



SCOTTSDALE TRANSPORTATION COMMISSION

***Amended**

Notice and Agenda

Date: Thursday, August 21, 2025

Time: 5:15 P.M.

Location: Kiva – City Hall

3939 N. Drinkwater Boulevard

Scottsdale, AZ 85251

***Changed Item 2 to Information and Possible Action**

***Changed Item 3 to Information and Possible Action**

Call to Order

Roll Call

Mary Ann Miller, Chair	Mailen Pankiewicz, Commissioner
Kerry Wilcoxon, Vice-Chair	Emmie Cardella, Commissioner
Robert Marmon, Commissioner	Kyle Davis, Commissioner
Lee Kauftheil, Commissioner	

One or more members of the Transportation Commission may be attending the meeting by telephone, video, or internet conferencing, pursuant to A.R.S. §38-431(4)

Public Comment

Citizens may address the members of the Transportation Commission during Public Comment. This “Public Comment” time is reserved for citizen comments regarding non-agendized items. Arizona State law prohibits the Transportation Commission from discussing or taking action on an item that is not on the prepared agenda. Citizens may complete one Request to Speak “Public Comment” card per meeting and submit to City Staff. Public testimony is limited to three (3) minutes per speaker.

Written public comment for both agendized and non-agendized items may be submitted in-person by completing a yellow written public comment card or electronically by completing a Written Public Comment Form. Written public comment submitted after public testimony has

begun will be provided to the members of the Transportation Commission at the conclusion of the testimony for that item. Written comments that are submitted electronically at least 90 minutes before the meeting's scheduled start time will be provided to members of the Transportation Commission. A written public comment may be submitted electronically at the following link: <https://ww2.scottsdaleaz.gov/boards/transportation-commission>

1. **Approval of Meeting Minutes**-----**Discussion and Action**
Regular Meeting of the Transportation Commission – May 15, 2025
2. **Strategic Transportation Safety Plan: Initial Goals and Policies** **Information and Possible Action**
Overview of the initial goals and policies for the plan - Nathan Domme, Senior Manager
Transportation Planning
3. **Strategic Transportation Safety Plan: High Injury Network** -----**Information and Possible Action**
Overview of the initial goals and policies for the plan - Nathan Domme, Senior Manager
Transportation Planning
4. **2025 Transportation Commission Meeting** -----**Discussion and Action**
Revise which nine months of the year to meet – Transportation Commission
5. **Projects and Programs Update** -----**Information and Discussion**
Information on current projects and programs – Nathan Domme, Senior Manager
Transportation Planning

Adjournment



Persons with a disability may request a reasonable accommodation by contacting Susan Conklu at 480-312-2308. Requests should be made 24 hours in advance, or as early as possible, to allow time to arrange the accommodation. For TYY users, the Arizona Relay Service (1-800-367-8939) may also contact Susan Conklu at 480-312-2308.



DRAFT SUMMARIZED MINUTES

**CITY OF SCOTTSDALE
TRANSPORTATION COMMISSION
REGULAR MEETING**

**Thursday, May 15, 2025
City Hall Kiva Forum
3939 N. Drinkwater Boulevard
Scottsdale, AZ 85251**

CALL TO ORDER

Chair Miller called the meeting of the Scottsdale Transportation Commission to order at 5:15 p.m.

ROLL CALL

PRESENT: Mary Ann Miller, Chair
Kerry Wilcoxon, Vice-Chair
Emmie Cardella
Kyle Davis
Lee Kauftheil
Robert Marmon
Mailen Pankiewicz

STAFF: Nathan Domme, Transportation Planning Manager
Alison Tymkiw, Senior Director/City Engineer Transportation & Infrastructure
Cristina Lenko, Public Information Officer
Susan Conklu, Senior Transportation Planner
Greg Davies, Senior Transportation Planner
John Hoang, Senior Traffic Engineering Manager

PUBLIC COMMENT

Senior Transportation Planner Susan Conklu advised that there were no members of the public who wished to speak or written comments submitted.

1. Approval of Meeting Minutes

Commissioner Davis indicated Office Manager Kyle Lofgren was listed in the minutes, but his name should be removed.

VICE-CHAIR WILCOXON MOVED TO APPROVE APRIL 17, 2025, TRANSPORTATION COMMISSION REGULAR MEETING MINUTES AS AMENDED. COMMISSIONER DAVIS SECONDED THE MOTION, WHICH CARRIED SEVEN (7) TO ZERO (0) BY ROLL CALL VOTE. CHAIR MILLER, VICE-CHAIR WILCOXON, AND COMMISSIONERS CARDELLA, DAVIS, KAUFTHEIL, MARMON, AND PANKIEWICZ VOTED IN THE AFFIRMATIVE. THERE WERE NO DISSENTING VOTES.

Chair Miller pointed out the Transportation Safety Plan is not on the agenda because a working group of stakeholders has been created for additional outreach.

2. Department Reorganization

Alison Tymkiw, Senior Director over Transportation and Infrastructure, conducted a slideshow presentation and reviewed slides with the following titles: Transportation and Streets; Capital Project Management Department; Transportation and Infrastructure Department; and Transportation and Infrastructure Divisions (2 slides).

In response to Commissioner questions, Ms. Tymkiw said the department is not fully staffed. She listed all currently unfilled positions as well as five new positions that are being requested in the new budget cycle. No positions have been eliminated, she said, and there are no plans to do so.

3. Electric Bicycles and Shared-Use Path Speed Limits Study

Senior Transportation Planner Susan Conklu conducted a slideshow presentation and reviewed slides with the following titles: Multi-Use Paths (2 slides); Growing Types of Motorized Devices; Electric Powered Devices with Functioning Pedals... (2 slides); Electric Powered Devices w/o Functioning Pedals (2 slides); Electric Powered Devices on Path; City Code Recent Updates; On-Street Network; Path Wayfinding and Regulatory Signage; Path Widening Projects; Ongoing Outreach; Scottsdale Police Department; Bicycle Safety Brochure; National Averages typical path user speeds; Speed Limits Vs Path Etiquette Signage; Next Steps: and Study & Pilot Location.

Responding to Commissioner questions, Transportation Planning Manager Nathan Domme confirmed the Scottsdale Police Department (SPD) is invested in the study and will participate by collecting speed data. Discussions will continue about their commitment to enforcement, without which speed limits would be ineffective. Regarding cooperation with the rest of Maricopa County, Ms. Conklu said Scottsdale attends monthly micromobility meetings with regional counterparts, and she researches cities both within and outside Arizona to review their policies regarding speed limits. Mr. Domme added that the City of Tempe recently implemented a 20-mile-per-hour speed limit on their multiuse paths.

Ms. Conklu discussed the concept of placing walking paths next to concrete paths, saying it was initially included in one project's master plan, but that may change. She did not believe that solution was better than widening paths, educating users, and providing enforcement, especially in space-challenged areas. Senior Transportation Planner Greg Davies spoke about a few small areas that have that type of arrangement, but crash data is hard to gather from any path system unless it is reported.

In response to additional queries, Ms. Conklu stated changes to the 2018 ordinance were proposed in 2021, but the City Council at that time chose not to adopt them. She noted some sidewalks in Old Town prohibit electric bikes and scooters, but that is based off an older regulation.

She confirmed that electric powered devices which travel over 20 miles per hour are not allowed on paths. Regarding concerns with fast-moving devices such as electric dirt bikes, Mr. Domme assured the Commission that discussions with the SPD regarding how to enforce the speed limit are ongoing, though nothing has been finalized. Ms. Conklu remarked the bicycle safety brochure will be posted online soon. Commissioner Kauftheil requested leeway in the speed limits, noting he travels between 15 and 19 miles per hour on an acoustic bike, and that he wanted enforcement agencies to be able to tell the difference between e-bikes and bikes with internal gears.

Commissioner Kauftheil asked about the timing and breadth of the study. Mr. Domme recognized that data may need to be gathered in the fall, not just during the summer, to get a better sample size of speeds and volumes. Volumetric data will be accumulated using cameras on regular and portable poles, and a speed evaluation will be conducted by the SPD using radar. Given the small sample size, he continued, safety history will likely be compiled using EZ complaints. He said staff wants to gather a lot of information from the pilot program and other agencies before implementing anything. He anticipated collecting volumetric data for a couple of weeks, both on weekdays and weekends, though speed data will likely be gathered over a shorter period of time to not overburden the SPD. Staff would then need to evaluate the data.

Commissioner Pankiewicz felt more information is needed about enforcement before proceeding with a speed recommendation. Mr. Domme reminded her this item is only about conducting a study and providing a report to this body. At that point, a decision could be made about a potential pilot program. He shared her curiosity about how enforcement will work, though he said staff attorneys have concluded the City has legal standing to place speed limits on multiuse paths. Discussions about enforcements will come later, and the SPD's bike patrol unit is considering acquiring e-bikes as well, and they will be bound by the same speed limits. Senior Traffic Engineering Manager John Hoang remarked that another enforcement option might be utilizing warning speed limit signs as opposed to regulatory signs.

Mr. Domme explained the location of the study was chosen because it featured significant bike usage on the wider path to the west and predominantly pedestrian traffic with some bikes on the east side. He mentioned other locations that were considered and encouraged the Commission to suggest other locations. Commissioner Davis recommended adding another location to the study because he feared cyclists in the proposed study area avoid the pedestrian-heavy areas.

Mr. Domme stated that the current enforcement of high-speed bikes is limited due to the size of the bike patrol unit. Ms. Conklu added that the SPD has spent time observing and providing education about the prohibition of e-bikes in canal areas. Commissioner Davis questioned the need for a speed limit given restrictions on certain vehicle types, but he expressed support for the study with the inclusion of a second area.

Commissioner Davis pointed out a discrepancy between what Ms. Conklu said about Class 1 and Class 2 electric powered bicycles being allowed on City sidewalks and what the safety brochure indicates. Ms. Conklu said she would research that, but she knew they were not allowed on unpaved paths.

Vice-Chair Wilcoxon moved to recommend the study. Commissioner Davis offered an amended motion including a second location.

VICE-CHAIR WILCOXON MOVED TO RECOMMEND THAT STAFF CONDUCT A STUDY ON E-BIKE USAGE AND SPEED LIMITS ALONG INDIAN BEND WASH PATH BETWEEN INDIAN

SCHOOL ROAD AND CHAPARRAL ROAD, AS WELL INDIAN BEND WASH PATH BETWEEN VIA LINDA AND THE 101 OVERPASS. COMMISSIONER DAVIS SECONDED THE MOTION, WHICH CARRIED SEVEN (7) TO ZERO (0) BY ROLL CALL VOTE. CHAIR MILLER, VICE-CHAIR WILCOXON, AND COMMISSIONERS CARDELLA, DAVIS, KAUFTHEIL, MARMON, AND PANKIEWICZ VOTED IN THE AFFIRMATIVE. THERE WERE NO DISSENTING VOTES.

4. Projects and Programs Update

Senior Transportation Planner Susan Conklu conducted a slideshow presentation providing an overview of past activities, including:

- The Arizona Bicycling Summit
- Cycle of the Arts, which included nine stops and focused on works of art that will not be available next year
- Bike to Work (or Wherever) Day, which included five different stops

Senior Transportation Planner Greg Davies continued the presentation and provided updates on the following:

- Construction of the Los Gatos Trail
- Reconstruction of the Jomax Trail from Pima Road to the Pinnacle Peak Trailhead
- Upgrades to the Reata Wash single-track trail
- Modifications to trail connections on Scottsdale Road
- Realignment of the Ashler Hills Trail
- Upgrades to the Pinnacle Peak Trail
- Completion of the Desert Foothills neighborhood trail system

Mr. Davies indicated the total cost of this work was approximately \$420,000, which is allocated out of the Trail Improvement Program.

Transportation Planning Manager Nathan Domme concluded the slideshow presentation by reviewing the following transportation projects:

- Creation of a secondary, emergency access point on 77th Street
- Continuation of the preliminary design on two sections of Scottsdale Road and Pima Road
- Construction on Pima Road between Via Linda and McDowell Road
- Interchange improvements on Loop 101
- The Pavement Overlay Program, including the results of the pavement construction index (PCI) evaluation and rehabilitation options to improve PCI levels
- A survey of all area sidewalks to determine their compliance with the Americans with Disabilities Act (ADA)
- Widening of the Indian Bend Wash path between Thomas Road and 2nd Street

In response to Commissioner questions, Mr. Domme indicated the ADA Transition Plan will include audible signals, and it will focus not only on transportation but on buildings as well. Senior Traffic Engineering Manager John Hoang said audible push buttons are currently being implemented on request, and staff is evaluating how to incorporate them into rapid flashing beacons. Mr. Domme commented he could request that sidewalk conditions also be considered by the consultants for addition to the ADA Transition Plan. He added that tree limb height is part of the tree plan, but he can mention it to the consultants to help visually-impaired individuals. Mr. Hoang noted guidelines require branches to be trimmed to a minimum of seven feet, and shrubs

need to be less than three feet within the right of way. Branches need to be trimmed to 12 feet on unpaved trails for equestrian use.

Regarding the 77th Street emergency access, Mr. Domme said he did not recall disc golf baskets or trees being in the way. He spoke about the goal of the emergency access route, adding that they will work with the park system to relocate any baskets if necessary. He said the type of funding will need to be swapped only on the Carefree Highway project, but the City will not know whether the funding is approved until late October. He will provide an update at that time.

In response to additional queries, Mr. Davies indicated Jomax Trail was elevated for drainage purposes, though the pictures included in the presentation were not representative of the exact location of that work. No additional asphalt was added or uncovered.

5. Appoint a Paths & Trails Subcommittee Vice-Chair

Chair Miller pointed out Vice-Chair Wilcoxon's term has expired, and a new Vice-Chair is needed. Commissioner Marmon expressed interest in the position.

VICE-CHAIR WILCOXON MOVED THAT COMMISSIONER MARMON BE APPOINTED TO THE ROLE OF VICE-CHAIR OF THE PATHS & TRAILS SUBCOMMITTEE. COMMISSIONER CARDELLA SECONDED THE MOTION, WHICH CARRIED SEVEN (7) TO ZERO (0) BY ROLL CALL VOTE. CHAIR MILLER, VICE-CHAIR WILCOXON, AND COMMISSIONERS CARDELLA, DAVIS, KAUFTHEIL, MARMON, AND PANKIEWICZ VOTED IN THE AFFIRMATIVE. THERE WERE NO DISSENTING VOTES.

Adjournment

COMMISSIONER DAVIS MOVED TO ADJOURN THE MEETING. COMMISSIONER KAUFTHEIL SECONDED THE MOTION, WHICH CARRIED SEVEN (7) TO ZERO (0) BY VOICE VOTE. CHAIR MILLER, VICE-CHAIR WILCOXON, AND COMMISSIONERS CARDELLA, DAVIS, KAUFTHEIL, MARMON, AND PANKIEWICZ VOTED IN THE AFFIRMATIVE. THERE WERE NO DISSENTING VOTES.

With no further business to discuss, being duly moved and seconded, the meeting adjourned at 6:57 p.m.

Recorded and transcribed by eScribers, LLC.

SCOTTSDALE TRANSPORTATION COMMISSION REPORT



To: Transportation Commission
From: Nathan Domme, Transportation Planning Manager
Ryan Wozniak, Senior Transportation Planner TYLIN
Subject: Strategic Transportation Safety Plan: Initial Goals and Policies
Meeting Date: August 21, 2025

ITEMS IN BRIEF

Action: Information and Possible Action

Purpose: Staff are in the process of drafting a new Strategic Transportation Safety Plan (STSP) that will guide the installation of safety improvements in the transportation network. As noted at the previous Transportation Commission meetings, the STSP is expected to focus more on refining the existing transportation system's safety. Ryan Wozniak of TYLin International, in partnership with Dr. Brendan Russo of Northern Arizona University, will provide a presentation on initial Goals and Goal-Setting. This will be complemented based on options for demonstrations of needs based on the High Injury Network.

Background:

The consultant has started to identify the High Injury Network (HIN) and Overall Crash network for the city of Scottsdale. Along with this is to determine effective strategies and countermeasures that can be implemented in order to reduce the frequency of injury crashes and overall crashes. The consultant has applied to level the types of strategies the city can use. This will result in a rational systemic-level analysis and approach.

Looking at the overall improvement of the city's network, the city will deploy efforts to improve the overall crash rate and meet traffic calming preferences where neighbors welcome an approach to safe access. Strategies follow the preventative Safe System Approach, including:

- Safer Roads to reduce the likelihood of severe or fatal crashes
- Safer Speeds to apply strategies to apply context-sensitive approaches according to site-specific and typology trends (Example of contextualized analysis approach)
- Safer People to target safety messaging and education initiatives
- Safer Vehicles to consider future features essential to City fleet procurement
- Post Crash Care to ensure efficient and safe responses to emergency responders

Concentration of crashes and patterns in corridors and locations will be offered in the HIN options.

Next Steps

The consultant team and the Transportation and Infrastructure staff will continue developing the Strategic Transportation Safety Plan.

Contacts: Nathan Domme, 480-312-2732, ndomme@scottsdaleaz.gov

City of Scottsdale Strategic Transportation Safety Plan

Initial Goals, Approach to further Goal Development

Transportation Commission

Meeting

August 21, 2025



Data Reminder / Primer

Crash Data Sources

- ADOT
- City of Scottsdale

Years of focus

- 2019 – 2023 (5 years of crashes, common for safety analysis)

Area of focus

- City jurisdiction, Public roads and streets
- Severity of Crashes, Crash Types, Vulnerabilities
- Spatial/Geographic trends
- Statistical trends

The Principles of SSA



Human-Centered and Proactive Approach

The Safe System Approach Principles for Speed

- **Human Injury Tolerance:** Vehicle speeds often exceed thresholds where impacts become deadly, especially for pedestrians and cyclists.
 - E.g., the fatality risk for a pedestrian hit by a vehicle jumps dramatically between 20 and 40 mph
- **Error Forgiveness** ⚠️: Roadway design and policies should mitigate consequences of common driver mistakes rather than relying solely on perfect behavior. ⚠️

⚠️ Context is important to consider – Discussion warranted.

THE SAFE SYSTEM APPROACH VS. TRADITIONAL ROAD SAFETY PRACTICES

Traditional

- Prevent crashes
- Improve human behavior
- Control speeding
- Individuals are responsible
- React based on crash history

Safe System

- Prevent deaths and serious injuries
- Design for human mistakes/limitations
- Reduce system kinetic energy
- Share responsibility
- Proactively identify and address risks

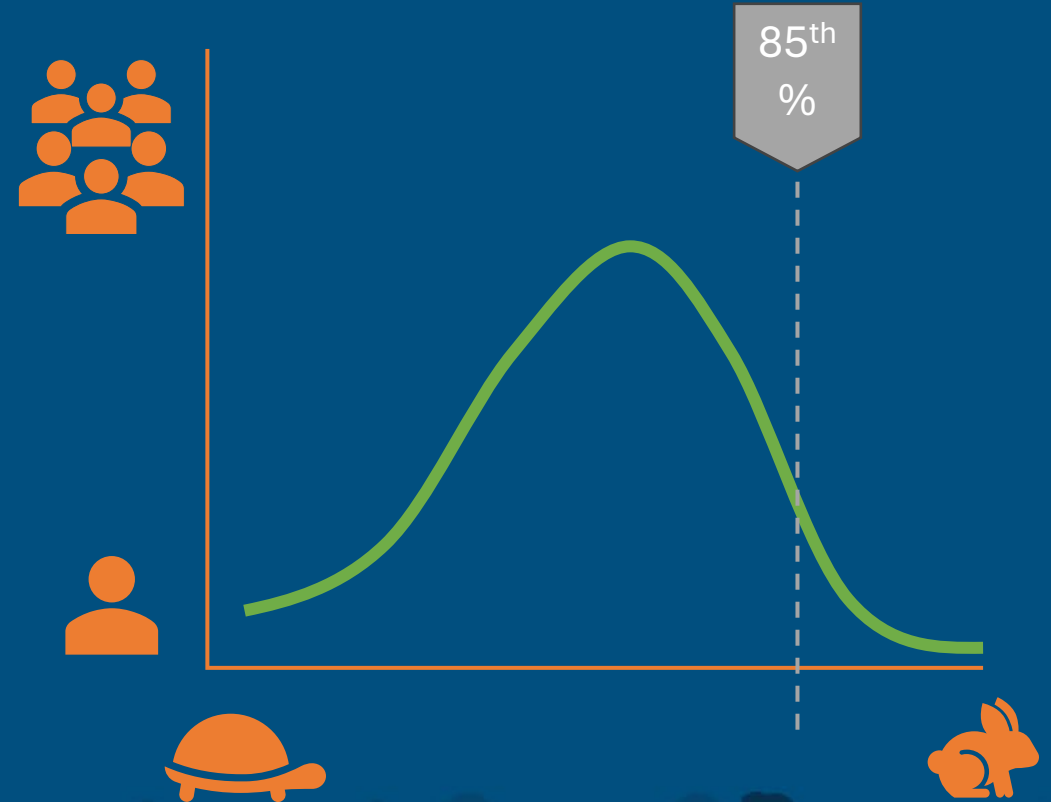
Whereas traditional road safety strives to modify human behavior and prevent all crashes, the Safe System approach also refocuses transportation system design and operation on anticipating human mistakes and lessening impact forces to reduce crash severity and save lives.

Image Source:
U.S. Department of
Transportation



Speed Indicator

- Crash Reports tend to record this, but relies on witness statements and are relative to posted speeds
- How can we expand this question into systemic analysis?
- Complementary Location-Based Service data can be revealing



$$KE = 0.5mv^2$$

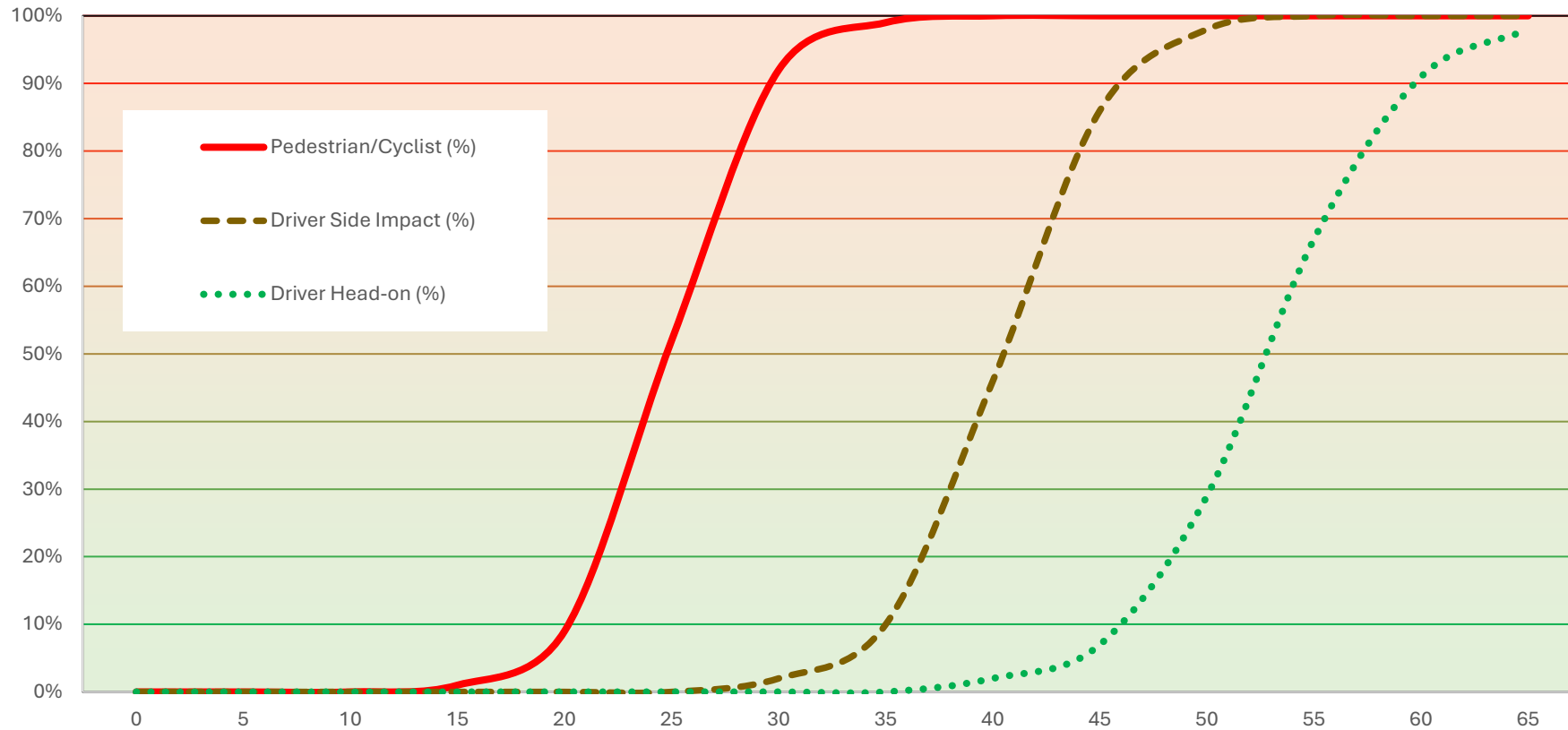
Evaluating Speed Related Crashes and Injury Severity

- **Aggregated Location-Based Service derived Speed Travel Data:**
 - **Average Speeds:** hourly average travel speeds
 - **85th Percentile Speeds:** hourly derived 85th percentile travel speeds
- **Enforcement Activity Opportunity:**
 - Speed differential is a recognized danger; analyzing the differential between average and 85th percentile can reveal where enforcement is warranted (proactive safety)
- **Further Analysis**
 - Spatially determining the overlapping influences between speed, collision manner, and high-injury will provide more insights

Speed Limit Significance



Probability of Fatality (%) by Collision Speed (mph, Δ velocity)



Adapted from Wrangborg's model for fatality probability vs vehicle collision speeds
Improving the Performance of Safe System Infrastructure - Figure 4 on ResearchGate.
Available from: <https://www.researchgate.net/figure/Wrangborgs-model-for-fatality-probability-vs-vehicle-collision-speeds>

VRU Probability of Fatality

Is “Speed a Factor?”

85th Percentile Speed	O	C	B	A	K	All Inj Sev	% of All Inj Sev.	KSI Inj Sev	% KSI Inj Sev
Speed85th_20_25	21	3	3	0	0	27	0.29%	0	0.00%
Speed85th_25_30	120	20	19	2	2	163	1.72%	4	1.86%
Speed85th_30_35	372	73	63	15	1	524	5.54%	16	7.44%
Speed85th_35_40	569	110	106	17	4	806	8.52%	21	9.77%
Speed85th_40_45	1129	257	212	26	3	1627	17.20%	29	13.49%
Speed85th_45_50	2121	453	450	50	11	3085	32.61%	61	28.37%
Speed85th_50_55	1274	299	321	42	4	1940	20.51%	46	21.40%
Speed85th_55_60	587	131	166	22	6	912	9.64%	28	13.02%
Speed85th_60plus	254	52	59	9	1	375	3.96%	10	4.65%
						9459	100.00%	215	100.00%

KABCO (Crash Records)				
K	A	B	C	O
Fatal Injury	Serious Injury Suspected	Minor Injury Suspected	Possible Injury	Property Damage Only
KSI Crash Counts		Close Call	Minor Crash Counts	



Speed Limit Setting Practices



Contextual Speed Limits

Move beyond the outdated 85th percentile model by adopting context-sensitive approaches that account for pedestrian presence, land use, and crash history

Safe Speed Zones

Designate lower speed zones in areas with high pedestrian activity, such as schools, parks, and downtowns

THE
**SAFE
SYSTEM**

APPROACH



Image Source: City of Seattle (2020). 35th Avenue SW Road Safety Corridor Project

Road Design for Self-Enforcing Speeds

➤ Narrowed Lanes & Curb Extensions

Physical elements such as reduced lane widths, chicanes, and bulb-outs create cues that naturally slow down



➤ Raised Crosswalks and Intersections

Elevate pedestrian crossings to improve visibility and require lower approach speeds



Automated and Manned Enforcement



➤ Speed Safety Cameras:

Effective in school zones and high-risk corridors when paired with risk-prone specific policies.

Fixed units can reduce crashes on urban principal arterials up to:
54%
for all crashes.
47%
for injury crashes.



Source: US DOT

➤ Targeted Enforcement:

Based on high-injury network data and community concerns

- Current practice is limited with a high-degree of discretion
- Traffic Engineering is working closely with Scottsdale PD as data analysts



Source: City of New York

Tempe's Photo-Enforcement Rollout & Data-Backed Updates

- **Implementation timeline:**

- **May 7, 2025:** Tempe activated 14 fixed intersection cameras and 4 mobile units. Tempe is issuing only warning notices during an initial 30-day grace period - [KJZZ](#)
- **June 5–6, 2025:** Citations began at \$250 per offense (speeding or red-light violations). Double citations (and potential criminal charges) apply for combined violations - [Hoodline](#)

- **Enforcement activity:**

- In the first **two weeks of issuance**, police confirmed **over 2,200 citations**, with nearly 10,000 violations under review - [12News](#)

- **Internet Comments:**

- Commentors share a perception of a “cash grab”
- Trade-off to consider promoting a positive safety culture

➤➤ Initial Goals and Policy Direction

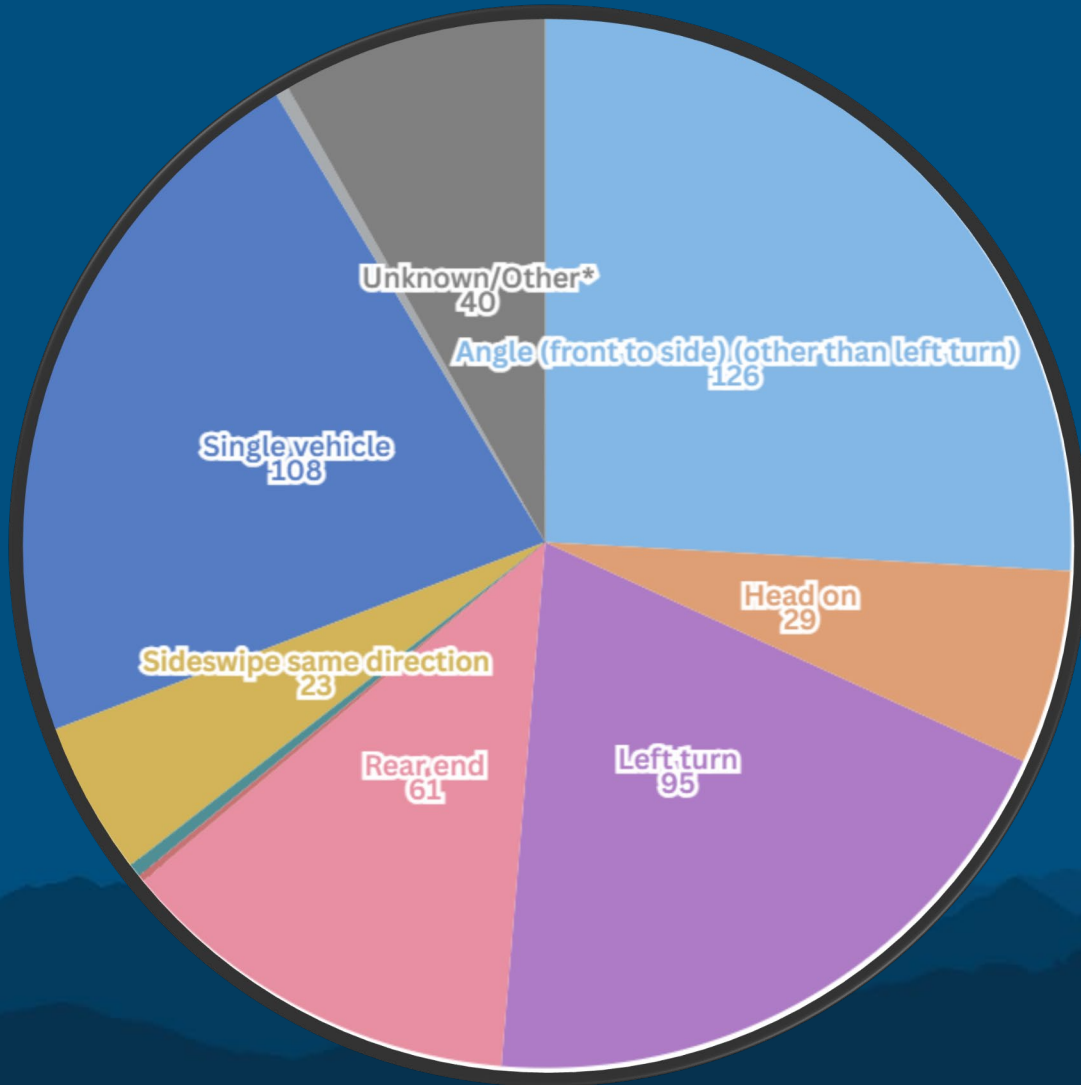
- **Data-Driven Safety Proactive**

- Crash trends indications
 - Priorities shaped by **crash data** and **public feedback data**
- Crash Data
 - Crash types and Collision Manner inform Countermeasures
- Feedback: Working Group, Transportation Commissioner, and Public
 - These sentiments inform sensitivity to certain vulnerabilities
 - Cultivating more engaging crash analyses (demonstration forthcoming)

- **Safe System Approach**

- Currently assessing the “State of Practice”
- Cross-Functional assessments: win-win policies, programs, or projects
- Opportunities for improvement

Initial Goals and Policy Direction



KSI Crash Counts

KSI Crash Trends 3 most likely

1. Angle Crashes (Not Left Turns)
 2. Single Vehicle Crashes
 3. Left Turn Crashes
- (Same ranking for KAB)

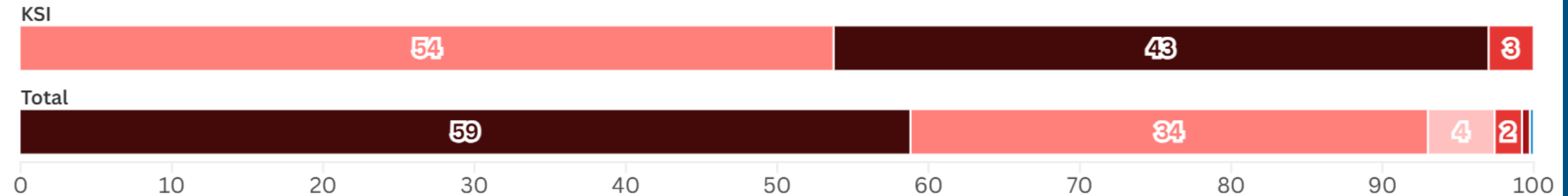
Initial Goals and Policy Direction

Ped KSI vs Total Crashes by Lighting

Percentage

Ped KSI Crashes (n = 70)
Ped Total Crashes (n=386)

Daylight Dawn Dusky Dark-Lighted Dark Not-Lighted Unknown



KSI Crash Trends

Pedestrian Vulnerability by Lighting condition

1. Total Sum of all KABCO crashes = Daylight condition leads
2. KSI (KA) only = Dark-Lighted conditions leads (+20 points)



Contextualizing the Data, Analysis, and Policy

- Maps always convey and prioritize information
 - Map creation is not a task to be taken lightly; information distortion risk
 - A variety of map views can help avoid the risk of incidentally diminishing (or omitting) important information
 - Examples:
 - Maps without history
 - Maps without 3D representation of the physical environment
 - Maps without imagery
 - Maps without understanding the *people* of a place
 - Maps will always be without some information

Maps with more built-in context

Traffic Calming Tools

Curb Extensions



Image source: Dan Burden
<http://www.pedbikeimages.org/>

Speed Humps and Cushions



Image Source: City of Detroit

Turn Calming



Image Source: NYC DOT

Image Source: City of Portland

These measures alter driver perception and behavior by signaling a change in roadway context.



Median Islands/
Pedestrian Refuge Areas



Image Source: City of Charlotte, NC

Reduced Lane Width



Image Source: NYC DOT

Community Engagement and Priorities

➤ Public Input on Trade-offs

Surveys to assess tolerance for slower speeds in exchange for safer conditions.



➤ Localized Prioritization

Consider the disproportionate impact to specific populations with speed management. Possibly couple with investments in areas overdue for investment.



This project will have a website live with important information for how to this will defer to local input and prioritization.

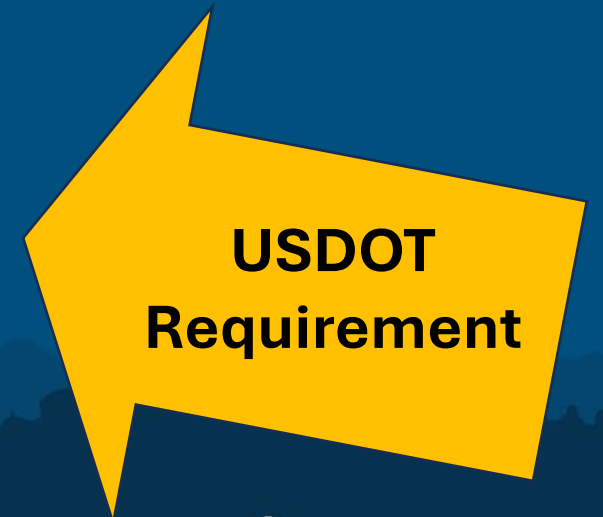
**Going live in
Early September.**

- ✓ Interactive Community Walking Assessments
- ✓ Questionnaire

»» Commitments to Saving Lives



- Approach to a KSI reduction rate
 - Comparing the HIN and Crash Reduction Factors
 - *Seeking a HIN recommendation from the Commission today*
 - Considering an achievable timeline for applicable strategies
- Initial Goal:
 - Reduce KSI crashes by ___% by year 20___
 - *Example: Reduce KSI crashes by 35% by year 2035*

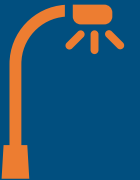


Safer Roads

- **Goal:** Design and operate infrastructure to reduce the likelihood and severity of user errors.

Subtopics:

- **High Injury Network (HIN)** mapping and prioritization
- **Context-sensitive street design** (urban, suburban, rural)
- **Intersection treatments** (roundabouts, protected lefts, no-turn-on-red)
 - *Turn Calming*
- **Pedestrian and bicycle infrastructure** (refuge islands, bike lanes, ADA crossings)
- **Lighting and visibility** enhancements
- **Safe crossings** (RRFBs, PHBs, grade-separated)
- **Work zone and incident scene design**
- **Access management and driveway spacing**



Safer People

➤ **Goal:** Encourage safe, responsible behavior and support a culture of safety.

Subtopics:

- **Behavioral risk reduction** (seat belts, distraction, **DUI**)
- **Education campaigns** (audience-targeted, holiday/seasonal timing)-
Education Component – *previous direction: Less of a concern*
- **School-based programs** (SRTS curriculum, student driver education)
- **Community engagement & co-production** (youth, elderly, disabled populations, transit users, no/low-car availability populations)
- **Driver licensing and impairment countermeasures**
- **Shared responsibility messaging** (shifting blame from users to system design)



Safer Vehicles

➤ **Goal:** Improve crash avoidance and occupant protection technologies.

Subtopics:

- **Fleet management policies** (City procurement policies to improve the safety of the fleet and staff vehicle use)
 - **Automated emergency braking (AEB)**
 - **Pedestrian detection systems**
 - **Vehicle size and front-end design** (hood height, visibility)
 - **Advanced driver assistance systems (ADAS)**
 - **Heads-up Displays**



Post-Crash Care

➤ **Goal:** Ensure fast and effective emergency response to reduce crash severity.

Subtopics:

- Emergency Medical Services (EMS) response times
- Traffic Incident Management (TIM) training
- Crash scene protection for responders
- Incident data systems and NextGen 911
- Public education on Move Over laws
- Performance monitoring of post-crash response metrics



Community of practice feedback:

This component is often underrepresented but significant for survivability.

Cross-Cutting Policy

- **Goal:** Establish capital investments in infrastructure upgrades established in two complementary lists.
- List 1: Arterial safety improvements prioritization.
- List 2: Neighborhood traffic calming prioritization.

Arterial safety:

- HIN-dependent

Neighborhood traffic calming:

- Stakeholder-responsive
- Access-focused





Questions
and
Discussion

SCOTTSDALE TRANSPORTATION COMMISSION REPORT



To: Transportation Commission
From: Nathan Domme, Transportation Planning Manager
Ryan Wozniak, Senior Transportation Planner TYLIN
Subject: Strategic Transportation Safety Plan: High Injury Network
Meeting Date: August 21, 2025

ITEMS IN BRIEF

Action: Information and Possible Action

Purpose: Staff are in the process of drafting a new Strategic Transportation Safety Plan (STSP) that will guide installing safety improvements in the transportation network. As noted at the previous Transportation Commission meetings, the STSP is expected to focus more on refining the existing transportation system's safety. Ryan Wozniak of TYLin International, in partnership with Dr. Brendan Russo of Northern Arizona University, will provide an update on the presentation on Data Analysis & High-Risk Locations provided in April 2025. This includes:

- Identify intersections, segments and corridors which exhibit possible safety issues
- High-Injury Network

Background:

The consultant team analyzed crash data for the most recent five years available (2019-2023). Two data sources were utilized:

- Arizona Department of Transportation (ADOT) for vehicle-only crash data
 - 18,279 total crashes
 - 376 **Fatal Injury or Serious Injury (KSI) crashes** representing 2.1% of the total
- City of Scottsdale crash data for pedestrians and bicyclists
 - 719 total pedestrian/bicyclist crashes
 - 111 **KSI** pedestrian/bicyclist crashes representing 15.4% of the total
 - This represents 7.33 times the vehicle-only rate for KSI crashes

The combined final crash dataset includes:

- 18,899 total crashes
- 487 **KSI** crashes representing 2.6% of total crashes

The team evaluates additional data beyond the crash-specific data including:

- Roadway Information
- Built Environment Data
- Demographic Data
- Speeds
- Transit Ridership

High Injury Network Options:

Tylin has evaluated several potential methodologies for defining and prioritizing the High Injury Network (HIN). Each option takes a different approach to how severe crashes are considered and how exposure factors are incorporated. The goal of this evaluation is to select a methodology that

most accurately identifies locations where public funds can provide the greatest impact on reducing severe crashes.

Option 1: KSI Crash Frequency at Segment

- This method identifies segments based on the frequency of crashes that result in a KSI (killed or seriously injured) outcome.
- The strength of this approach is its clear focus on the most severe crash types.
- The limitation is that it does not account for traffic or exposure at each location. For example, a roadway segment with high crash frequency may also carry very high traffic volumes, meaning the relative risk per traveler may not be as high as in other locations with fewer vehicles but a higher crash rate.

Option 2: KSI Crash Rates at Segments

- This approach refines Option 1 by considering crash rates instead of just crash counts.
- KSI crash rates are calculated by dividing the number of severe crashes by an exposure measure, typically traffic volumes and segment length.
- By accounting for exposure, this option provides a better sense of relative risk to travelers on each roadway segment.

Option 3: HSM Weighted Method

- This method defines the High Injury Network using a relative weighting scheme from the AASHTO Highway Safety Manual (HSM).
- Under this approach, more weight is assigned to severe crashes compared to minor crashes, ensuring that the most harmful events carry greater influence in identifying HIN corridors.
- The advantage is that it balances both the severity and frequency of crashes while aligning with national best practices in safety analysis.
- This option provides a more nuanced and standardized method for prioritization, consistent with widely accepted roadway safety methodologies.

Option 4: KSI Crash Cost Estimates

- This approach defines the HIN by calculating the monetary cost of K (fatal) and A (serious injury) crashes based on Arizona-specific crash cost values by severity.
- Each crash type is assigned to a dollar value, and segments are prioritized based on the total cost of severe crashes occurring along them.
- This approach offers a financial justification for investment by directly linking safety outcomes to cost implications.

Consultant Recommendation

After assessing the strengths and weaknesses of each option, the consultant recommends Option 3: the HSM Weighted Method. This option provides the best balance between addressing severity, upholding methodological rigor, and adhering to recognized best practices. By implementing a weighted approach, the HIN can more effectively identify segments where improvements will lead to the most significant reduction in severe crashes and deliver the highest safety benefits for the traveling public.

Next Steps

The consultant team and the Transportation and Infrastructure staff will continue developing the Strategic Transportation Safety Plan and incorporate the High Injury Network into the plan.

Contacts:

Nathan Domme, 480-312-2732, ndomme@scottsdaleaz.gov

High Injury Network

Analysis | Options | Recommendations

Transportation Commission Meeting

August 21, 2025

Quick vernacular note:

KSI = KA

K

A

Fatal
Injury

Serious
Injury
Suspected

KSI Crash Counts



Data-Driven Strategies

- Brief data overview
 - Traffic and crash data from ADOT and City sources, 2019-2023
 - Speed data from Replica (GPS-synthesized data)
 - Roadway and land use data from City and primary sources
 - Strictly focused on City-owned roadways and jurisdiction

What is a HIN?

- **H**igh **I**njury **N**etworks identify spots or segments of roadways where crashes result in significant severe injuries or fatalities.
 - There are options for selective emphasis
 - All emphasis areas draw upon statistically relevant data
 - We invite scrutiny of the reasoning – your insights will shape what ultimately is emphasized in the HIN

HIN Aims and Options

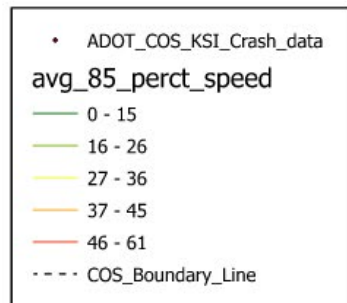
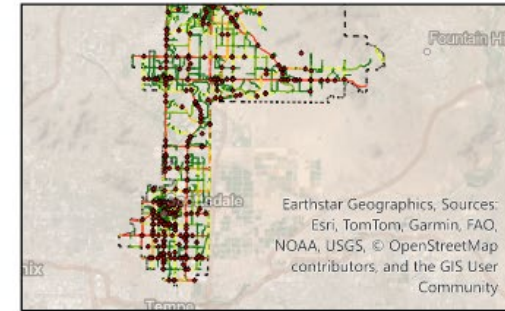
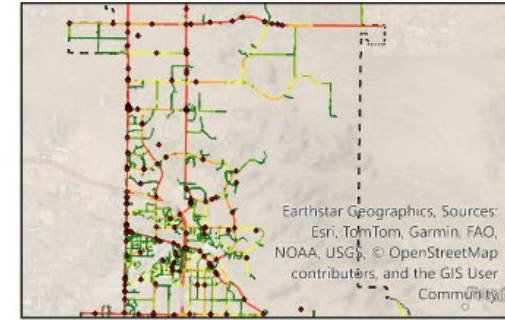
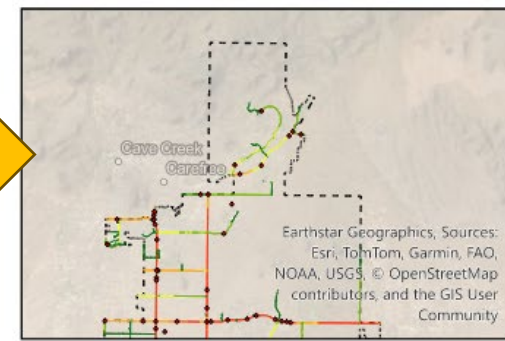
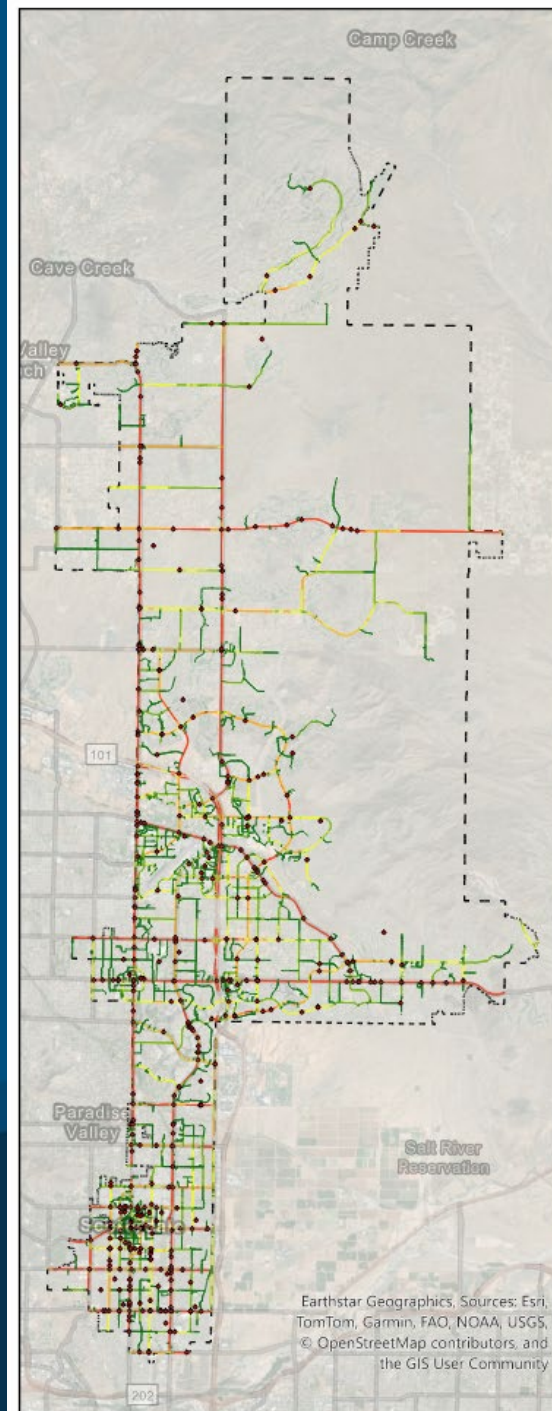
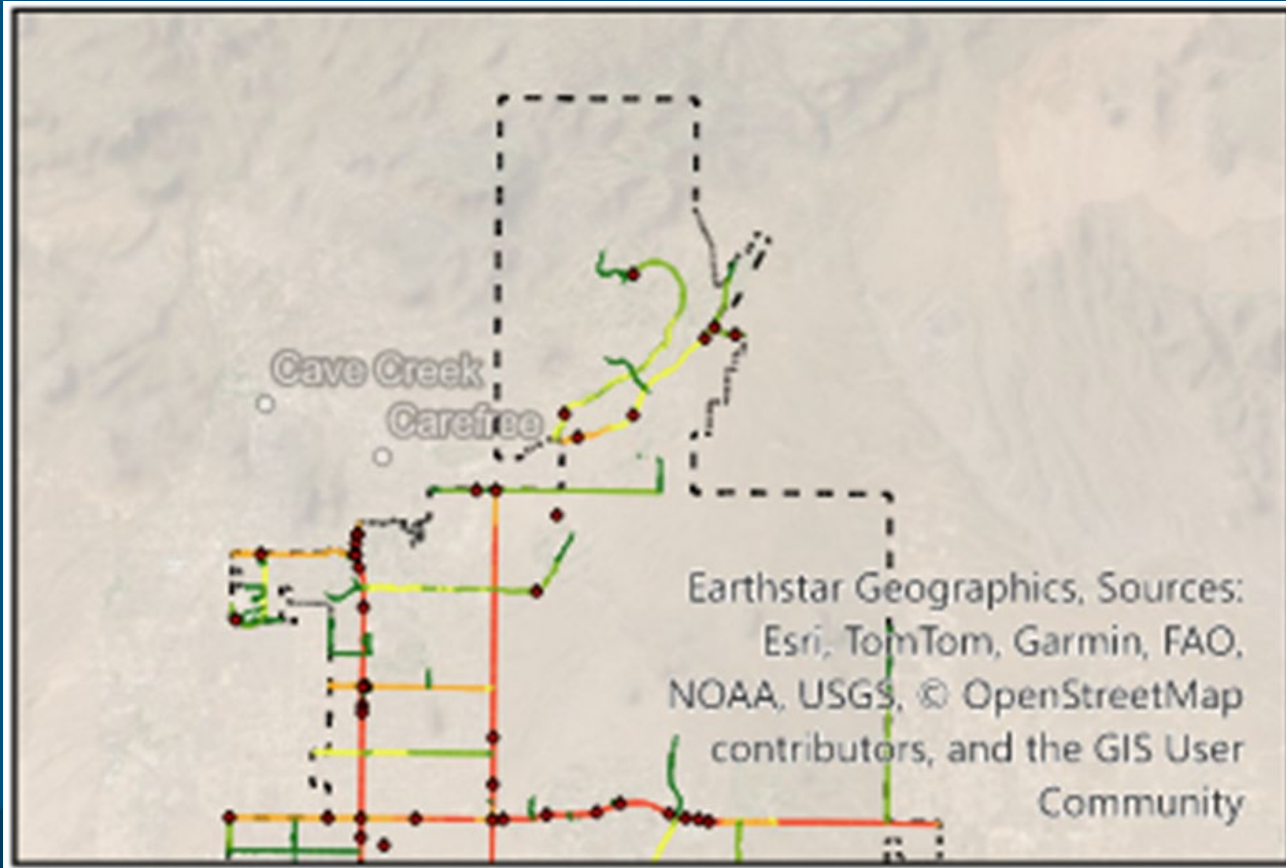
- The RESULTS we seek
 - A well-reasoned HIN to prioritize projects that statistically predict:
 - ✓ Saving lives of all people on public roadways
 - ✓ Preventing life-altering injuries
 - ✓ Returning economic benefits directly to more unharmed people and public dollars
- When weighted purely by
 - KSI crash rates (1)
 - Weighted by injury severity and estimated economic impacts (2)

Data notes:

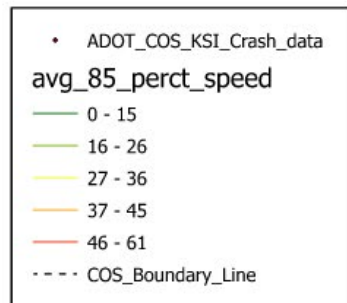
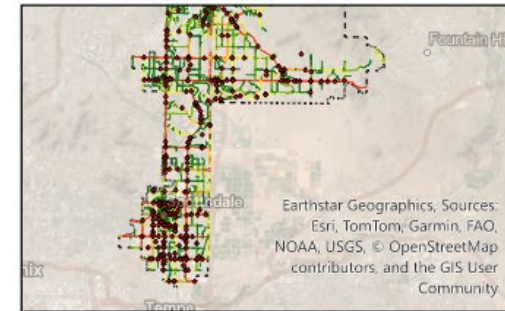
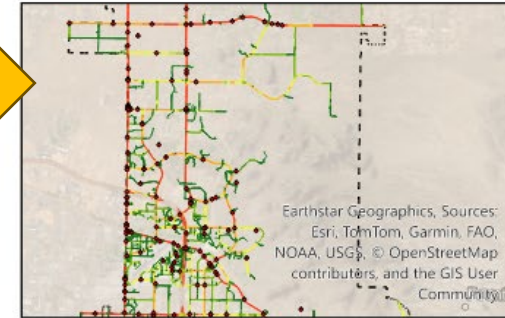
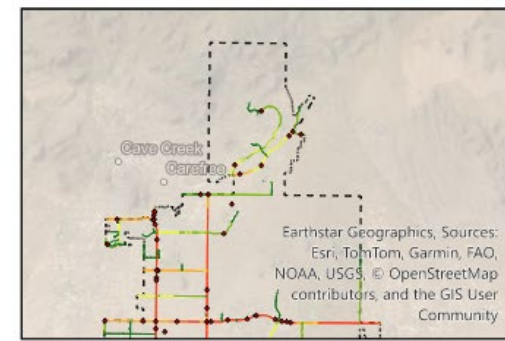
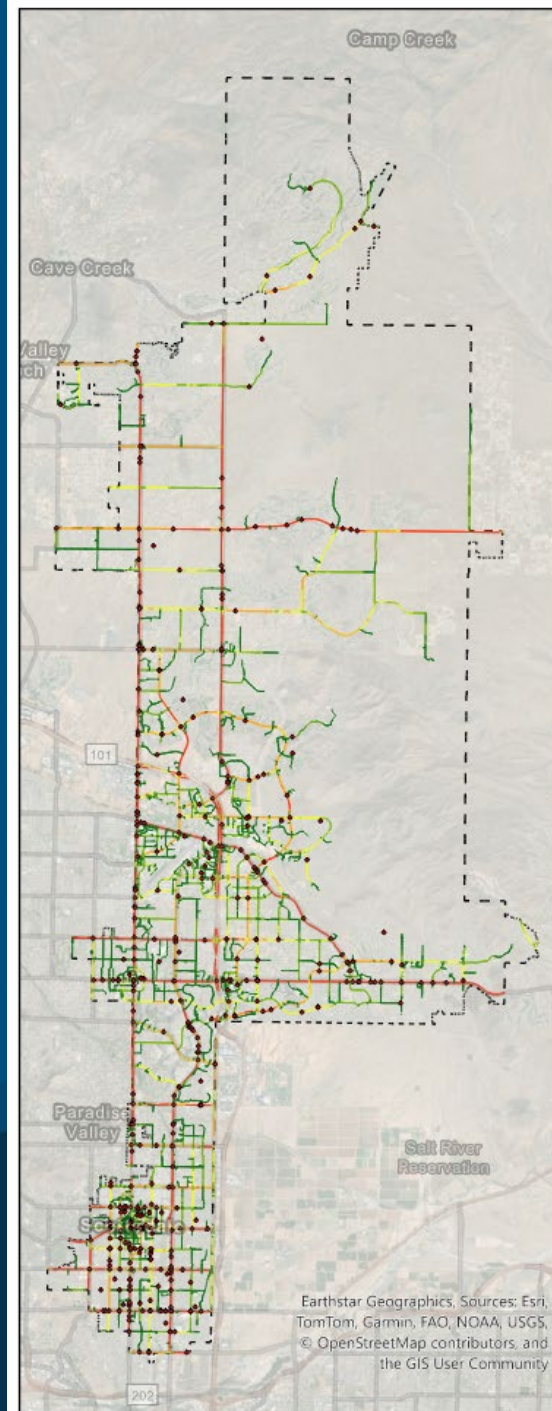
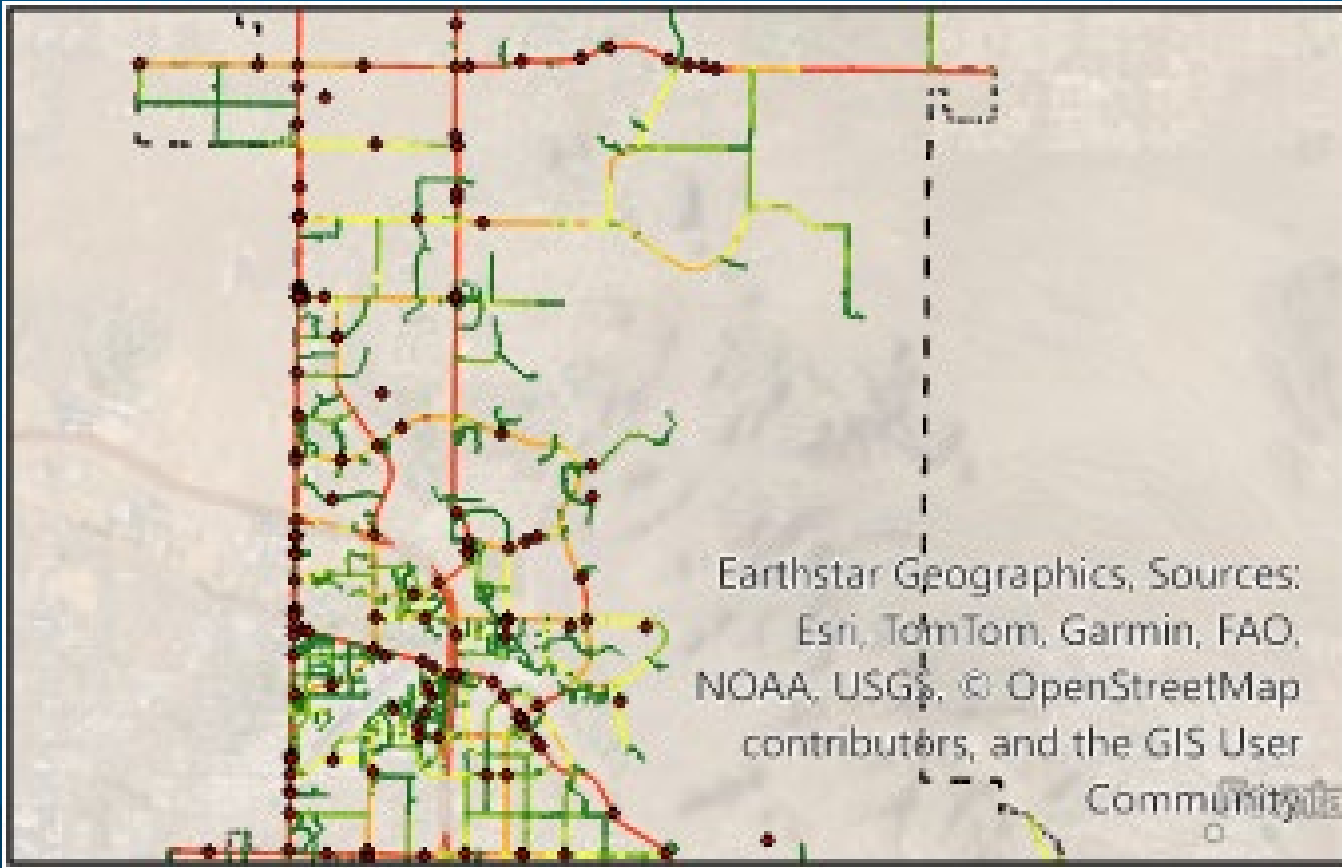
1. KSI Crash Rates: Deduced by dividing the fatal and serious injury crashes of an area of analysis by the total crashes within the area of analysis.
2. Weighted crashes: Crashes resulting in greater injury receive a multiplier greater than crashes with lesser injury. Multipliers (weights) are often derived from economic cost estimates. ADOT economic estimates to be used, if desired.



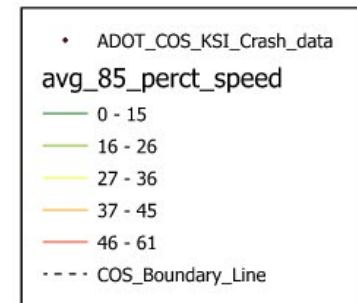
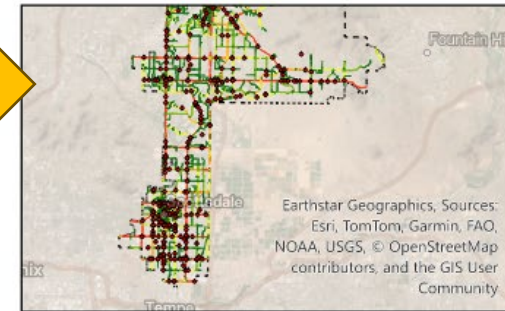
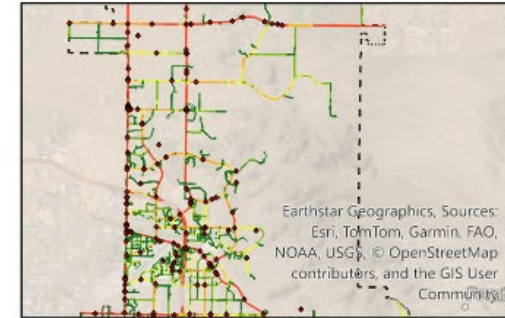
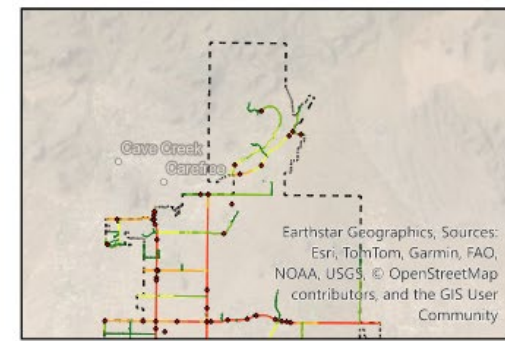
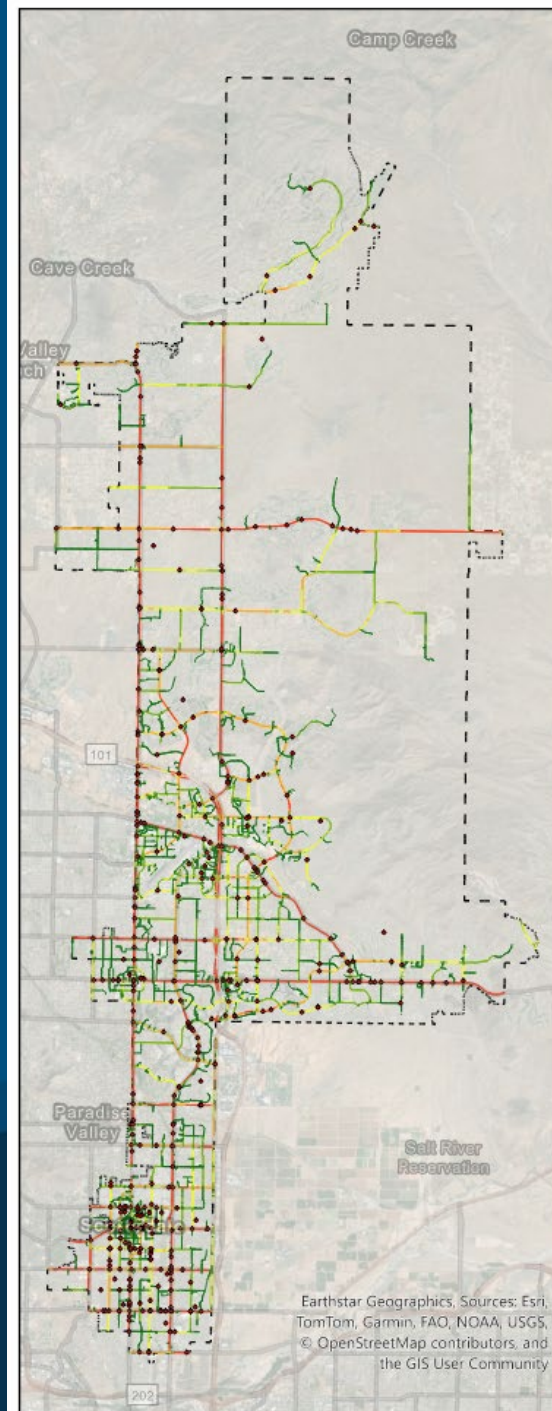
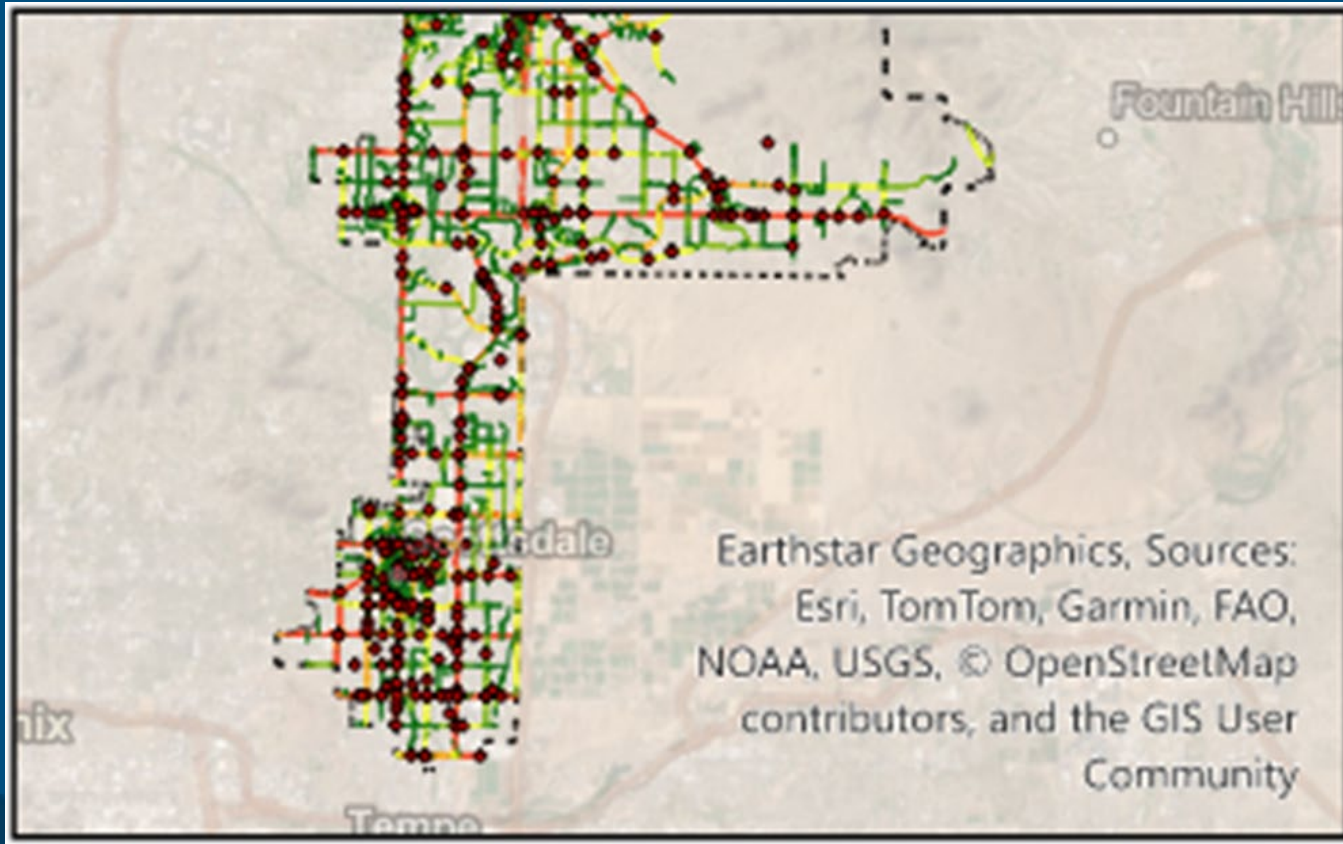
85th Percentile + KSI Crashes



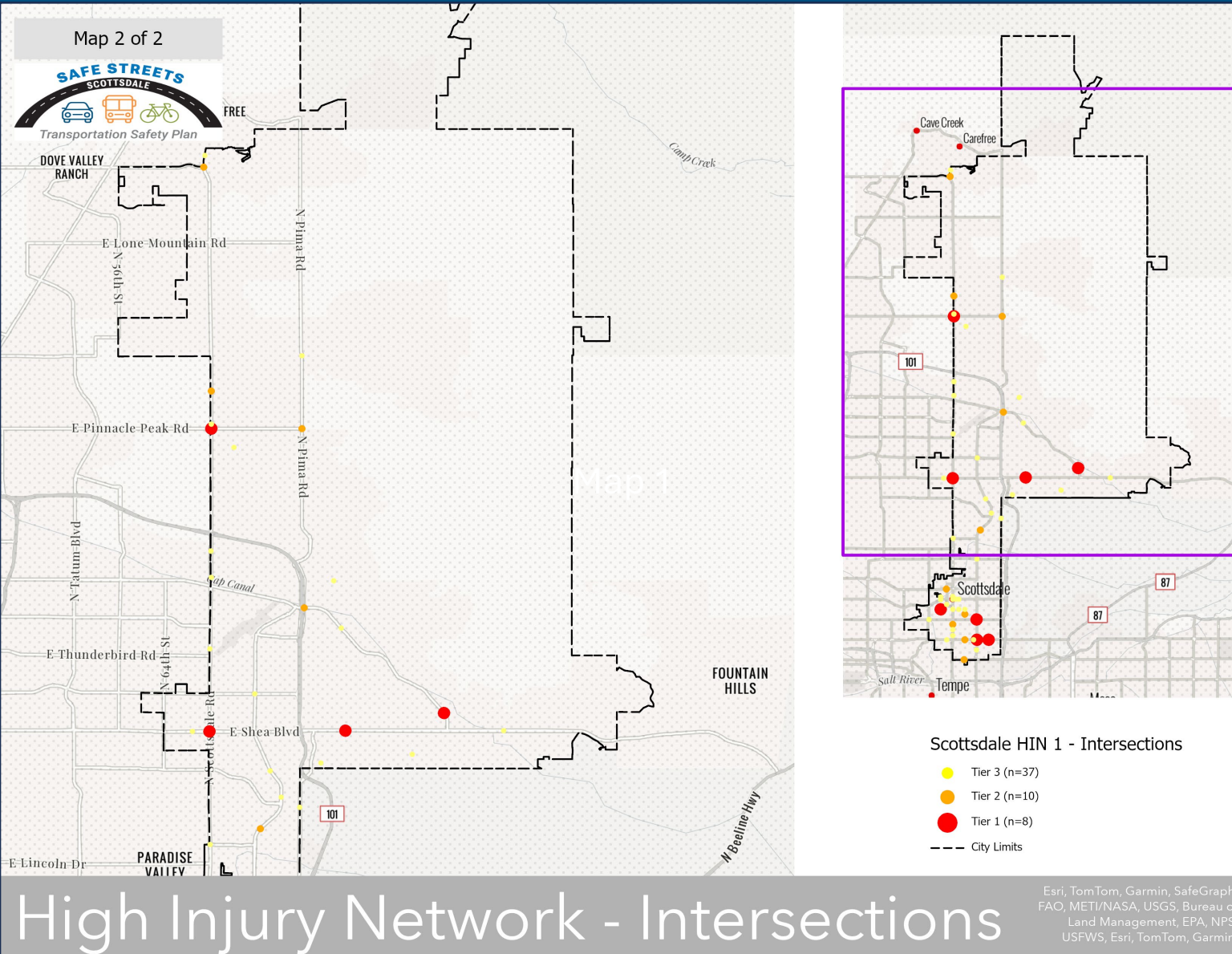
85th Percentile + KSI Crashes



85th Percentile + KSI Crashes



HIN option 1 – KSI Crash Frequency at Intersection

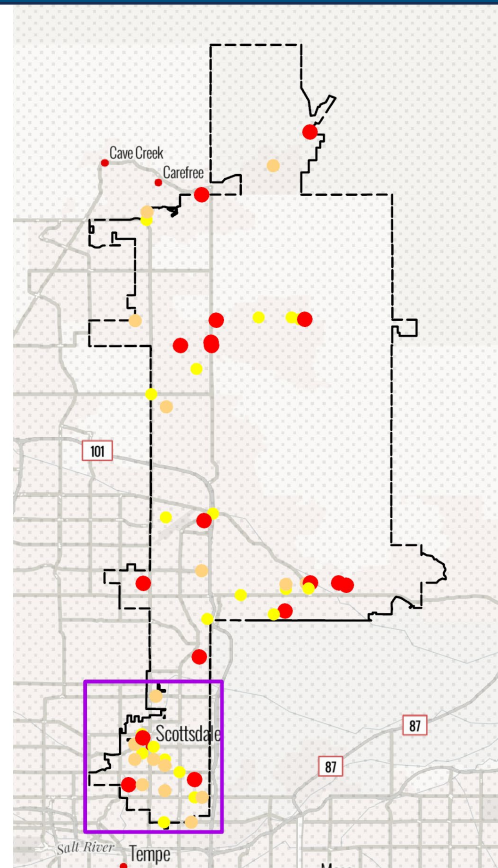
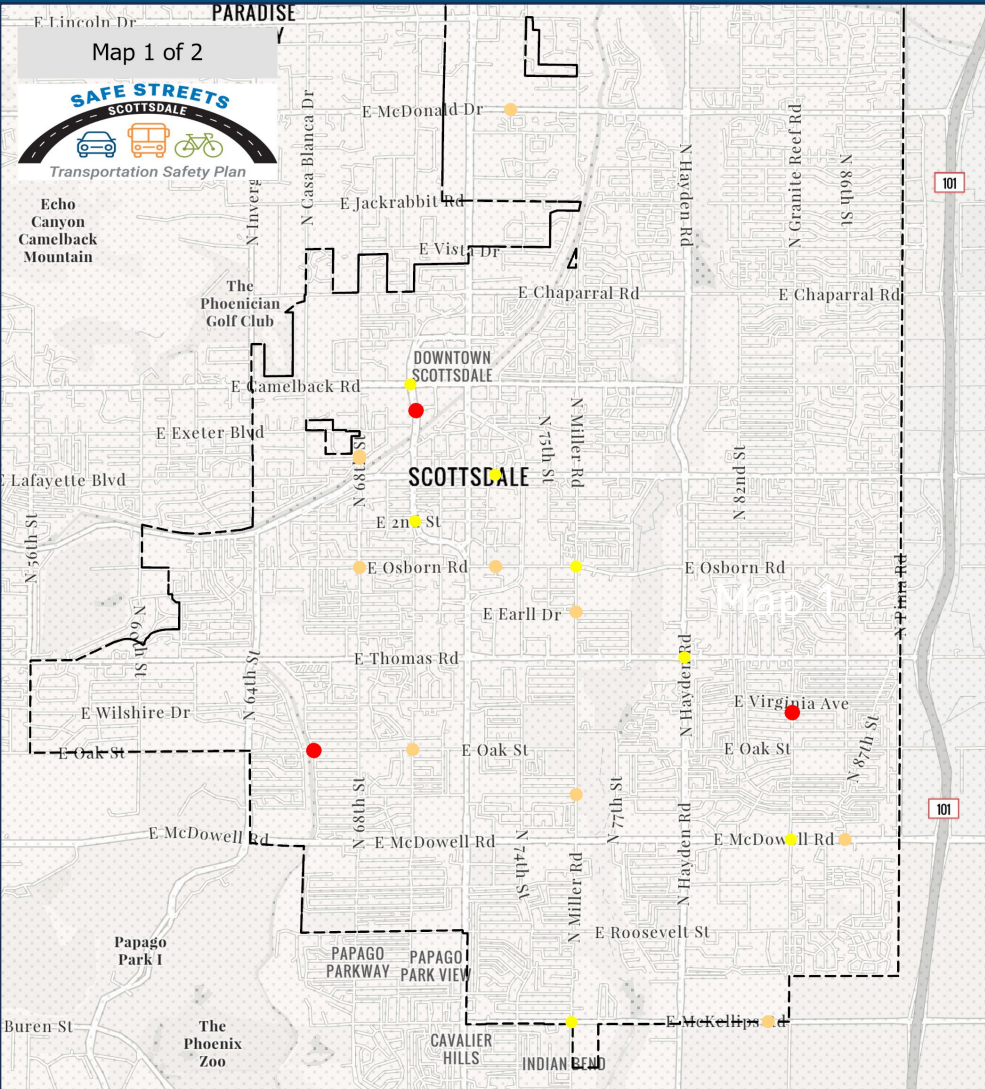


Defining HIN by KA Crash Count

- Considers most severe crashes
- Does not account for exposure (e.g. traffic volumes)

Map shows top 55 Intersections based on KA Crash Frequency

HIN option 2 – KSI Crash Rates



Scottsdale HIN 2 - Intersections

- Tier 3 (n=20)
- Tier 2 (n=18)
- Tier 1 (n=19)
- City Limits

Defining HIN by KSI (K, A) Crash Rate

- Considers most severe crashes
- Accounts for exposure (e.g. traffic volume at intersections and volumes and length for segments)

Map shows top 57 Intersections based on KA Crash Rate

$$\text{Crash Rate (intersection)} = (C * 1,000,000) / (N * 365 * V)$$

Crashes per million entering vehicles

$$\text{Crash Rate (segments)} = (C * 100,000,000) / (N * 365 * L * V)$$

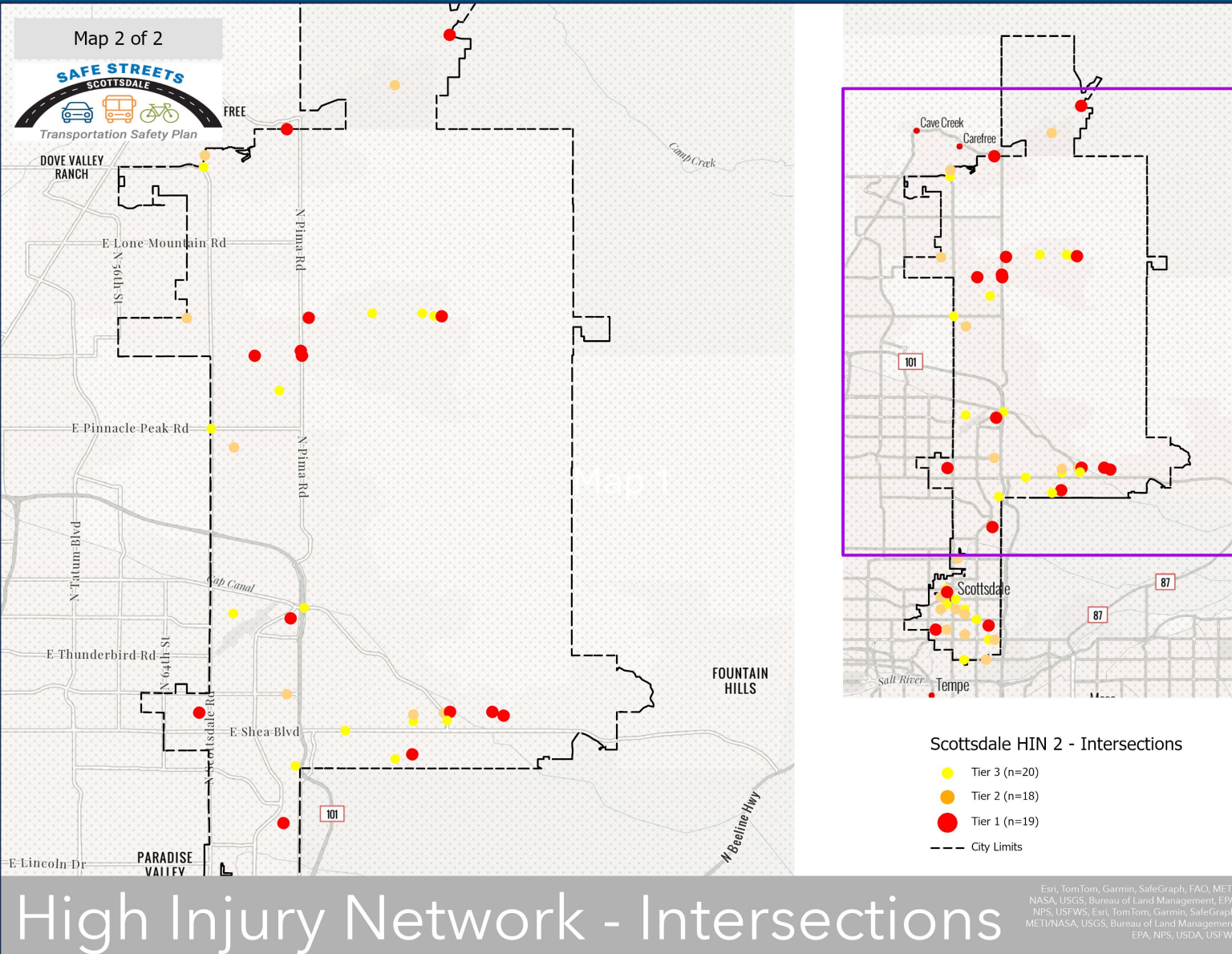
Crashes per 100M Vehicle miles traveled (VMT)

High Injury Network - Intersections

Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS, Esri, TomTom, Garmin,



HIN option 2 – KSI Crash Rates



Defining HIN by KA Crash Rate

- Considers most severe crashes
- Accounts for exposure (e.g. traffic volume at intersections and volumes and length for segments)

Map shows top 57 Intersections based on KA Crash Rate

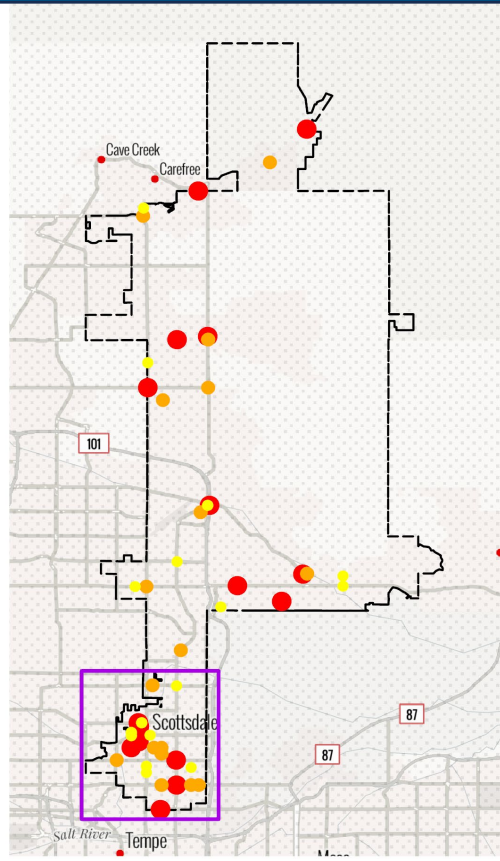
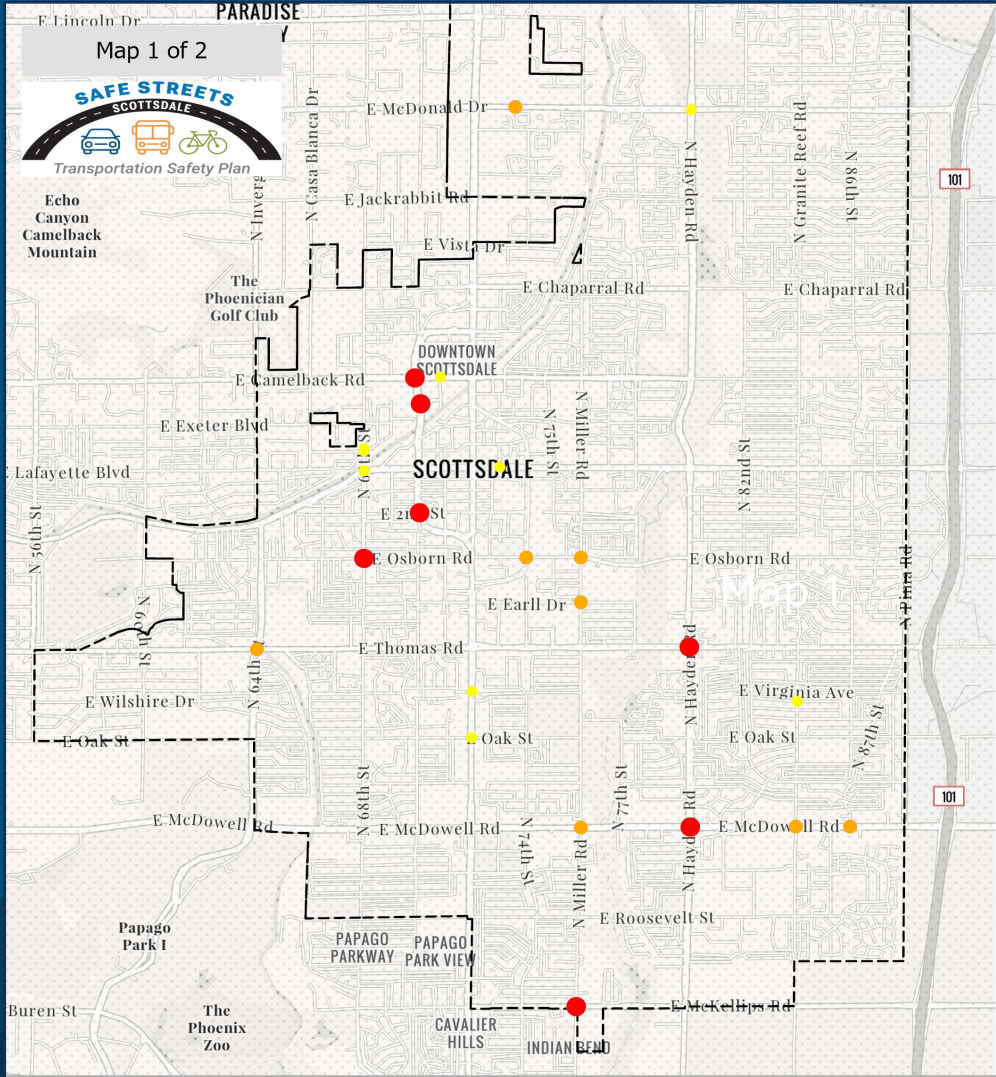
Crash Rate (intersection) = $(C * 1,000,000) / (N * 365 * V)$
Crashes per million entering vehicles

Crash Rate (segments) = $(C * 100,000,000) / (N * 365 * L * V)$
Crashes per 100M Vehicle miles traveled (VMT)



High Injury Network - Intersections

HIN option 3 – HSM Weights Adjusted for KSI Crash Rate



Scottsdale HIN - Intersections

- Tier 3 (n=17)
- Tier 2 (n=17)
- Tier 1 (n=16)
- City Limits

Defining HIN based on Relative Weighting Scheme from AASHTO HSM

- Gives more weight to severe crashes
- $$\text{Total weight} = (K*25) + (A*10) + [(B+C+O)*1] * KA_CRASH_RATE$$

Map shows top 50 Intersections based on HSM Weighting Scheme (adjusted for KSI Crash Rates)

Reference:

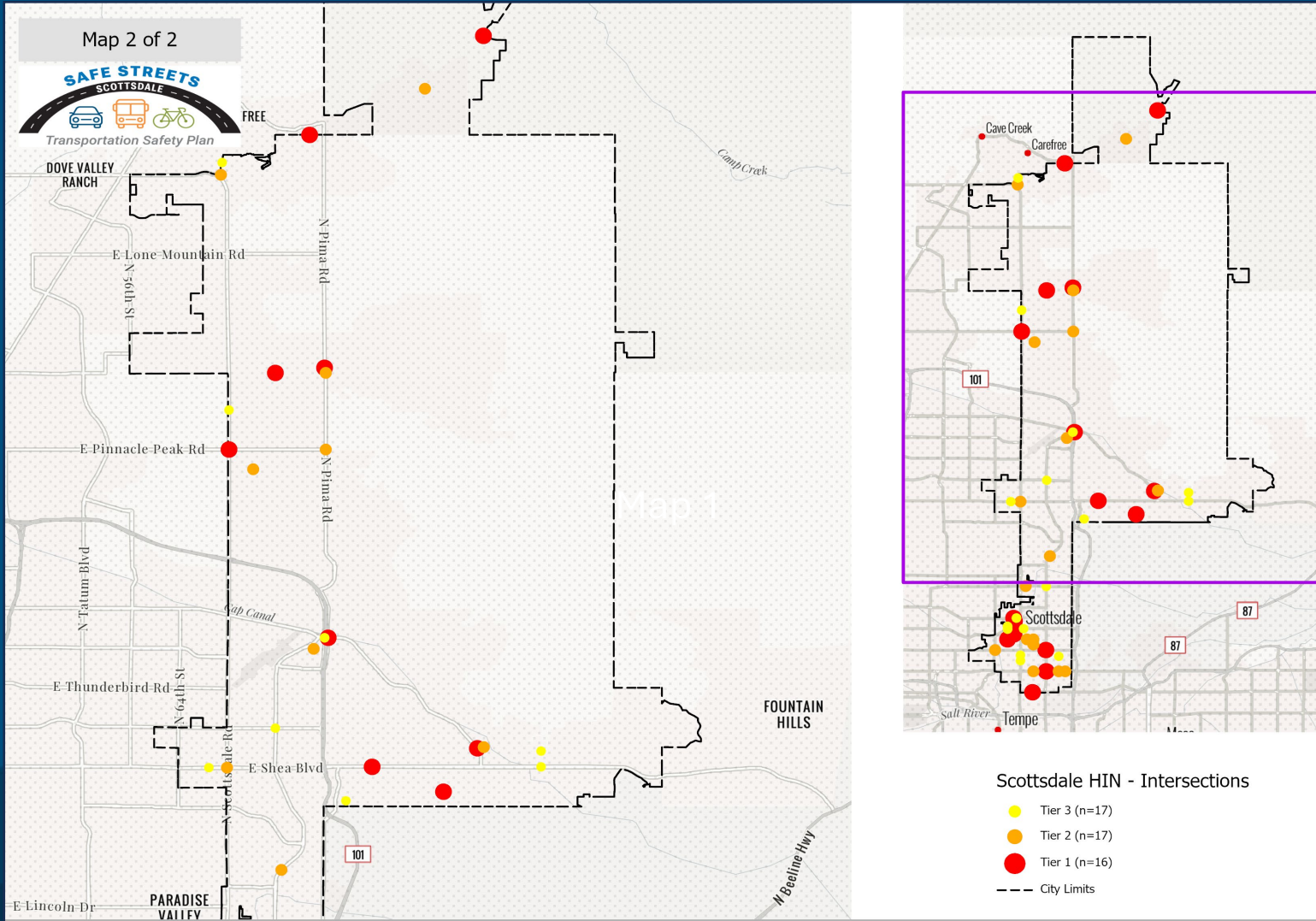
https://www.highwaysafetymanual.org/Pages/support_answers.aspx

High Injury Network - Intersections

Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS, Esri, TomTom, Garmin,



HIN option 3 – HSM Weights Adjusted for KSI Crash Rate



Defining HIN based on Relative Weighting Scheme from AASHTO HSM

- Gives more weight to severe crashes
- $$\text{Total weight} = (K*25) + (A*10) + [(B+C+O)*1] * KA_CRASH_RATE$$

Map shows top XX (Intersections or Segments) based on HSM Weighting Scheme (adjusted for KSI Crash Rates)

Reference:

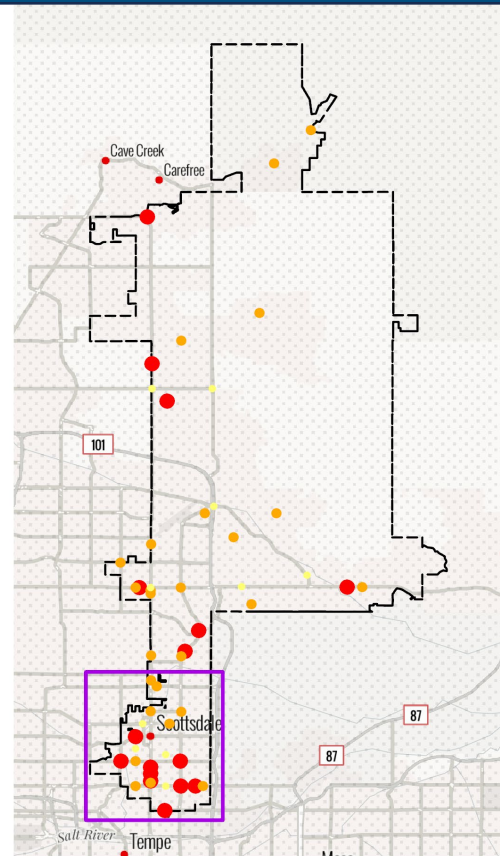
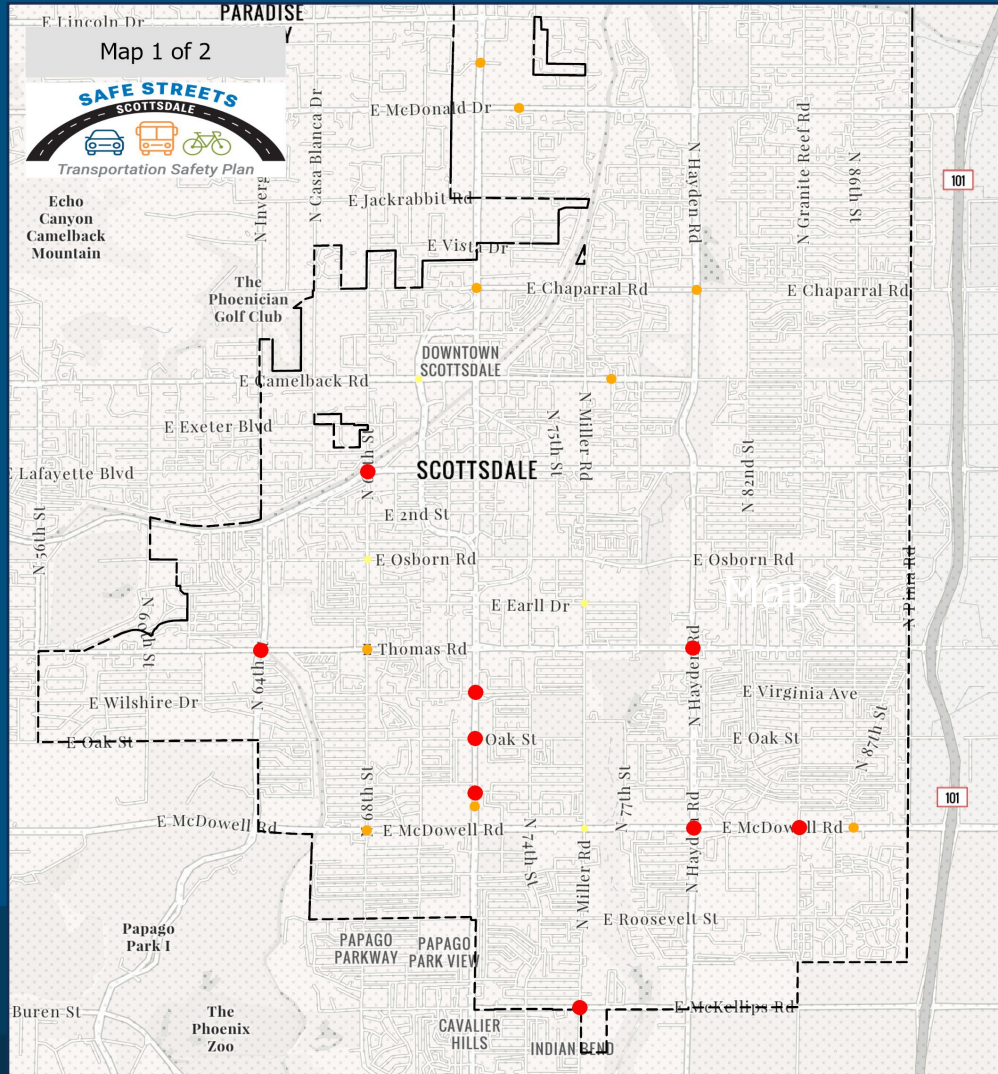
https://www.highwaysafetymanual.org/Pages/support_answers.aspx

High Injury Network - Intersections

Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS, Esri, TomTom, Garmin,



HIN option 4 – Crash Cost (ADOT estimates by Injury Severity)



Scottsdale HIN 4 - Intersections

- Tier 3 (n=10)
- Tier 2 (n=27)
- Tier 1 (n=16)
- City Limits

Defining HIN based on K and A Crash Costs

- Calculates monetary cost of K and A crashes based on Arizona costs by severity

$$\text{Total Cost} = (K * \$9,515,371) + (A * \$550,499)$$

Map shows top **53 Intersections** based on KA crash costs (Aggregated Cost of \$445.5M)

Reference:

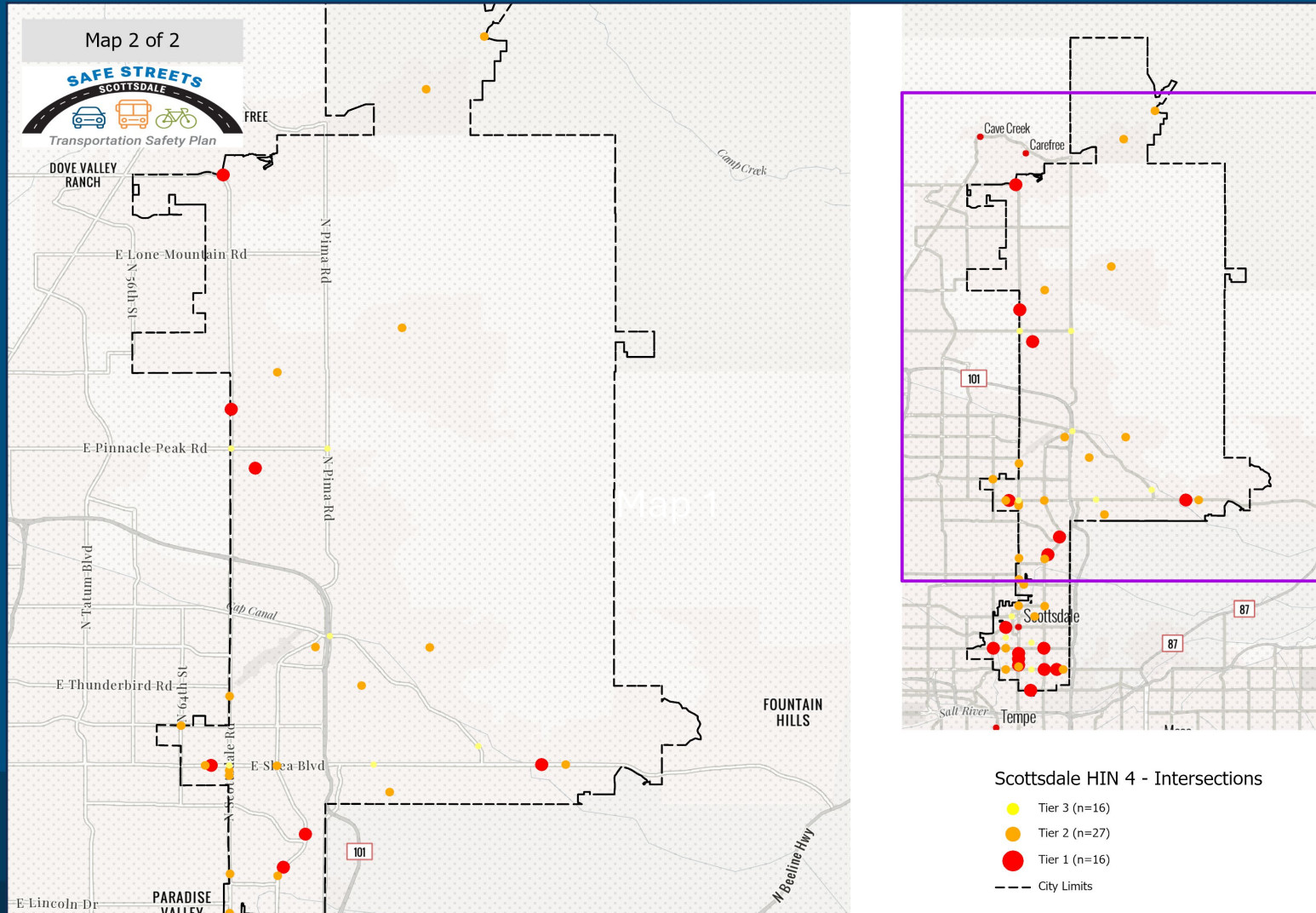
<https://azdot.gov/sites/default/files/2025-07/2024-Crash-Facts.pdf>

High Injury Network - Intersections

Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS, Esri, TomTom, Garmin,



HIN option 4 – Crash Cost (ADOT estimates by Injury Severity)



Defining HIN based on K and A Crash Costs

- Calculates monetary cost of K and A crashes based on Arizona costs by severity

$$\text{Total Cost} = (K * \$9,515,371) + (A * \$550,499)$$

Map shows top **53 Intersections** based on KA crash costs (Aggregated Cost of \$445.5M)

Reference:

<https://azdot.gov/sites/default/files/2025-07/2024-Crash-Facts.pdf>

Scottsdale HIN 4 - Intersections

- Tier 3 (n=16)
- Tier 2 (n=27)
- Tier 1 (n=16)
- City Limits

Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS, Esri, TomTom, Garmin,




High Injury Network - Intersections

HIN Intersection Scores – Tiered Priority

Recommended **Option 3** - HSM Weights factoring in KSI Crash Rates (Sums)

DRAFT

Tier 1 Intersections (HIN-rating)

North Pima Road	 N of Jomax Road	996.26
East Stagecoach Road	North 85th Place	910.21
East Thomas Road	North Hayden Road	636.29
North Goldwater Boulevard	East Via Soleri Drive	610.06
East Jomax Road	East Remuda Drive	438.50
East Pinnacle Peak Road	North Scottsdale Road	424.45
North Silverbell Road	North Frank Lloyd Wright Boulevard	407.25
North Pima Road	East Frank Lloyd Wright Boulevard	403.16
East Camelback Road	North Goldwater Boulevard	386.76
East Osborn Road	North 68th Street	372.48
East Mountain View Road	North 107th Street	293.60
Bartlett Dam Road [FR 205]	North Cave Creek Road	282.09
North Hayden Road	East McDowell Road	279.12
North 96th Street	East Shea Boulevard	262.87
East McKellips Road	North Miller Road	260.37
North Goldwater Boulevard	East 2nd Street	235.01

DRAFT


Tier 2 Intersections (HIN-rating)

East McDowell Road	North Granite Reef Road	231.87
North Northsight Boulevard	Arriba Dr	213.89
North Miller Road	East Earll Drive	213.85
East Carefree Highway	North Scottsdale Road	207.33
East Jomax Road	North Pima Road	202.28
East Shea Boulevard	North Scottsdale Road	195.61
North Pima Road	North 87th Street	169.85
North Hayden Road	East McCormick Parkway	164.39
North Silverbell Road	North 114th Street	164.37
North Pima Road	East Pinnacle Peak Road	163.86
East McDonald Drive	North 73rd Place	151.80
North Drinkwater Boulevard	East Osborn Road	149.96
East Thomas Road	North 64th Street	148.68
North Miller Road	East Williams Drive	146.49
East Cave Creek Road	North Mirabel Club Drive	138.58
North Miller Road	East McDowell Road	136.49
North Miller Road	East Osborn Road	132.76

DRAFT

Tier 3 Intersections (HIN-rating)

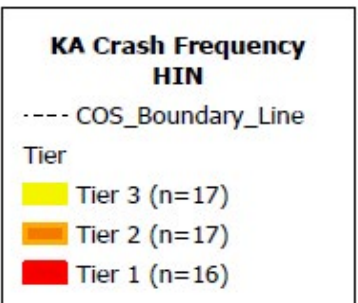
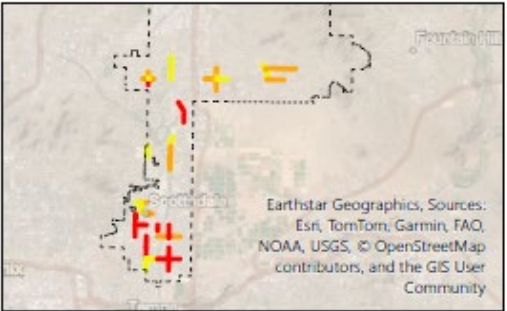
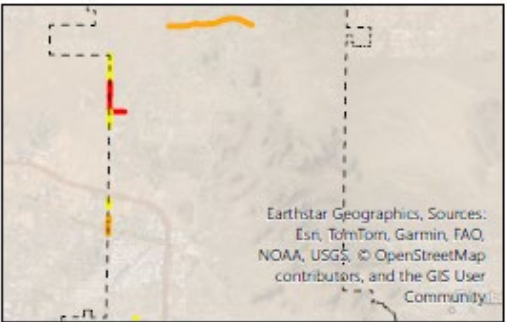
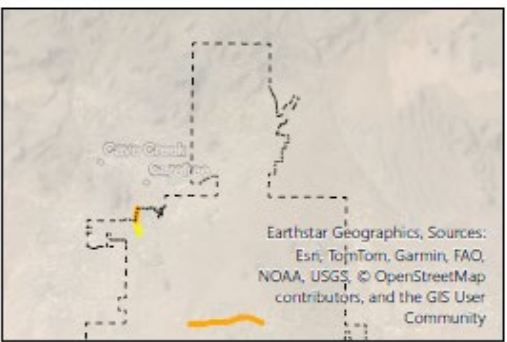
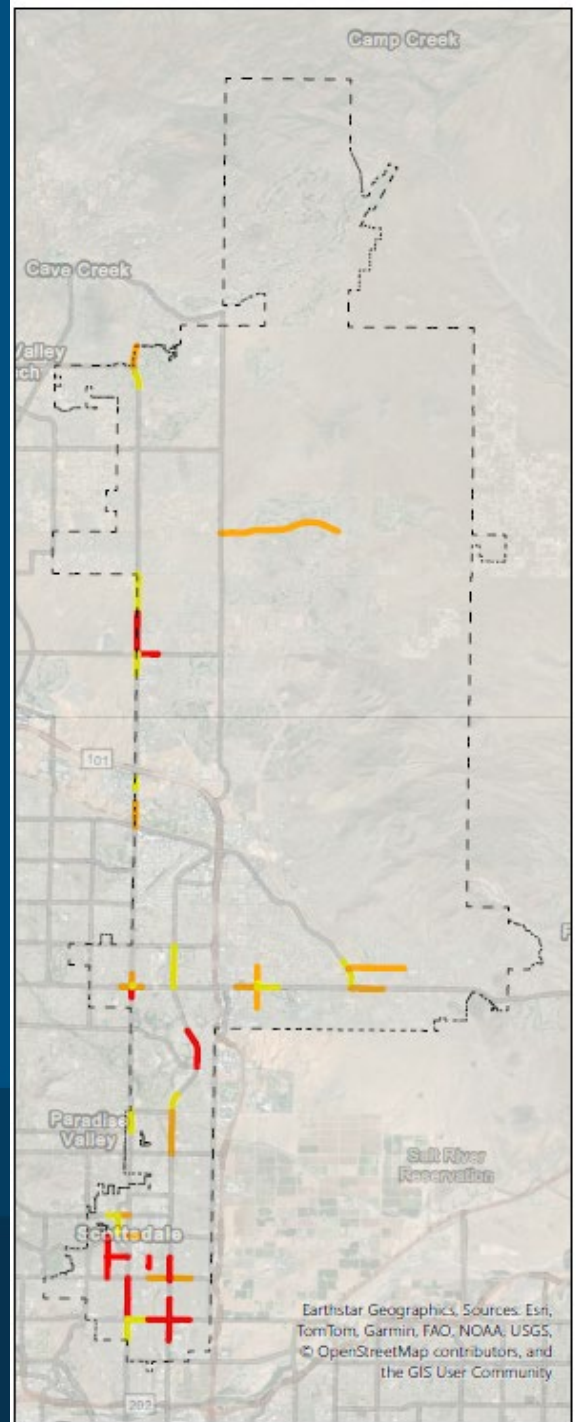
North Scottsdale Road	East Happy Valley Road	124.59
East Shea Boulevard	North 69th Street	119.39
East Shea Boulevard	North 124th Street	114.43
North Scottsdale Road	E Virginai Ave	114.15
East Indian School Road	North Buckboard Trail	113.98
North Tom Darlington Drive	East Languid Lane	112.92
North Hayden Road	East Cactus Road	107.11
North Granite Reef Road	East Wilshire Drive	104.45
North 68th Street	East Monterosa Street	102.72
East Via Linda	East San Salvador Drive	102.71
North Pima Road	East Frank Lloyd Wright Boulevard	98.78
North 68th Street	East Lafayette Boulevard	98.44
North 124th Street	East Shangri La Road	96.29
East Oak Street	North Scottsdale Road	95.46
East Camelback Road	North Marshall Way	93.84
North Hayden Road	East McDonald Drive	92.52
East Indian School Road	North 68th Street	91.11

 Further evaluation required

HIN option 1 – KSI Crash Frequency at Segments

- Defining HIN by KA Crash Count
- Considers most severe crashes
 - Does not account for exposure (e.g. traffic volumes)

Map shows top 50 Segments based on KA Crash Frequency

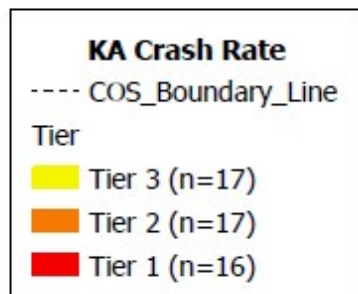
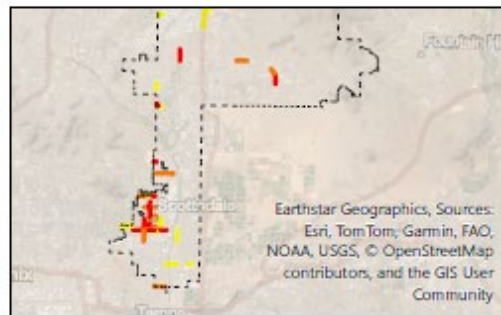
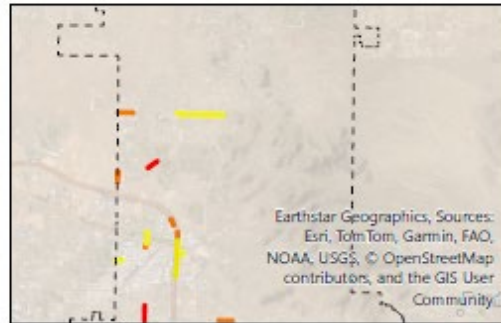
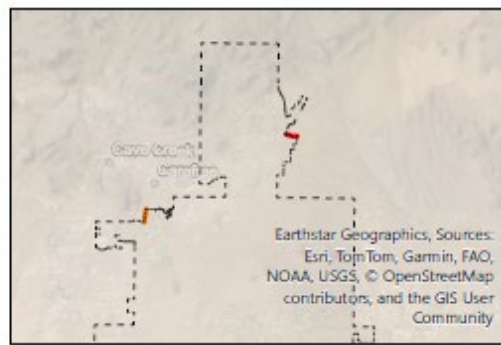
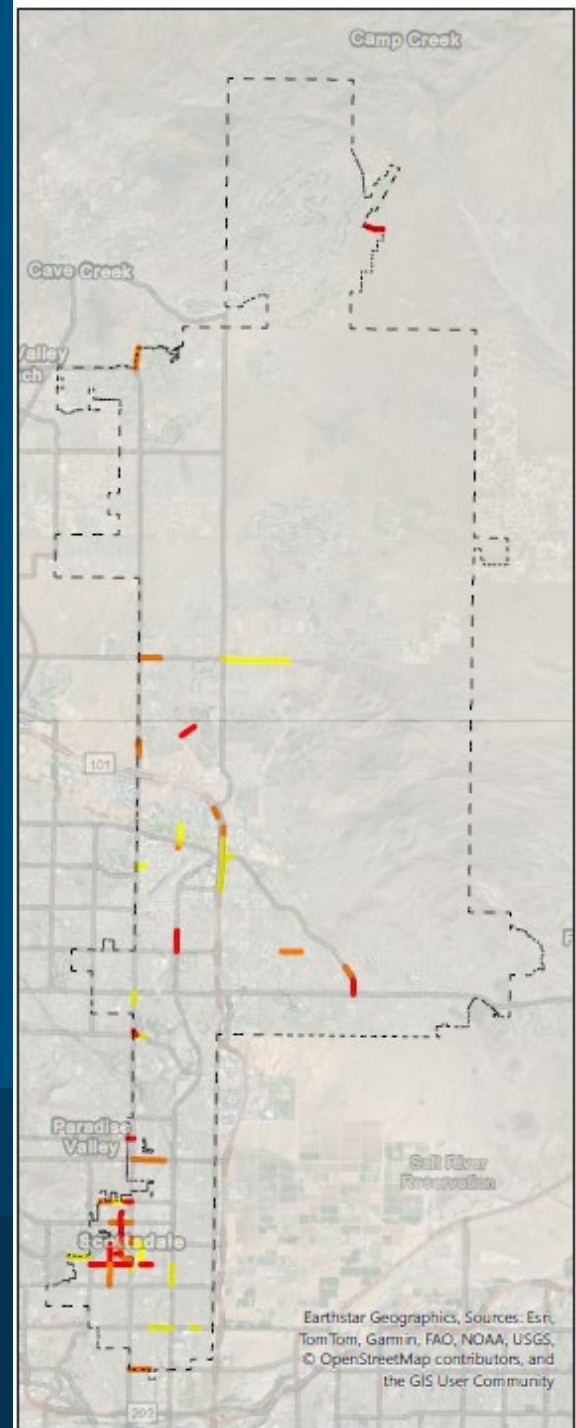


HIN option 2 – KSI Crash Rates at Segments

Defining HIN by KA Crash Rates

- Considers most severe crashes
- Accounts for exposure (e.g. traffic volumes and length for segments)

Map shows top 50 Segments based on KA Crash Frequency



HIN option 3 – HSM Weighted

Defining HIN based on Relative Weighting Scheme from AASHTO HSM

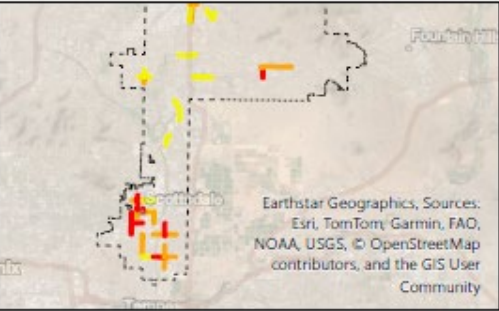
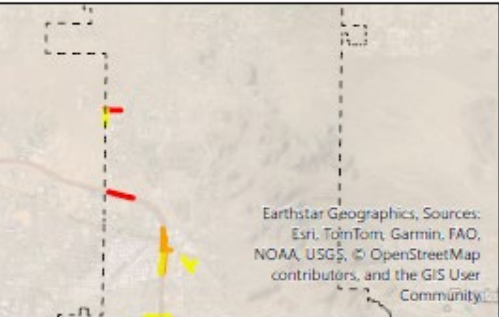
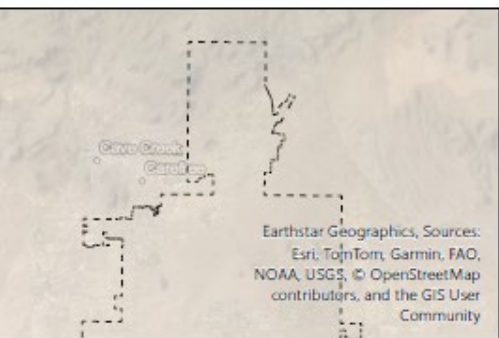
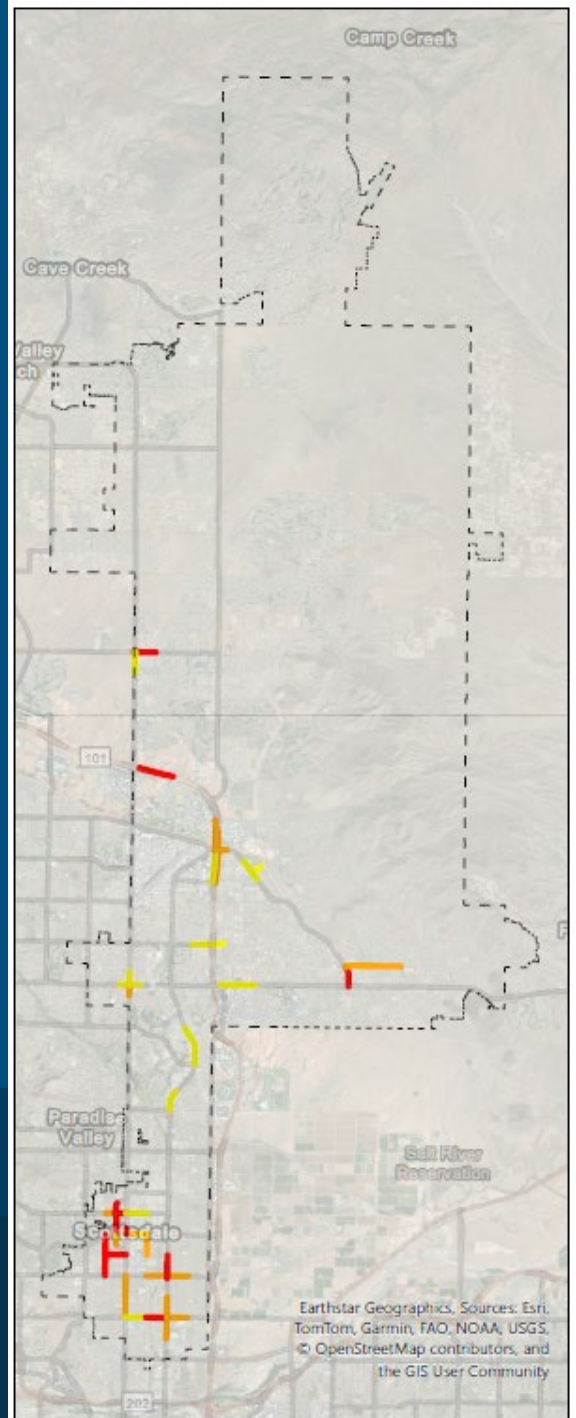
- Gives more weight to severe crashes

$$\text{Total weight} = (K*25) + (A*10) + [(B+C+O)*1] * KA_CRASH_RATE$$

Map shows top 50 Segments based on HSM Weighting Scheme (adjusted for KSI Crash Rates)

Reference:

https://www.highwaysafetymanual.org/Pages/support_answers.aspx



AASHTO HSM Weighted HIN

---- COS_Boundary_Line

Tier

- Yellow Tier 3 (n=17)
- Orange Tier 2 (n=17)
- Red Tier 1 (n=16)



HIN option 4 – KSI Crash Cost Estimates

Defining HIN based on K and A Crash Costs

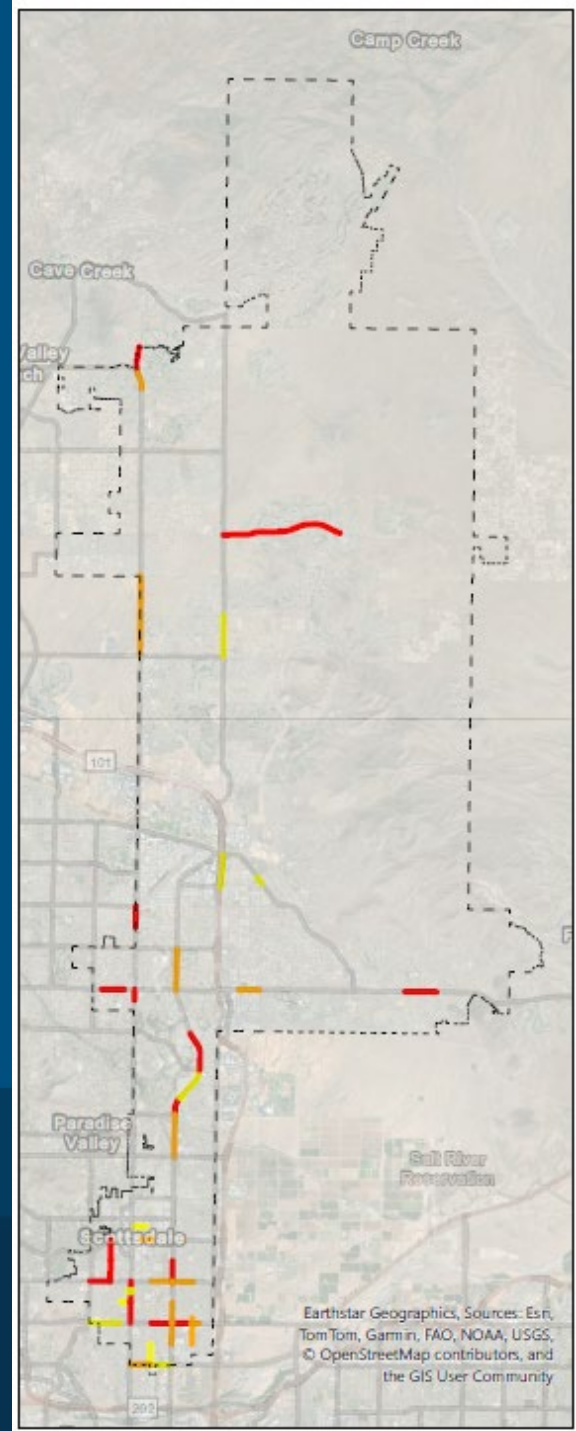
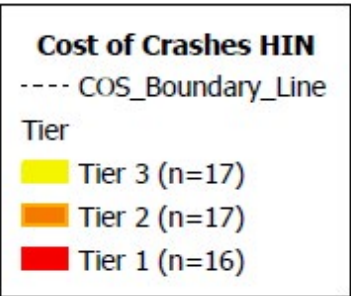
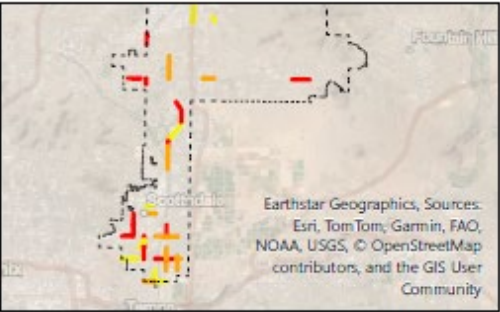
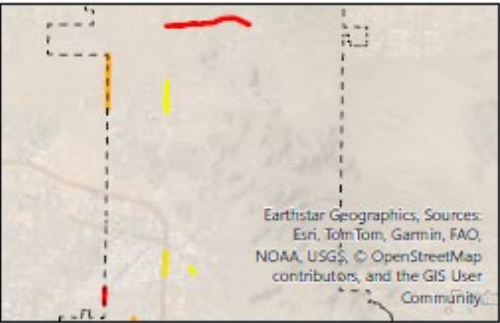
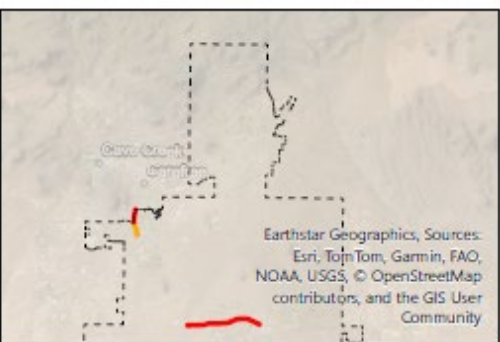
- Calculates monetary cost of K and A crashes based on Arizona costs by severity

$$\text{Total Cost} = (K * \$9,515,371) + (A * \$550,499)$$

Map shows top 50 segments based on KA crash costs

Reference:

<https://azdot.gov/sites/default/files/2025-07/2024-Crash-Facts.pdf>



HIN OPTIONS

Recommendation

1

- Defining HIN by KA Crash Frequency
- Considers most severe crashes
 - Does not account for exposure (e.g. traffic volumes)

2

- Defining HIN by KSI (KA) Crash Rate
- Considers most severe crashes
 - Accounts for exposure (e.g. traffic volume at intersections and volumes and length for segments)

3

- Defining HIN based on Relative Weighting Scheme from AASHTO HSM x KSI Crash Rate
- Gives more weight to severe crashes
- Total weight =
$$\frac{(K*25)+(A*10)+[(B+C+O)*1]}{*KA_CRASH_RATE}$$

4

- Defining HIN based on K and A Crash Costs
- Calculates monetary cost of K and A crashes based on Arizona costs by severity
- Total Cost =
$$(K*\$9,515,371)+(A*\$550,499)$$



Questions
and
Discussion

Next Meeting: September 18th Meeting

Item 2: *Safety Plan components: Education, Enforcement, Emergency Responders*

Establish policies that demonstrate a commitment to safety.

- An Education Component (public safety messaging)
- An Enforcement Component
- An Emergency Responder Component
- *Build off of our program successes*