Regional High Injury Network (HIN) for SCAG Region

What is a High Injury Network (HIN)

- High Injury Network (HIN) includes stretches of roadways where the highest concentrations of collisions occur on the transportation network
- Typically a subset of the network where the most collisions are occurring (>50%)
- Not an assessment of whether a street or location is dangerous
- Rather, streets with a higher risk of injury than other streets

Why develop a High Injury Network

- Help jurisdictions to focus on most challenging areas
- To achieve safety targets
- Implement cost effective safety countermeasures
- Coordinate with educational campaigns (e.g., Go Human)
- Prioritize investments

Goals for a Regional High Injury Network

- Focus on fatal and serious injury (FSI) crashes
- Be sensitive to differing county contexts
- Be quantifiable to assessments objectively
- Be replicable to track changes over time
- Consider all modes of travel, but provide the option for reviewing only auto-auto, auto-bike, and auto-pedestrian collisions
- Identify high injury corridors and not only hot spots
- Include segments that are normalized by length (one mile)

Method using GIS

- Collision data 2010-2014
- Only fatal and serious injury collisions
  - Auto - Auto collisions
  - Auto - Pedestrian collisions
  - Auto - Bike collisions
- Excluded freeways
- No current weighting
- Assess County by County vs the entire region

Results

<table>
<thead>
<tr>
<th>Maximum number of Collisions per mile</th>
<th>FSI</th>
<th>Auto</th>
<th>Ped</th>
<th>Bike</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imperial</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>LA</td>
<td>14</td>
<td>7</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Orange</td>
<td>13</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>SB</td>
<td>8</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Riverside</td>
<td>10</td>
<td>6</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Ventura</td>
<td>7</td>
<td>5</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

- A threshold is usually identified to capture a higher percentage of crashes with lower miles of streets to focus improvements.
- 65% was selected as a threshold because it is a manageable scale for all counties
- For example, Imperial county with 65% will have to focus on 8 miles vs 95 miles at 70% threshold

Threshold

<table>
<thead>
<tr>
<th>Calculation for percentage of street miles on HIN</th>
<th>Total Roadway Miles</th>
<th>HIN roadway miles 65%</th>
<th>HIN roadway miles 70%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imperial</td>
<td>1693.5 miles</td>
<td>7.9 miles</td>
<td>95.5 miles</td>
</tr>
<tr>
<td>LA</td>
<td>16845.9 miles</td>
<td>314.0 miles</td>
<td>314.0 miles</td>
</tr>
<tr>
<td>Orange</td>
<td>3885.8 miles</td>
<td>32.3 miles</td>
<td>85.6 miles</td>
</tr>
<tr>
<td>SB</td>
<td>11037.7 miles</td>
<td>85.0 miles</td>
<td>85.0 miles</td>
</tr>
<tr>
<td>Riverside</td>
<td>6225.6 miles</td>
<td>45.0 miles</td>
<td>120.5 miles</td>
</tr>
<tr>
<td>Ventura</td>
<td>1653.2 miles</td>
<td>46.5 miles</td>
<td>46.5 miles</td>
</tr>
</tbody>
</table>

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Further Analysis

- Add weights for Children/Seniors, Pedestrian/Bicyclist, and CoC’s
- Measure exposure rates through traffic volumes

Challenges

- Scale
- Different solutions for different cities
- Cannot generalize solutions

Data Sources

- Collision — TIMS
- TomTom — Street centerline

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