

A VISION **ZERO** TEMPE

**Reducing Fatal and Serious
Injury Crashes to Zero**

Draft
Action Plan



March 2019





Vision Zero Tempe - Reducing Fatal and Serious Injury Crashes to Zero

Draft Action Plan

City of Tempe

March 2019

tempe.gov/VisionZero



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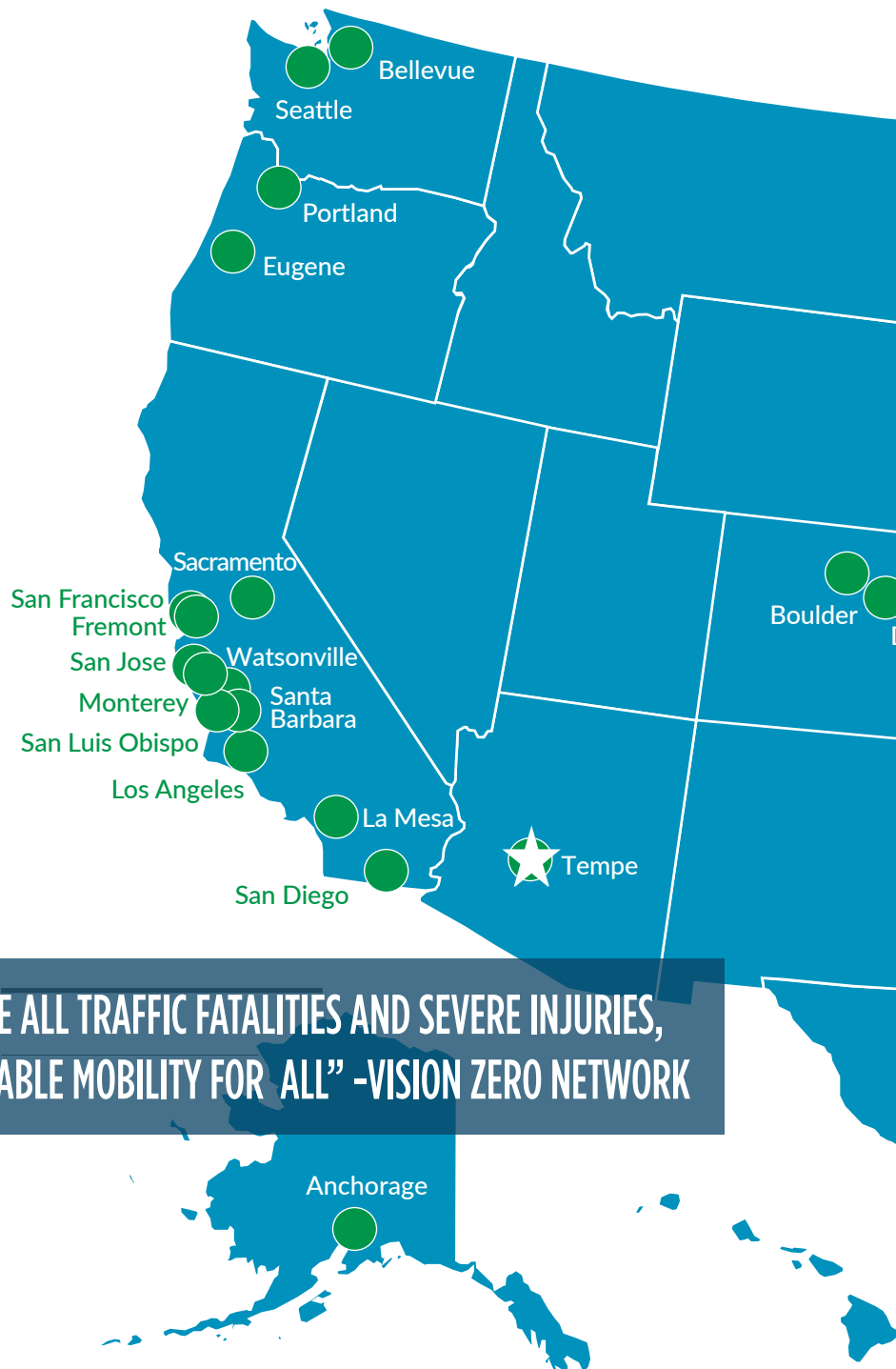
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VISION ZERO NATIONALLY

First implemented in Sweden in the 1990s, Vision Zero has proven successful across Europe – and it is now gaining momentum in major American cities.

Vision Zero starts with the premise that traffic deaths and severe injuries are largely preventable. The commitment defines a timeline and brings stakeholders together to ensure a basic right of safety for all people as they move about their communities. Vision Zero acknowledges that traffic deaths and severe injuries are preventable and sets the goal of eliminating both in a set time frame with clear, measurable strategies.

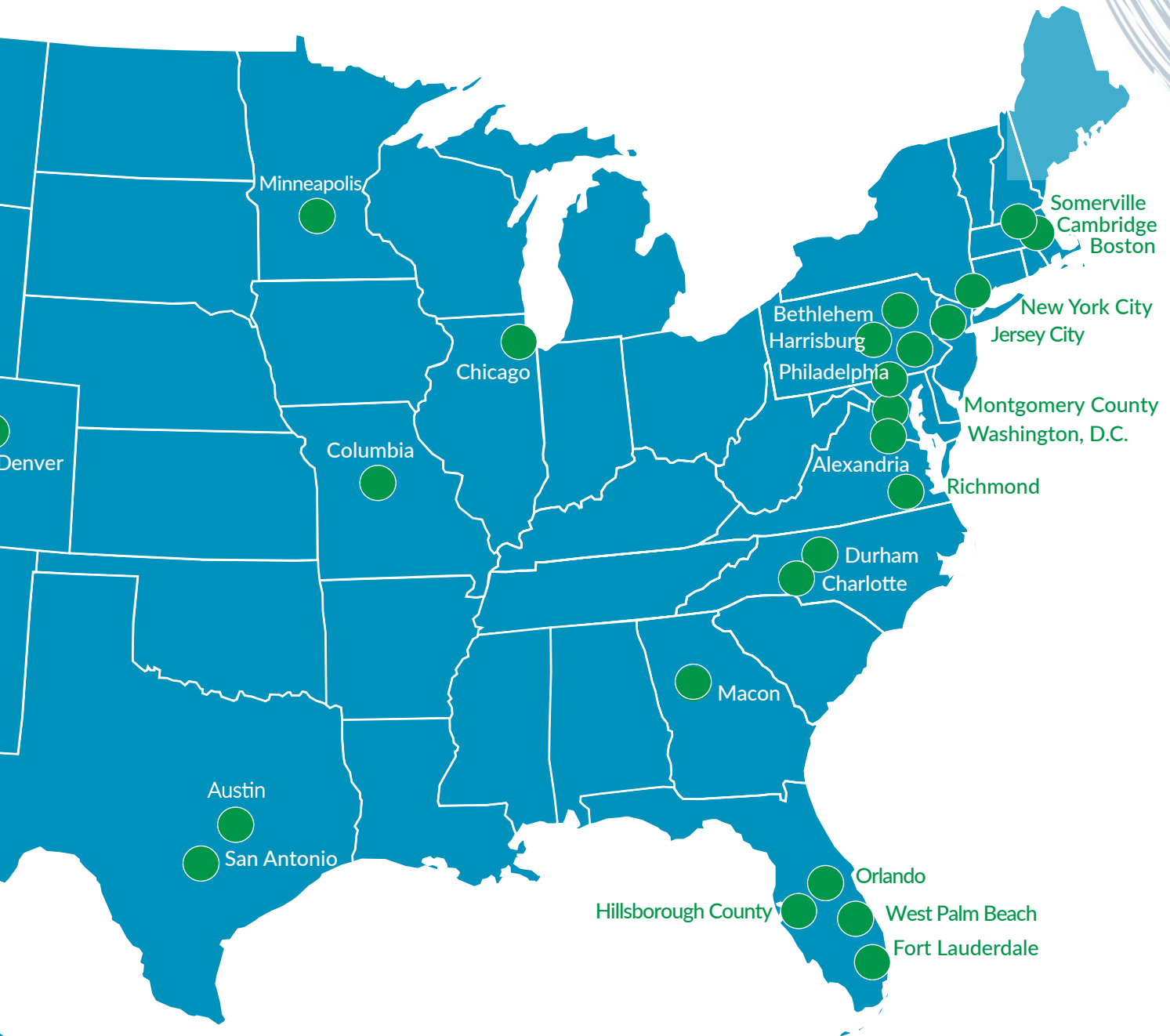
Vision Zero is a multidisciplinary approach, bringing together diverse and necessary stakeholders to address this complex problem. The driving force of crash prevention and control across the world has been the 4 Es of highway safety—engineering, education, enforcement, and emergency medical services (EMS). In the past, meaningful, cross-disciplinary collaboration among local traffic planners and engineers, police officers, policymakers, and public health professionals has not been the norm. Vision Zero acknowledges that there are many factors that contribute to safe mobility - including roadway design, speeds, enforcement, behaviors, technology, and policies - and sets clear strategies to achieve the shared goal of zero fatalities and severe injuries.



“VISION ZERO IS A STRATEGY TO ELIMINATE ALL TRAFFIC FATALITIES AND SEVERE INJURIES, WHILE INCREASING SAFE, HEALTHY, EQUITABLE MOBILITY FOR ALL” -VISION ZERO NETWORK



Reducing Fatal and Serious Injury Crashes to Zero



Why This is Important

*In the past five years, more than **60** people lost their lives in vehicle crashes on Tempe streets...in addition more than **400** people were seriously injured.*

“2 killed, 1 rushed to hospital after crash near Country Club Way”

“Arizona pedestrians among nation’s most likely to die in fatal crash”

“Tempe police investigating deadly rollover crash near Kyrene/Baseline roads”

“Mother who lost her son in a deadly crash gets help from her friends”



2013: 8 Fatal, 96 Serious Injury
2014: 14 Fatal, 81 Serious Injury
2015: 6 Fatal, 65 Serious Injury
2016: 16 Fatal, 76 Serious Injury
2017: 14 Fatal, 83 Serious Injury



***“Elderly man, woman killed
in Tempe crash”***

**“Motorcycle rider killed in
3-vehicle crash in Tempe”**



***“ASU doctoral student,
renowned pianist Xiaoying Wen
killed in Tempe Crash”***

**“1 dead after SUV with 3 teens
hits man on Tempe sidewalk”**

WHAT ARE THE FACTS?

2012-2017

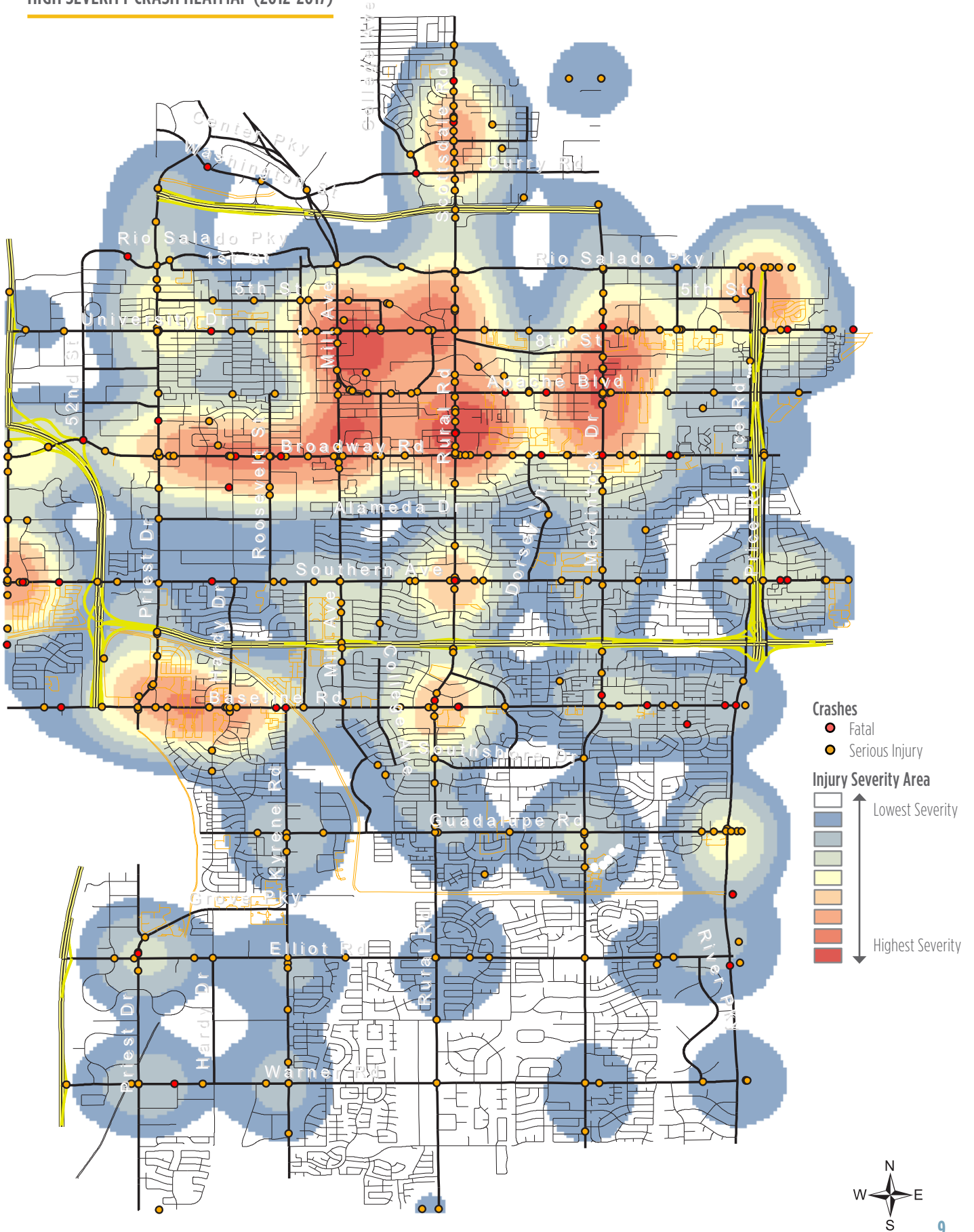


Systemic safety planning is the process of evaluating an entire system using a defined set of criteria to identify candidate locations for safety investments to reduce the occurrence of, and the potential for, severe crashes. Utilizing crash data, Tempe will conduct regular systemic safety planning studies to determine crash types and risk factors, screen and prioritize candidate locations, select countermeasures, and prioritize projects. Countermeasures may include any combination of education, enforcement, emergency response, and engineering. Engineering countermeasures identified through systemic safety planning may either be implemented as standalone safety projects or through the design of programmed transportation projects.

When a crash occurs, pedestrians and cyclists are more likely to be killed or seriously injured than those in a vehicle. For this reason, pedestrians and cyclists are often referred to as “vulnerable” road users. >>

In crashes, there’s often a fine line between a serious injury crash and a fatal crash. Serious injury collisions may include severe lacerations, broken bones, head injuries, and other instances where the person is not able to leave the crash scene without assistance. By taking a hard look at serious injury crashes, we gain insights into crash types, incident locations, and contributing factors. Looking ahead, we can use this data to help drive education and outreach efforts, as well as targeted enforcement.

HIGH SEVERITY CRASH HEATMAP (2012-2017)

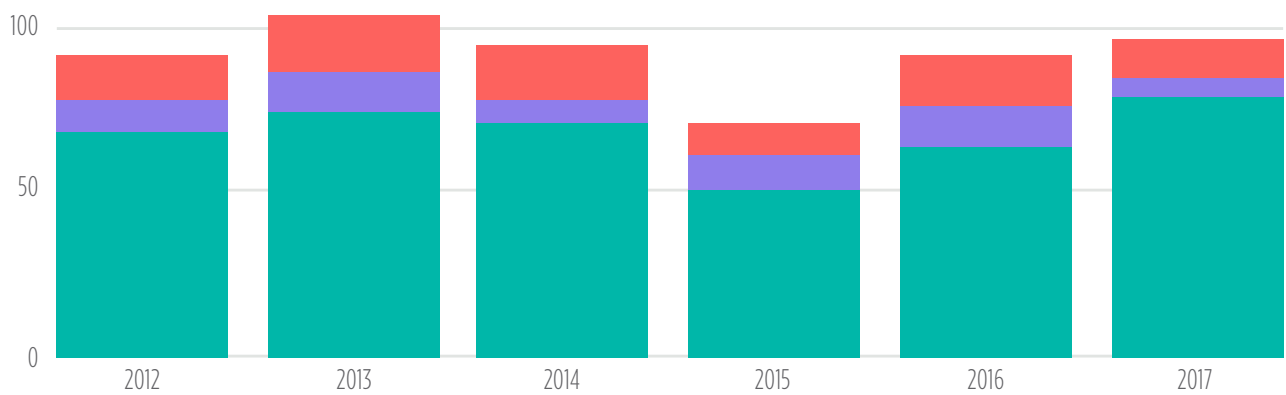


To gain insight into crash occurrence in the City of Tempe, an analysis of crash data was performed for the years 2012 through 2017. The results of this analysis provide an overview of road safety in the City of Tempe and are illustrated on this page. Crash trends and patterns for fatalities and serious injuries are presented on a public-facing Crash Statistics Dashboard (tempe.gov/VisionZero).

The dashboard combines a map with elements and actions to create an interactive dashboard that provides the most relevant information to the user. Visualizations on the dashboard can be used to cross-filter and cross-highlight the other visualizations on the page. For example, selecting the bar for left turn crashes filters all other charts, tables, and map on the page to display only data that applies to that one crash type.

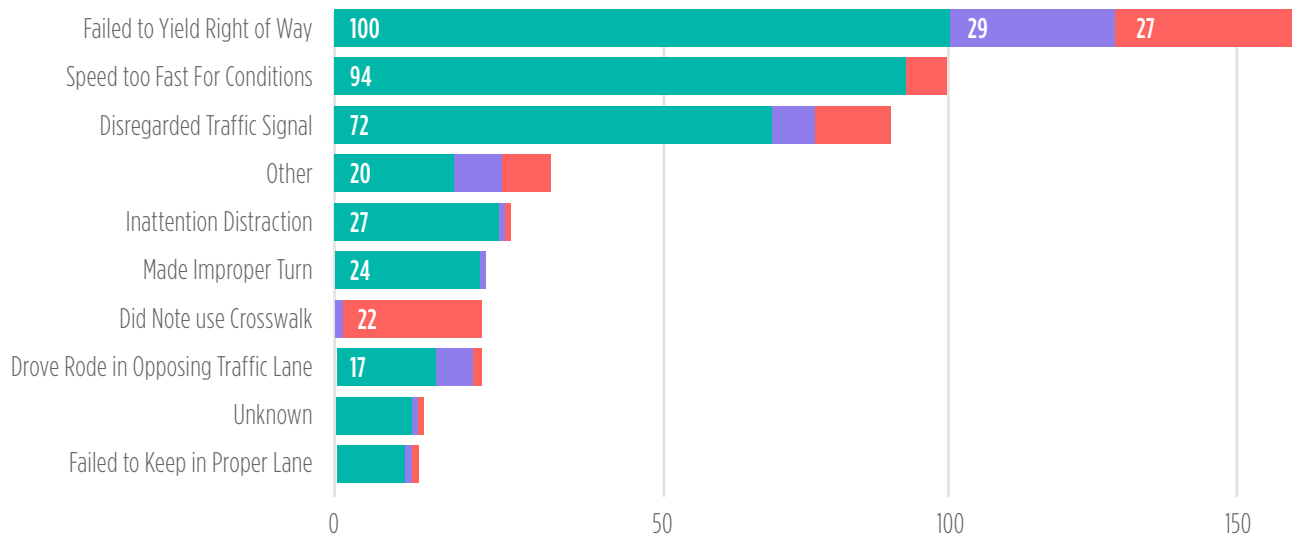
CRASHES WITH FATAL OR SERIOUS INJURIES

Mode: ● Driver ● Pedalcyclist ● Pedestrian



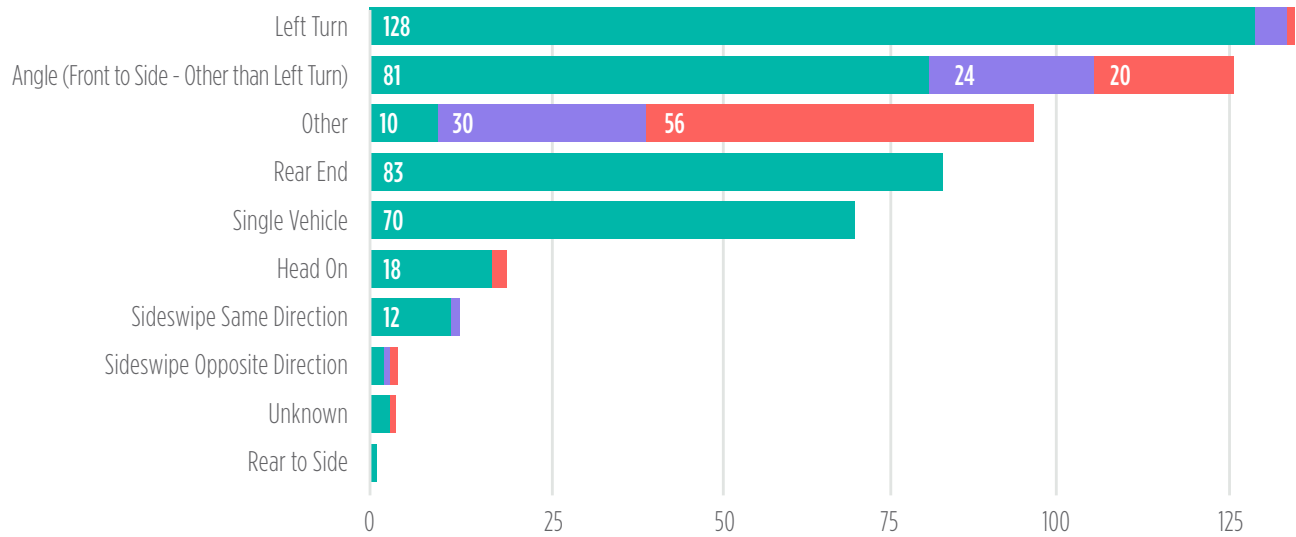
FACTORS IN CRASHES WITH FATAL OR SERIOUS INJURIES (BY PARTY 'A')

Mode: ● Driver ● Pedalcyclist ● Pedestrian



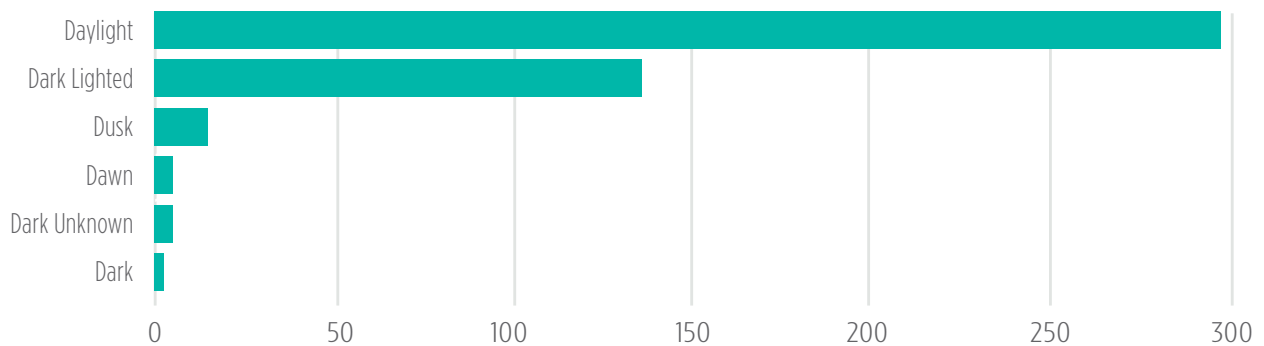
CRASH TYPES WITH FATAL OR SERIOUS INJURIES

Mode: ● Driver ● Pedalcyclist ● Pedestrian



Left-turn, angle, and “other” manners of collision are most likely to result in severe crashes. “Other” includes crashes involving pedestrians and bicyclists.

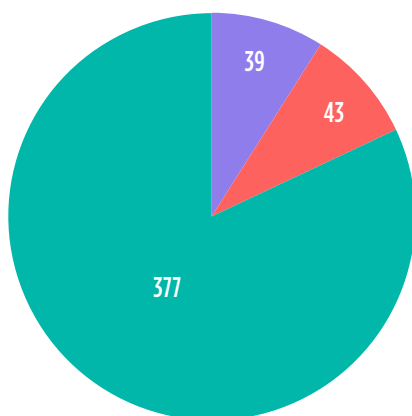
LIGHTING CONDITIONS DURING CRASHES



Although roadway illumination is provided on Tempe roadways, night time crashes are over represented considering traffic volumes are highest during morning and afternoon commuter peak periods.

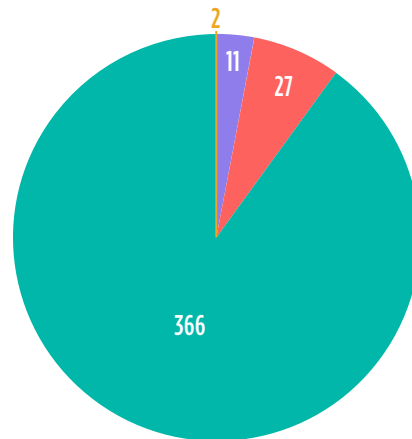
WHO WAS “UNIT 1” IN THE CRASH?

Mode: ● Driver ● Pedalcyclist ● Pedestrian



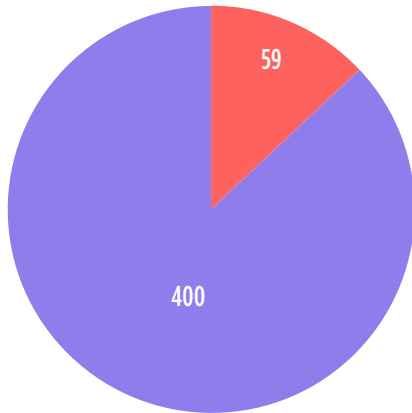
WHO WAS “UNIT 2” IN THE CRASH?

Mode: ● Driver ● Pedalcyclist ● Pedestrian ● Driverless



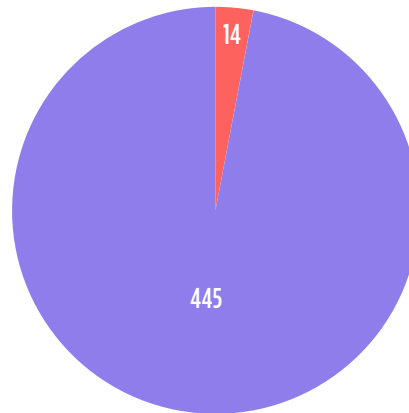
WAS ALCOHOL A FACTOR?

Mode: ● No Apparent Influence ● Alcohol

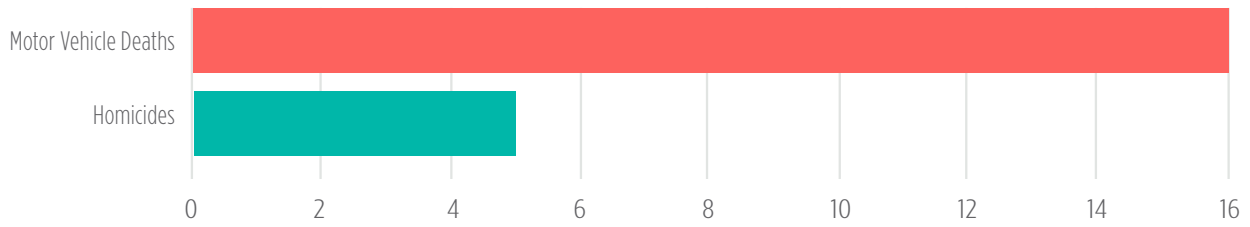


WERE DRUGS A FACTOR?

Mode: ● No Apparent Influence ● Drugs



HOMICIDES VS. MOTOR VEHICLE DEATHS (2017)



Reducing the speed limit works for several key reasons:

- It gives people who drive, walk, and bike more time to see each other and react
- Reducing the speed limit decreases cars' stopping distance (going from 30 to 25 MPH decreases stopping distance by 45 feet, or 23%)
- In many cases, the change will help people avoid crashes altogether. If a crash does occur, the lower speed will reduce its severity, so people have less serious injuries.

HIT BY A VEHICLE TRAVELLING AT
**20
MPH**

9/10 PEDESTRIANS SURVIVE

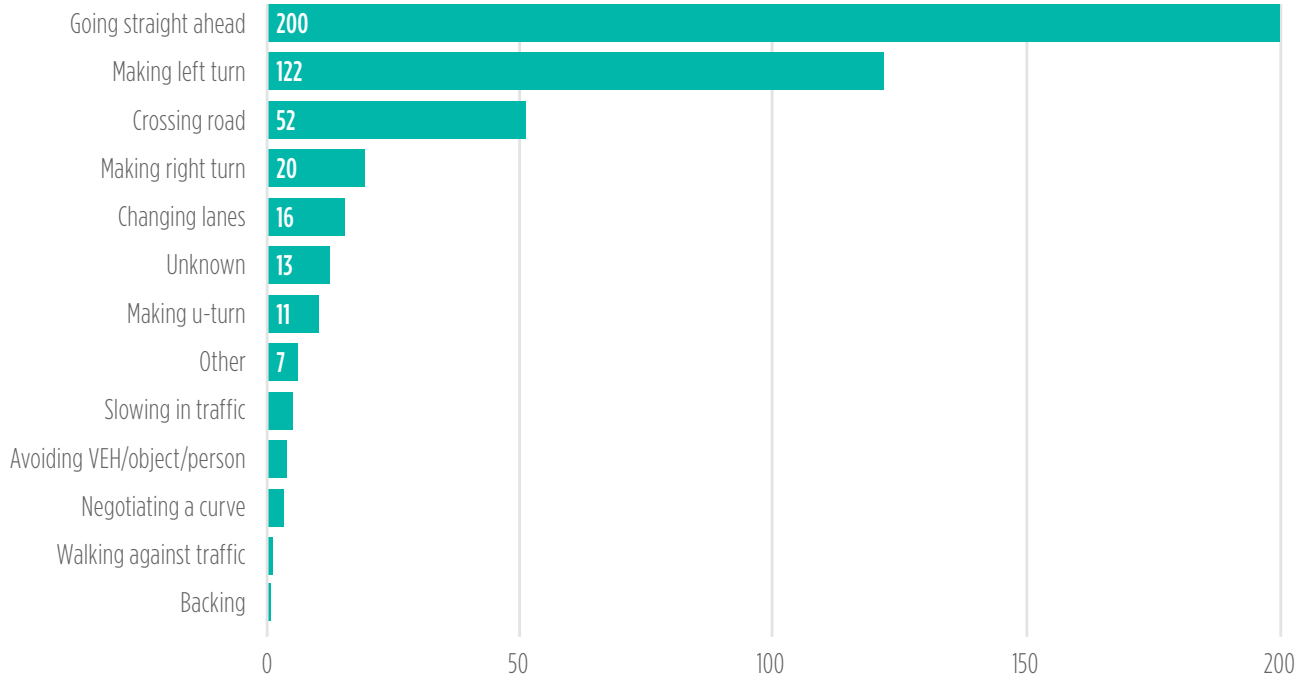
HIT BY A VEHICLE TRAVELLING AT
**30
MPH**

5/10 PEDESTRIANS SURVIVE

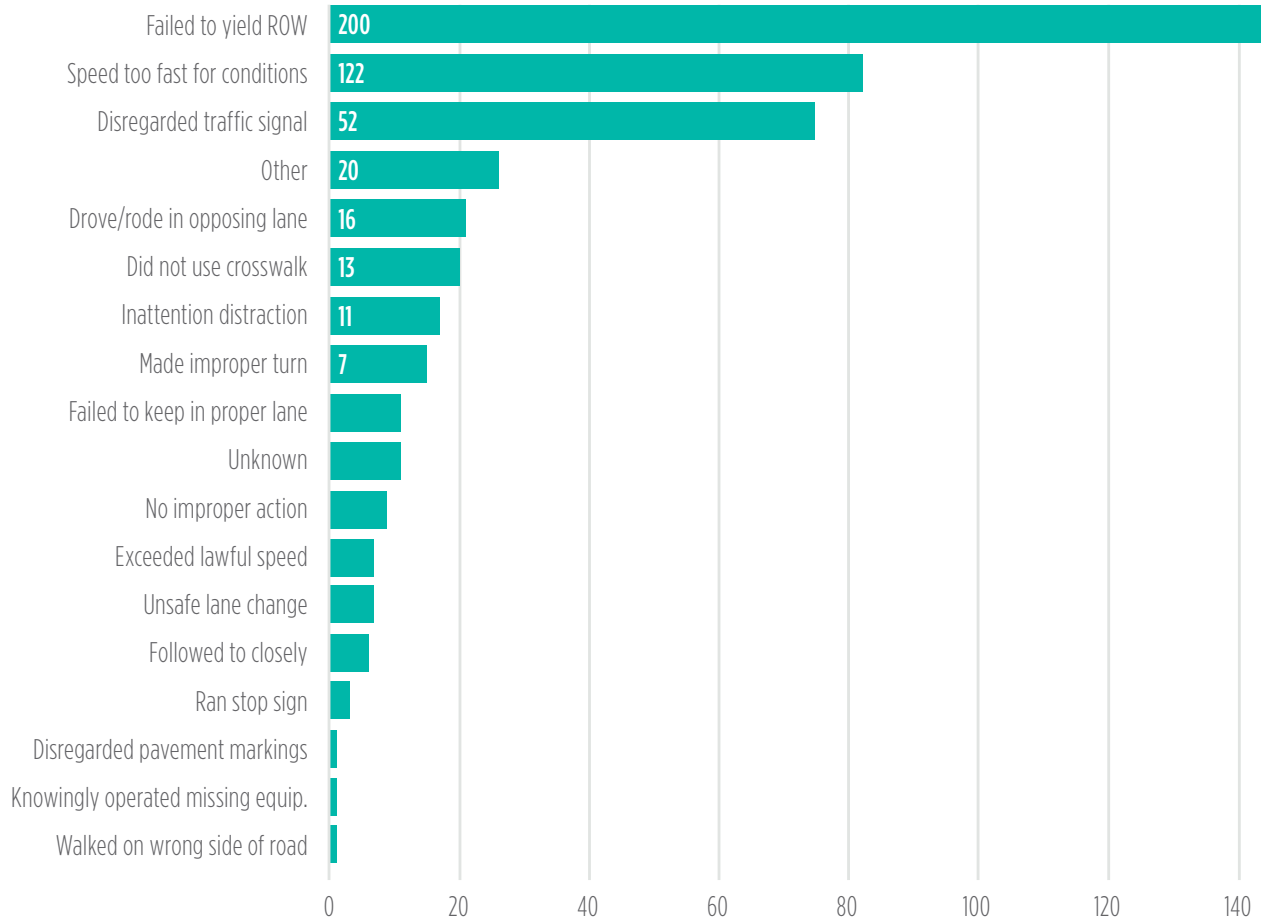
HIT BY A VEHICLE TRAVELLING AT
**40
MPH**

1/10 PEDESTRIANS SURVIVE

WHAT WAS THE "UNIT #1" "ACTION" IN THE CRASH?



WHAT WAS THE "UNIT #1" "VIOLATION" IN THE CRASH?



City Council Priority #1 is to ensure a safe and secure community through a commitment to public safety and justice.

ACHIEVE A REDUCTION IN THE NUMBER OF FATAL AND SERIOUS INJURY CRASHES TO ZERO.

Crashes happen every day in the City of Tempe. Many result in only property damage but others result in minor injuries, severe injuries, and fatalities. Fatal and serious injury crashes are not “accidents” and are preventable. The City of Tempe is committed to reducing the number of fatal and serious injury crashes to zero.

In 2017 alone, there were over 4,800 crashes including 14 fatal and 83 serious injury crashes resulting in 16 deaths and 145 serious injuries. One death is too many. One serious injury is too many.

Adoption of the “Vision Zero” framework includes:

- Setting a clear goal of eliminating traffic fatalities and severe injuries.
- The Mayor and City Council publicly, officially committing to Vision Zero.
- A Vision Zero plan or strategy is in place, or the City commits to doing so in a clear time frame.
- Key City departments (including police, transportation, fire) and community stakeholders (ASU, school districts, public health agencies), are engaged.

Many City departments including Engineering and Transportation, Police and Fire Medical Rescue are already actively employing programs that improve safety and response times.

On February 8, 2018, Mayor and City Council unanimously approved Resolution No. R2018.13 formally committing to Vision Zero.

tempe.gov/VisionZero

TEMPE'S VISION ZERO ACTION PLAN

Vision Zero Tempe Timeline

FEB
2018

Formal commitment to Vision Zero in Resolution No. R2018.13

JUN
2018

Vision Zero Visioning Workshop

AUG
2018

Vision Zero Working Group Meetings to Identify Strategies

OCT
2018

Vision Zero Working Group Meetings to Organize Strategies within Emphasis Areas

JAN
2019

Vision Zero Strategy Prioritization Workshop

MAR
2019

Draft Vision Zero Action Plan/Public Meetings

MAY
2019

2019 Vision Zero Action Plan Adopted



*Vision Zero is a continuous effort.
This Action Plan is just the beginning
of a movement to improve the
safety of Tempe roadways.*

Visioning Workshop

June 19, 2018

This interactive session was held to bring together people from all sectors and perspectives with the goal of developing a plan to reduce the number of fatal and serious injury crashes to zero, because no loss of life is acceptable.

Over 50 stakeholders, including residents, students and employees, attended to brainstorm strategies that will help eliminate traffic fatalities and serious injury crashes in Tempe. Collectively, these stakeholders form Tempe's Vision Zero Task Force.



» RESOURCES

tempe.gov/VisionZero



AGENDA

Setting the Scene

Reflect. Learn. Challenge. A short presentation reflected upon loss of life in the City of Tempe due to motor-vehicle crashes, stated past transportation safety goals, captured the evolution of the Vision Zero movement, and challenged participants to establish a solid foundation for the Vision Zero initiative.

The Facts

It's a crash, not an accident. Traffic crashes are fixable problems, caused by infrastructure design and unsafe driving behavior. Tempe crash data facts and enforcement statistics were presented. Experiences by first responders to fatal traffic crashes were shared.

Group Scenario Exercise

Organized by tables and with varying backgrounds, attendees reviewed three crash scenarios to brainstorm strategies that may have prevented the crash or similar crashes from occurring. Part One limited the strategies to a specific group: engineering, education, enforcement, or emergency medical response. In Part Two, the silos were removed and attendees developed strategies that were inclusive of all groups.

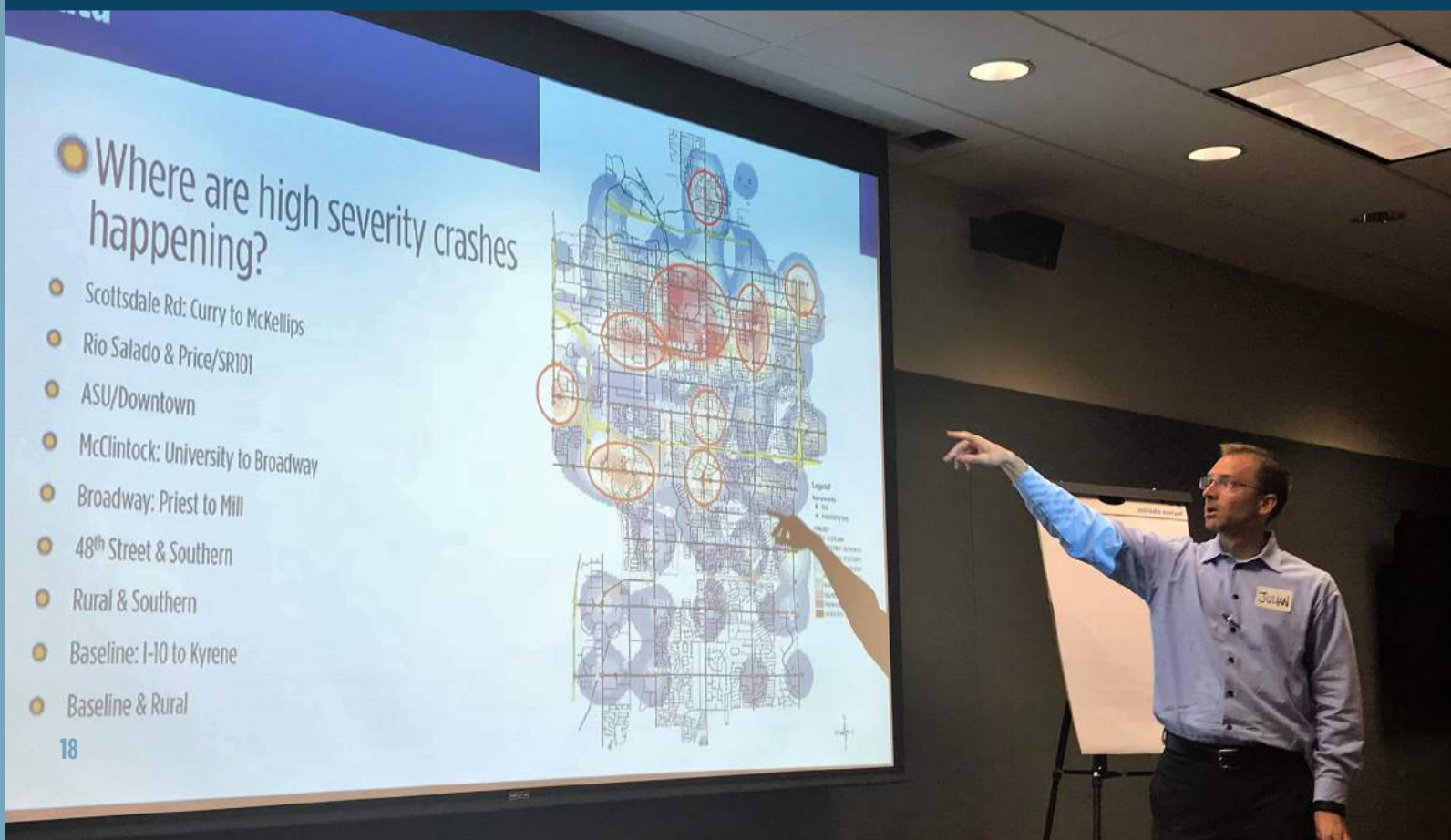
Discussion and Conclusions

Recapped workshop exercises and emphasized the need for a cultural change that transversed boundaries. Identified potential opportunities, constraints, and priority for implementing strategies to achieve Vision Zero. Provides participants with next steps for the Vision Zero Tempe initiative.

2018 Vision Zero Task Force Working Group Meetings

Working groups were formed to continue the dialogue and to develop potential implementation strategies to reduce the severity and frequency of motor vehicle crashes in the City of Tempe. The education, engineering, and enforcement/emergency response working groups convened in August and October 2018 to expand on the ideas generated at the visioning workshop and identify relevant, priority strategies to eliminate serious and fatal crashes from the Tempe roadway network. A compiled list of strategies from the Arizona Strategic Highway Safety Plan, regional MAG Strategic Transportation Safety Plan, June Visioning Workshop, and other Vision Zero action plans was provided as the basis of discussion.

The Crash Statistics Dashboard which analyzes 2012-2017 crashes with fatal or serious injuries was unveiled at the working group meetings along with crash heat maps overlaid with land use and demographic statistics. These tools aid in the development of targeted strategies and countermeasures for specific crash types and geographic areas.





Education
(08/13 & 10/16)



Engineering
(08/27 & 10/18)



**Emergency Response/
Enforcement**
(08/28 & 10/30)



2019 Arizona Strategic
Traffic Safety Plan (STSP)
Draft Emphasis Areas:

-  **Intersections**
-  **Smart Choices**
-  **Pedestrians**
-  **Lane Departure**
-  **Crash Data (DDSA)**

2015 MAG Strategic Transportation
Safety Plan (STSP) Action Areas:

-  **Impaired Driving**
-  **Speeding & Aggressive Driving**
-  **Intersections**
-  **Vulnerable Users**
-  **Young Road Users**

Strategy Prioritization Workshop

January 24, 2019

This interactive dot-polling session was held to leverage the collective wisdom of Tempe's Vision Zero Task Force, provide an equal way for input to be received, and have accountability in executing the prioritized Vision Zero Strategies. Dot-polling was used to rank a list of 58 strategies identified during the previous Working Group meetings that will help eliminate traffic fatalities and serious injury crashes in Tempe. The three to four highest ranked strategies within each Action Area will be undertaken within the first three years of this Action Plan. Strategies that are not included in the initial Action Plan will be kept for future consideration based on available funding and resources.





Vision Zero Tempe's Action Areas:

-  **Intersections**
-  **Bicycles & Scooters**
-  **Pedestrians**
-  **Nighttime**
-  **Impairment**
-  **Inexperienced and Very Experienced Road Users**
-  **Distraction**
-  **“General”**

Guidelines Used While Identifying and Prioritizing Vision Zero Tempe Strategies include:

- ✔ Use crash-related data to target road users.
- ✔ Have a high return on investment.
- ✔ Be able to identify a champion.
- ✔ Be able to start before 2020.
- ✔ Not be constrained by County, State, or Federal processes/regulations.



Vision Zero Tempe's Strategies

Vision Zero is rooted in the shared responsibility among system designers and policymakers to design and operate safe systems for transportation. The following 37 transportation safety strategies are organized by Action Area, identify the lead agency responsible, provide a timeline for implementation, and indicate whether the strategy is a continuation or enhancement of an existing program.

Action Item	Description	Lead Agency	Vision Zero Year	Continuation or Enhancement of Existing Program?
G.1	Provide residents with an annual Vision Zero report.	Traffic Engineering	Annually	No
G.2	Invest in neighborhood traffic calming.	Traffic Engineering	1	Yes
G.3	Continue to analyze safety data annually to identify high severity crash areas and implement countermeasures at prioritized locations.	Traffic Engineering	1	Yes
G.4	Initiate a citywide speed limit evaluation with the safe systems approach to incorporate other critical factors, such as crash history and the safety of people walking and bicycling.	Traffic Engineering	1	No
G.5	Identify partners to develop and market training (on-line and/or classroom) for transportation safety that targets all road users and all ages (Example: how traffic is evolving).	Community Relations	2-3	No
G.6	Warn and educate road users of high severity crash areas (Example: zero tolerance safety corridors).	Community Relations / Police / Traffic Engineering	1	No
G.7	Initiate a multidepartment Fatal Crash Review Committee.	Police / Traffic Engineering	1	No
G.8	Improve data sharing between the Transportation Division and Police Department. Migrate to electronic crash reporting software (example: TRACS).	Police / Transportation Division	1-2	Yes
G.9	Distribute educational "top 10" Vision Zero education door hangers to ASU dorms and Tempe multifamily residential units.	Community Relations	1-2	No
G.10	Obtain and deploy mobile VMS boards to educate drivers and support Police Department efforts.	Police	1	No
Int.1	Identify intersections for low cost pedestrian and bicyclist safety countermeasures (e.g., pavement markings, signal timing, signs)	Traffic Engineering	1	Yes
Int.2	Identify intersections that could benefit from converting to protected left turns.	Traffic Engineering	1	Yes

G - General **Int** - Intersections **B** - Bicycles and Scooters **P** - Pedestrians **N** - Night Time
Imp - Impairment **R** - Inexperienced and Very Experienced Road Users **D** - Distraction

Action Item	Description	Lead Agency	Vision Zero Year	Continuation or Enhancement of Existing Program?
Int.3	Implement leading pedestrian intervals (LPI's) at select intersections.	Traffic Engineering	1	No
Int.4	Proactively identify locations where sight visibility is obstructed.	Traffic Engineering	2-3	Yes
Int.5	Conduct regular red light enforcement and education campaigns.	Police / Community Relations	1-2	Yes
B.1	Identify locations that could benefit from positive guidance to bicyclists and drivers including bike lanes, sharrows and signs	Transportation Planning	1	Yes
B.2	Coordinate bicycle and pedestrian expert reviews of project designs.	Transportation Planning / Traffic Engineering	1	Yes
B.3	Identify locations that could benefit from new and/or improved bicycle detection.	Traffic Engineering	1	Yes
P.1	Develop guidelines for installation of high visibility crosswalks (May include shared use path crossings and school areas).	Traffic Engineering	1	Yes
P.2	Identify corridors that could benefit from the installation of raised medians and pedestrian refuge islands.	Traffic Engineering	2-3	No
P.3	Identify locations with excessive pedestrian delay at signalized intersections and examine opportunities to improve pedestrian wait time.	Traffic Engineering	2-3	No
P.4	Identify locations that could benefit from grade separated pedestrian crossings.	Transportation Planning	2-3	Yes
P.5	Educate pedestrians that they can be the victims of distraction and provide smart behaviors to adopt.	Community Relations	2-3	Yes

Tempe is land locked and the daytime population increases more than 45% over the sleeping population due to commuting. Solutions must be publicized to surrounding communities.

Vision Zero Tempe's Strategies

Action Item	Description	Lead Agency	Vision Zero Year	Continuation or Enhancement of Existing Program?
P.6	Initiate an annual or biennial comprehensive bicycle/pedestrian/scooter count program.	Transportation Planning	2-3	Yes
N.1	Identify non-signalized marked crosswalks that could benefit from additional lighting.	Traffic Engineering	1	Yes
N.2	Analyze lighting conditions at high crash locations and improve deficiencies.	Traffic Engineering	1	Yes
N.3	Develop implementation plan to convert all city street lighting to LED (4,000K for all collectors and arterials).	Transportation Maintenance	1	Yes
N.4	Provide free bicycle lights, reflectors, reflective backpack clips and/or other safety giveaways to improve visibility through community outreach events.	Police / Community Relations	1	Yes
Imp.1	Promote safe driving options, including transit, rideshare and taxis.	Community Relations	1	Yes
Imp.2	Provide visible pick-up/drop-off zones and enhance the convenience of rideshare and taxis in the downtown and during special events.	Traffic Engineering	1	No
Imp.3	Continue to and expand engagement with businesses and establishments that serve/provide alcohol and drugs (pharmacies, medical marijuana dispensaries) to be an increased part of the solution.	Community Relations/ Police	1	Yes
R.1	Promote alternative mobility options (like rideshare) to older drivers and adults caring for their parents or other relatives that are older drivers.	Community Relations	1	Yes
R.2	Improve driver compliance by converting "24 hour" 35 MPH high school zones to time-of-day with flashing warning lights.	Traffic Engineering	1	No
R.3	Develop guidelines for installation of additional pavement markings and signs to enhance school zones.	Traffic Engineering	1	Yes
R.4	Evaluate transportation needs of older residents to ensure mobility as they age in place.	Traffic Engineering / Community Relations	2-3	Yes
D.1	Advocate for the Arizona state legislature to adopt legislation that bans texting while driving and is enforceable as a primary offense.	All	1	No
D.2	Modify city code to ban the use of electronic devices while driving requiring drivers to use "hands free" electronic devices.	City Council	Complete	Yes

Table 4








G - General **Int** - Intersections **B** - Bicycles and Scooters **P** - Pedestrians **N** - Night Time
Imp - Impairment **R** - Inexperienced and Very Experienced Road Users **D** - Distraction

Progress Towards Vision Zero – Highlights

-  **Distraction:** City passed local ordinance for primary/hands-free (*February 28, 2019*)
-  **Intersection:** Rural Rd & Southern Ave improvements, including protected left-turns (*construction to begin in 2019*)
-  **Intersection:** Roundabout at Priest Dr & Grove Pkwy (*construction to begin in 2019/20*)
-  **Bicycle:** Reviews of Streetcar Plans by local bicycle experts (*2018/19*)
-  **Nighttime:** Upgraded LED Lighting (4000K): Scottsdale Rd from Continental Dr to Loop 202 (*Completed in 2019*)
-  **Bicycle & Pedestrian:** New Bicycle Lanes and HAWK Signal: Scottsdale Rd from Continental Dr to Curry Rd (*beginning design in 2019*)

Parking Lot of Future Strategies






The Vision Zero Task Force contributed to a comprehensive list of transportation safety strategies throughout the efforts of this Plan. Strategies that are not included in the previous table are recorded in this long-term strategy parking lot. As funding and resources become available, these strategies will be retrieved for consideration.

	Focus Area	Description
	G	Plan for autonomous vehicles
	G	Work with universities and regionally to educate engineers designing roadways for lower speed, right-sized roads
	G	Develop an online Vision Zero test (like ADOT practice tests for driver's licenses)
	G	Engage members of the courts and judicial system in dialogue related to traffic safety
	G	Invest in infrastructure maintenance to ensure efficient emergency response (example: Pavement Quality Index - PQI)
	G	Initiate liaison to Care 7 and Tempe Neighbors Helping Neighbors for Vision Zero collaboration
	Int	Identify intersections that could benefit from converting to roundabouts
	Int	Identify opportunities to further improve emergency pre-emption at intersections
	B	Update the Tempe barricade manual for better accommodation of pedestrians and bicyclists in construction work zones.
	B	Provide outreach support for events like Bike to Work Day (April) and Tour de Tempe (April)

G - General **Int** - Intersections **B** - Bicycles and Scooters **P** - Pedestrians **N** - Night Time
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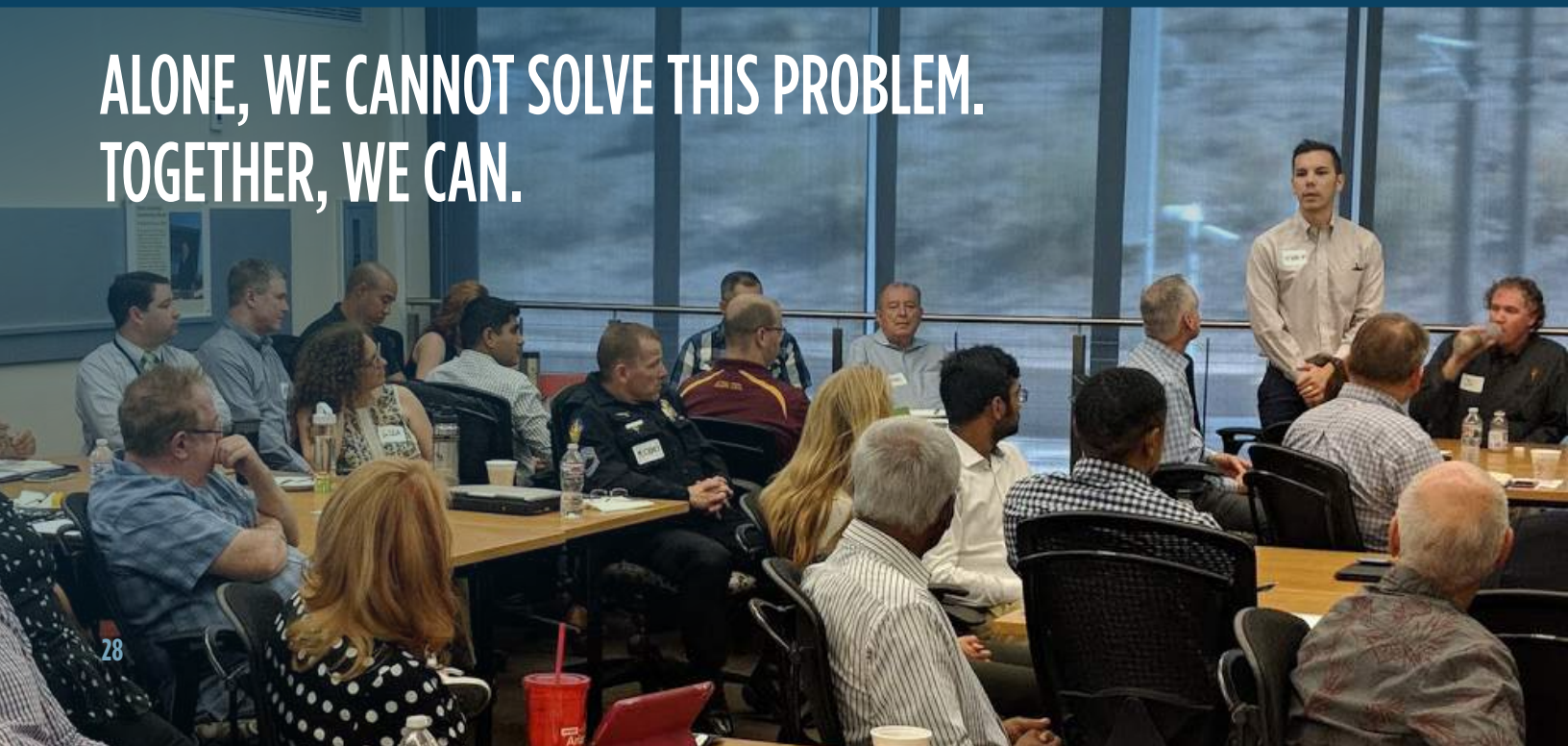
Focus Area		Description
	B	Promote non-motorized crash reporting via the city's Vision Zero website
	B	Maximize the benefits of Bicycle Diversion Classes (including finding out more information from the court system and reviewing the curriculum).
	N	Proactively identify locations where improperly maintained trees and landscaping are blocking street lighting and creating shadows
	N	Implement targeted night time enforcement to dissuade midblock pedestrian crossings and speeding in high crash areas
	Imp	Support training of police officers to identify and remove impaired drivers from the roadway
	R	Promote programs that offer traffic education for older age demographic.
	R	Engage School Resource Officers (SROs) at high schools and middle schools in education campaigns
	R	Continue to engage the Police Department Bike Squad and community advocacy groups to provide educational outreach to elementary schools
	R	Proactively identify locations where older drivers may be at a higher risk and provide targeted educational outreach
	D	Engage the Mayors Youth Advisory Commission (MYAC) and Tempe Youth Leadership to develop an annual safety campaign/challenge (example: "I promise...")



Appendix



**ALONE, WE CANNOT SOLVE THIS PROBLEM.
TOGETHER, WE CAN.**



STAKEHOLDERS

The Vision Zero Tempe initiative will impact people that live, work, and play within the City. Representatives from the stakeholders listed below form Tempe’s Vision Zero Task Force.



City of Tempe Mayor and City Council
 City of Tempe Police Department
 City of Tempe Engineering and Transportation Department
 City of Tempe Fire Medical Rescue Department
 City of Tempe Transportation Commission

City of Tempe Residents



Arizona State University



Tempe Elementary School District



Regional Hospitals:
 Banner Health, Mountain Park Health Center, Scottsdale Osborn, Tempe St. Lukes



MAG
 (Maricopa Association of Governments)



ADOT
 (Arizona Department of Transportation)



Community Organizations
 (AARP, AAA, Tempe Neighbors Helping Neighbors, etc.)



Neighboring Cities
 (Mesa, Phoenix)



City of Phoenix



Valley Metro

Appendix Continued

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Consultant:
Y2K
ENGINEERING

in association with
Kimley»Horn

