A SPATIAL LOOK AT MULTIMODAL CRASHES IN CENTRAL OKLAHOMA

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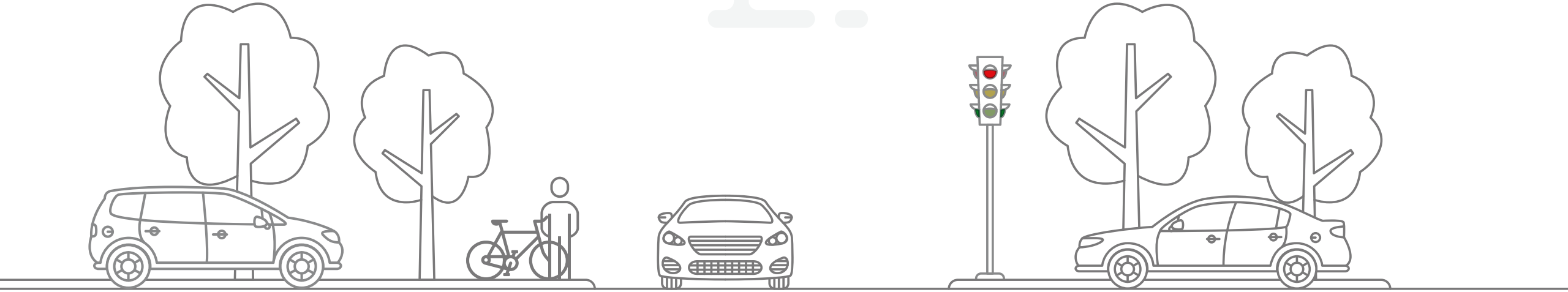
OUTLINE

- National and Local Statistics
- Methodology
- Analysis
- ArcGIS Online Story Map



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STATISTICS

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NATIONAL STATISTICS

Fatal crashes have been increasing steadily around the nation. According to the most recent report (2016) from the USDOT's National Highway Traffic Safety Administration (NHTSA), fatality collisions increased by 5.6% from calendar year 2015.

- Distraction related deaths decreased by **2.2%**
- Drunk driving deaths increased by **1.7%**
- Speeding deaths increased by **4%**
- Pedestrian deaths increased by **9%**
- Bicyclist deaths increased by **1.3%**

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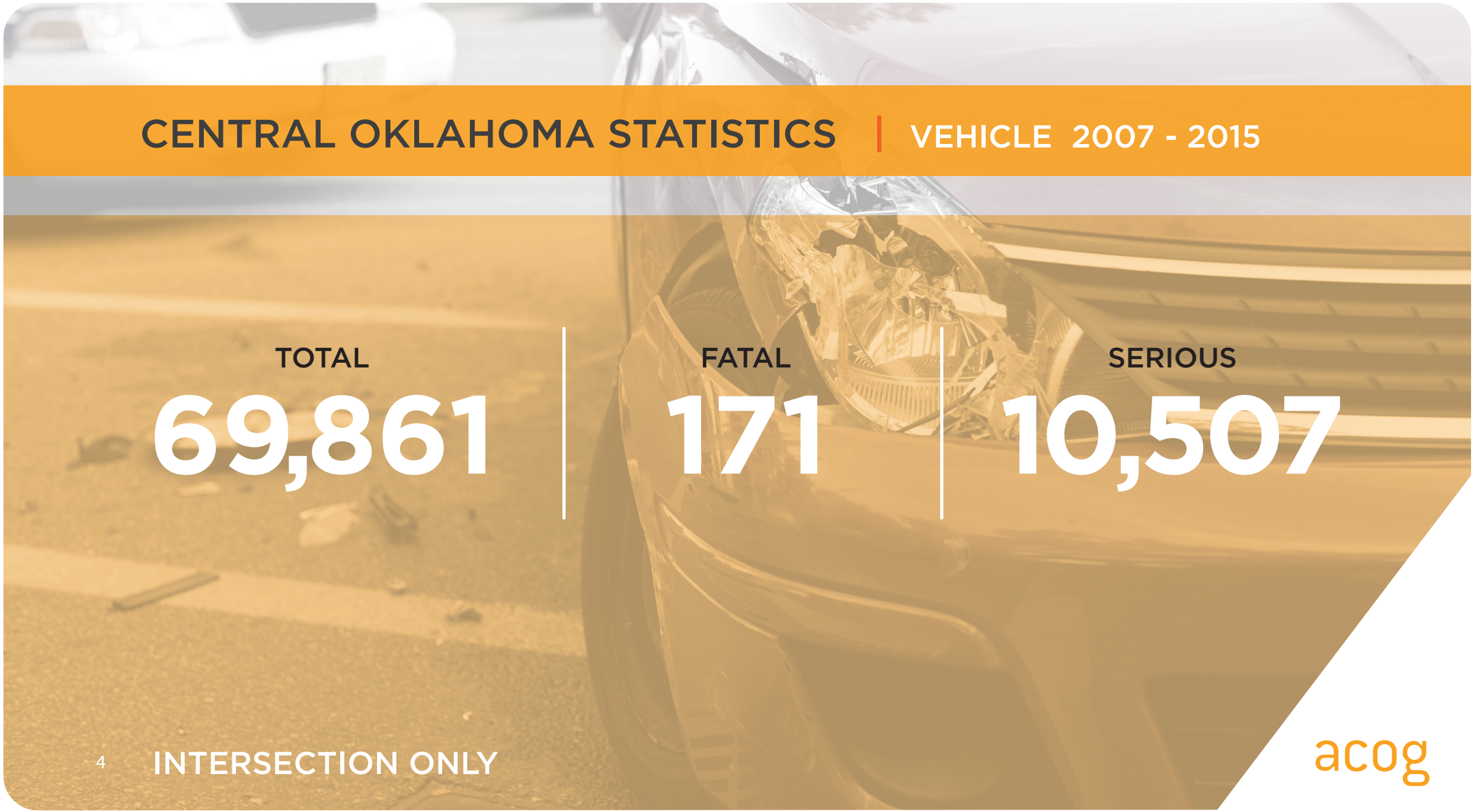

CENTRAL OKLAHOMA STATISTICS | VEHICLE 2007 - 2015

TOTAL	FATAL	SERIOUS
69,861	171	10,507

INTERSECTION ONLY

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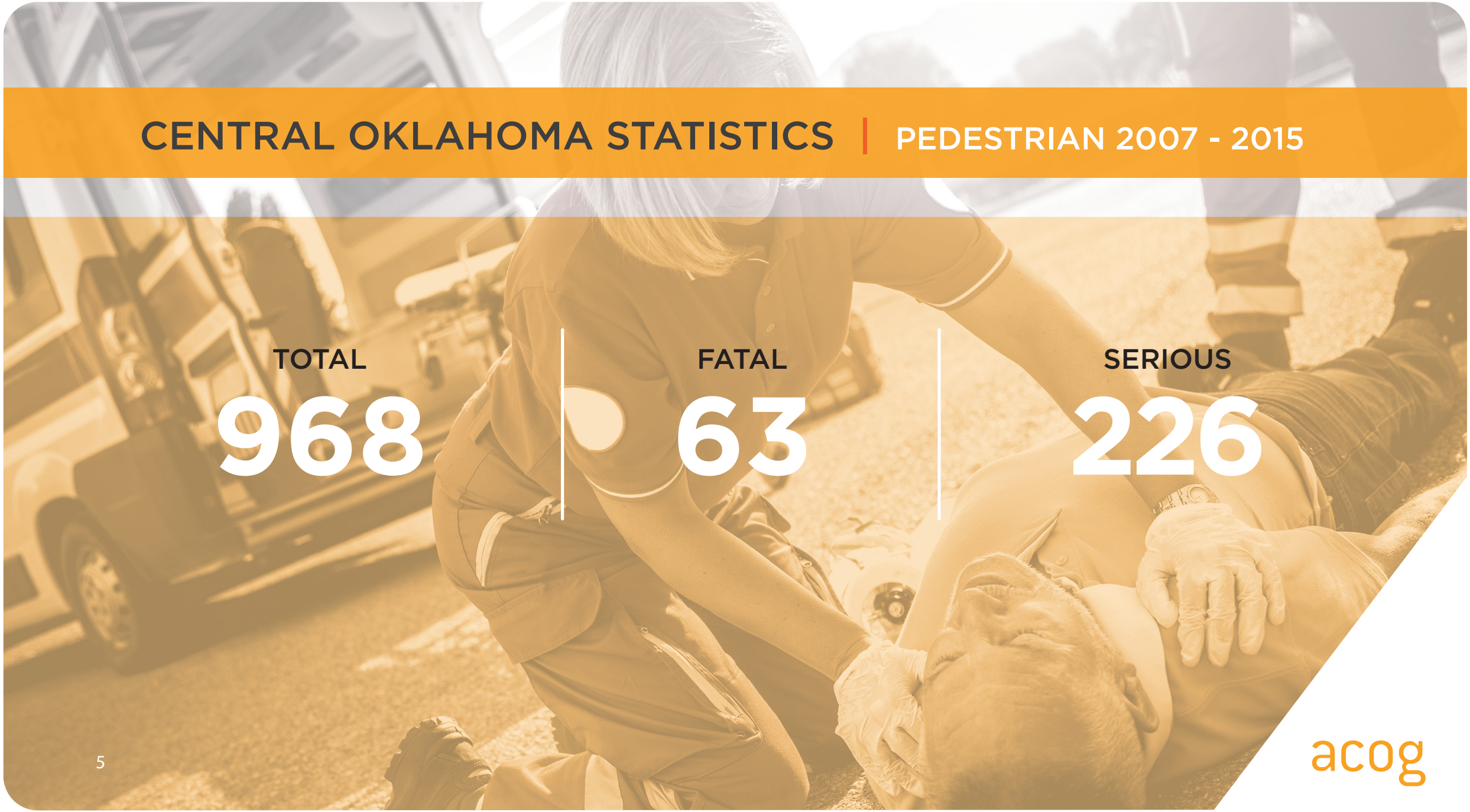
CENTRAL OKLAHOMA STATISTICS | PEDESTRIAN 2007 - 2015



TOTAL
968

FATAL
63

SERIOUS
226

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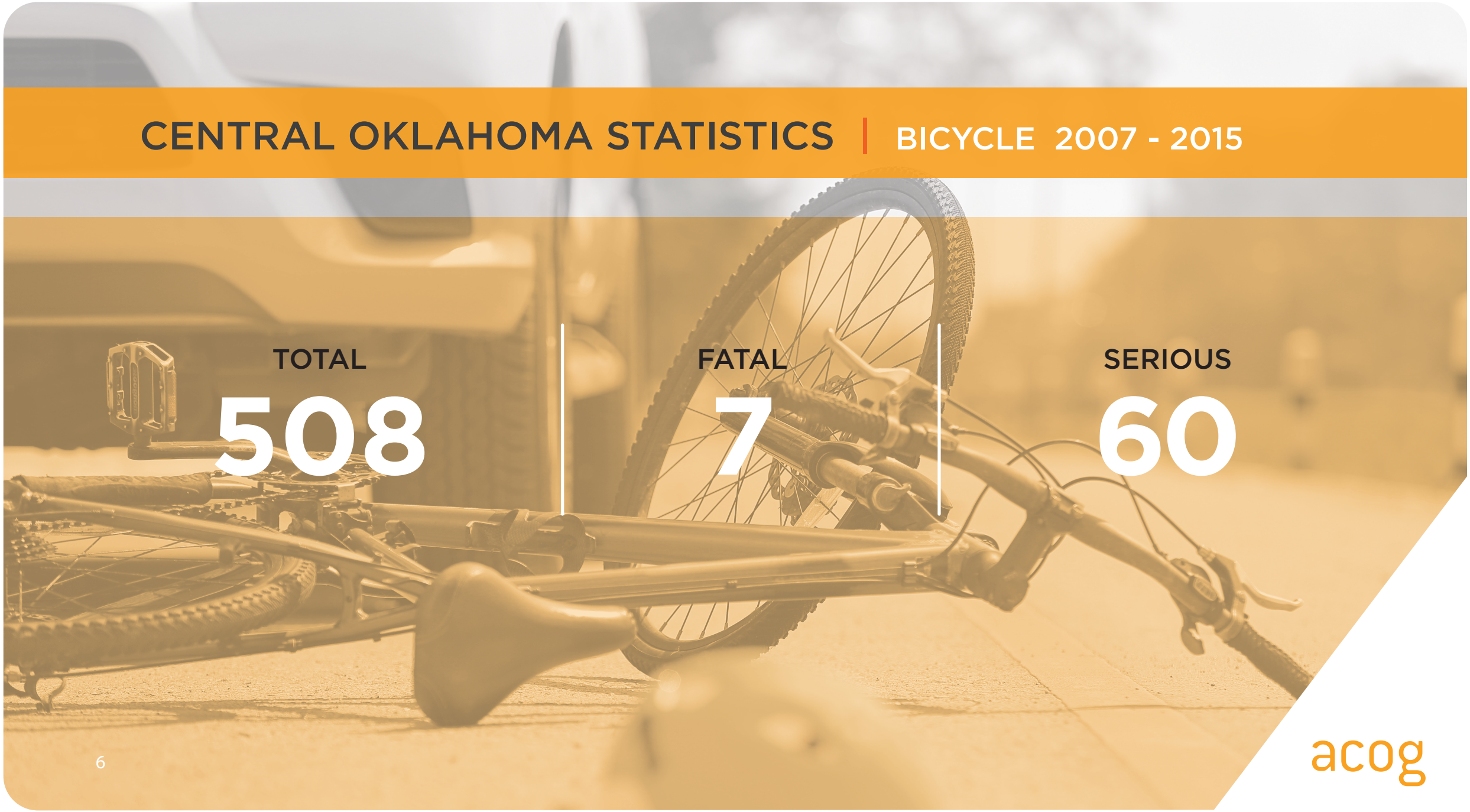
CENTRAL OKLAHOMA STATISTICS | BICYCLE 2007 - 2015



TOTAL
508

FATAL
7

SERIOUS
60

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METHODOLOGY & ANALYSIS

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GATHERING DATA

- Retrieved data from ODOT's SAFE-T website: https://oksafe-t.org/
- Organized data in Microsoft Excel and imported into ArcMap
- Geocoded each individual crash site using the Latitude and Longitude information
- Using the Spatial Analyst license, performed a Kernel Density

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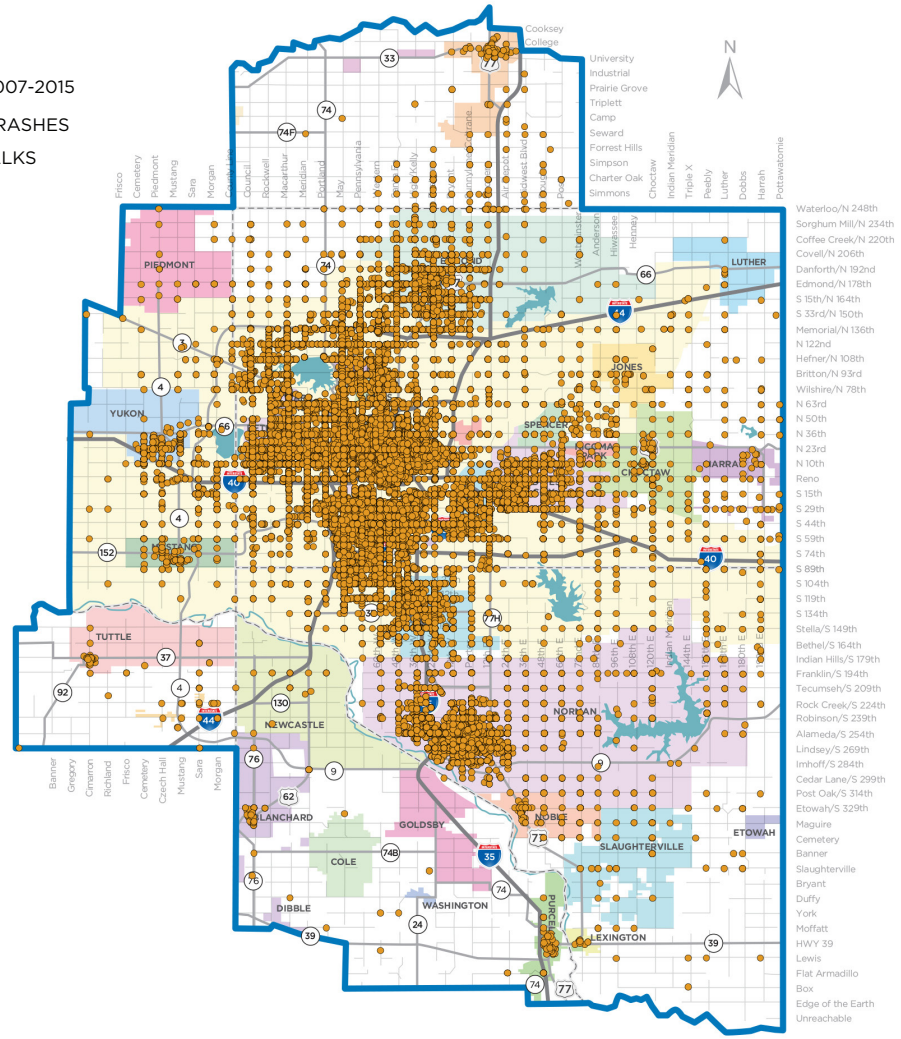
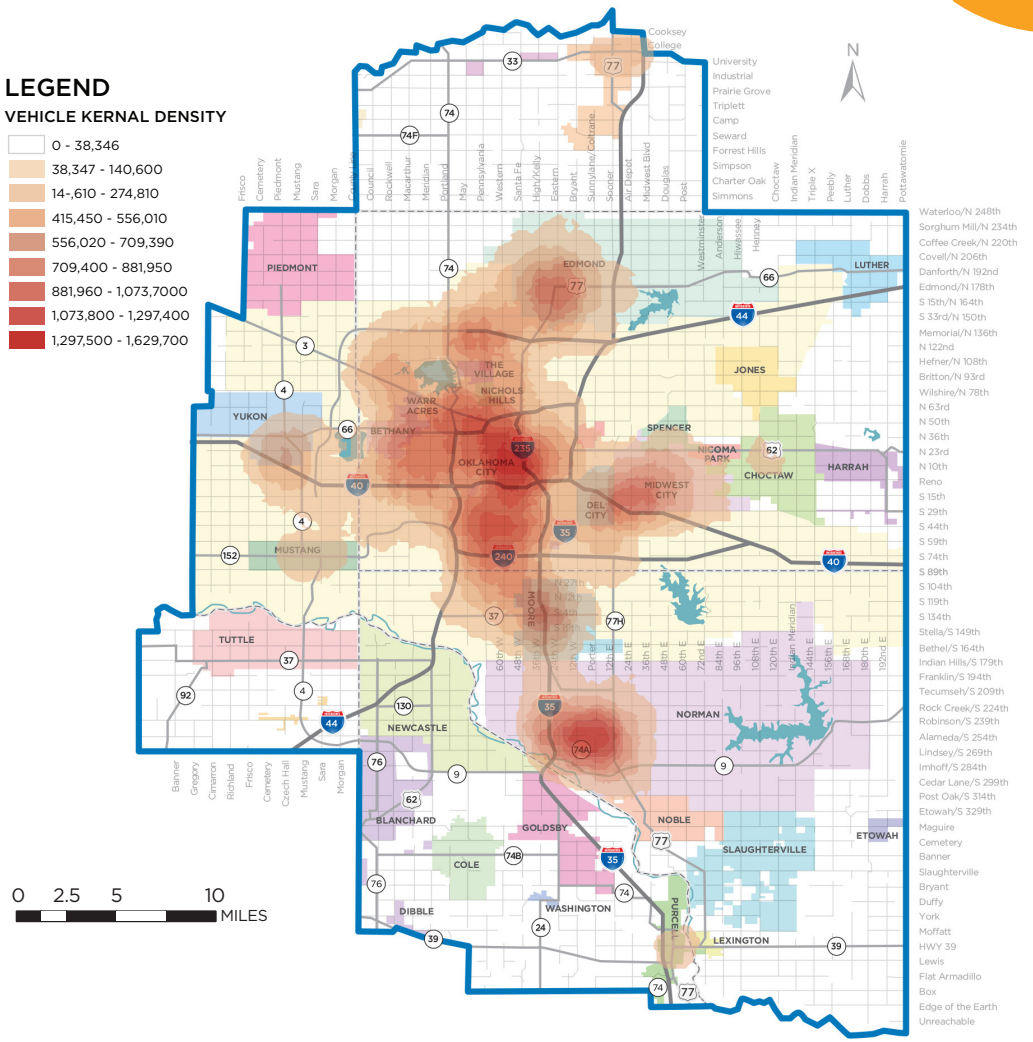
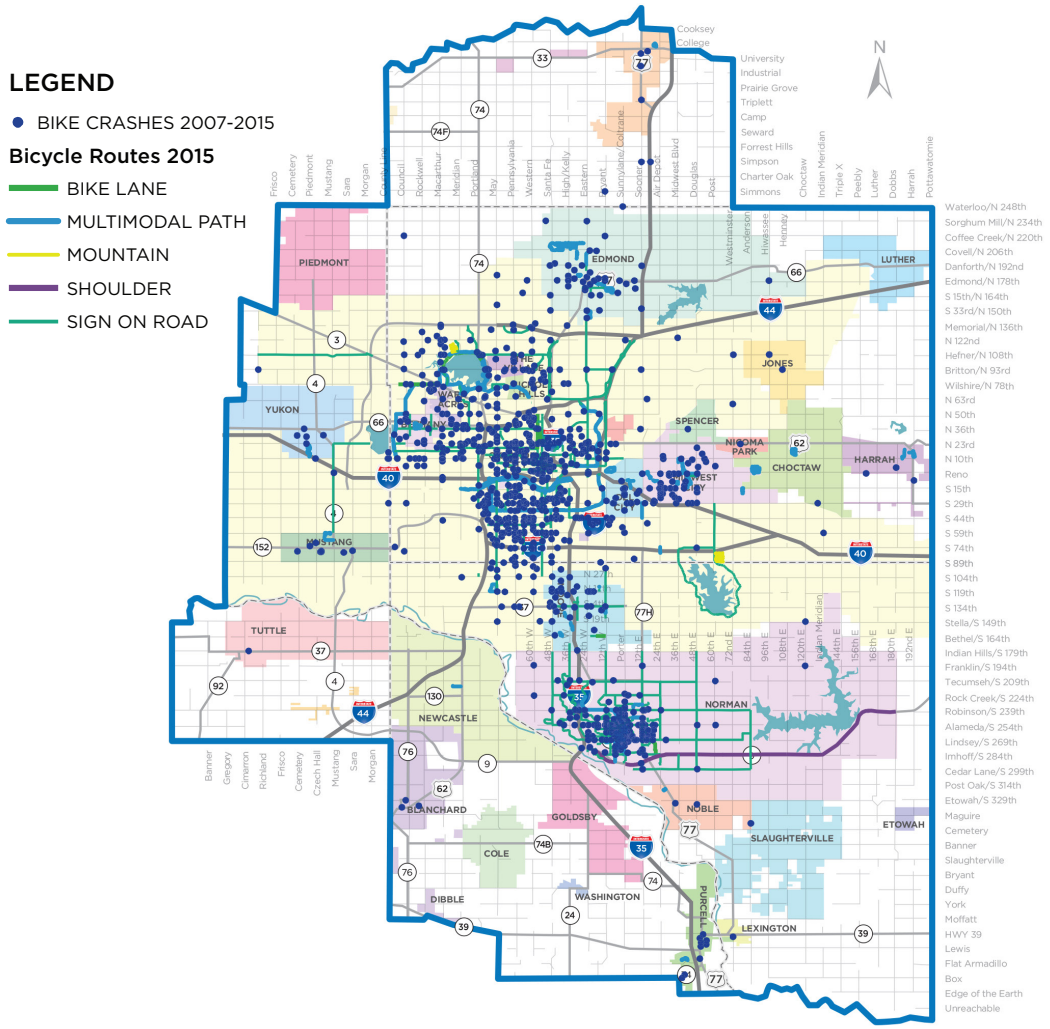
VEHICULAR CRASHES



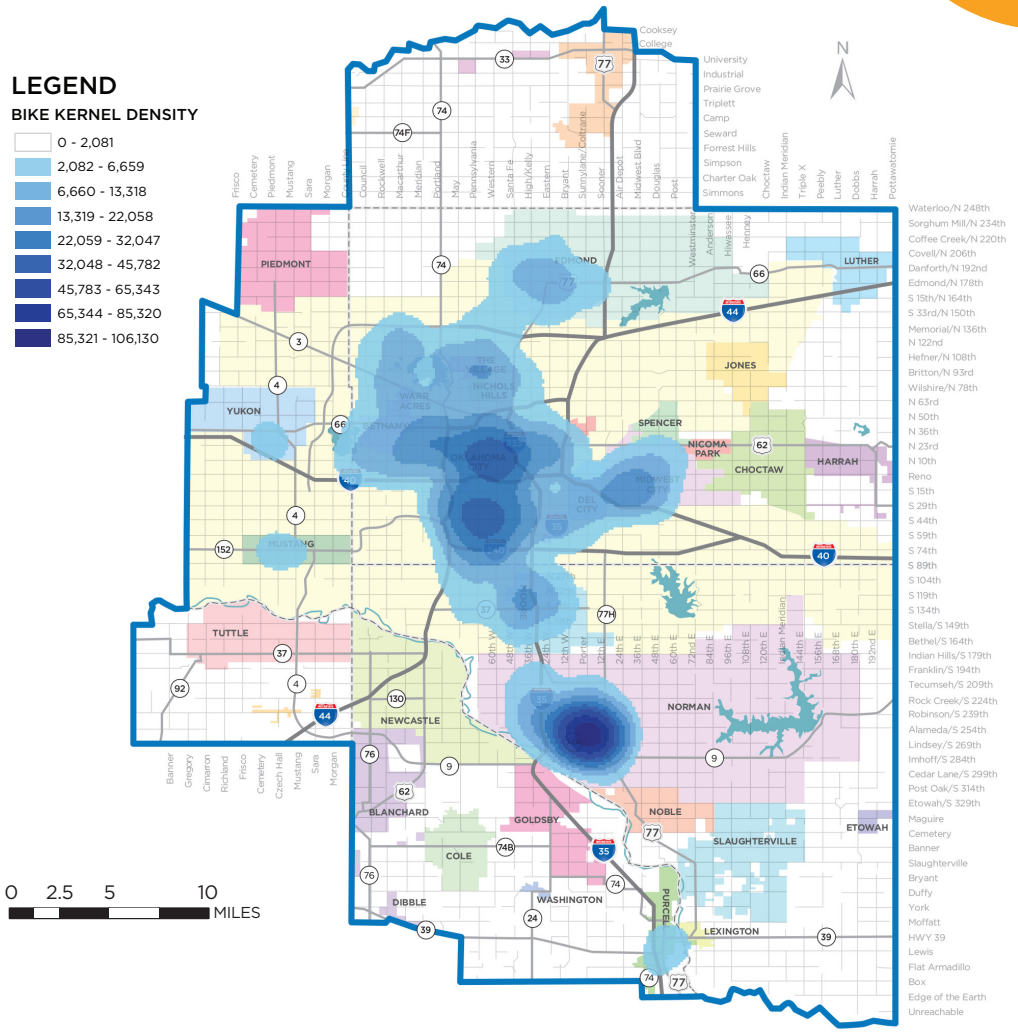


Constructed heat map using all car crashes to visualize hot spots.

BICYCLE CRASHES

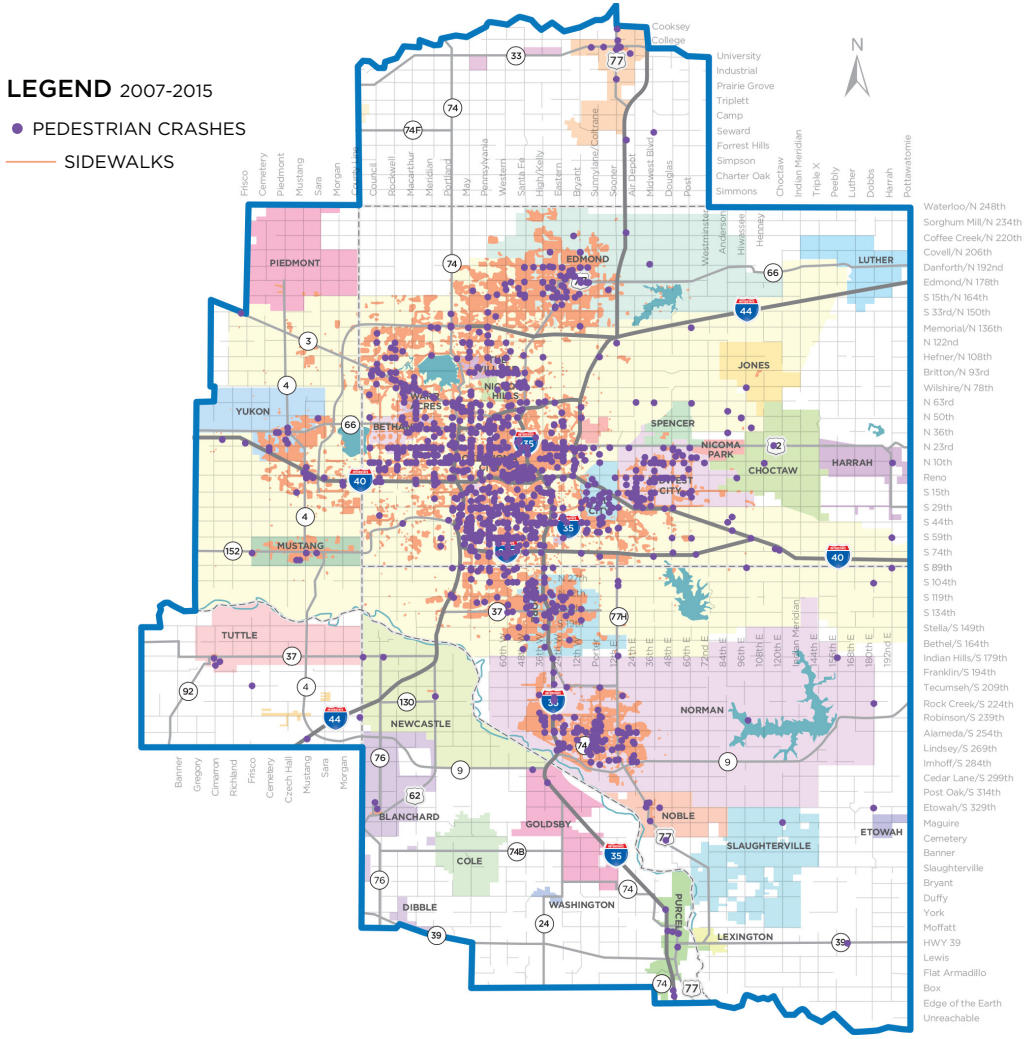


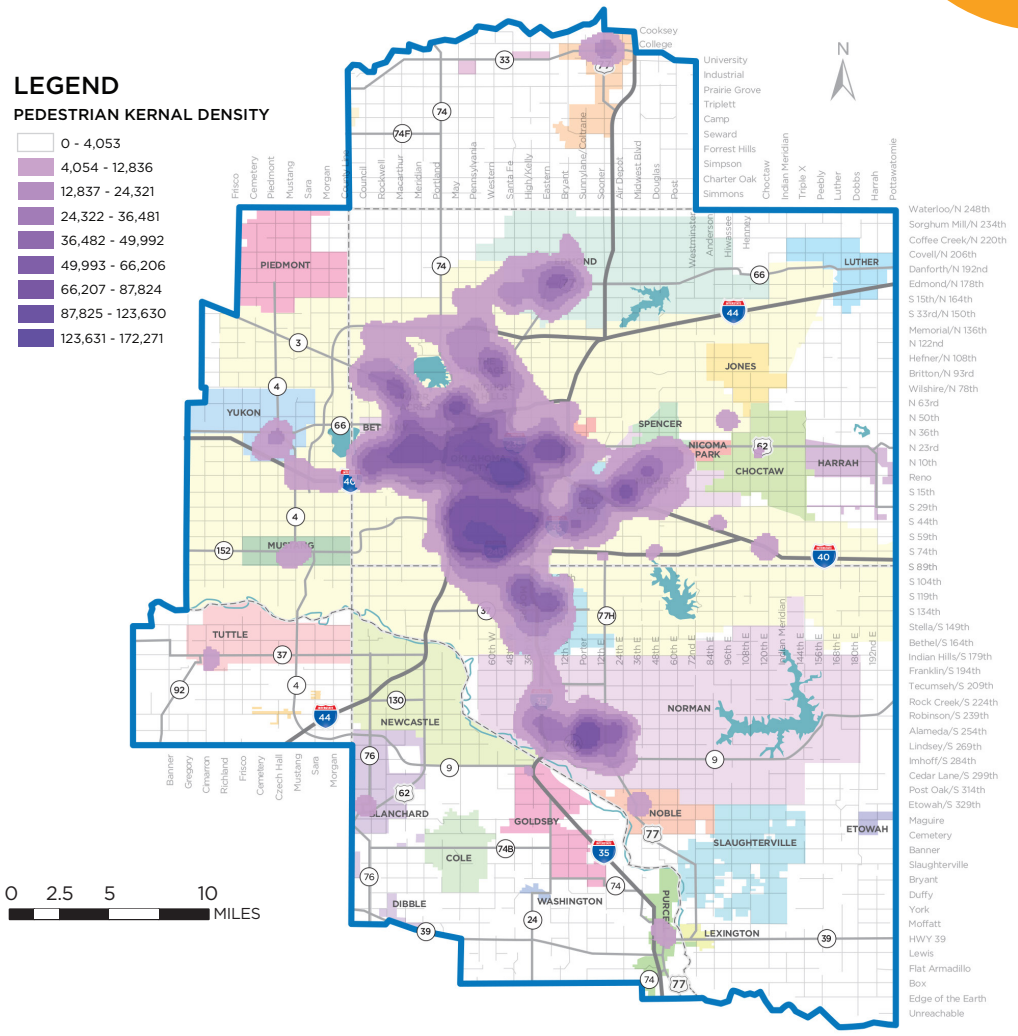
LOCATIONS OF BICYCLE-RELATED CRASHES



AREAS OF HIGH RATES OF BICYCLE-RELATED CRASHES

PEDESTRIAN CRASHES





LOCATIONS OF PEDESTRIAN-RELATED CRASHES

AREAS OF HIGH RATES OF PEDESTRIAN-RELATED CRASHES

DETERMINING CRASH RATES

- Vehicle Crash Rates (Crashes per 10,000 trips)
  - Pull traffic count data around each intersection
  - Average all counts together
  - Divide total crashes by average traffic counts
- For Bicycles and Pedestrians
  - Far fewer bicycle crashes and pedestrian crashes made the process much more simple – specific intersections and corridors were very apparent
  - Selection tool to calculate total
  - Fatalities brought into heavy consideration

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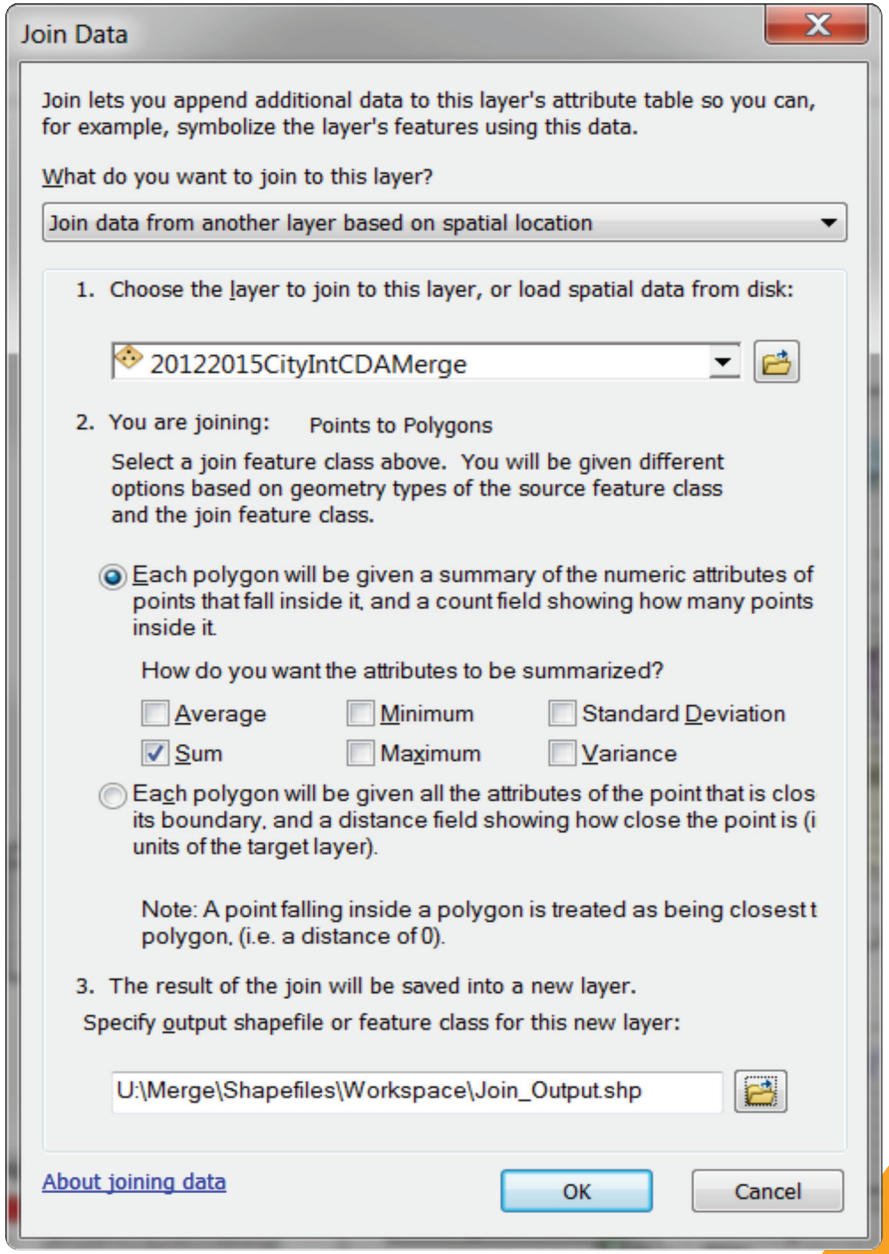
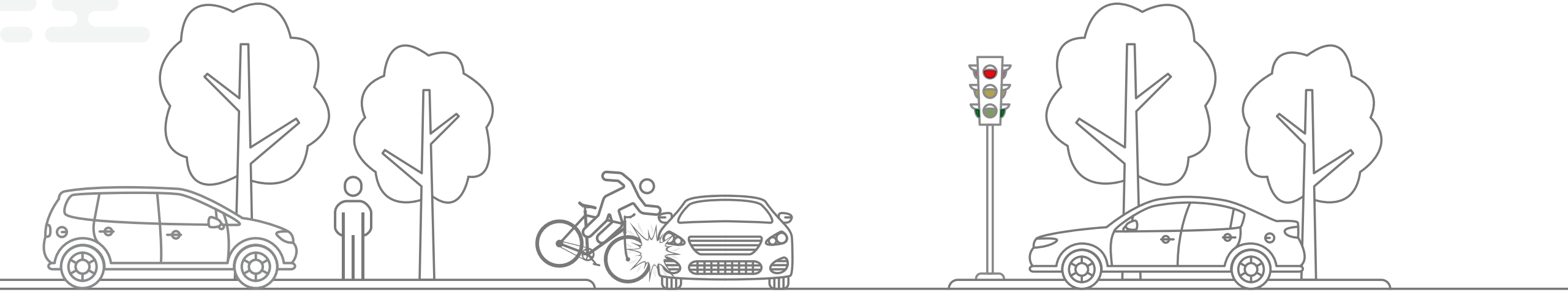
BUFFER COUNT

- Based on the highest crash intersections, we created 1/4mi buffer around these points
- We joined the crash points to the buffer layer, including a count field to display the number of points within the buffer



CHALLENGES

- Human error in crash reporting
- Inaccurate, incomplete, or no crash addressing
- Not enough detail in report about pedestrian or bicyclist actions



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ARCGIS ONLINE

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ARCGIS ONLINE STORY MAP TIPS

- Perform GIS analyses outside of ArcGIS Online Story Map
- All shapefile components must be within a zipped folder in order to add to a web map
- Heatmaps were uploaded as hosted tile layer packages, created in ArcGIS Desktop
- Ensure that all map layers are shared to everyone (the public) in order for a web map to be visible to people outside of your organization's account

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LINK TO REGIONAL CRASH STUDY

- ACOG Regional Crash and Safety Report (2007-2015)

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SOURCES

- USDOT Releases 2016 Fatal Traffic Crash Data: https://www.nhtsa.gov/press-releases/usdot-releases-2016-fatal-traffic-crash-data
- 2007-2015 crash data from ODOT SAFE-T
- ArcGIS Online

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QUESTIONS?

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