

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
- Collectively explore and share best practices for HINs
- 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

- Dissolve – To form a network of streets
- Python scripts – To break the segment equally by one mile
- Near – To assign the collision on the street

Results

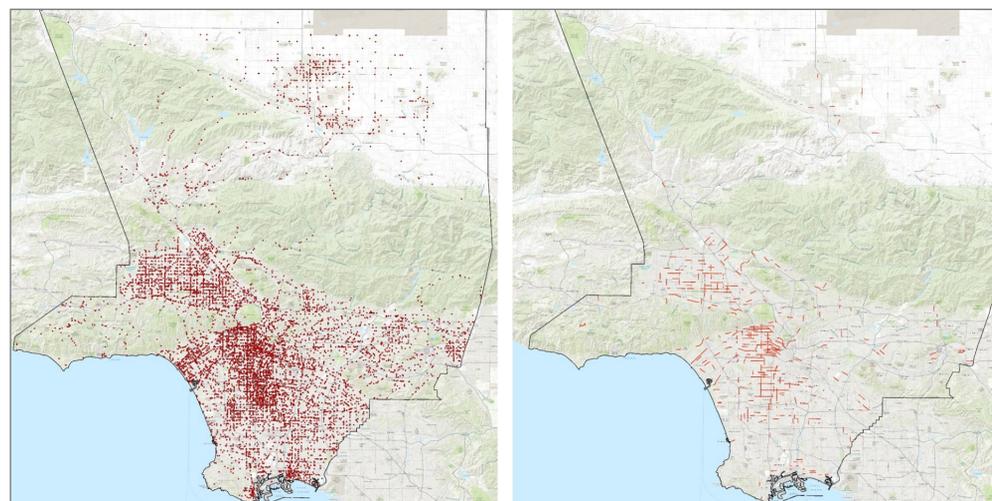
	Maximum number of Collisions per mile			
	FSI	Auto	Ped	Bike
Imperial	3	2	1	1
LA	14	7	9	5
Orange	13	4	4	4
SB	8	4	3	2
Riverside	10	6	4	2
Ventura	7	5	5	3

- 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

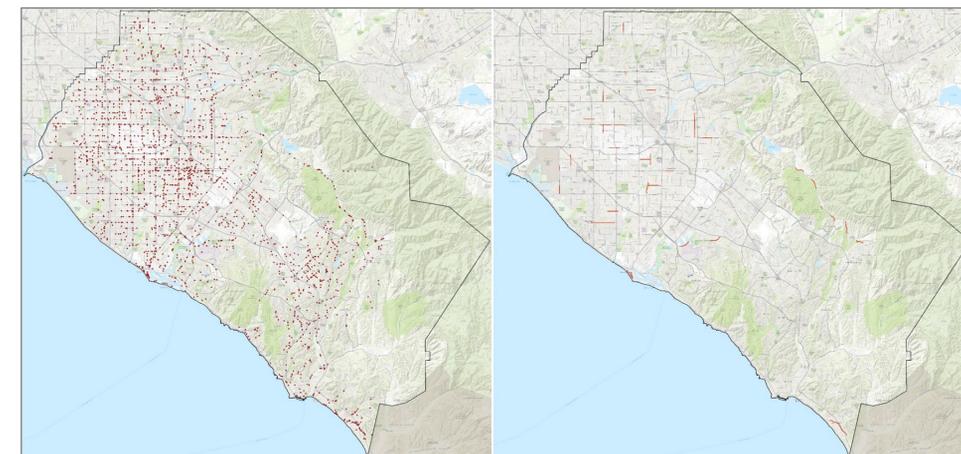
Threshold

	Calculation for percentage of street miles on HIN				
	Total Roadway Miles	HIN roadway miles 65%	65%	HIN roadway miles 70%	70%
Imperial	1693.5 miles	7.9 miles	0.47%	95.5 miles	5.64%
LA	16845.9 miles	314.0 miles	1.86%	314.0 miles	1.86%
Orange	3885.8 miles	32.3 miles	0.83%	85.6 miles	2.20%
SB	9103.7 miles	85.0 miles	0.93%	85.0 miles	0.93%
Riverside	6225.6 miles	45.0 miles	0.72%	120.5 miles	1.94%
Ventura	1653.2 miles	46.5 miles	2.82%	46.5 miles	2.82%

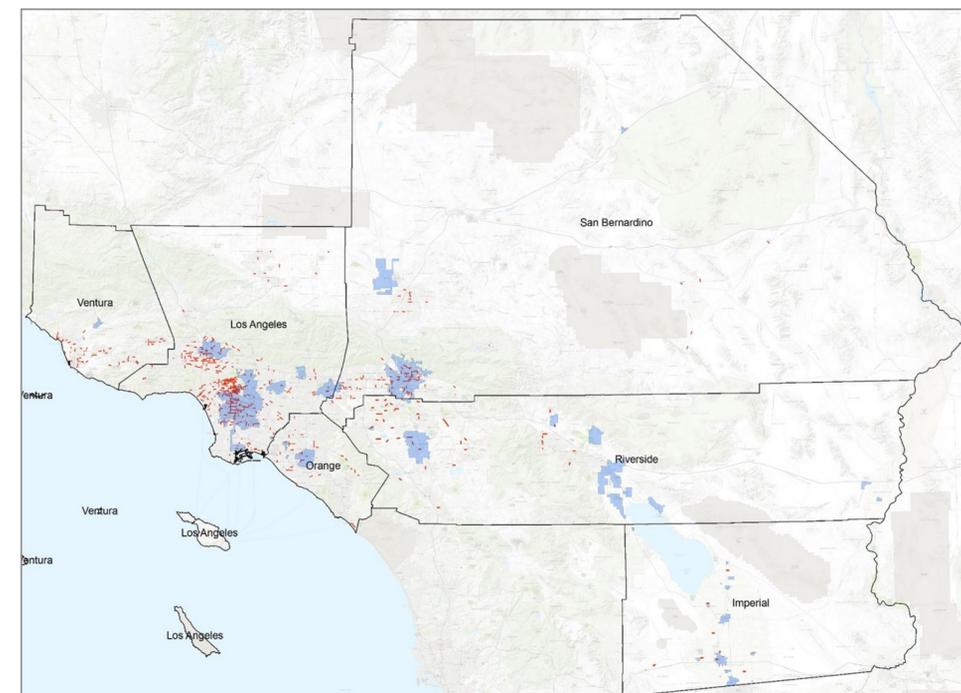
Los Angeles County (100-65)



Orange County (100-65)



Communities of Concern (CoC) overlay



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