at capacity?
Example of one way street converted from 3 lanes to 2 lanes (plus 2 bike lanes)
This area was recaptured from a 4th travel lane; the street took on a whole new life.
Road Diet
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Questions?