Learning from the Road: Using Reported Crash Data to Train Safer Drivers

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Traffic Safety

- Road safety is a significant public health issue
- New Mexico has
  - The fifth highest motor-vehicle fatality rate
  - The highest pedestrian fatality rate
  - The fifth highest bicyclist fatality rate
- To prevent traffic crashes and ultimately reduce injuries and fatalities
  - It is imperative to perform a comprehensive analysis of recorded data to identify patterns, trends, and key risk factors to contribute to crashes
  - One of the conventional tools to analyze traffic crash data is static maps



Why This Matters

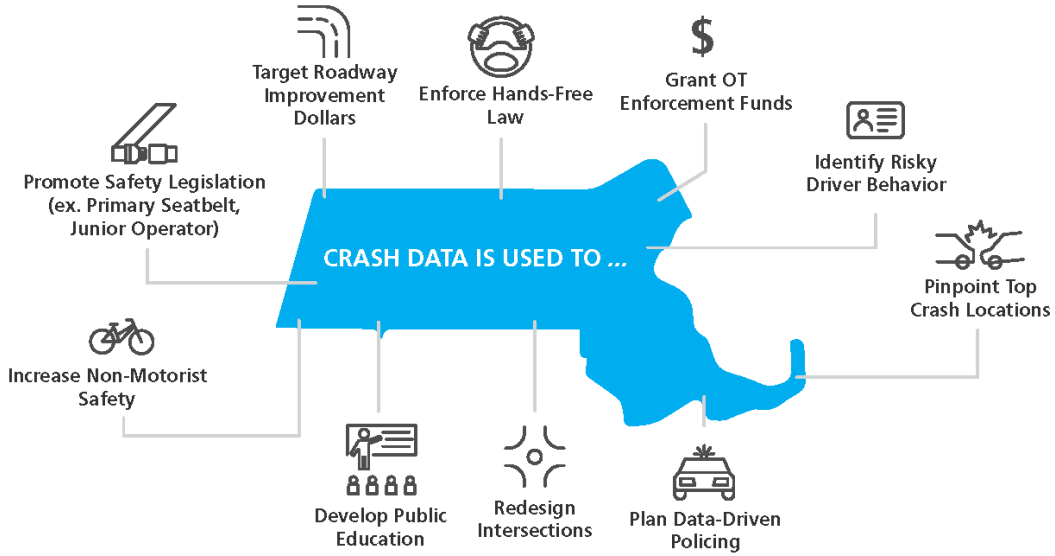
- Traffic crashes are preventable
- Data-driven insights can reduce risk
- Safer drivers save lives and costs



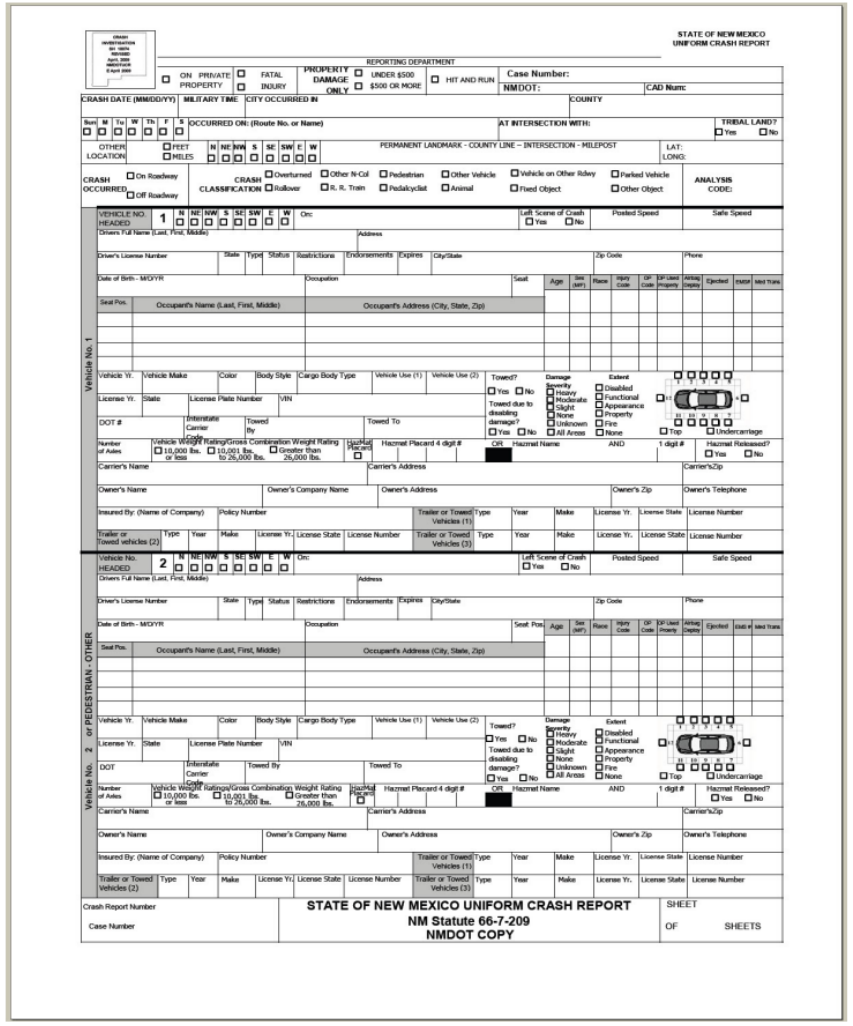


What is Crash Data

- Recorded information about traffic incidents
- Includes location, time, severity, causes

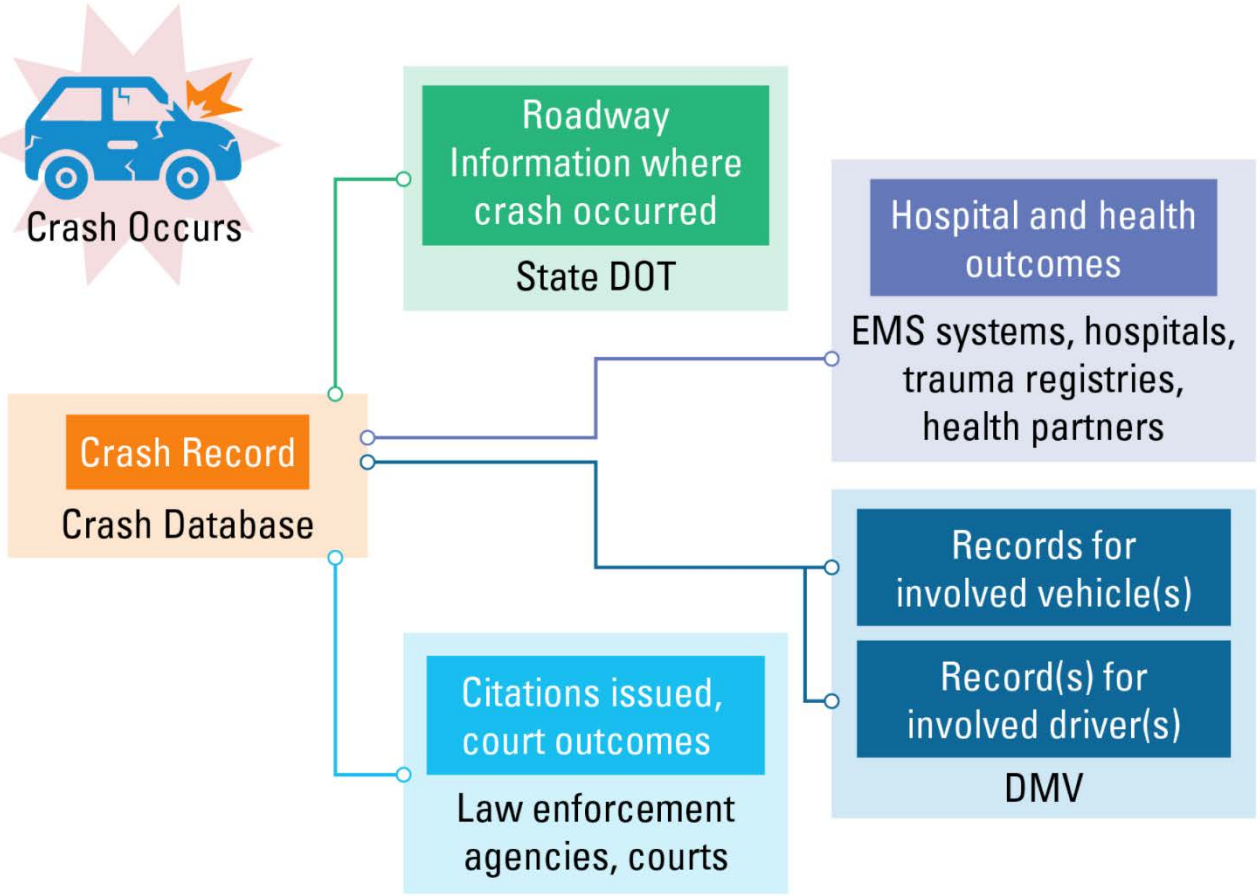


PAGE ONE OF THE CRASH REPORT - ILLUSTRATION



Sources of Crash Data

- State Department of Transportation
- Police report
- Open data platform
- Real-time traffic systems



Common Risk Factors

- Speeding
- Distracted driving
- Impaired driving
- Weather and road conditions



Benefits of Mapping Crash Data

- Identifies high-risk areas
- Reveals patterns over time
- Supports targeted interventions



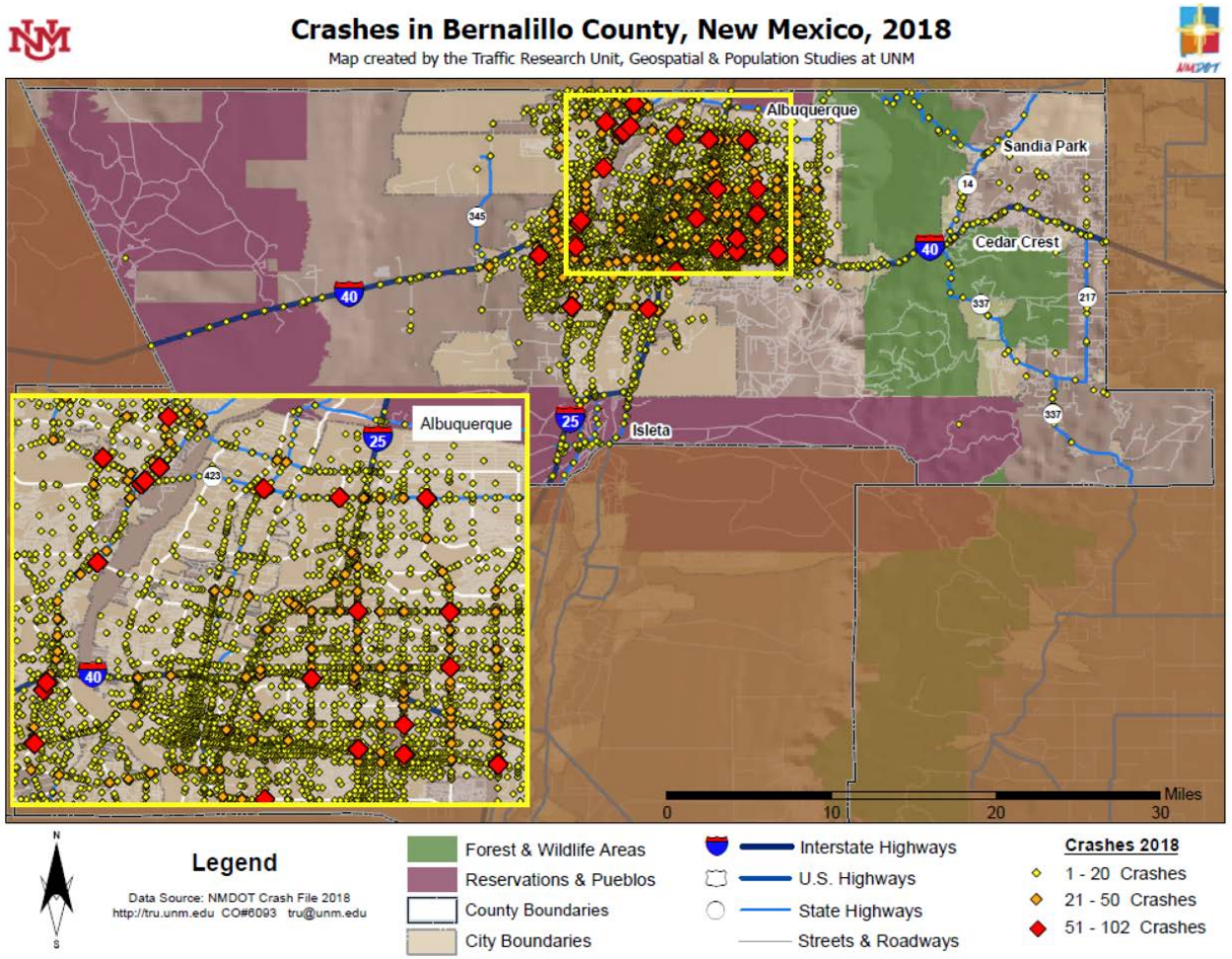
Static Maps

Benefits

- Primarily in PDF format
- Easy to create
- Producer can control how users view the data

Limitations

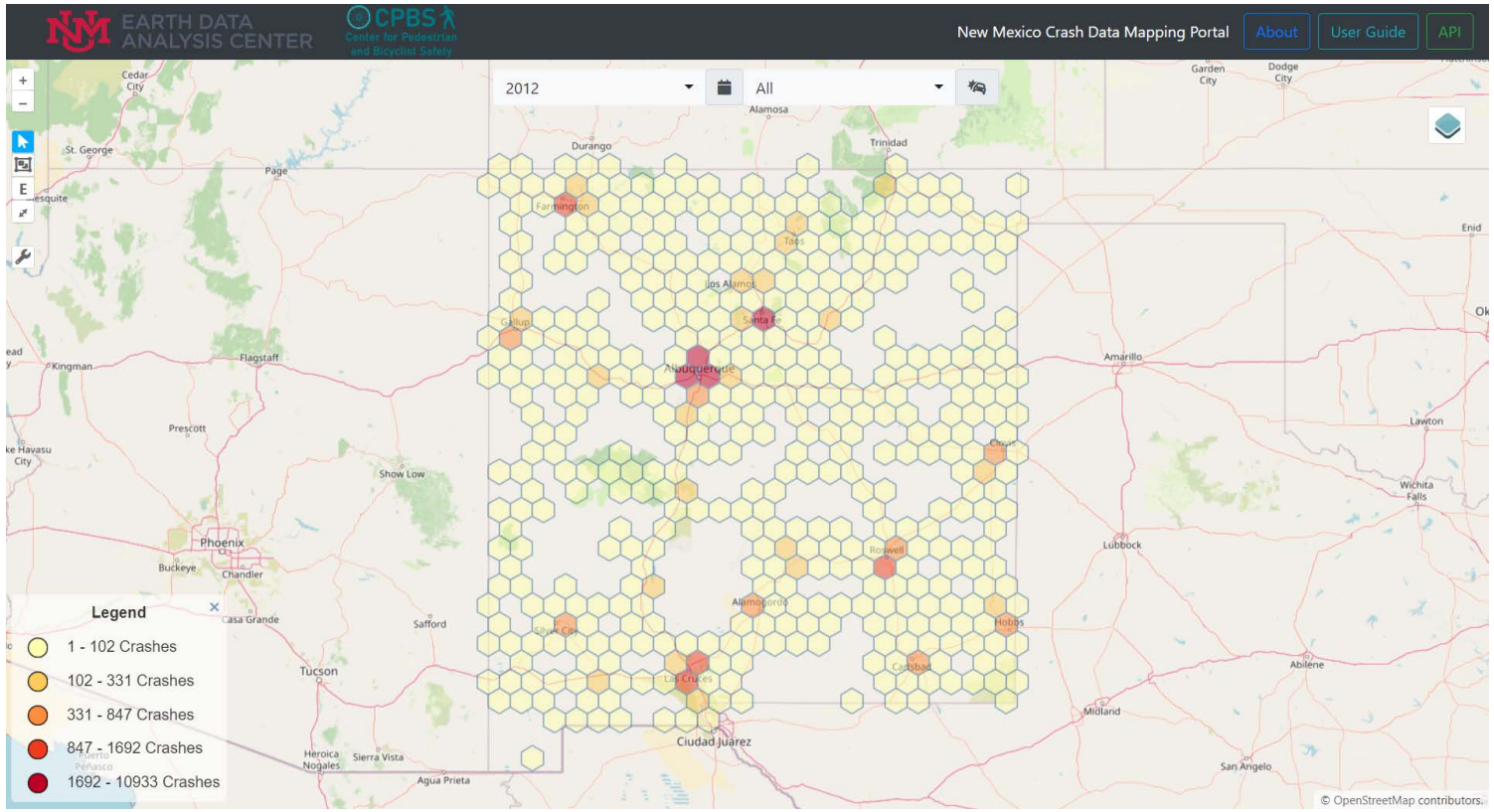
- Users cannot customize these maps to meet their special needs
- New maps need to be created for any update or modification
- Cannot communicate crash density at varying scales or in terms of the pertinent variables such as mode, severity, and contributing factors
- Cannot be used to identify spatial and/or temporal patterns in terms of the pertinent contributing factors



Web Maps

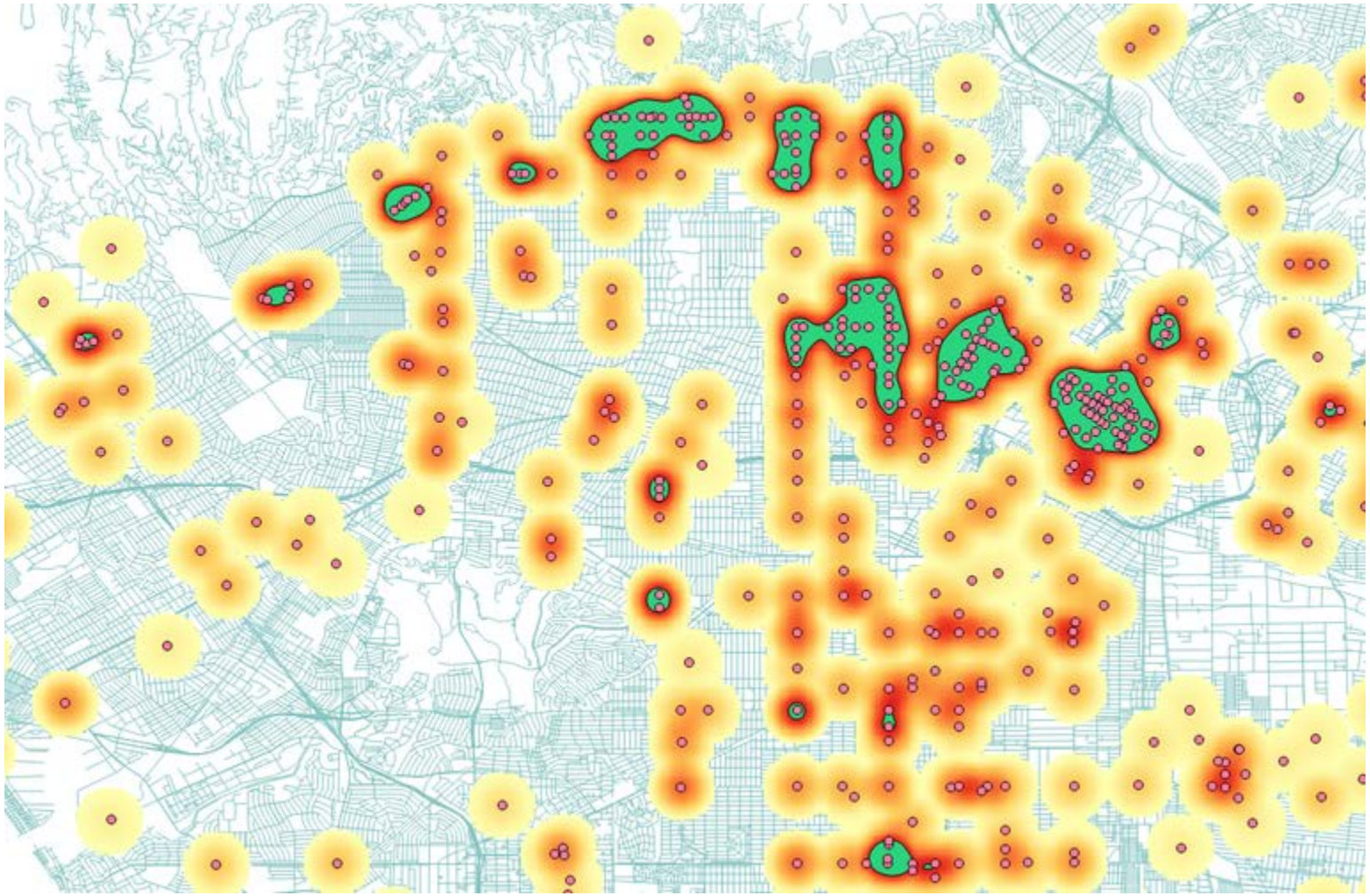
Benefits
- Dynamic
- Interactive
- Address all limitations of static maps

Limitations
- High initial development costs
- Need routine maintenance
- Need basic geospatial knowledge



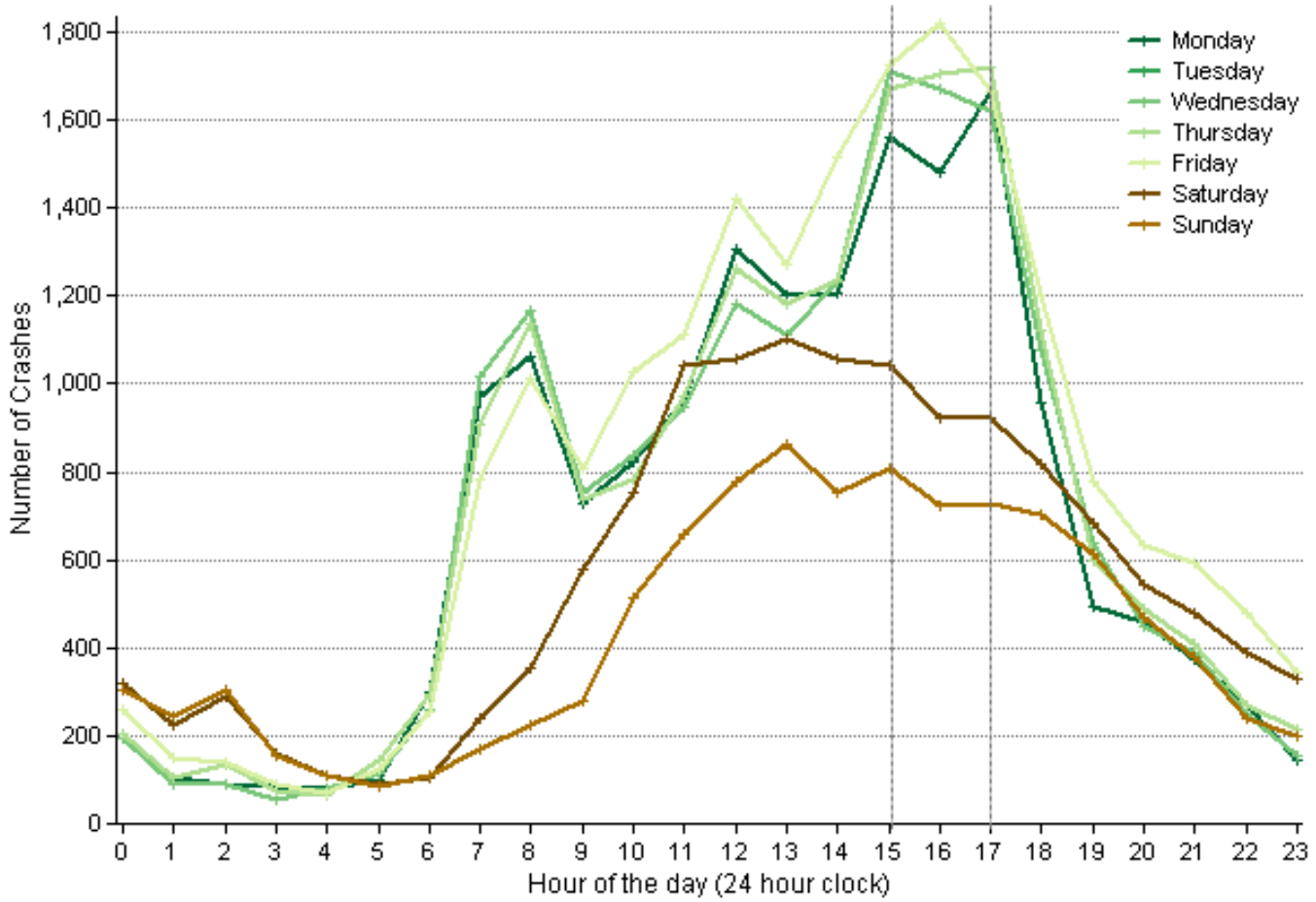
Hotspot Analysis

- Clusters of crashes in specific locations
- Used to prioritize safety improvements



Time-based Patterns

- Rush hour vs off-peak
- Weekend vs weekday
- Daytime vs nighttime
- Seasonal trends



Driver Behavior Insights

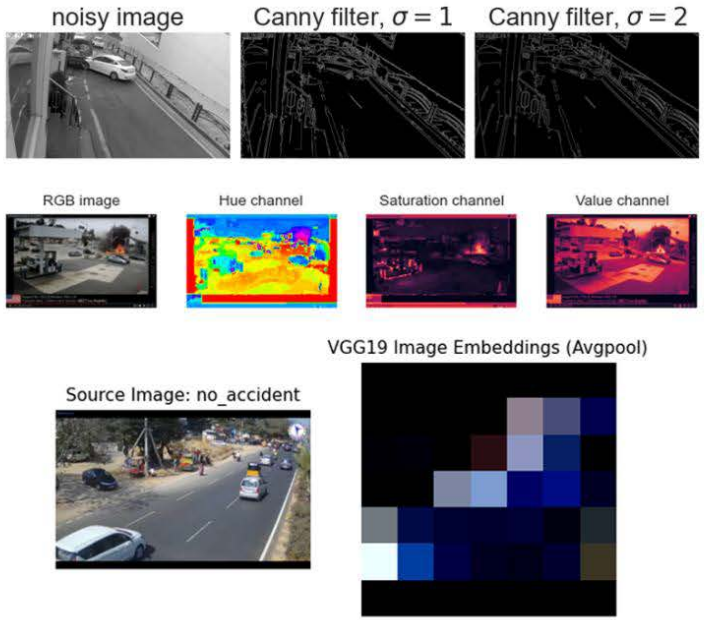
- Frequent causes of crashes
- High-risk maneuvers
- Reaction time issues



Using Data for Training

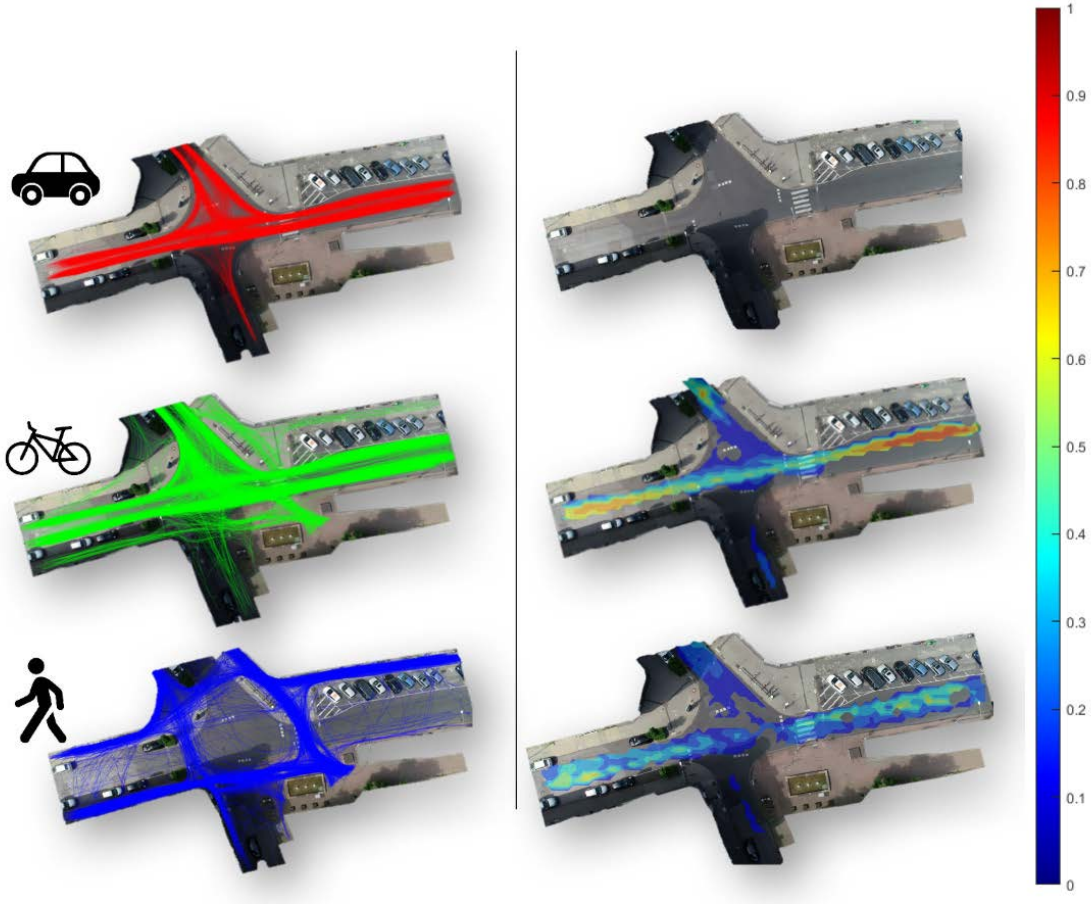
- Incorporate real crash scenarios
- Visual learning through maps
- Focus on local risks





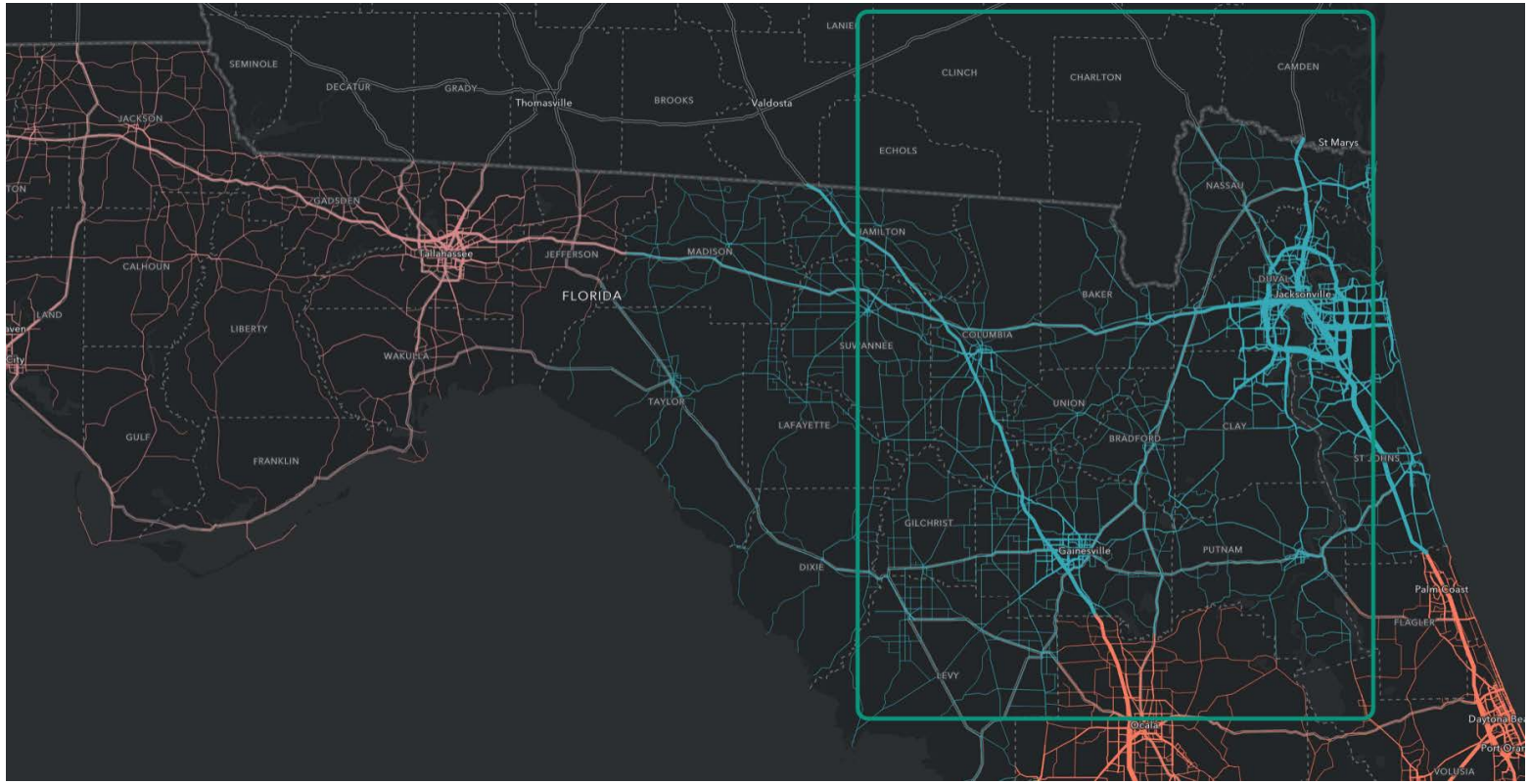
Case Study Approach

- Analyze a crash location
- Understand contributing factors
- Discuss prevention strategies



Interactive Learning

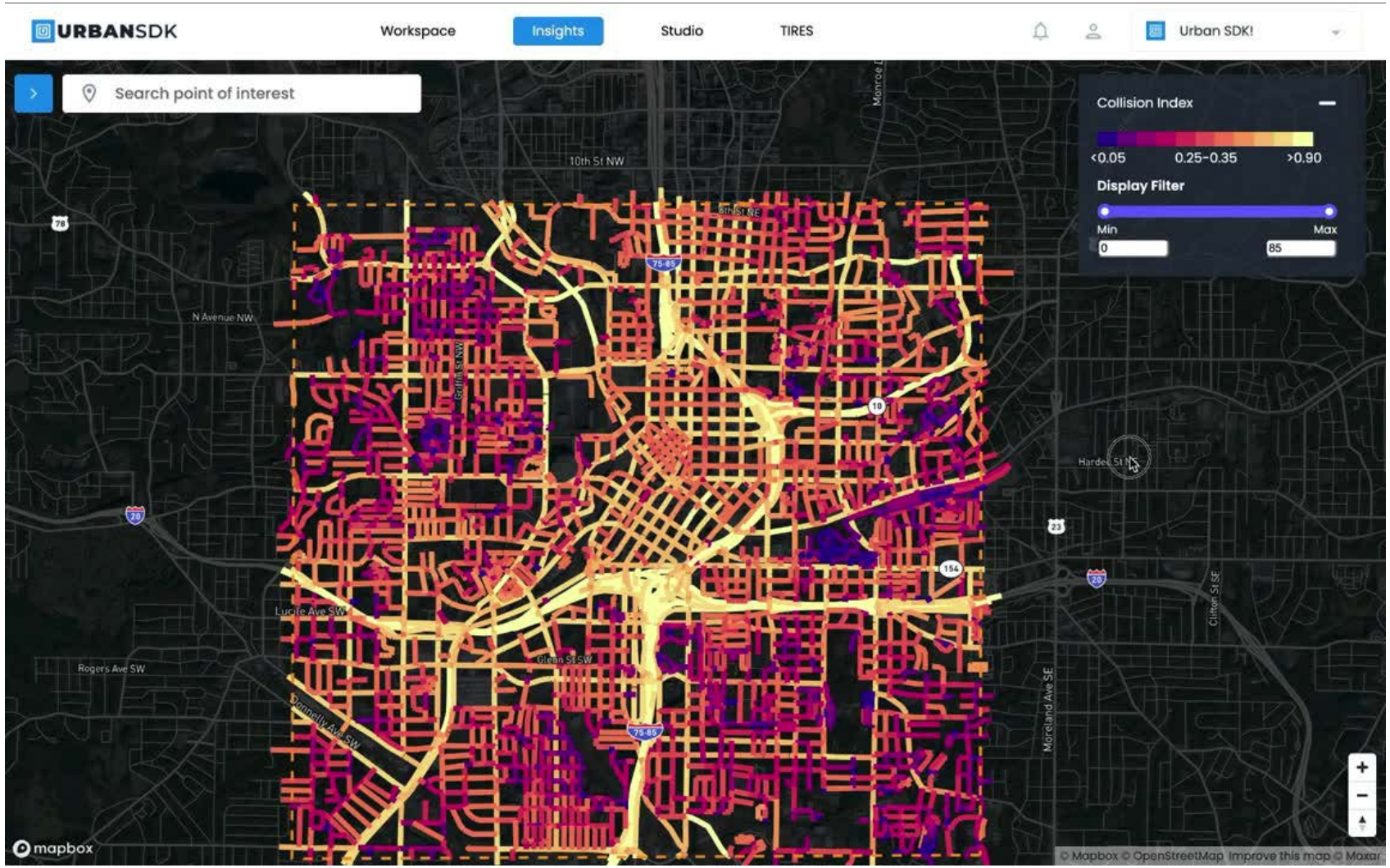
- Use web maps in classrooms
- Let learners explore crash data
- Encourage critical thinking



https://shorthand.com/the-craft/tools-to-create-interactive-maps/index.html

Technology Integration

- GIS platforms
- Dashboards
- Mobile applications



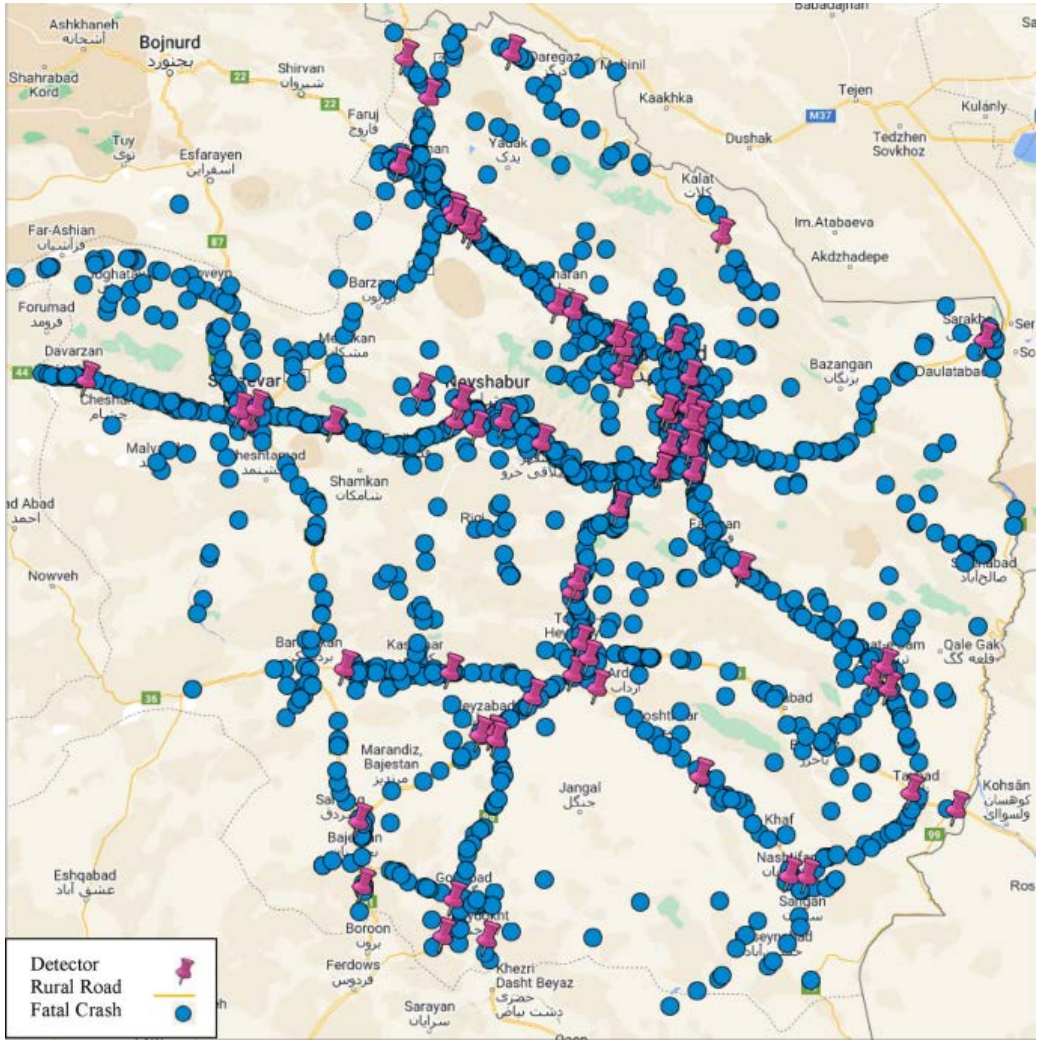
Safety Improvement Strategies

- Defensive driving
- Speed management
- Situational awareness



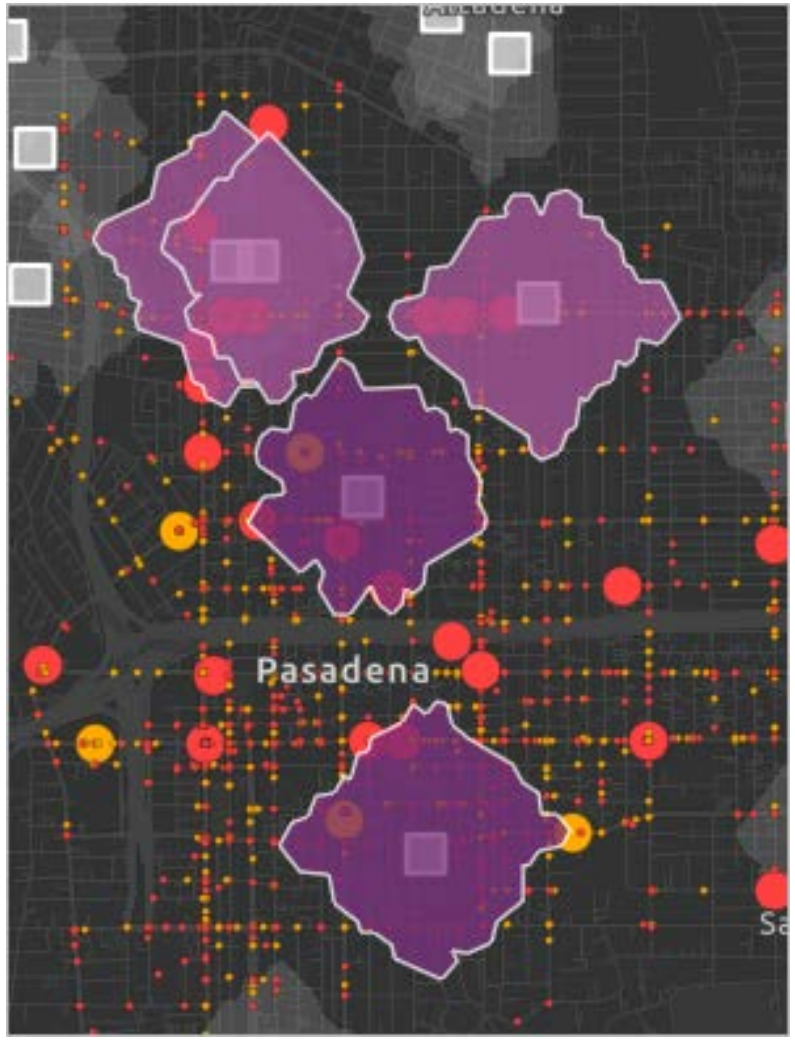
Community Engagement

- Share data with public
- Promote awareness campaigns
- Encourage safe driving habits



Policy Implications

- Supports infrastructure improvements
- Informs enforcement strategies



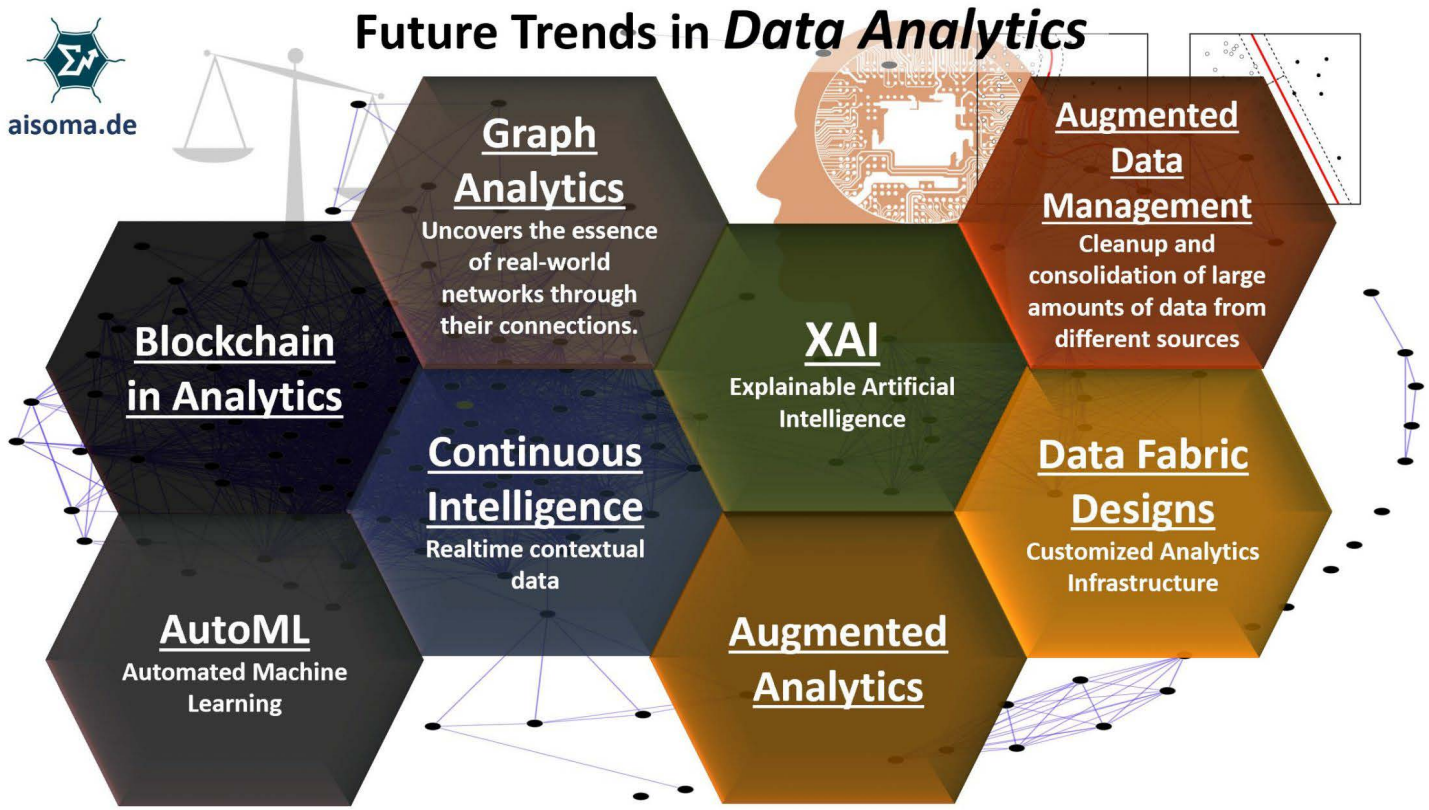
Limitations of Data

- Underreporting
- Data delays
- Incomplete records



Future Trends

- AI-driven crash prediction
- Real-time data integration
- Smart transportation systems



Conclusions

- Data + Mapping = Better Decisions
- Education is key to safer roads



Discussion

- How can we use crash data in your community?
- What tools are most effective?



Thank you!

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Tran-SET

Center for Pedestrian and Bicyclist Safety