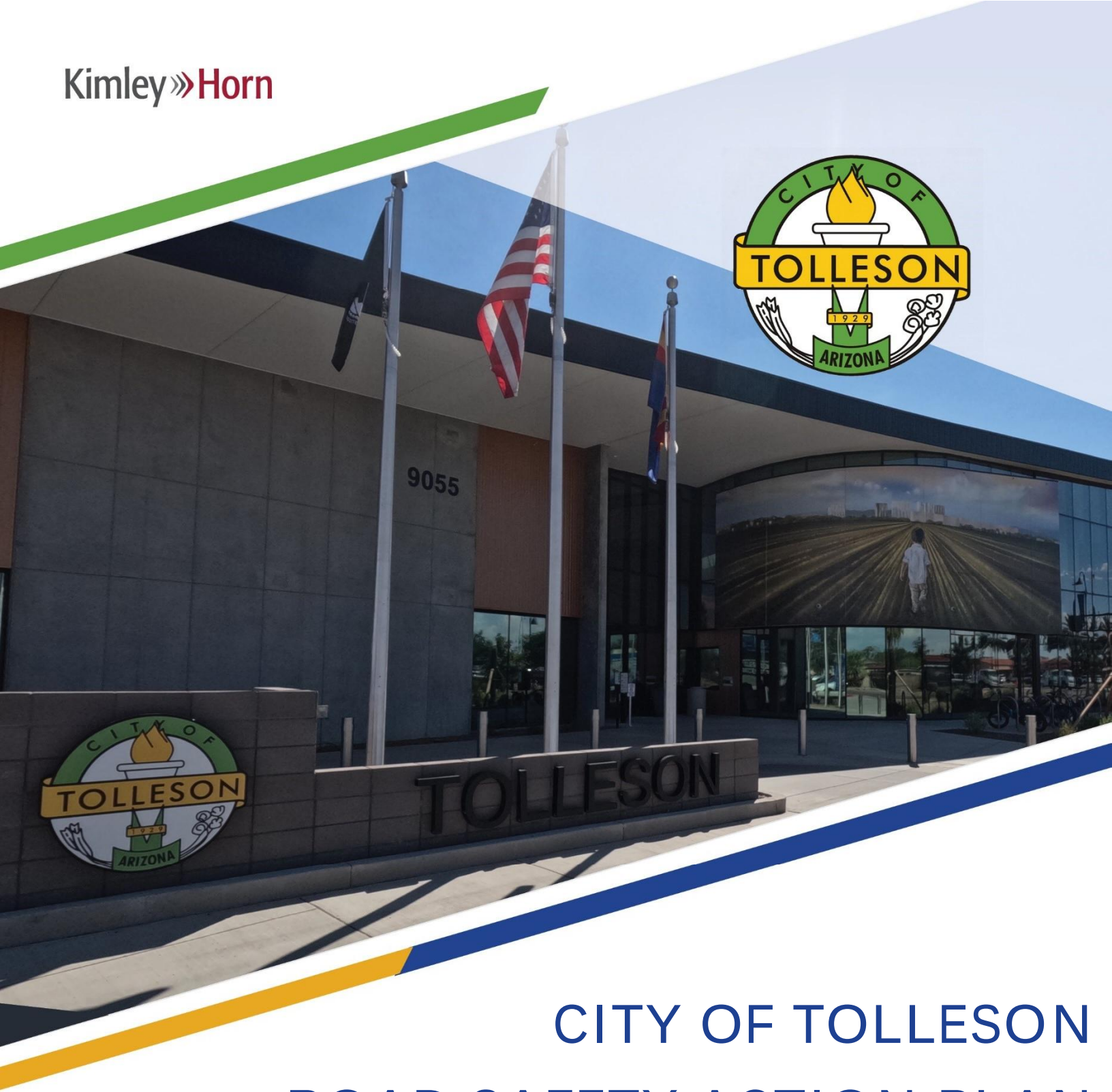
Kimley»Horn



CITY OF TOLLESON
ROAD SAFETY ACTION PLAN
ADOPTED JUNE 24, 2025

Strategies to Reduce Traffic Deaths and Serious Injury Crashes to Zero

Acknowledgements

The Tolleson Road Safety Action Plan is a critical step toward zero deaths and serious injuries by 2050 on Tolleson Streets. The City of Tolleson would like to dedicate this plan to the people of this community who strive hard to maximize road safety.

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Vice Mayor Jimmy Davis

Council Member Christine Chavira

Council Member Clorinda Erives

Council Member Adolfo Gamez

Council Member Linda Laborin

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City Development Services

City Field Operations

City Utilities

City Police Department

City Fire Department

City Financial Officer

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PUBLIC PARTICIPATION

Thank you to Tolleson residents and various community organizations that took the time to share their opinions, thoughts, concerns, and input. Your voice matters, and it was directly used in creating the RSAP strategies and subsequent implementation plan.

Disclaimer

23 UNITED STATES CODE SECTION 407

Discovery and Admission as Evidence of Certain Reports and Surveys

Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 148 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

Foreword

Safe Streets and Roads for All Discretionary Grant Program

The Bipartisan Infrastructure Law (BIL), signed into law on November 15, 2021, established the SS4A discretionary program to fund improvements and strategies to prevent roadway fatalities and serious injuries of all roadway users. The program includes $5 billion in appropriated funds over 5 years (2022-2026). The SS4A program provides federal funds for two types of grants:

• Planning and Demonstration Grants prepare SS4A RSAPs to develop a holistic, well-defined strategy to prevent roadway fatalities and serious injuries in a locality, Tribe, or region.

• Implementation Grants execute projects and strategies identified in a RSAP to address a roadway safety issue. Projects and strategies may be infrastructure, behavioral, and/or operational activities. Applicants must have a qualifying RSAP that meets the eligibility requirements to apply for an Implementation Grant. In addition, applicant agencies must have ownership and/or maintenance responsibilities over a roadway network, safety responsibilities that affect roadways, or an agreement from the agency that has ownership and/or maintenance responsibilities for the roadway within the applicant's jurisdiction.

The Tolleson RSAP meets the requirements to allow the City to apply for Implementation Grants from the United States Department of Transportation (USDOT) SS4A discretionary grant program. The USDOT has identified several required RSAP elements, as described below:

• Leadership Commitment and Goal Setting. Requires an official public commitment by a government body to an ultimate goal of zero roadway serious injuries or fatalities.

• Planning Structure. Defines a task force charges with oversight of the development and implementation of the RSAP.

• Safety Analysis. Reviews historical and existing safety conditions that provide a baseline for serious injury and fatal crashes.

• Engagement and Collaboration. Conducts significant engagement with stakeholders and the public, allowing for community representation and feedback to be incorporated into the RSAP.

• Equity Considerations. Ensures underserved communities are identified and preferred in proposed projects and strategies.

• Policy and Process Changes. Assesses existing policies, plans, guidelines, and standards to identify areas of improvement in transportation safety planning.

• Strategy and Project Selections. Identifies projects and strategies, based on data and data and public engagement, that will address existing safety issues.

• Progress and Transparency. Measures progress towards the RSAP's goals, including review of updated data and presentation of results to the public.

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Executive Summary

Introduction

The City of Tolleson (City) has prepared the Tolleson Safe Streets and Roads for All (SS4A) Road Safety Action Plan. The safety committee below will meet periodically to review and monitor the road safety process, and release a Road Safety Status report in the Spring of each year. The committee consists of members from the following City departments:

Safety Action Committee

- City Manager's Office
- Government Affairs Office
- City Development Services
- City Engineering and Public Works Department
- City Police Department
- City Fire Department

Road Safety Action Plan

A Road Safety Action Plan (RSAP) is a way to prioritize safety improvements and justify future roadway investment decisions. An RSAP is a comprehensive safety plan aimed at reducing and eliminating serious injury and fatal crashes affecting all roadway users including pedestrians, bicyclists, transit riders, motorists, personal conveyance and micro-mobility users, and commercial vehicle operators. A formal plan will help communicate more clearly how the City will promote safety on local roadways and will assist in pursuing future funding opportunities.

Vision and Goals

Vision Zero refers to the ultimate goal of eliminating all fatalities and serious injuries on Tolleson roadways. It begins with the ethical belief that everyone—people walking, biking, taking transit, and driving—has the right to move safely in their community; no one should be killed or seriously injured in crashes on the transportation network; and all traffic deaths are preventable. A Vision Zero commitment sets measurable objectives, establishes a clear schedule and time frame, and proposes strategies to accomplish the objectives.

Vision Statement

The City of Tolleson will strive to protect all road users by reducing fatal and serious injury crashes by 20 percent by 2030, with a long-term vision of zero such incidents by 2050.

Goals

Below are the goals and objectives required to establish the vision statement.

Goals	Objectives
City will implement Vision Zero – all infrastructure projects and programs will have a safety component	- Establish a Safety Task Force Committee consisting of a multi-department team for the continued oversight of reducing fatal and serious injury crashes - Establish a road safety coordinator position to oversee the progress of the Road Safety Action Plan - Develop a High-Risk Network and identify potentially high-risk locations. - Maintain the safety dashboard - Recognize and celebrate road safety success stories with the community
Engage the public to foster a culture of safety on the roadways	- Educate young drivers on road safety behavior - Improve safe travel to and from school for all travel modes - Educate pedestrians, bicyclists and motorcyclists on safe road practices
Embrace 5 E's of safety (Evaluation, Engineering, Enforcement, Education, & Equity) in all City initiatives and projects	- Create an internal, cross-department task force to review crash data - Develop policies and standards to improve safety for different types of roadways (arterials, collectors, local streets, freight corridors) and intersections
Engage with the police enforcement as a major partner to improve safety	- Deploy police personnel to enforce distracted driving, driving under the influence (DUI), speeding and parking restrictions - Effective crash coding and maintenance of crash data - Quick response team
Formalize partnerships outside Tolleson to share resources, and develop safety solutions to reduce crashes in Tolleson	- Participate in periodic (semi-annual) meetings with the adjacent agencies (Phoenix, Avondale, MCDOT, ADOT) to discuss safety concerns and upcoming infrastructure projects - Participate in the joint review of the projects to ensure safety components are addressed - Participate in the State and MAG Freight Management Plans.

Study Area Overview

The RSAP study area consists of all local and arterial roadways within the City. The land use mix in Tolleson consists of predominantly industrial and commercial uses with some residential. Tolleson has a large mix of warehouses and trucking industries, which results in several designated truck routes throughout the City.

Safety Performance Analysis

The project team performed a safety analysis to identify common crash rends and high-risk locations. The safety performance analysis was designed to provide insight into identifying a high-crash network and a high-risk network.

Tolleson Crash Trends

The safety performance for the City from 2019 through 2023 is summarized below. Figure 1 shows the number of total crashes by year, which has remained consistent. The total crashes ranged from 413 in 2020 to 573 in 2021. Figure 2 shows the total fatal and serious injury crashes ranging from a low of 12 in 2019 to a high of 18 in 2021.

As shown in Figure 3, fatal crashes and serious injury crashes make up nine percent of all injury crashes. A total of 72 fatal and serious injury crashes were recorded from 2019 through 2023.

Figure 1. Crashes by Year - All Crashes

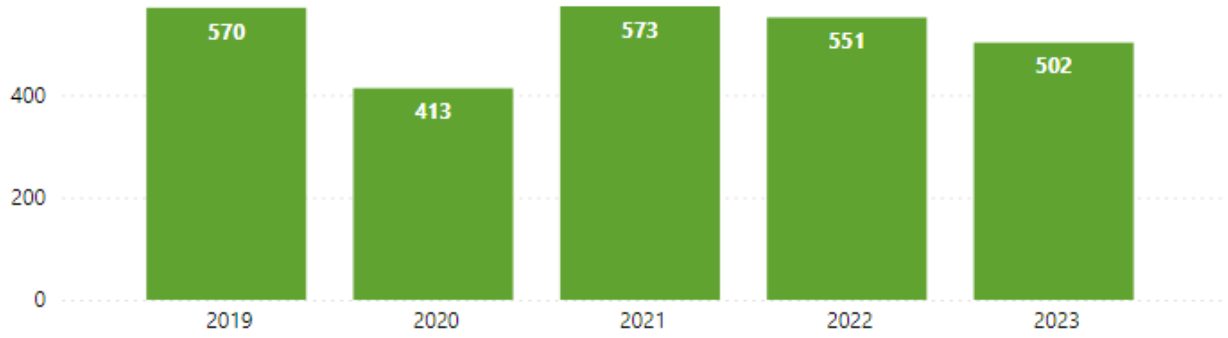


Figure 2. Fatal and Serious Injury Crashes

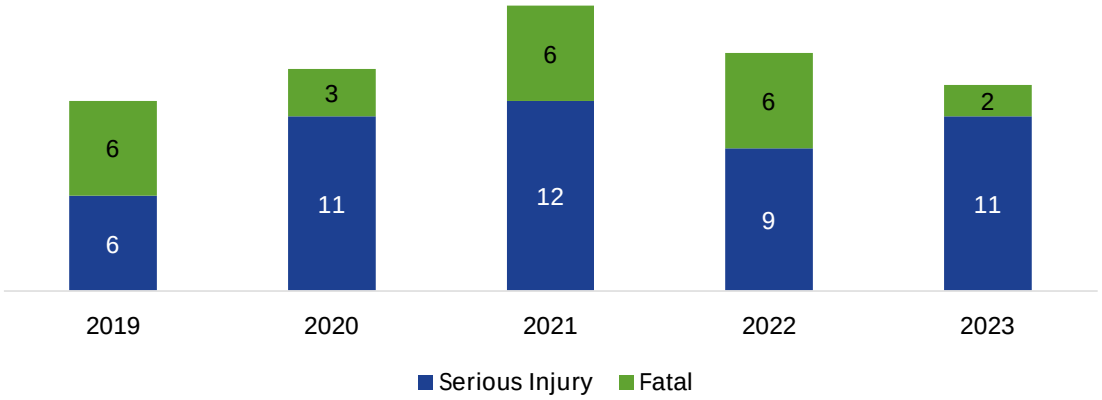
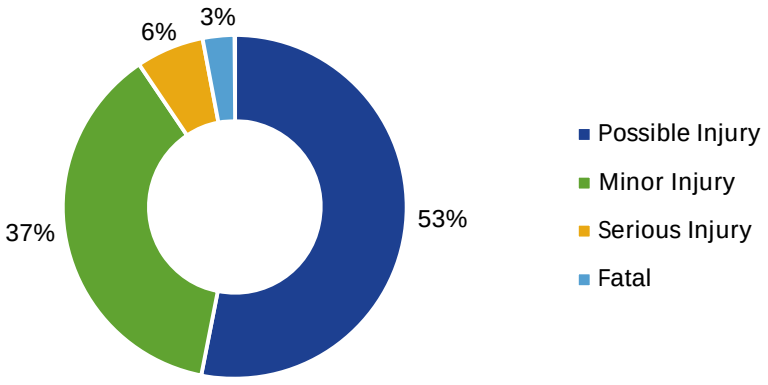


Figure 3. Injury Severity for All Crashes

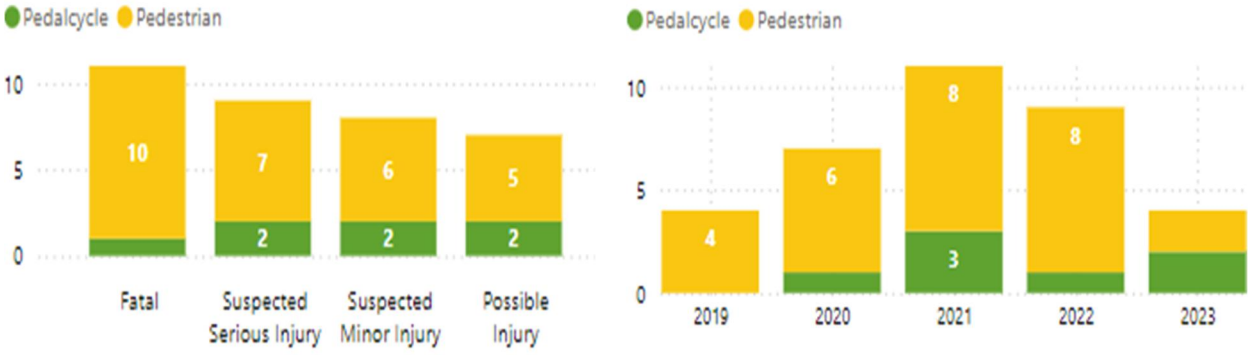


Vulnerable Road Users (VRUs)

Crashes involving VRUs (pedestrians and bicyclists) in Tolleson from 2019 through 2023 are summarized below. All 37 pedestrian and bicycle involved crashes resulted in injury. Typically, a non-injury pedestrian and bicycle

crash is not reported since the damage value is less than $1,000. A total of 11 fatal pedestrian and bicycle crashes were recorded in the five-year study period. Figure 4 shows the pedestrian and bicyclist crashes by year, which peaked at a combined total of 11 in 2021. Fatal crashes make up 30 percent of crashes involving pedestrians and bicyclists.

Figure 4. Vulnerable Road User Crashes Summary



Network Screening Analysis

The network screening process identified and ranked locations, from most likely to least likely to have a crash frequency reduction, by calculating a crash frequency reduction with the implementation of countermeasures. Locations identified as most likely to have a crash frequency reduction should be studied in detail to understand trends in crash patterns, contributing factors, and identify appropriate countermeasures. For this RSAP, the network screening steps included:

- Determine the crash frequency and a list of the intersections and segments with the highest crash frequencies
- Calculate individual crash rates for each roadway and intersection and list the intersections and segments with the highest crash rate
- Compare the tables with high crash frequency with high crash rate and develop a composite table with high priority locations using the network screening methodology adopted by the MAG
- Determine typical crash patterns for each location where there are an unusual number of specific crash types occurring
- Determine the high injury network and develop the countermeasure for the specific crash type at each location, intersection or segment

A composite review of the crash rate and crash frequency was used to determine critical intersections and corridors for the City. The results of this analysis are summarized in Table 1 identifying the high priority roadway segments and intersections in Tolleson.

Table 1. High Priority Locations

Segments	Intersections
75th Avenue, Buckeye Road and Van Buren Street	Buckeye Road and 75th Avenue
83rd Avenue, Buckeye Road and I-10	Buckeye Road and 83rd Avenue
91st Avenue, Buckeye Road and Van Buren Street	Buckeye Road and 91st Avenue
99th Avenue, Buckeye Road and Van Buren Street	Buckeye Road and 99th Avenue
Buckeye Road, 83rd Avenue and 99th Avenue	Buckeye Road and 107th Avenue
	Van Buren Street and 75th Avenue
	Van Buren Street and 83rd Avenue
	Van Buren Street and 99th Avenue
	All I-10 ramps

Public and Stakeholder Involvement

The project team conducted extensive public outreach and stakeholder engagement to gather input on potential strategies and focus areas for safety improvements.

Public Engagement

Public outreach included an online survey and a series of pop-up events at the City's Trick or Treat event, the Senior Center, and the Teen Council. Common themes heard from the public include:

- Respondents largely use their personal vehicles, but would like to walk/run/bike more often
- Intersections or general areas where people feel unsafe include:
  - Roundabout at 99th Avenue and Lower Buckeye Road
  - 91st Avenue and Van Buren Street
- The City should prioritize the following characteristics when identifying project areas for improvement:
  - Locations with high numbers of crashes
  - Locations with high traffic volumes
  - Areas around schools
- Respondents would like to see a reduction in fatal and serious injury crashes
- Distracted driving and high vehicle speeds are the top safety concerns

Stakeholder Engagement

Technical Advisory Committee

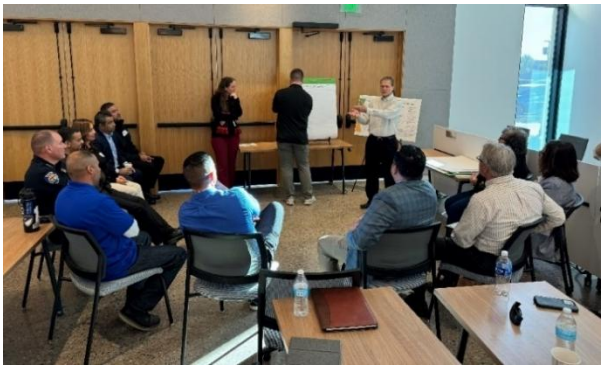
A Technical Advisory Committee (TAC) was organized to guide development of the RSAP. The TAC met bi-monthly to discuss the project progress and consisted of representatives from the following agencies:

- City Departments
- Tolleson Police Department
- Tolleson Fire Department

Safety Summit

On November 13, 2024, the project team held a Safety Summit for stakeholders to brainstorm potential solutions to increase safety in the transportation network. The attendees included representatives from the following groups:

- TAC
- School District Officials
- City Management Group
- City Public Relations Group
- Law Enforcement
- Emergency Services
- FHWA
- MAG
- MCDOT
- City of Avondale
- City of Phoenix



The attendees brainstormed potential solutions in four focus areas: neighborhood, pedestrian, and bicycle safety; intersections; freight and truck movement; and roadway segments.

Infrastructure Projects

The core of this RSAP consists of implementable infrastructure strategies that have the potential to significantly reduce fatal and serious injury crashes in Tolleson. Through the safety analysis and public and stakeholder input, the project team was able to identify 47 potential solutions to improve safety, divided between the following improvement types:

- Active Transportation Improvements – focused on improving pedestrian and bicyclist movements
- Enforcement – specific roadways and corridors
- Road Construction/Maintenance – improve capacity, access management, and visibility
- Traffic Control – improve signal timing, signal visibility, and safer operations

Table 2 shows the preliminary potential active transportation solutions. Table 3 shows the preliminary potential enforcement solutions. Table 4 shows the preliminary potential road construction/maintenance solutions. Table 5 shows the preliminary potential traffic control solutions. Some of the projects are within the City of Tolleson's jurisdiction and some of them fall within the jurisdiction of other agencies.

Table 2. Active Transportation Improvements

ID	Name	Description
1	99th Avenue: Buckeye Road to Van Buren Street	Install new continuous sidewalk and/or multi-use path (MUP) to separate pedestrian/bicyclist traffic from travel lanes.
2	107th Avenue: Buckeye Road to Van Buren Street	Install new continuous sidewalk and/or MUP to separate pedestrian/bicyclist traffic from travel lanes.
3	Buckeye Road: 107th Avenue to 93rd Avenue	Install a new continuous sidewalk, buffered bike lane, or multi-use path to separate pedestrian/bicyclist traffic from travel lanes.
4	99th Avenue/Roosevelt Street Crossing Improvements	Install a pedestrian crosswalk at the south leg of the intersection and remove the crosswalk at the north leg.
5 6	91st Avenue: Buckeye Road to Van Buren Street 99th Avenue: Buckeye Road to Van Buren Street	Complete the missing sidewalk. Consider developing MUP in place of the sidewalk to function as a grade-separated bike lane or installing a 2-foot buffer between the travel lane and bike lane.

7	107th Avenue: Buckeye Road to Van Buren Street	
8 9 10	99th Avenue: Van Buren Street to I-10 Buckeye Road: 91st Avenue to 75th Ave 107th Avenue: Buckeye Road to Van Buren Street	Install a 2-foot buffer between the travel lane and bike lane.

Table 3. Speed Mitigation with Enforcement

ID	Name	Description
11	91st Avenue Speed Improvements	Implement uniform posted speed limits for the corridor through studies and periodically enforce it to address speeding, DUI, and red light running
12	Buckeye Road Speed Improvements	Implement uniform posted speed limits for the corridor through studies and periodically enforce it to address speeding, DUI, and red light running
13	83rd Avenue Speed Improvements	Implement uniform posted speed limits for the corridor through studies and periodically enforce it to address speeding, DUI, and red light running
14	Buckeye Road Freight Parking Restrictions	Enforce no on-street freight parking.
15	83rd Avenue Freight Parking Restrictions	Enforce no on-street freight parking.
16	99th Avenue Freight Parking Restrictions	Enforce no on-street freight parking.
17	99th Avenue Speed Limit Improvements	Implement uniform posted speed limits for the corridor through studies and periodically enforce it to address speeding, DUI, and red light running
18	91st Avenue Speed Feedback Signs	Install flashing speed feedback signs.
19	107th Avenue Speed Feedback Signs	Install flashing speed feedback signs.

Table 4. Road Construction/Maintenance Improvements

ID	Name	Description
20	Van Buren Street: 99th Avenue to 107th Avenue - Lane Width and Access Management Improvements	Design and implement uniform lane widths and continuous lanes (to reduce scalloped streets). Reduce and consolidate closely spaced driveways. Install median and street lights on both sides of the road
21	107th Avenue Lane: Buckeye Road to Van Buren Street - Lane Width and Access Management Improvements	Design and implement uniform lane widths and continuous lanes (to reduce scalloped streets). Reduce and consolidate closely spaced driveways. Install median and street lights on both sides of the road.
24	Signal Visibility Improvements	Install 3" retro-reflective tape on all traffic signal back plates throughout the City
25	99th Avenue/Van Buren Street - Intersection Reconfiguration	Redesign the intersection to accommodate appropriate lane widths and turn radii, minimizing crossing distance.
26	99th Avenue/I-10 Eastbound On-Ramp - Intersection Improvements	Design and install an exclusive northbound right-turn lane on 99th Avenue.
27	91st Avenue: I-10 to Buckeye Road - Street Lighting Improvements	Install streetlights at intersections.
28	83rd Avenue: I-10 to Buckeye Road - Street Lighting Improvements	Install streetlights on both sides of the road.

29	107th Avenue: Buckeye Road to Van Buren Street - Lighting Improvements	
30	83rd Avenue: I-10 to Buckeye Road - Pavement Marking Improvements	Improve pavement markings and install raised pavement markers (RPMs).
31	Buckeye Road: 75th Avenue to 107th Avenue - Lane Reconfiguration	Provide uniform lane sizes and limit the number of lane drops
32	99th Avenue: Roosevelt Road to Pierce Lane - Midblock Crossing Mitigation	Install raised medians and safety railings along the sidewalk on the west side of 99th Avenue between Van Buren Street and Roosevelt Street to prevent mid-block crossing.

Table 5. Traffic Control Improvements

ID	Name	Description
34	99th Avenue Truck Signal Timing	Evaluate and implement traffic signal progression and truck-appropriate clearance intervals.
35	Buckeye Road Truck Signal Timing	
36	107th Avenue Truck Signal Timing	
37	99th Avenue Traffic Signal Visibility Improvements	Install one signal head per lane and near side signal heads to improve traffic signal visibility.
38	Buckeye Road Traffic Signal Visibility Improvements	
39	107th Avenue Traffic Signal Visibility Improvements	
40	99th Avenue FYA Improvements	Install flashing yellow arrows (FYA) to allow for protected left-turn phasing during peak hours.
41	Buckeye Road FYA Improvements	
42	107th Avenue FYA Improvements	
43	91st Avenue/Van Buren Street Protected Left-Turns	Install FYA to allow for protected left-turn phasing during daytime and FYA operations at night
44	I-10/91st Avenue Signal Timing Improvements	Improve signal phasing at the traffic interchange to reduce queuing and improve progression between signals.
45	I-10/99th Avenue Signal Timing Improvements	
46	I-10/83rd Avenue Signal Timing Improvements	
47	99th Avenue Traffic Signal Coordination	Improve signal phasing and coordination along 99th Avenue between Roosevelt Street and I-10.

Prioritization Methodology

After identifying potential solutions, the project team prioritized the solutions. To do this, the project team developed prioritization criteria based on input from the TAC and the public. Safety history, crash rate, crash frequency, and cost were determined to be the most important elements. Table 6 Table 6 shows the highest-ranked non-construction-related safety solutions, and Table 7 shows the highest-ranked preliminary safety solutions that require construction.

Table 6. Top Non-Infrastructure Potential Solutions

Non-Infrastructure Solution
Speed/DUI Enforcement: 83rd Avenue, Buckeye Road, 99th Avenue and 91st Avenue
Uniform Speed Limit Establishment Buckeye Road, 83rd Avenue and 99th Avenue
Signal Timing Plans (Freight Corridor): Buckeye Road, 83rd Avenue, and 99th Avenue
Freight Parking Restrictions: Buckeye Road, 83rd Avenue, and 99th Avenue
Refresh Pavement Markings and Signs 83rd Avenue: Buckeye Road to I-10
Interchange Signal Timing and Phasing Improvements: I-10/83rd Avenue, I-10/91st Avenue, and I-10/99th Avenue
Road Safety Audit: 91st Avenue I-10 to Van Buren Street (to evaluate truck traffic flow along this road), and 99th Avenue at Van Buren Road
Safe Routes to School Studies for all Tolleson Schools
Neighborhood Traffic Calming Program
Semi-Annual Road Safety Education Campaign Targeting Pedestrians, Bicyclists, and Motorcyclists
Driver Education – Annual High School Program
Safe Pedestrian and Bicycle Education in Elementary Schools – Annual school program

Table 7. Top Infrastructure Potential Solutions

Infrastructure Solution	Score
Buckeye Road, 107th Ave to 75th Ave – Traffic Signal Visibility Improvement	57
Buckeye Road – Medians and Access Management	52
91st Avenue – Speed Feedback Signs and Improve Signing and Marking	48
99th Avenue, I-10 to Van Buren Rd - Median and Access Management	45
99th Avenue – Traffic Signal Visibility Improvement	43
Buckeye Road – Install FYA for Protected Left-Turn Phasing During Peak Hours	37
99th Avenue between Pierce Street and Roosevelt Street – Median Fencing	33
Buckeye Road, 107th Avenue to 91st Avenue – Construct Uniform Roadway Cross-Section and Reduce Scalloped Streets	29
107th Avenue – Install Flashing Speed Feedback Signs	27
Van Buren Street, 107th Avenue to 99th Avenue – Construct a Uniform Roadway Cross-Section, Access Management, and Reduce Scalloped Streets	27

Safety Improvement Recommendations

Project Recommendations

The project team conducted a field review of the top potential solutions and compiled them into implementable projects anticipated to have the highest impact on improving safety in Tolleson.

Projects Within the City of Tolleson's Jurisdiction

Table 8 lists the recommended infrastructure projects and

Table 9 lists the recommended non-infrastructure projects within the City of Tolleson's jurisdiction.

Table 8. Infrastructure Projects for Tolleson

ID	Solution Name	Solution Description	Score
1	91st Avenue: Van Buren Road to I-10 Speed Management	Install flashing speed feedback signs and reduce signing and marking clutter near Van Buren Road *Potential funding source: City CIP*	48
2	99th Avenue Freight Corridor Medians Installation	Install medians along truck corridors *Potential funding source: SS4A Implementation Grant or HSIP*	45
3	99th Avenue Traffic Signal Visibility Improvements	Install one signal head per lane and near-side signal heads to improve traffic signal visibility *Potential funding source: HSIP or MAG Safety Funds*	43
4	99th Avenue: Midblock Crossing Mitigation	Van Buren Street and Roosevelt Street: Install raised medians and safety railings along the median to prevent mid-block crossing *Potential funding source: SS4A Implementation Grant or HSIP*	33
5	91st Avenue Street Lighting Improvements	Install streetlights at arterial/collector intersections *Potential funding source: MAG Safety Funds*	25
6	99th Avenue FYA Improvements	Install flashing yellow arrows to allow for protected left-turn phasing during peak hours *Potential funding source: HSIP*	22
7	99th Avenue Active Transportation Improvements	Install continuous sidewalk and/or multi-use paths to separate pedestrian/bicyclist traffic from travel lanes *Potential funding source: TA funds*	21
8	99th Avenue/Van Buren Street Intersection Reconfiguration	Redesign the intersection to appropriate lane widths and turn radii to minimize crossing distance *Potential funding source: City CIP*	19
9	91st Avenue/Van Buren Street FYA Improvements	Install flashing yellow arrows to allow for protected left-turn phasing during peak hours *Potential funding source: HSIP*	17
10	91st Avenue Active Transportation Infill Improvements	Sidewalk gap infill from Buckeye Road to Van Buren Street, 2-foot buffer lane between travel and bike lane *Potential funding source: TA Funds*	14
11	99th Avenue/Roosevelt Street Crossing Improvements	Install a pedestrian crosswalk at the south leg and remove the crosswalk at the north leg of the intersection *Potential funding source: City CIP*	1

Table 9. Non-Infrastructure Projects for Tolleson

Non-Construction Related Project
91st Avenue and 99th Avenue: Speed/DUI Enforcement (Quarterly) *Potential funding source: Governor's Office of Highway Safety*
91st Avenue and 99th Avenue: Uniform Speed Limit Establishment *Potential funding source: City CIP*
99th Avenue: Signal Timing Plans (review and revise every 3 years) *Potential funding source: MAG TSOP*
99th Avenue Freight Parking Restrictions *Potential funding source: City CIP/PD*
Road Safety Audit: 91st Avenue at Van Buren Street *Potential funding source: MAG Safety Program*
Safe Routes to School Studies for all Tolleson Schools *Potential funding source: MAG Safety Program*
Neighborhood Traffic Calming Program *Potential Funding Source: City CIP*
Semi-Annual Road Safety Education Campaign targets: Pedestrians, Bicyclists, Motorcyclists. *Potential funding source: CIP/Public Relations//Governor's Office of Highway Safety*
Driver Education – annual high school program *Potential funding source: HSIP Education Funds/Governor's Office of Highway Safety*

Projects Outside the City of Tolleson's Jurisdiction

Projects outside of the City's jurisdiction consist of improvements to Buckeye Road, 107th Avenue, and I-10 intersections. Table 10 shows the recommended improvements to Buckeye Road. .

Table 10. Buckeye Road: 107th Avenue - 75th Avenue with Lead Agencies: MCDOT (91st Ave to 107th Ave and Phoenix (75th Ave to 91st Ave)

Solution Name	Solution Description	Score
Buckeye Road Freight Parking Restriction	Enforce no on-street freight parking	60
Buckeye Road Truck Signal Timing	Evaluate and implement traffic signal progression with appropriate clearance intervals	60
Buckeye Road Traffic Signal Visibility Improvements	Install one signal head per lane and near-side signal heads to improve traffic signal visibility	57
Buckeye Road Freight Corridor Medians	Install medians along truck corridors	52
Buckeye Road FYA Improvements	Install flashing yellow arrows to allow for protected left-turn phasing during peak hours	37
Buckeye Road Speed Enforcement	Implement uniform travel speed along the freight corridor	30
Buckeye Road Lane Reconfiguration	Uniform lane sizes and limit the number of lane drops	29
Buckeye Road Lighting Improvements	Install streetlights along both sides of the roadway	24

Buckeye Road Active Transportation Improvements	Install continuous sidewalks and/or multi-use paths on both sides of the roadway to separate pedestrian/bicyclist traffic from travel lanes.	22

Error! Not a valid bookmark self-reference. shows the recommended improvements to 107th Avenue, and Table 12 shows the recommended improvements to I-10 intersections

Table 11. 107th Avenue: Van Buren Street - Buckeye Road, Lead Agencies: MCDOT and Avondale

Solution Name	Solution Description	Prioritization Score
107th Avenue Speed Feedback Signs	Install flashing speed feedback signs	30
107th Avenue Lane Width Improvements	Design and implement uniform lane widths and continuous lanes (reduce scalloped streets)	27
107th Avenue Traffic Signal Visibility Improvements	Install one signal head per lane and near-side signal heads to improve traffic signal visibility	22
107th Avenue Access Management Improvements	Reduce and consolidate closely spaced driveways	12
107th Avenue Freight Corridor Medians	Install median along the truck corridor	11
107th Avenue Street Lighting Improvements	Install streetlights on both sides of the road	10
107th Avenue FYA Improvements	Install flashing yellow arrows to allow for protected left-turn phasing during peak hours	7
107th Avenue Active Transportation Improvements	Install a bike lane and a sidewalk along both sides of the road. If possible, consider MUP on both sides of the road.	3
107th Avenue Truck Signal Timing	Evaluate and implement traffic signal progression and truck-appropriate clearance intervals	3

Table 12. I-10 Intersections, Lead Agency: ADOT

Solution Name	Solution Description	Prioritization Score
99th Avenue/I-10 Eastbound On-Ramp Intersection Improvements	Design and install an exclusive northbound right-turn lane on 99th Avenue	10
I-10/99th Avenue Signal Timing Improvements	Improve signal phasing at the traffic interchange to reduce queueing and improve progression between signals	9
I-10/83rd Avenue Signal Timing Improvements	Improve signal phasing at the traffic interchange to reduce queueing and improve progression between signals	9
I-10/91st Avenue Signal Timing Improvements	Improve signal phasing at the traffic interchange to reduce queueing and improve progression between signals	8

Policy Recommendations

The RSAP developed policy recommendations to improve safety for all roadway users. The City is not limited to these recommendations and is encouraged to continually look for ways to improve roadway safety for all users through policy or other measures. The policy recommendations address:

- On-street parking restrictions
- Roadway cross sections
- Pavement marking guidelines
- Improving roadway visibility & signal Timing

- Access management

Conclusion

The RSAP establishes the goal of a 20 percent reduction in fatal and serious injury crashes by 2030 and an eventual goal of eliminating fatal and serious injury crashes on City roadways. To accomplish these goals, the plan must be implemented in a deliberate way. Successful plan implementation will rely on committed leadership from the City of Tolleson.

Next Steps

Short-Term (0-2 Years)

The City should focus on low-cost recommendations that can be implemented quickly including:

- Implementing operational improvements
- Creating educational campaigns and programs to increase awareness of traffic safety
- Conduct location-specific studies

Medium-Term (2-8 Years)

The City should focus on infrastructure projects within its jurisdiction including:

- 91st Avenue improvements
- 99th Avenue improvements
- I-10 intersections signal timing improvements

Long-Term (8+ Years)

The City should focus on infrastructure projects outside its jurisdiction including:

- Buckeye Road: 107th Avenue – 75th Avenue
- 107th Avenue: Van Buren Street – Buckeye Road
- I-10 intersection on-ramp improvements

Add Projects to City Capital Improvement Plan

The City should place the recommended projects in its CIP to coordinate the timing and financing of projects. Additionally, more detailed studies may be needed to refine project recommendations. If funding is not available to implement all projects, the City should consider implementing individual solutions within projects, with a focus on higher-ranked solutions, until funding can be secured for all project components.

Apply for Grant Funding

SS4A Implementation grants provide federal funding to implement projects and strategies identified in an RSAP to address roadway safety issues. The City should apply for an SS4A Implementation grant to construct the projects recommended within the RSAP, particularly the higher-cost projects. The City should also consider federal grants such as the HSIP, SRTS, and TA funds, and state and regional funds and grants, to implement the rest of the projects.

Conduct Monitoring and Evaluation

On an annual basis, the City should review the most recent year's crash data, comparing it to trends from prior years as well as the RSAP goal of reducing fatal and serious injury crashes by 20% by 2030. Before-and-after studies should be conducted to evaluate the effectiveness of implemented safety improvements. Safety performance evaluation findings should be communicated to City staff and safety

partners, as well as the general public, either by updating the crash dashboard created for the RSAP or by posting the information on the City's website, to help the City assess if SAP updates are needed.

Introduction

Road Safety Action Plan

A Road Safety Action Plan (RSAP) is a way to prioritize safety improvements and justify future roadway investment decisions. An RSAP is a comprehensive safety plan aimed at reducing and eliminating serious injury and fatal crashes affecting all roadway users including pedestrians, bicyclists, transit riders, motorists, personal conveyance and micromobility users, and commercial vehicle operators. A formal plan helps communicate more clearly how the City of Tolleson will promote safety on local roadways and will assist in pursuing future funding opportunities.

Planning Process

The City initiated the RSAP in the summer of 2024 to upgrade evaluation tools; engage the public; collaborate with City staff from different departments; and create a transparent, comprehensive, and implementable safety plan. The planning process consisted of the following phases:

Discovery: The discovery phase included extensive data collection of traffic data, previous plans, regional and statewide safety initiatives, and understanding of the City's policies and procedures.

Safety Tools & Data Analysis: A review of 5-year crash data was used to determine the City's high-crash locations, crash types, and correlate the crash patterns with the region. A series of public engagement activities were used to better understand public concerns.

Goals & Visioning: The project team worked with various city departments and aligned with state and regional safety goals to develop an achievable safety vision for the City to adopt for the next five years and progress to Vision Zero by 2050.

Safety Strategies Development: The project team developed safety strategies following the Safe System Approach related to the 5 E's, for focus areas tailored to the needs of Tolleson's crash patterns, land uses, and vehicular mix.

Implementation of Safety Strategies: The project team developed a prioritization matrix and identified potential funding sources for implementing safety strategies. The safety strategies are categorized into short-term, mid-term, and long-term time frames.

Integration of New Strategies and Policies: Integration of the new strategies and policies includes council adoption of the new RSAP, implementation of the Safety Task Force Committee, integration of the new crash data dashboard and policies, and staff training for crash data dashboard.

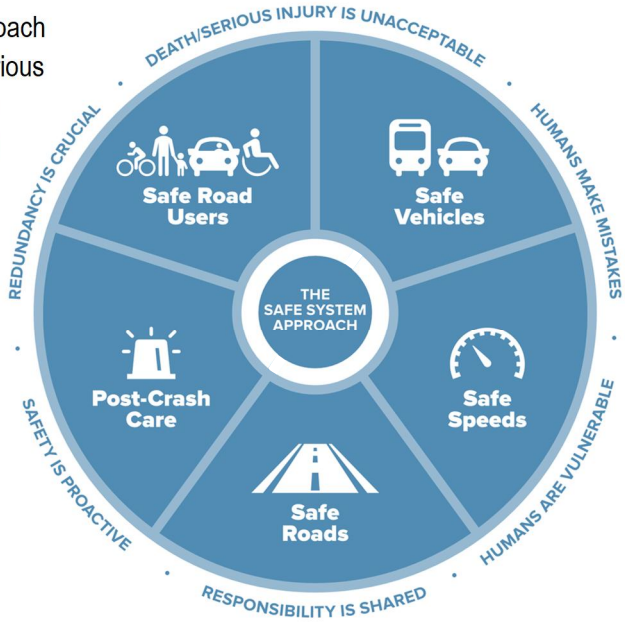
Federal Safe System Approach

When creating this RSAP, Tolleson strived to develop a plan incorporating statewide and regional safety initiatives, Vision Zero Network guidance, and federal guidance, to integrate best safety practices and programs to achieve its goal.

The Federal Highway Administration (FHWA) Safe System Approach (SSA) is a systemic approach that aims to eliminate fatal and serious injuries for all road users by acknowledging and accommodating the fact that people will make mistakes, and crashes will still occur - but they shouldn't end in life-altering tragedy. All attempts must be made to keep the impact on the human body tolerable.

The SSA program (see figure to the right) is based on a human-centric approach in transportation system design, proactively identifying and addressing risks and creating redundancies in safety measures:

- Death/Serious Injury is Unacceptable
- Humans Make Mistakes
- Humans are Vulnerable
- Responsibility is Shared
- Safety is Proactive
- Redundancy is Crucial



Source: FHWA

The five focus areas of the SSA are defined as:

Safe Road Users | Safe Vehicles | Safe Speeds | Safe Roads | Post-Crash Care

The RSAP prepares the City for funding opportunities through the Federal Infrastructure Investment and Jobs Act (IIJA) by identifying a High Injury Network (HIN), developing actionable strategies that address fatal and serious crash trends, and creating comprehensive engineering, evaluation, equitable, educational, and enforcement solutions.

The City will continue to work with the federal, state (Arizona Department of Transportation [ADOT]), regional (Maricopa Association of Governments [MAG]), and neighboring agencies to align safety plans, actions, projects, policies, and funding strategies for implementation.

Vision & Goals

Vision Zero refers to the ultimate goal of eliminating all fatalities and serious injuries on Tolleson roadways. It begins with the ethical belief that everyone—people walking, biking, taking transit, and driving—has the right to move safely in their community; no one should be killed or seriously injured in crashes on the transportation network; and all traffic deaths are preventable. A Vision Zero commitment sets measurable objectives, establishes a clear schedule and time frame, and proposes strategies to accomplish the objectives.

Vision Statement:

The City of Tolleson will strive to protect all road users by reducing fatal and serious injury crashes by 20 percent by 2030, with a long-term vision of zero such incidents by 2050.

Goals:

Below are the goals and objectives required to establish the vision statement.

Goals	Objectives
City will implement Vision Zero – all infrastructure projects and programs will have a safety component	- Establish a Safety Task Force Committee consisting of a multi-department team for the continued oversight of reducing fatal and serious injury crashes - Establish a road safety coordinator position to oversee the progress of the Road Safety Action Plan - Develop a High-Risk Network and identify potentially high-risk locations. - Maintain the safety dashboard - Recognize and celebrate road safety success stories with the community
Engage the public to foster a culture of safety on the roadways	- Educate young drivers on road safety behavior - Improve safe travel to and from school for all travel modes - Educate pedestrians, bicyclists and motorcyclists on safe road practices
Embrace 5 E's of safety (Evaluation, Engineering, Enforcement, Education, & Equity) in all City initiatives and projects	- Create an internal, cross-department task force to review crash data - Develop policies and standards to improve safety for different types of roadways (arterials, collectors, local streets, freight corridors) and intersections
Engage with the police enforcement as a major partner to improve safety	- Deploy police personnel to enforce distracted driving, driving under the influence (DUI), speeding and parking restrictions - Effective crash coding and maintenance of crash data - Quick response team
Formalize partnerships outside Tolleson to share resources, and develop safety solutions to reduce crashes in Tolleson	- Participate in periodic (semi-annual) meetings with the adjacent agencies (Phoenix, Avondale, MCDOT, ADOT) to discuss safety concerns and upcoming infrastructure projects - Participate in the joint review of the projects to ensure safety components are addressed - Participate in the State and MAG Freight Management Plans.

On June 24, 2025, the Tolleson City Council voted to commit to Vision Zero by 2050, taking measurable, practical, and effective steps toward reducing fatal and serious injury crashes by 20 percent by 2030.

The City understands and commits that transportation safety is everyone's responsibility, including the City and road users. The City is proactive in employing programs and strategies to meet the City Council's adopted goals and objectives of zero traffic deaths by 2050. With this, the City of Tolleson will join numerous cities and regions in the nation to become part of the Vision Zero Network

Tolleson Safety Committee

The technical advisory committee established for the development of this safety action plan will become the Tolleson Safety Committee, which will be responsible for executing, monitoring, and reporting the progress of this safety action plan. The committee consists of members from the following City Departments:

City Departments in the Road Safety Action Committee:	Current Members
City Manager's Office	City Manager Reyes Medrano Jr.
Government Affairs Office	Pilar Sinawi and Nico Gasca
City Development Services	Jason Earp
City Engineering and Public Works Department	Chris Hamilton and Gabriel Elias
City Police Department	Chief Rudy Mendoza
City Fire Department	Chief Michael Young

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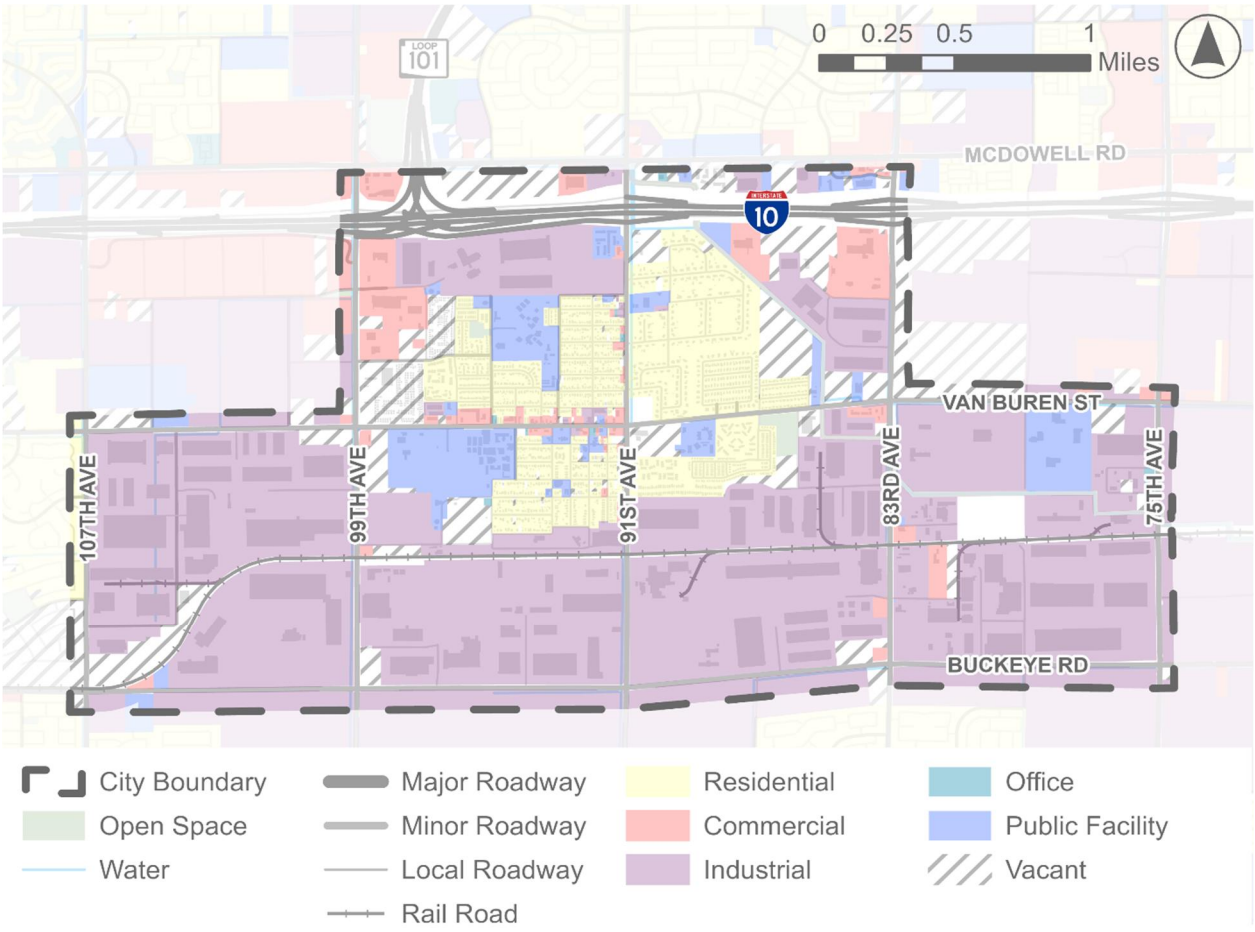
Study Area Overview

Figure 5 shows the RSAP study area, which consists of all local and arterial roadways within Tolleson. The land use mix in Tolleson consists of predominantly industrial and commercial uses and some residential. Tolleson has a large mix of warehouses and trucking industries, which results in several designated truck routes throughout the City.

Figure 5. Study Area and Land Use Map



Source: City of Tolleson

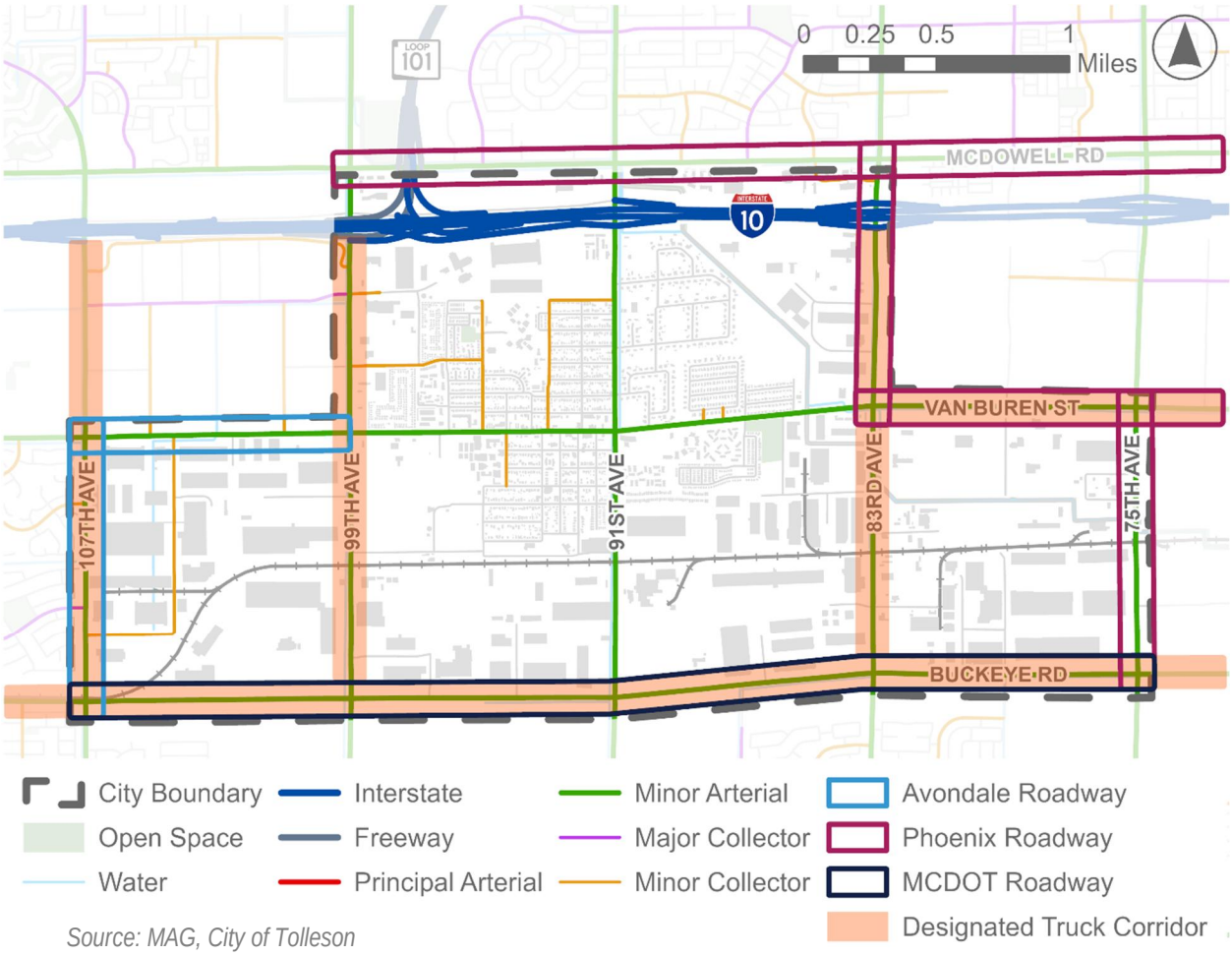
Roadway Classification

- Arterial – Roads generally intended for high volumes and speeds. Arterial roadways are consistent with the Phoenix-metro area's north-south and east-west oriented transportation grid. These roadways are typically higher-speed roadways connecting to the freeway system.
- Collector – Roads generally intended for moderate volumes and speeds. They connect arterial roadways to the local street network and are scattered throughout the study area.
- Local – These primarily serve residential areas that have low volumes and speeds.

The federal functional classification of the roads within Tolleson is shown in Figure 6. The State highways within the city limits (I-10 and Loop 101) are managed by ADOT and crashes on Loop 101 and I-10 are not included in the study. Entrance and exit ramp intersections were included in the analysis.

Tolleson has many roadways designated for truck traffic, which are also referred to as truck corridors or freight corridors and are shown in Figure 6. Although within Tolleson's jurisdiction, several roadways are owned and operated by neighboring transportation departments, such as Phoenix, Maricopa County, or Avondale; these roadways are also highlighted in Figure 6.

Figure 6. Federal Functional Classification

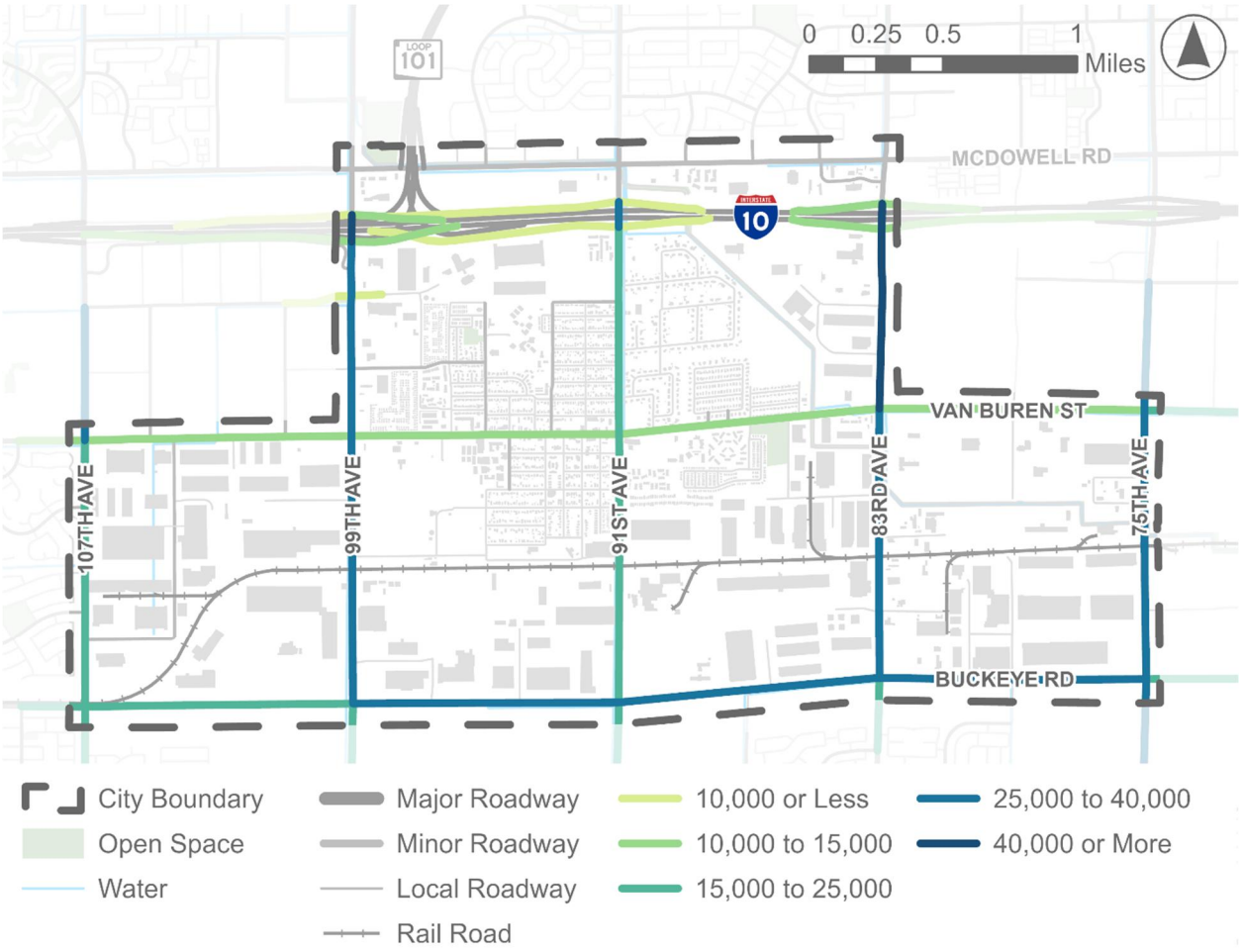


Source: MAG, City of Tolleson

Traffic Volumes

Figure 7 shows the average daily traffic as obtained from the ADOT Trafic Data Management System (TDMS). The higher volume corridors within the City are also the designated truck corridors. During the field review, it was noted that there was one truck for every four to five cars, and from the ADOT TDMS truck volumes range between 15 to 25 percent of the dailty traffic volumes on 99th Avenue, Buckeye Road, 83rd Avenue, and 75th Avenue.

Figure 7. Average Annual Daily Traffic



Source: ADOT TDMS

Equity Analysis

To develop a clear picture of the equity analysis within Tolleson, the data reviewed was done at the block level. This approach allowed for the most detailed, granular data analysis as it showed the most difference within a small study area such as Tolleson. The comprehensive equity score for the study area is shown in Figure 8 on page 23.

Methodology

In reviewing the equity data available, a comprehensive approach was taken to incorporate data from four different sources/tools focused on equity. These four sources include Justice 40, the Social Vulnerability Index (SVI), EJScreen, and a proprietary Equity Needs Analysis using Census data. Each tool uses different measurements to display equity severity. This measurement was converted to a scoring system on a 0 to 5-point scale. Once each scale was overlayed statewide, the scores were then combined to establish a 20-point scale from the four sources to create a comprehensive lens to view equity in Tolleson.

Justice 40 Designated Places

The Justice 40 Initiative originates from Executive Order 14008. It encourages federal agencies to direct at least 40 percent of benefits in climate, clean energy, and transportation areas towards underserved communities. Identification of underserved communities is done through the Climate and Economic Justice Screening Tool (CEJST) created by the White House Council on Environmental Quality (CEQ), which utilizes a variety of publicly available data to determine what makes a community underserved and which "burdens" are most common. As a required data source for the RSAP, this data was first examined and laid the foundation for the remaining three data sources. A list of the burdens from the CEJST is shown in Table 13.

Table 13. CEJST Categories of Burdens

CEJST Categories of Burdens	
Climate Change	Legacy Pollution
Energy	Transportation
Health	Waste & Wastewater
Housing	Workforce Development

Social Vulnerability Index (SVI)

The SVI is a tool used by various agencies to determine the risk and resiliency of communities in the face of disaster, ranging from natural disasters such as tornados to manmade mishaps such as chemical spills. The SVI tool was created by the Agency for Toxic Substances and Disease Registry (ATSDR), which is an agency within the Center for Disease Control (CDC). The goal of the SVI tool is to "help public health officials and emergency response planners identify and map the communities that will most likely need support before, during, and after a hazardous event." The ATSDR created the SVI through its Geospatial Research Analysis, and services Program (GRASP). To identify the SVI Score, the tool uses 16 U.S. Census variables, including age, crowding, and disabilities. The overall vulnerability is determined at the census tract level and is calculated as a percentage from zero to one, with the higher the value the higher the vulnerability. The SVI social factors are shown in Table 14.

Table 14. SVI Social Factors

Social Vulnerability Factors	
Socioeconomic Status	Racial & Ethnic Minority Status
Household Characteristics	Housing Type & Transportation

EJ Screen

Originating from the 1994 Executive Order 12898, the Environmental Justice Screening and Mapping Tool (EJScreen/EJ Mapper) was created. The order declared the Environmental Protection Agency (EPA) was tasked with determining where and what the potential for disproportionate environmental impact would be in the U.S. The updated tool provides data that was released on August 6th, 2024. There are 13 indicators and indexes that are ranked, those indicators are then counted to see how many are above the 80th percentile. The higher number of indexes above the 80th percentile, the higher the environmental impact. The 13 indicators and indexes are shown in Table 15.

Table 15. EJ Screen Indicators and Indexes

EJ Screen Indicators and Indexes	
Particulate Matter 2.5	RMP Facility Proximity
Ozone	Hazardous Waste Proximity
Diesel Particulate Matter	Underground Storage Tanks
Toxic Releases to Air	Wastewater Discharge
Traffic Proximity	Nitrogen Dioxide (NO2)
Lead Paint	Drinking Water Non-Compliance
Superfund proximity	

Census Demographics

2020 Decennial Census data and 2022 American Community Survey (ACS) data was used to analyze demographic information for the City at a block group level. The data includes population, employment, race/ethnicity, sex, income, and disability status. Table 16 shows the demographics included in the equity needs analysis.

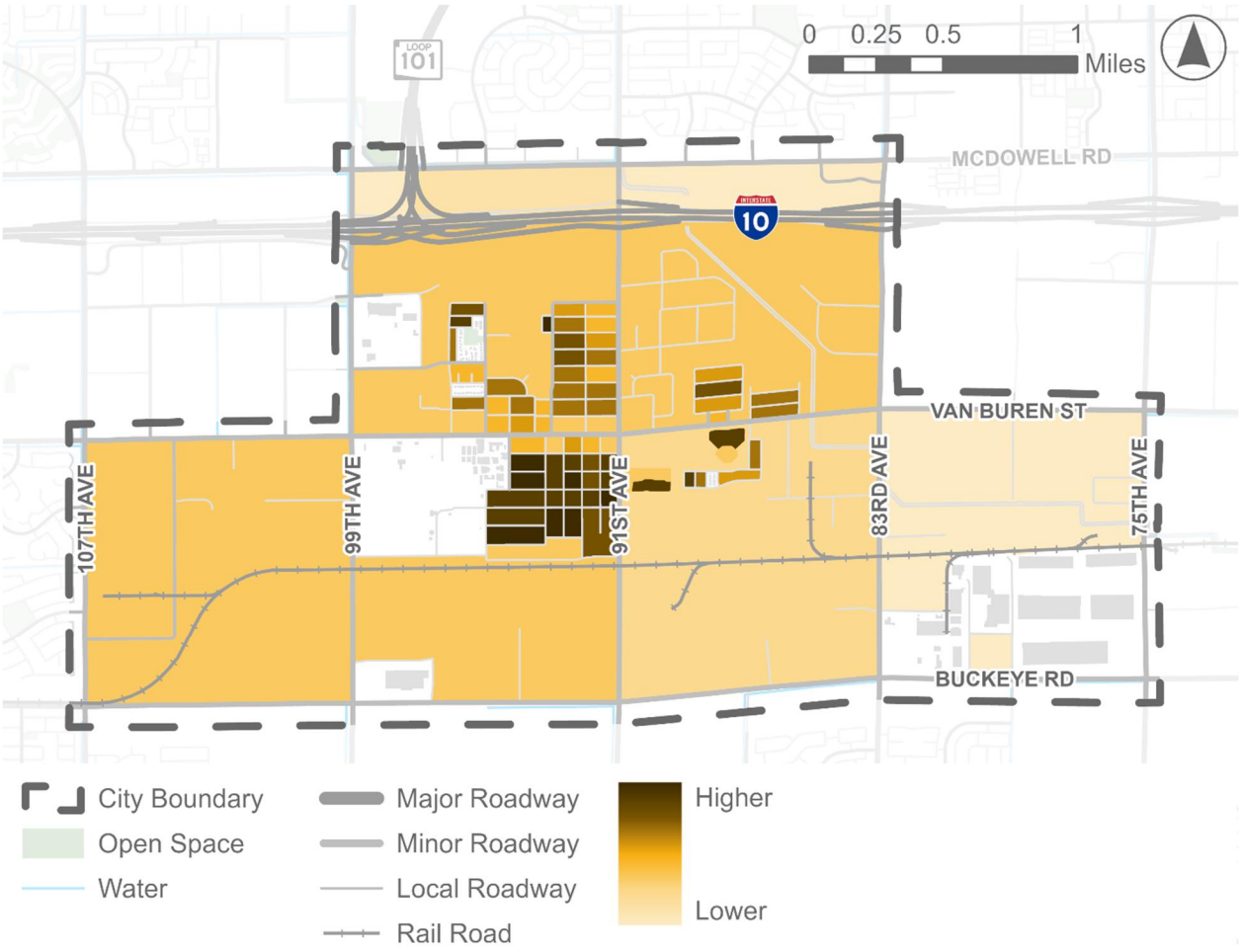
Table 16. Equity Needs Census Components

Equity Needs Census Components	
Population Density	Sex
Employment Density	Ethnicity
Foreign Born	Poverty
Race	Disability

Comprehensive Equity Score

Following the scoring of each equity dataset on a scale of 0 to 5, a combined equity score was applied to each block group to rank locations on a scale from 0 (least underserved) to 20 (most underserved). Figure 8 shows the comprehensive equity score, following the combination of the four equity sources.

Figure 8. Comprehensive Equity Score

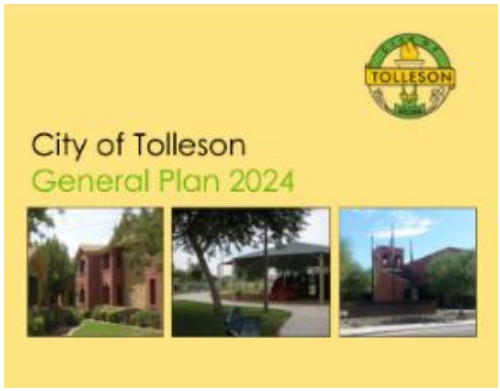


Previous and Ongoing Plan Review

A review of previous and ongoing planning efforts in Tolleson, the region, and the state provides a baseline understanding of relevant safety planning, analysis, and goals.

City of Tolleson General Plan 2024 (2014)

This General Plan provides the City with a guiding document. The plan has a variety of goals, policies, and strategies that address topics on healthy communities, walkable land use patterns, and sustainability. Within the transportation section, the plan covers the existing conditions of their roadway and the regional transit networks. Many of the policies mentioned in the section have a focus on promoting a variety of travel choices including expanding the bicycle and sidewalk networks and offering more transit services. This RSAP reviewed these policies to help understand where the City wants to focus when it comes to future development.



The General Plan established a vision for the City of Tolleson based on public input at meetings, events, and through a community survey. Tolleson citizens envision a city with the following attributes (bolded attributes are related to transportation facilities):

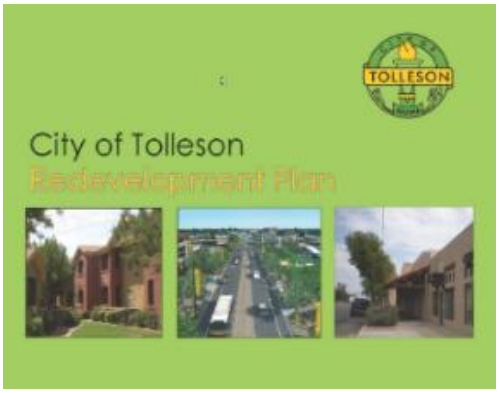
- A healthy balance of residential, commercial, and recreational land uses
- *A safe, efficient, and accessible transportation system*
- Quality housing for diverse family types and income levels
- Economic prosperity through a variety of small businesses
- Healthy lifestyles through a range of programs, policies, and facilities
- Conservation of natural resources
- Leadership in energy, air and water quality, and green building standards
- *A safe and friendly community*
- Continued growth and development

Below are the Transportation Goals and Strategies adopted in the General Plan:

Goal 1: Maintain and enhance streets to retain the "small town" character of Tolleson
Goal 2: Improve vehicular mobility
Goal 3: Promote travel choices

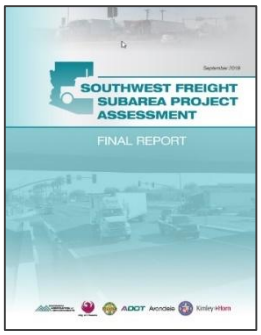
City of Tolleson Redevelopment Plan (2014)

The Redevelopment Plan was prepared in conjunction with the General Plan 2024. This plan provides a deeper focus on the City's core area with specific attention to housing and commercial developments. Within these areas there are different goals and strategies to address safety and connectedness ranging from increasing shade opportunities for pedestrians and bicyclists to developing an alley development program that helps connect pedestrians and bicyclists throughout the City and provides a buffer between residential housing and commercial building. Below are transportation related Goals and Strategies in the Redevelopment Plan:



- *Improve streetscapes and street layouts.*
- *Make Van Buren Street an attraction to residents, tourists, and businesses*
- *Improve connectivity in Tolleson through Van Buren Street.*

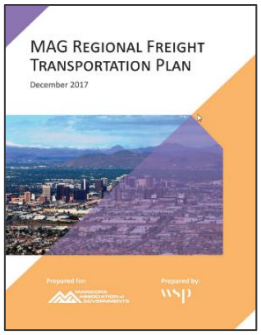
MAG Southwest Freight Subarea Project Assessment (2019)



This assessment is a follow up document to the MAG Freight Transportation Plan. The assessment looks primarily at the area southwest of Phoenix, including the freight routes that intersect with Tolleson. The following recommendations are within the City of Tolleson and helped guide the development of recommendations in the RSAP:

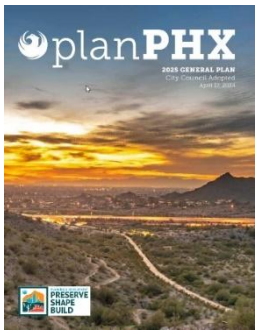
- 83rd Ave at I-10 TI Improvements
- 99th Ave at I-10 TI Improvements
- Van Buren Street Improvements from 75th Avenue to 91st Avenue
- 75th Avenue at Van Buren Street Intersection Improvements
- 75th Avenue at Buckeye Rd/MC 85 Intersection Improvements
- 107th Avenue at Van Buren Street Intersection Improvements

MAG Regional Freight Transportation Plan (2017)



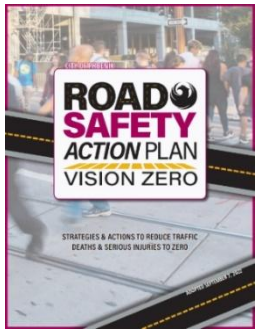
This plan reviews the freight transportation network throughout Maricopa County and analyzes freight traffic flows, and freight activity. The plan assesses the status of the freight network against established goals to determine development needs. Tolleson's roadway network has several important freight lines that run along the border and through the City itself. For this reason, the assessment from this plan provided examples of freight-related policy and goals for the City.

PlanPHX 2025 General Plan Update (2024)



The General Plan was developed with goals and policies built around the City of Phoenix's vision for their development. Several goals focused on connecting people and developing networks within the City and with the surrounding municipalities. This plan is the most recent general plan for Phoenix and provides a high-level overview of the villages including Estrella and Maryvale. Since the City of Phoenix acts as the border with the City of Tolleson on several of its sides, policies, goals, and proposed projects from the City of Phoenix have the potential to impact the City of Tolleson. The City of Phoenix also acts as an example for any new policy recommendations with the shared roadway network that the two cities have.

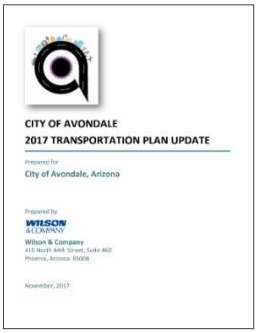
Phoenix Road Safety Action Plan (2022)



The Phoenix RSAP is a plan with the goal of reducing the number of fatal and serious injury crashes to zero in a collection of cities. It looks at crash incident data and compares Phoenix to other cities that have taken up the goal of Vision Zero. The plan has links to other documents that have recommendations for policies and strategies to make roadways safer. These recommendations can help guide the City to match closely with their neighboring city, Phoenix.

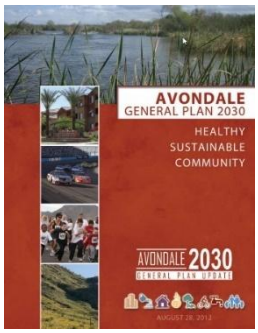
Avondale Transportation Plan Update (2017)

The Transportation Plan examines the transportation infrastructure for the City of Avondale and provides recommendations for improvements. It provides recommended projects for roadways within Avondale, several of which are shared borders with Tolleson, and others are improvements that will increase the number of vehicles that the road can accommodate. These new improvements could increase the number of vehicles that are traveling into or through Tolleson.



Avondale General Plan 2030 (2012)

The Avondale General Plan 2030 was developed in 2012. Acting as a guide for Avondale, there are projected development plans and strategies to accompany their growth. Since Avondale borders Tolleson to the west, there are policies and strategies that should be considered when examining the future projections of development. Also, because I-10 is a primary travel route for Avondale, there are strategies and policies that are focused along this route and found at the Tolleson border. Development along the western border of Tolleson could lead to an increased number of vehicles passing through the Tolleson moving along the arterials and the freeway.

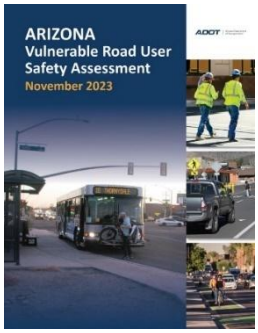


ADOT SHSP and ATSAP (2024)

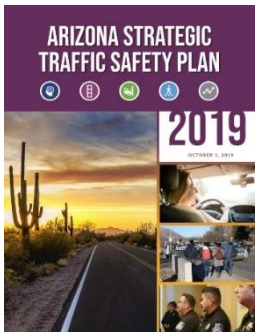
ADOT developed its Strategic Highway Safety Plan (SHSP) and Active Transportation Safety Action Plan (ATSAP) simultaneously in 2024. The SHSP, which is an update to the 2019 Strategic Traffic Safety Plan (STSP), identified emphasis areas to guide the planning effort, including human behavior, lane departure, intersections, vulnerable road users, and tribal lands. The identified emphasis areas will guide the recommendations and projects developed in the SHSP. The ATSAP developed priority segments and intersections for active transportation improvements and recommended projects.

ADOT Vulnerable Road User Safety Assessment (2023)

ADOT's Vulnerable Road User Safety Assessment (VRUSA) is an assessment required by FHWA for inclusion in the SHSP that focuses on vulnerable road users (VRUs) in Arizona. The term VRU refers to pedestrians, bicyclists, and others walking on the road such as construction workers and first responders. The study evaluated historical safety trends for crashes involving VRUs, VRU activity, equity, and stakeholder input to develop strategies and programs to improve the safety of VRUs in Arizona. This assessment has developed the VRUSA's VRU Safety Countermeasure Selection Matrix Tool which provides optimal strategies to implement based on three overarching categories. The tool identifies countermeasures by type, cost, and Safe System Approach effectiveness criteria. Although the City of Tolleson was not identified as a high priority VRU safety improvement area, the Tolleson RSAP should reference the Countermeasure Selection Matrix.



ADOT Strategic Traffic Safety Plan (2019)



The STSP is a statewide coordinated policy-based framework aimed to reduce serious injuries and fatalities on public roads. Within the plan the following five emphasis areas were highlighted: Highway Safety (behavior-related), Intersections, Lane Departures, Pedestrians and Safety-Related Data. Although there are no location-specific recommendations, the STSP's overall analysis and recommendations apply as it is a statewide effort. These identified emphasis areas can be used statewide, including in Tolleson. Planning around these five emphasis areas allows the City to provide a safe roadway network for both pedestrians and vehicle users.

Safety Performance Analysis

This section presents the safety analysis conducted for the RSAP. The safety performance analysis was designed to provide insight into identifying a high-crash network and a high-risk network.

Tolleson Crash Trends

The safety performance for the City from 2019 through 2023 is summarized below. Figure 9 shows the number of total crashes by year, which has remained consistent. The total crashes ranged from 413 in 2020 to 573 in 2021. Figure 10 shows the total fatal and serious injury crashes ranging from a low of 12 in 2019 to a high of 18 in 2021. As shown in Figure 11, fatal crashes and serious injury crashes make up nine percent of all injury crashes. *A total of 72 fatal and serious injury crashes were recorded from 2019 through 2023.*

Figure 9. Crashes by Year - All Crashes

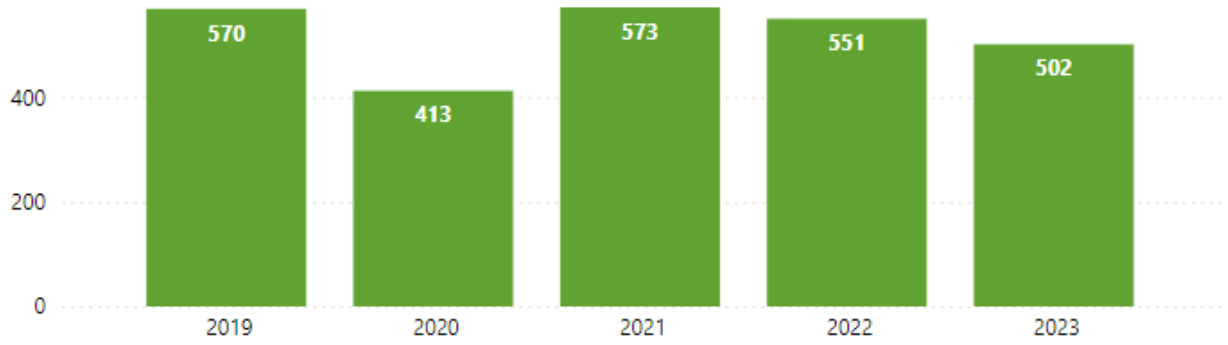


Figure 10. Fatal and Serious Injury Crashes

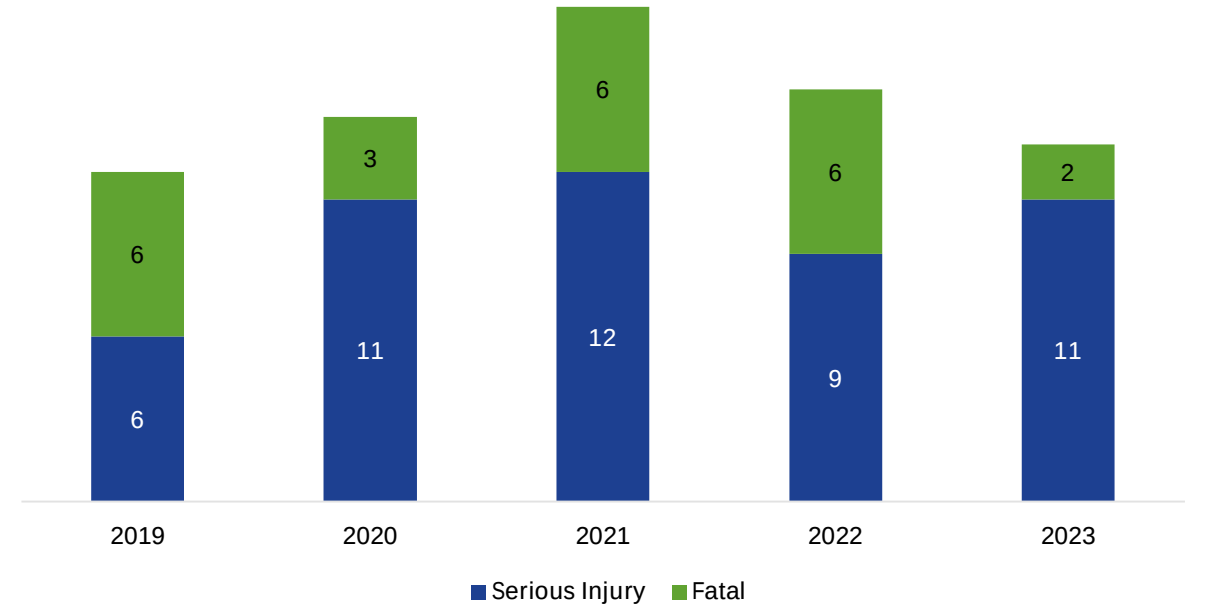


Figure 11. Injury Severity for All Crashes

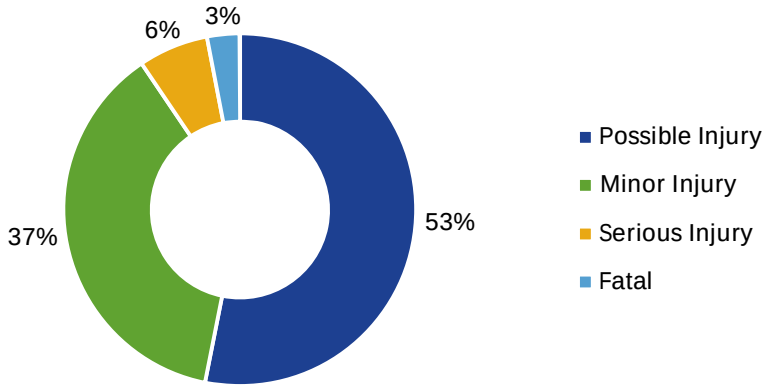


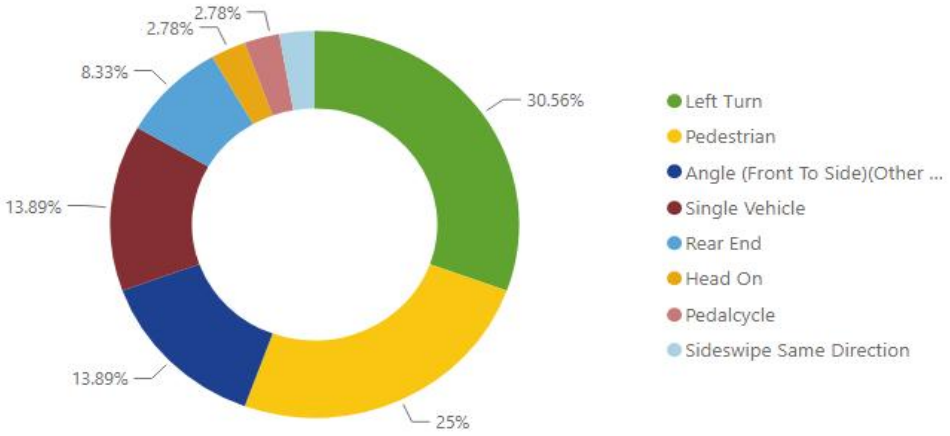
Table 17 shows the manner of collisions for all crashes in Tolleson between 2019 and 2023. The most common manners of collision were rear end, left-turn, sideswipe, and angle crashes.

Table 17. Manner of Collision for All Crashes

Collision Manner	Percentage of Total
Angle (Front to Side)	13%
Head On	2%
Left Turn	23%
Rear End	33%
Sideswipe	16%
Single Vehicle	6%
Other	5%

Figure 12 shows the distribution of fatal and serious injury crashes in Tolleson between 2019 and 2023 by collision manner. Approximately 31 percent (11 crashes) of fatal or serious injury crashes were left turn crashes and 28 percent (10 crashes) were pedestrian or bicycle crashes. Four fatal and serious injury crashes involved motorcycles.

Figure 12. Fatal and Serious Injury Crashes by Collision Manner



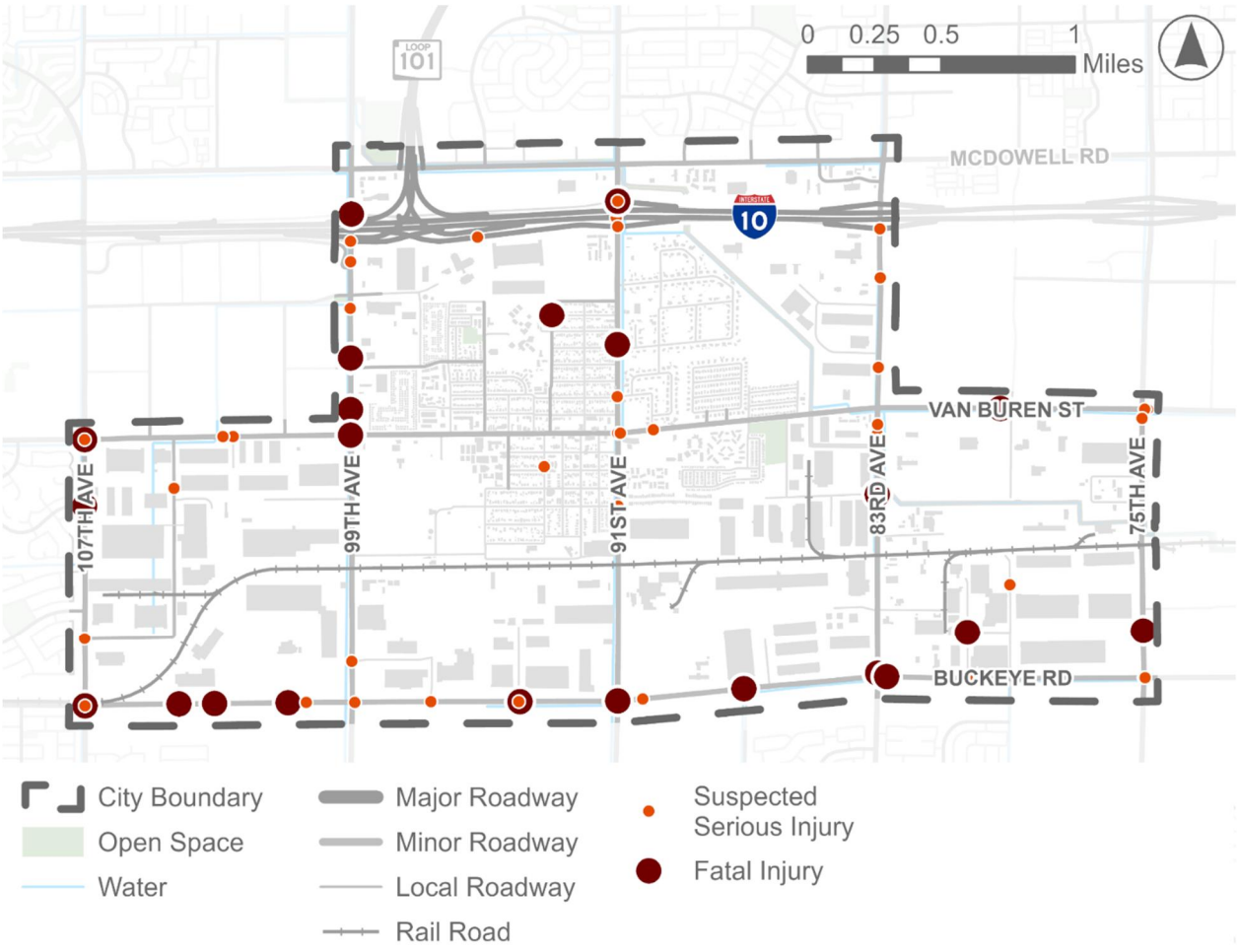
Crash Density and Severity

Figure 13 shows the crash density for all crashes in the study area between 2019 and 2023. Crash concentrations generally correspond with intersections.

Figure 13. Crash Density Map

Figure 14 shows the locations of the fatal and serious injury crashes in Tolleson between 2019 and 2023. Buckeye Road and 99th Avenue had the most fatal crashes within the timeframe

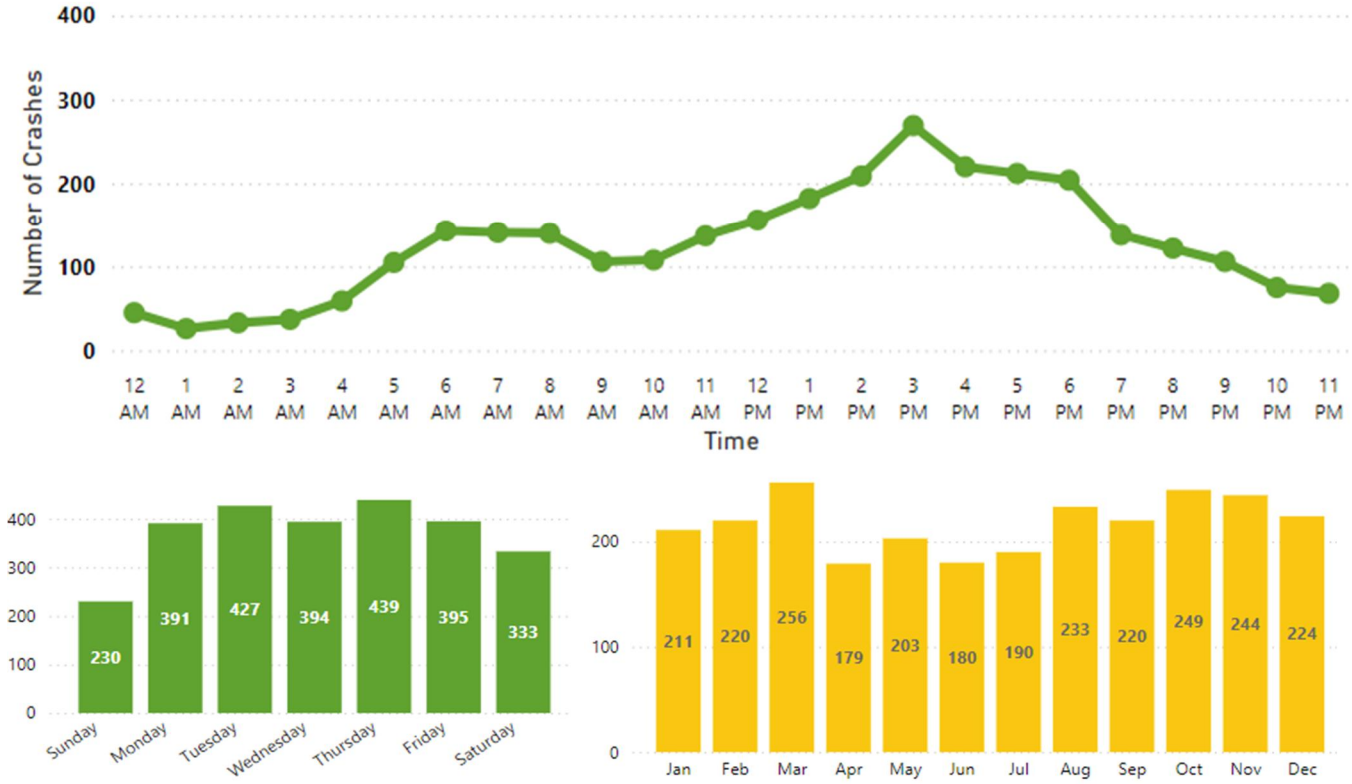
Figure 14. Crash Severity Map



Time of Day Crash Trends

Figure 15 shows time of day distribution of crashes, the day of week, and month of year distribution for all crashes in Tolleson between 2019 and 2023.

Figure 15. Crash Trend by Time of Day, Day of Week and Month of Year



Vulnerable Road Users

Crashes involving VRUs (pedestrians and bicyclists) in Tolleson from 2019 through 2023 are summarized below. All 37 pedestrian and bicycle involved crashes resulted in injury. Typically, a non-injury pedestrian and bicycle crash is not reported since the damage value is less than $1,000. A total of 11 fatal pedestrian and bicycle crashes were recorded in the five-year study period. Figure 16 shows the pedestrian and bicyclist crashes by year, which peaked at a combined total of 11 in 2021.Fatal crashes make up 30 percent of crashes involving pedestrians and bicyclists. Figure 17 shows the pedestrian and bicyclist crashes in the study area.

Figure 16. Vulnerable Road User Crashes Summary

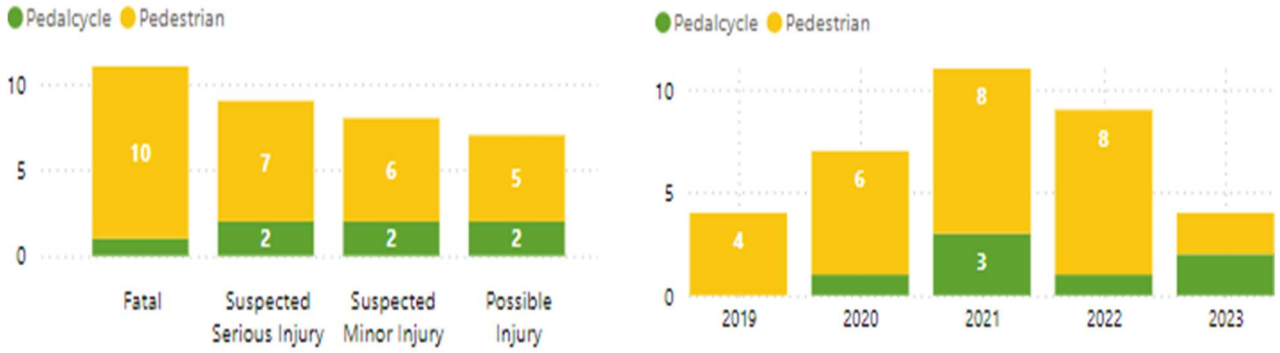
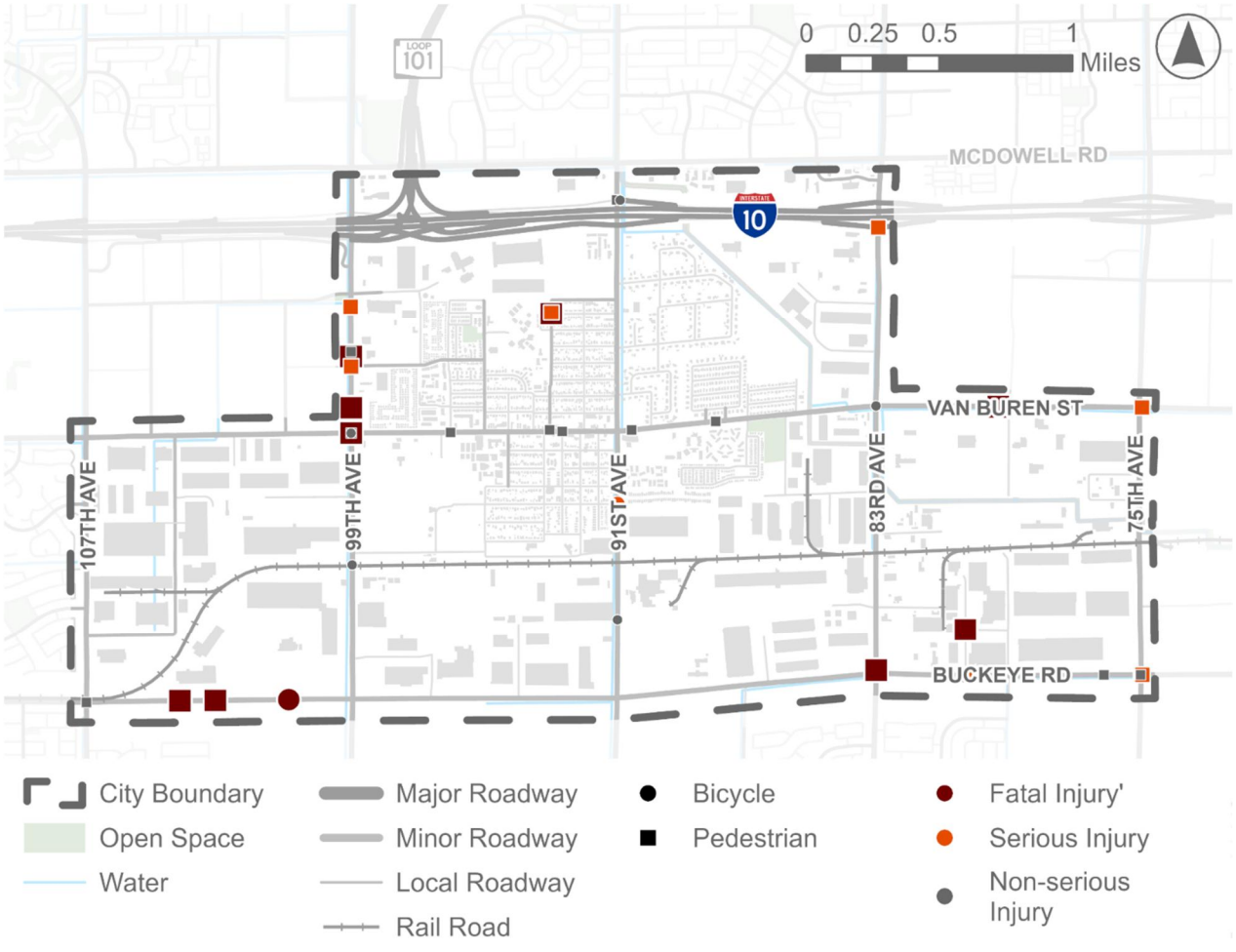


Figure 17. Pedestrian and Bicyclist Fatal and Serious Injury Crashes Map

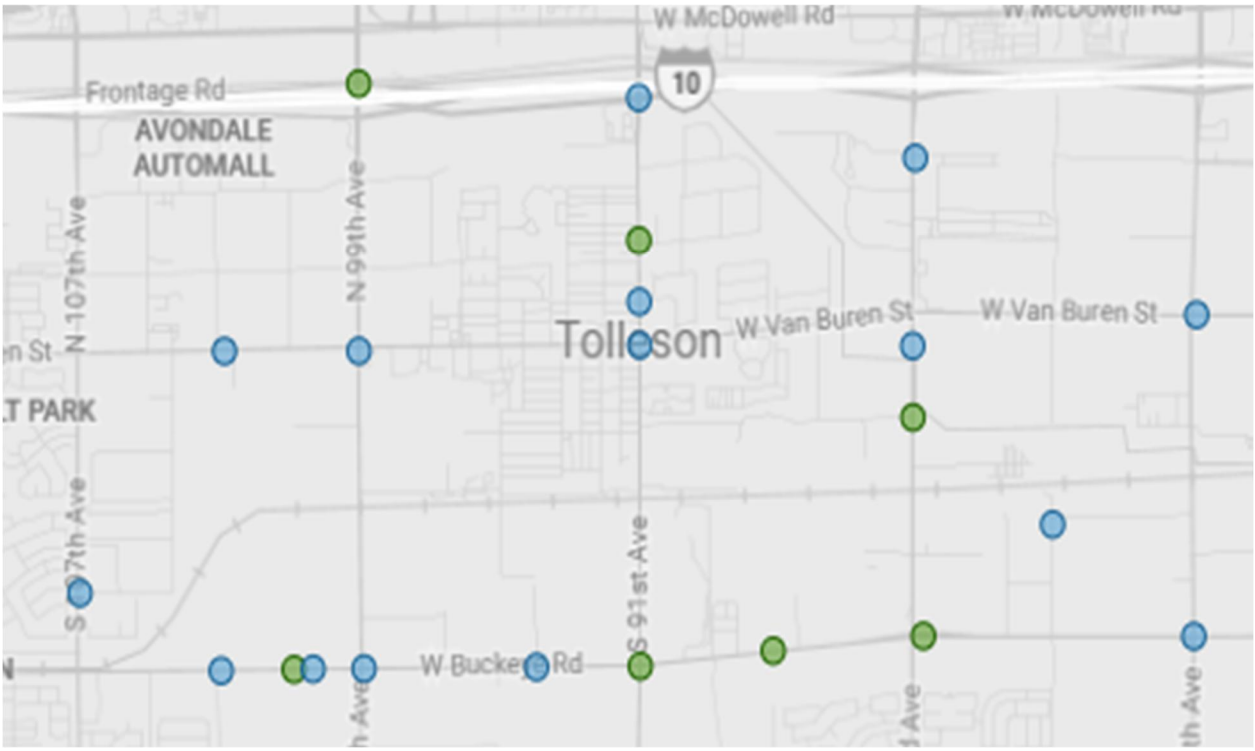


Tolleson Specific Observations

Younger Driver (Age 16-25) Involved Crashes

Approximately 10 fatal and serious injury crashes involved a younger driver aged between 16 and 25, and approximately 400 crashes involved younger drivers. This pattern of younger driver crashes is higher than the state and regional averages. Figure 18 illustrates the locations of these fatal and serious injury crashes. Predominantly, these were either rear-end or left-turn type of crashes.

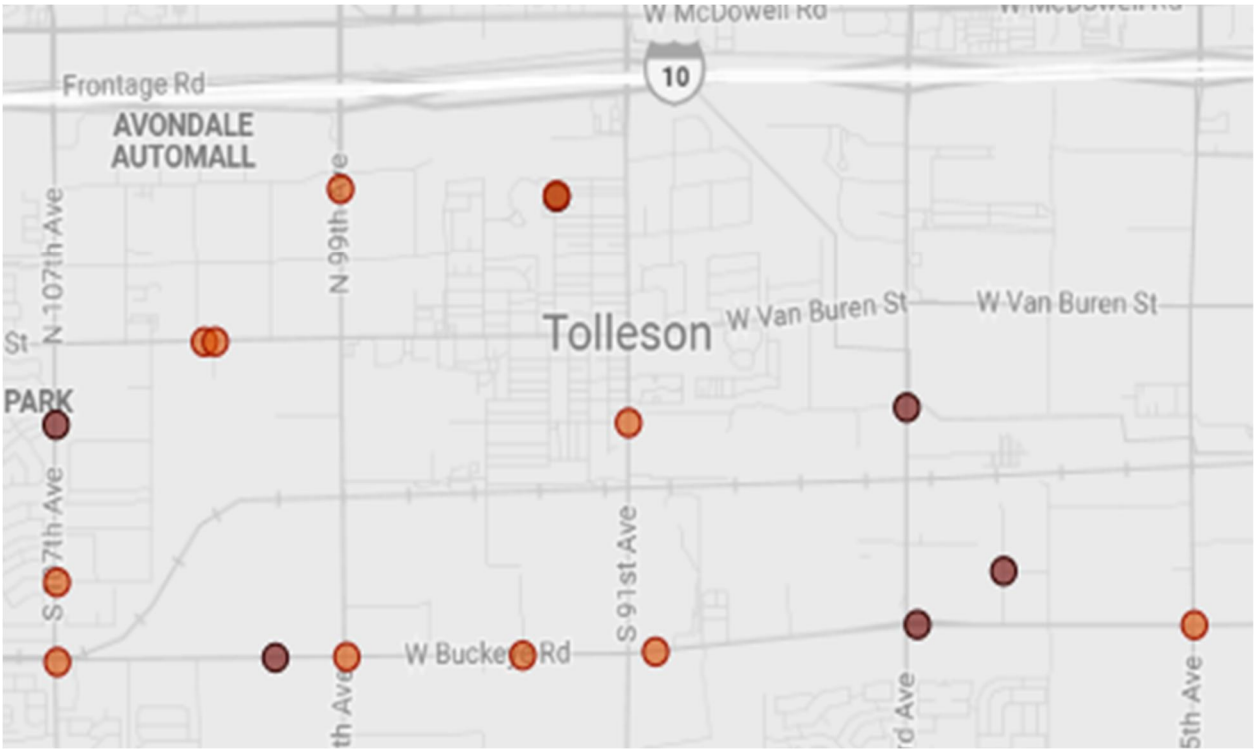
Figure 18. Younger Drivers Involved Fatal or Serious Injury Crashes (2019 and 2023)



Truck-Related Crashes

One of the major land uses in Tolleson is large-scale industrial warehouses. This attracts many trucks and freight that travel through the designated City corridors. Approximately 17 fatal and serious injury crashes involved freight vehicles. Figure 19 shows the location of truck-related crashes in Tolleson between 2019 and 2023.

Figure 19. Freight Truck-Related Crashes between 2019 and 2023



Severe Injury Crash

Fatal Crash

Crash Coding

While reviewing the crash data obtained from ADOT, several crashes were wrongly reported/coded. Many sideswipes, and pedestrian or bicycle crashes were coded as angle crashes. These errors were manually filtered and corrected for this analysis; however, erroneous coding of vehicle type was not corrected as there were no means to verify the data. Figure 19, on page 22, shows several truck-related crashes in neighborhoods, and it is expected that pick-up truck-related crashes were wrongly coded as semi-truck-related crashes. Since there is no means to verify this data, these crashes were not revised or corrected.

Secondly, several pedestrian-related serious injury and fatal crashes were not coded correctly, and only a small amount of information was available from the crash database. Actual crash reports are needed to understand the primary cause of these crashes.

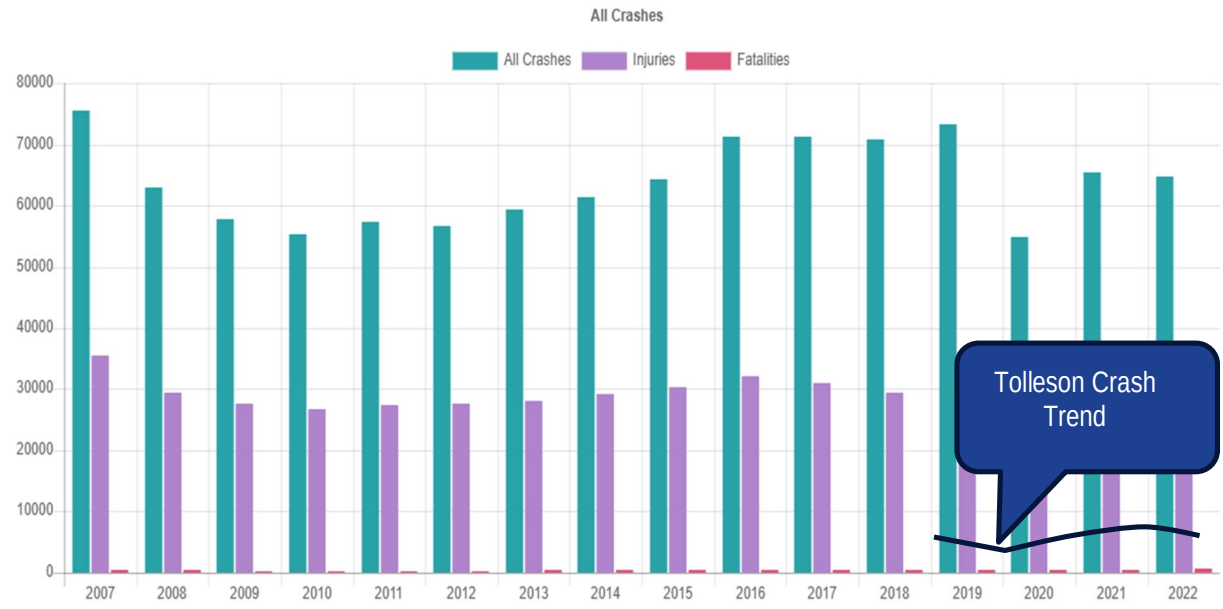
Lastly, the crashes in Tolleson are coded by many police departments, such as the Phoenix Police Department, the Maricopa County Sheriff's Office, and the Tolleson Police Department (PD). While an attempt was made to segregate the crashes by roadways within and outside Tolleson, several crashes on Van Buren Street near 91st Street, although within Tolleson, were wrongly coded as outside Tolleson. This is because these crashes were coded by a police department other than the Tolleson PD. Although this has a minor impact on the crash data analysis, in the future, coding officers should ensure that the right jurisdiction is identified in the crash database.

Regional and Statewide Safety Initiatives

MAG Area Comparison

MAG has compiled crash data for the region from 2007 through 2022. MAG data from 2019 through 2022 shows similar crash trends to those in Tolleson. Figure 20 shows the comparison of total crashes in the MAG region and the Tolleson crash trend line during the five-year study period (2019-2022).

Figure 20. Comparison of MAG Area Crash Trends with Tolleson Crash Trend



MAG has identified the intersection of I-10 at 99th Avenue as one of the top 100 high-crash risk intersections. This intersection was also identified under the network screening method applied for this RSAP as one of the priority intersections. However, this intersection is owned by ADOT, so Tolleson must collaborate with ADOT to implement the countermeasures identified for this location.

MAG has assisted local agencies with acquiring local, state and federal funds and has developed and released several road safety programs. These funding options and resources are available for the City to apply for funding for evaluation, design, and deployment, and adoption and implementation within its jurisdiction.

In review of the MAG *Regional Freight Transportation Plan* and the *Southwest Freight Subarea Project Assessment* Report, there have been roads within the City of Tolleson limits identified as truck routes by other jurisdictions. The MAG *Regional Freight Transportation Plan* has a map and ranking system that identified six roads that are within Tolleson.

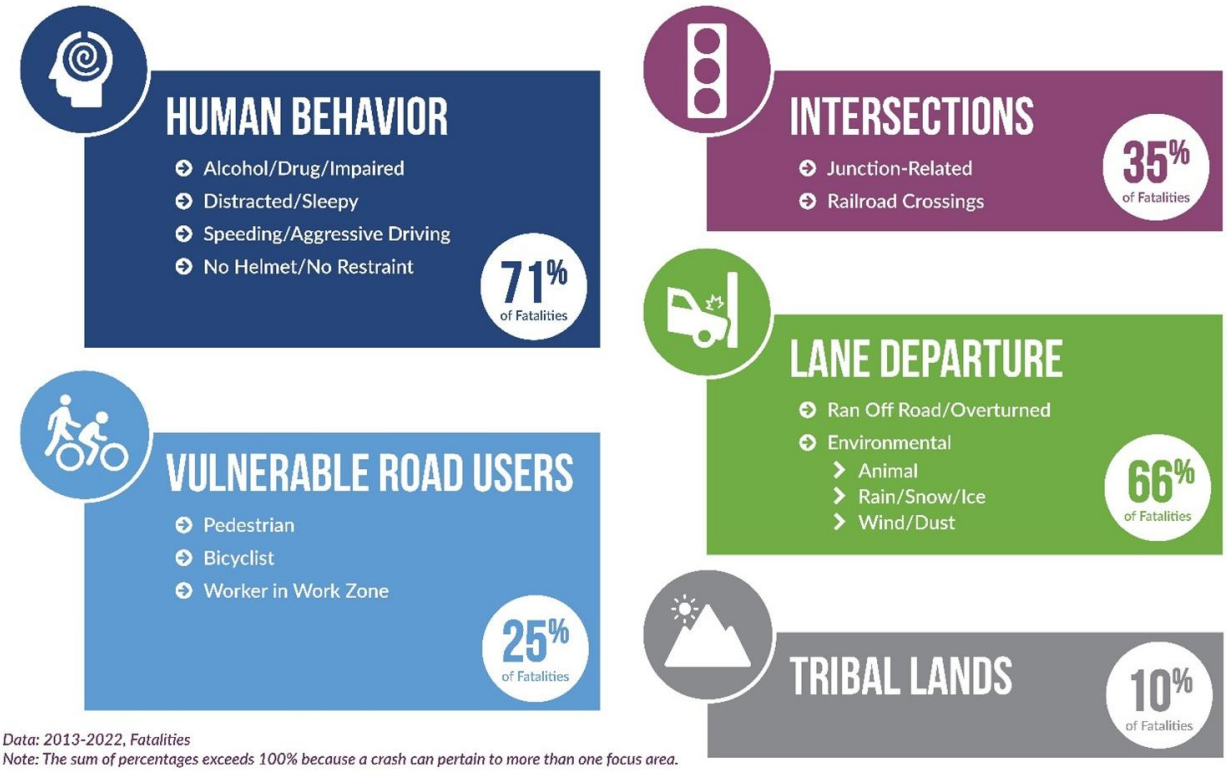
- 107th Ave
- 99th Ave
- 83rd Ave
- Buckeye Rd
- Van Buren St
- Interstate 10

Only one road from this list was ranked in this plan. Van Buren Street from 83rd Ave to 75th Ave was scored according to the four goals that the plan laid out. These goals were System Preservation and Safety, Access and Mobility, Sustaining the Environment, and Accountability and Planning. Each goal was scored on a scale of 1 to 9 based on its criteria, and the scores were averaged across the board. The Van Buren Street scored a 5.4 with getting a 1 in goals 1 and 4 and a 9 in goals 2 and 3. This score was amongst the highest in the plan.

ADOT SHSP Safety Emphasis Area Comparison

ADOT completed the Strategic Highway Safety Plan (SHSP) in 2024 and this study established five safety emphasis areas for Arizona: human behavior, vulnerable road users, intersections, lane departure, and tribal lands (as shown in Figure 21). All of these emphasis areas apply to Tolleson except the tribal lands emphasis area. Safety strategies identified to mitigate crashes in these emphasis areas can be reviewed while developing countermeasures for the City.

Figure 21. Statewide Fatalities by SHSP Safety Emphasis Area



Tolleson Fatal Crashes by SHSP Safety Emphasis Area

Fatal crashes in Tolleson were organized by each SHSP safety emphasis area to identify if local safety trends mirror statewide trends. Table 18 shows the fatal crashes by safety emphasis area (the tribal lands emphasis area was excluded due to no tribal lands existing within the City). Like statewide trends, the human behavior-related emphasis area accounted for the highest percentage of fatal crashes in Tolleson. The intersection emphasis area-related crashes accounted for the second highest percentage of fatal crashes in Tolleson.

Table 18. Fatal Crashes in Tolleson by SHSP Safety Emphasis Area

Safety Emphasis Area	Tolleson (%) of Fatalities	Statewide % of Fatalities
Human Behavior	69%	71%
Lane Departure	14%	66%
Vulnerable Road Users	28%	25%
Intersections	44%	35%

ADOT VRUSA CRASH LIGHTING CONDITION COMPARISON

ADOT's VRUSA identified statewide historical safety trends for crashes involving VRUs. One notable finding was that statewide, 67 percent of pedestrian fatalities and serious injuries occurred at night, as shown in Figure 22. By comparison, Figure 23 shows 55 percent of pedestrian crashes occurred at night in the Tolleson study area.

Figure 22. Arizona Pedestrian Serious Injuries and Fatalities by Lighting Condition

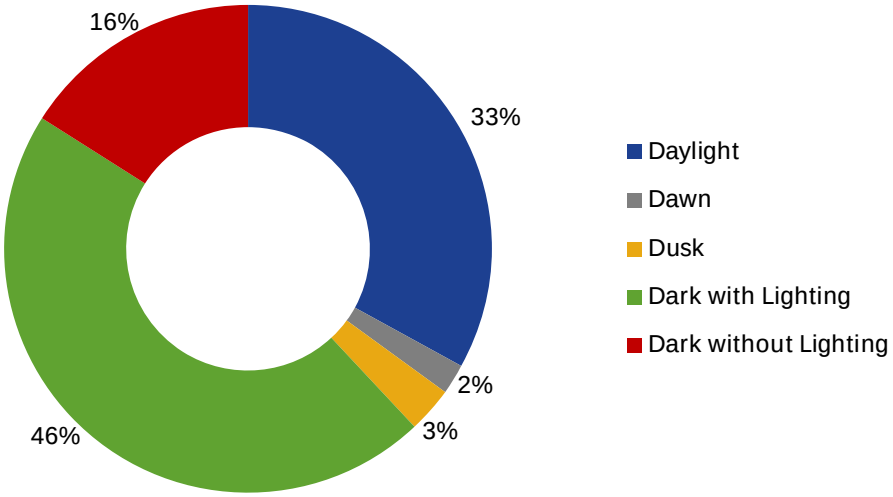
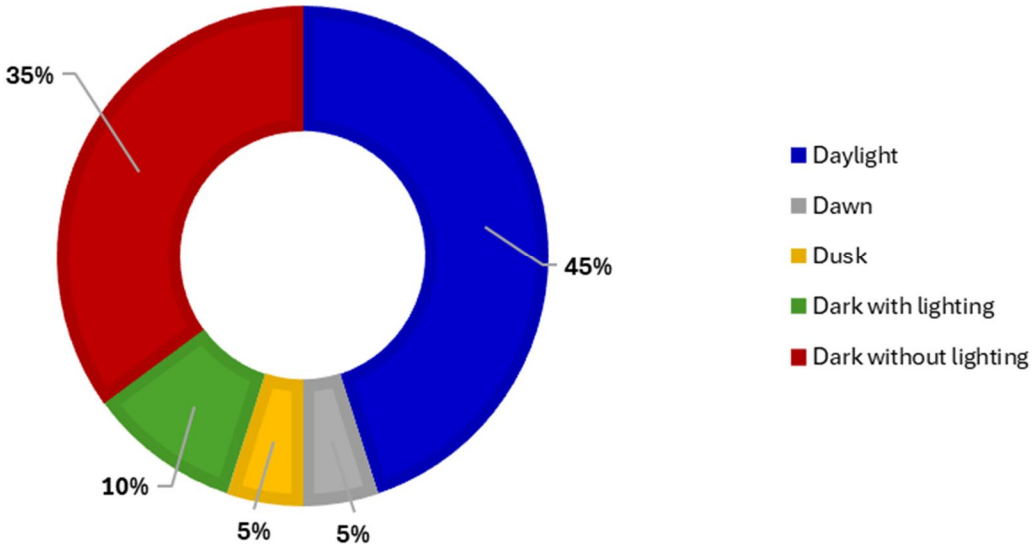


Figure 23. Tolleson Pedestrian Serious Injuries and Fatalities by Lighting Condition



Regional, State, and Federal Safety Initiatives

MAG Safety Programs Initiatives:

- Left-turn Crash Mitigation Implementation Template and Guidance: MAG developed this guidance document to address fatal and serious injuries crashes at intersections related to creating positive offsets at left-turn lanes.
- See Me AZ Program: MAG's Pedestrian and Bicycle Safety Education and Enforcement program provides regional resources for improving pedestrian and bicyclist safety in the region.
- Road Safety Program (RSP): The MAG RSP was initiated in September 2019 by MAG to supplement the state's Highway Safety Improvement Program (HSIP). The RSP assists with providing additional funding in the short term. MAG will facilitate a Highway User Revenue Fund (HURF) swap and regional safety program that can improve the safety conditions of our roadways in all areas, from rural to dense urban. MAG developed this program to address these critical regional funding needs in the near term. Although this program did sunset, a similar program is anticipated through the new Prop 479 funds.
- Local Agency Safety Studies (LASS): This program provides member agencies the opportunity to submit candidate projects for inclusion in the LASS Program. Applications may be submitted for Road Safety Assessments (RSAs), Design Phase RSAs, or other studies at high-priority crash locations or corridors to identify appropriate countermeasures for prioritization and implementation.
    - RSA Program: Assist agencies in developing a proactive approach to improving road safety through a formal examination of a particular intersection or a corridor from a road safety viewpoint.

Federal Initiatives Locally Administered through MAG and ADOT:

- Safe Routes to School Program: Safe Routes to School (SRTS) provides resources, including evaluation and recommendations, to create a safe walking and biking path to school. This program offers schools and municipalities the opportunity to administer SRTS initiatives and activities
- Highway Safety Improvement Program: HSIP was introduced through federal surface transportation legislation, first in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for User (SAFETEA-LU) and now identified in IIJA. It specifically focuses on improving road safety. This program has been administered and managed by ADOT.
- Transportation Alternatives Program: The Transportation Alternatives (TA) program under the Surface Transportation Block Grant (STBG) Program provides funding for various transportation projects aimed at improving pedestrian and bicycle facilities, community improvements such as historic preservation and recreational trails, SRTS projects, and vulnerable road user safety assessments. This program has been administered and managed by ADOT.

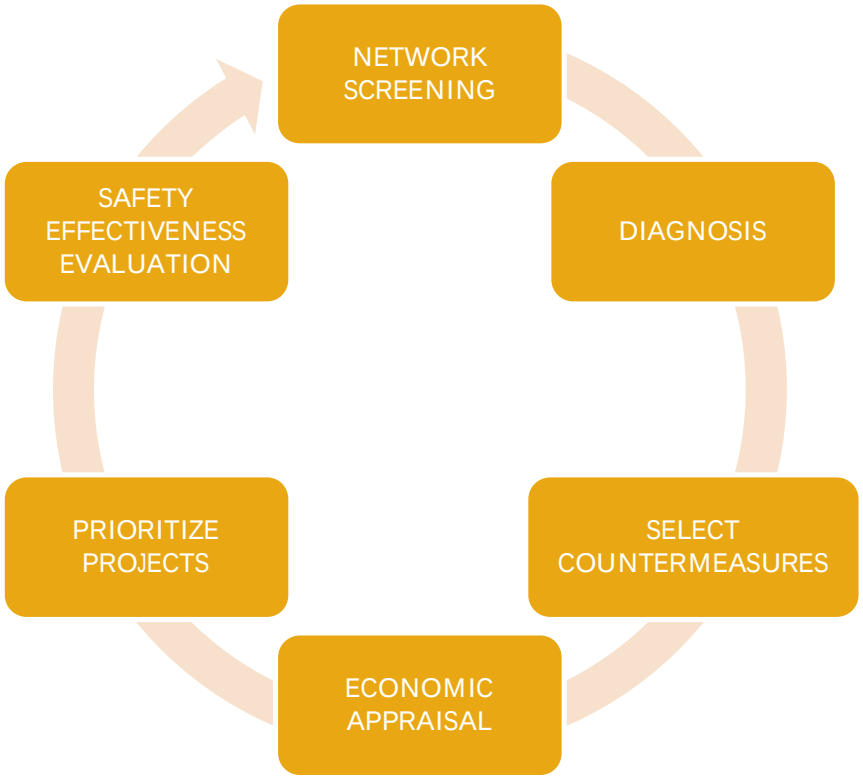
Programs Administered by FHWA

SS4A Grant Program: The IIJA established the SS4A competitive grant program with $5 billion in appropriated funds over 5 years (2022-2026). The SS4A program funds regional, local, and Tribal initiatives through grants to prevent roadway fatalities and serious injuries. Almost $2 billion is still available for future funding rounds. The SS4A program supports the USDOT's National Roadway Safety Strategy and our goal of zero roadway deaths using the SSA.

Network Screening Analysis

The *Highway Safety Manual (HSM), Volume 1 Part B, Roadway Safety Management* outlines the process that agencies should use to review crash frequency and severity on the existing roadway network. The Roadway Safety Management Process is shown in Figure 24. Network screening is the first step in the Roadway Safety Management Process.

Figure 24. Highway Safety Manual Roadway Safety Management Process



The network screening process identifies and ranks locations, from most likely to least likely, by calculating a crash frequency reduction with the implementation of countermeasures. Locations identified as most likely to have a crash frequency reduction should be studied in detail to understand trends in crash patterns, contributing factors, and identify appropriate countermeasures. For this RSAP, the network screening steps included:

- Determine the crash frequency and a list of the intersections and segments with the highest crash frequencies
- Calculate individual crash rates for each roadway and intersection and list the intersections and segments with the highest crash rate
- Compare the tables with high crash frequency with high crash rate and develop a composite table with high priority locations using the network screening methodology adopted by the MAG
- Determine typical crash patterns for each location where there are an unusual number of specific crash types occurring
- Determine the high injury network and develop the countermeasure for the specific crash type at each location, intersection or segment

Crash Rates and Frequency

Crash rates were developed based on FHWA guidance. Crash rates were developed for segments and intersections along the classified roadway network in Tolleson. The following formula was used to calculate crash rates:

$$R = \frac{1{,}000{,}000\ x\ C}{365\ x\ N\ x\ VxL}$$

Where:

- R = Crash rate for the intersection or segment expressed as crashes per million entering vehicles (MEV)
- C = Total number of crashes in the study period
- N = Number of years of data
- V = Traffic volume entering the intersection or on the segment daily
- L = Length of the segment. This was not applied to intersections

Volumes for calculating the crash rate were obtained from the ADOT TDMS. Figure 25 shows the crash rates for road segments and intersections. The highest intersection crash rates are located at the traffic interchanges with I-10 at 83rd Avenue, 91st Avenue, and 99th Avenue. The intersection of 107th Avenue and Buckeye Road was also high. High crash rate segments include portions of 83rd Avenue, 91st Avenue, 99th Avenue, Van Buren Street, and several entrance and exit ramps.

Figure 26 shows crash frequency at intersections and on segments. Per the information in Figure 26, 83rd Avenue has the highest number of crashes, followed by portions of 91st and 99th Avenue. Reviewing the number of crashes at a given location aids understanding the cost to society incurred at a location but does not provide a complete indication of the level of risk for those who use that roadway segment or intersection. The crash rate analysis method includes a statistical review of locations to determine where risk is higher than that at other locations. It is also the first step in analyzing patterns that may suggest systemic issues that can be addressed at a specific location.

A composite review of the crash rate and crash frequency was used to determine critical intersections and corridors for the City. The results of this analysis are summarized in Table 19 identifying the high priority roadway segments and intersections in Tolleson.

Table 19. High Priority Locations

Segments	Intersections
75th Avenue, Buckeye Road and Van Buren Street	Buckeye Road and 75th Avenue
83rd Avenue, Buckeye Road and I-10	Buckeye Road and 83rd Avenue
91st Avenue, Buckeye Road and Van Buren Street	Buckeye Road and 91st Avenue
99th Avenue, Buckeye Road and Van Buren Street	Buckeye Road and 99th Avenue
Buckeye Road, 83rd Avenue and 99th Avenue	Buckeye Road and 107th Avenue
	Van Buren Street and 75th Avenue
	Van Buren Street and 83rd Avenue
	Van Buren Street and 99th Avenue
	All I-10 ramps

Figure 25. Segment and Intersection Crash Rate

Crash Rates are reflective of crashes per million vehicles

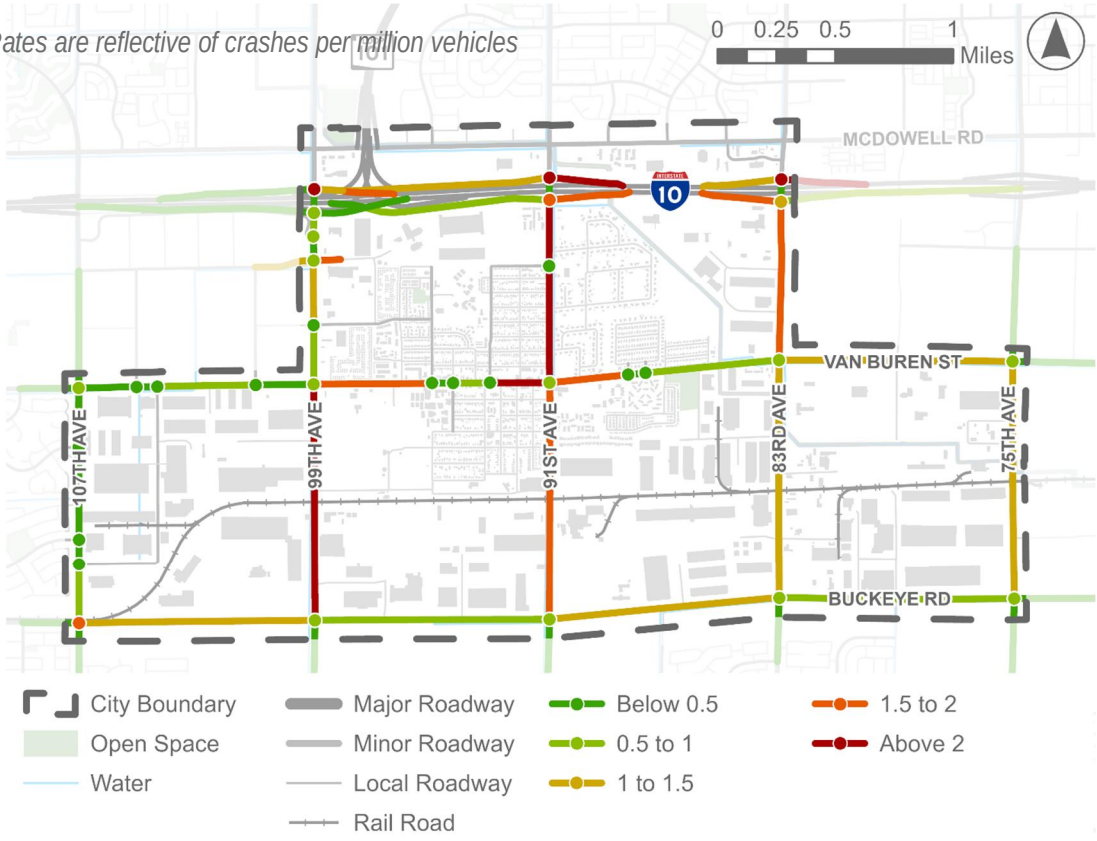
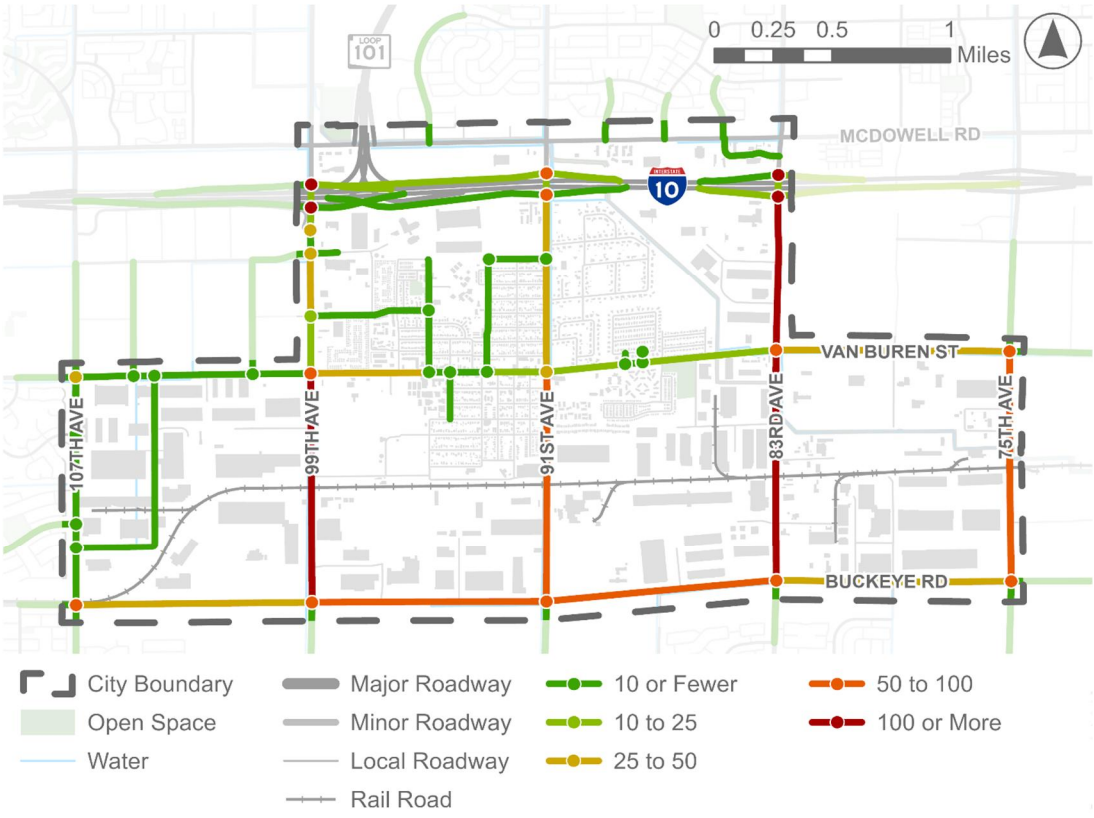


Figure 26. Segment and Intersection Crash Frequency



High Injury Locations

The RSAP requires identification of a high-injury network or high-injury locations. For this purpose, the high-priority locations were reviewed against locations with fatal or serious injury crashes. Figure 27 shows the locations of serious and fatal injury crashes in Tolleson. This process removed the locations with high frequency of non-injury crashes and helped focus on locations with injury and fatal crashes only. Table 20 lists out the high injury segments and intersections in Tolleson.

Figure 27. Fatal and Serious Crash Locations

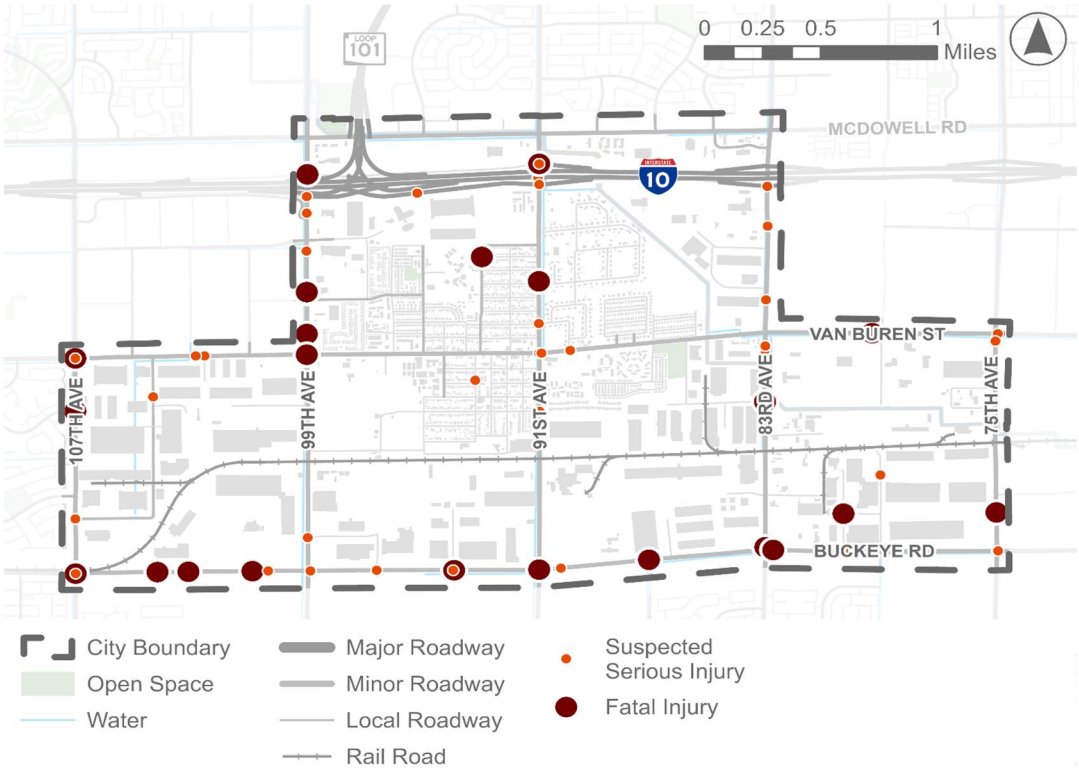


Table 20. High Injury Locations

Segments	Intersections
Buckeye Road, 75th Avenue to 107th Avenue	Buckeye Road and 83rd Avenue
99th Avenue, Van Buren Street to I-10	Buckeye Road and 91st Avenue
91st Avenue, Van Buren Street to I-10	Buckeye Road and 107th Avenue
83rd Avenue, Jefferson to I-10	Pierce Street and 99th Avenue
93rd Avenue, North of Van Buren Street	Van Buren Street at 99th Avenue
80th Avenue, North of Buckeye Rd	Van Buren Street at 91st Avenue
	Van Buren Street at 107th Avenue
	I-10 Ramps at 91st Avenue, and 99th Avenue

Jurisdictional Boundaries and Roadway Ownership

As previously discussed, several roadways such as Buckeye Road, portions of 83rd Avenue, and 107th Avenue are within Tolleson's jurisdiction, but are owned by MCDOT, Phoenix, and Avondale respectively. Although some of these segments are identified as high injury corridors, segments, or intersections, Tolleson will have to work with the owning agency to implement the countermeasures identified for these roadways. Table 21 summarizes the High Injury Locations that Tolleson needs to coordinate with other agencies to implement. Although countermeasures are identified for these locations, no priorities are identified for these locations. Table 22 list the locations and segments that the City can implement within its jurisdiction.

Table 21. High Injury Locations with Roadway Ownership by other Agencies

Segments	Intersections
Buckeye Road, 75th Avenue to 107th Avenue	Buckeye Road and 83rd Avenue
83rd Avenue, Van Buren Street to I-10	Buckeye Road and 91st Avenue
	Buckeye Road and 107th Avenue
	Van Buren Street at 107th Avenue

Table 22. High Injury Locations within Tolleson Jurisdiction

Segments	Intersections
99th Avenue, Van Buren Street to I-10	Pierce Street and 99th Avenue
91st Avenue, Van Buren Street to I-10	Van Buren Street and 99th Avenue
93rd Avenue, North of Van Buren Street	Van Buren Street at 91st Avenue
80th Avenue, North of Buckeye Road	
83rd Avenue, Jefferson St to Van Buren Street	

Public and Stakeholder Involvement

The project team conducted significant public outreach and stakeholder outreach to seek input on potential strategies and focus areas for safety improvements. Public outreach included an online survey and pop-up events. Stakeholder outreach included organizing a Technical Advisory Committee (TAC) with regular meetings and a safety summit.

Online Survey

The project team created an online survey for respondents to help identify transportation safety issues and priorities and influence the development of recommendations for the RSAP. The survey was available in English and Spanish. The survey had 52 unique responses with input generally applying to one or more of the following common themes:

- Respondents largely use their personal vehicles, but would like to walk/run/bike more often
- Intersections or general areas where people feel unsafe include:
    - Roundabout at 99th Avenue and Lower Buckeye Road
    - 91st Avenue and Van Buren Street
- The City should prioritize the following characteristics when identifying project areas for improvement:
    - Locations with high numbers of crashes
    - Locations with high traffic volumes
    - Areas around schools
- Respondents would like to see a reduction in fatal and serious injury crashes
- Distracted driving and high vehicle speeds are the top safety concerns

Pop-Up Events

To obtain a more equitable range of input, the project team hosted three pop-up events throughout the community. The pop-up events were located at the City's Trick or Treat event, the Senior Center, and the Teen Council.

Trick or Treat

On October 18, 2024, the project team attended the City's Trick or Treat event located at The PLACE (Paseo de Luces Arts Center of Entertainment). The project team distributed the survey and spoke with patrons of the event about how they would like to see the transportation network improve throughout Tolleson. A fluent Spanish-speaker was on site to provide translation services.

Senior Center

On November 7, 2024, the project team presented an overview of the RSAP process at the Senior Center, obtained direct feedback from the public, and distributed surveys to the attendees.

Teen Council

The Teen Council consists of 7th grade to 12th grade students who are enrolled within the Tolleson School Districts. The Teen Council meets on the first and third Wednesday of each month. On November 20, 2024, the project team presented an overview of the RSAP to the Teen Council and distributed surveys to the attendees.

Stakeholder Engagement

Technical Advisory Committee

A TAC was organized to guide the development of the RSAP. The TAC met bi-monthly to discuss the project progress and consisted of representatives from the following agencies:

- City Staff
- Tolleson Police Department
- Tolleson Fire Department

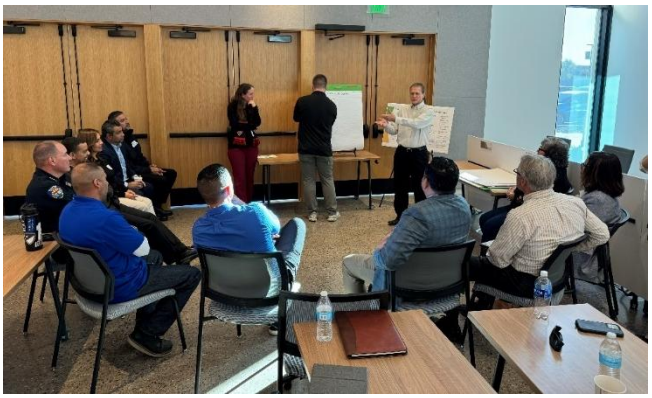
The roles and responsibilities of the TAC were to:

- Attend TAC meetings
- Confirm project scope and schedule
- Help address challenges and remove barriers to improving safety
- Review project progress
- Be a safety advocate

Safety Summit

On November 13, 2024, the project team held a Safety Summit for stakeholders to brainstorm potential solutions to increase safety in the transportation network. The attendees included representatives from the following groups:

- TAC
- School District Officials
- City Management Group
- City Public Relations Group
- Law Enforcement
- Emergency Services
- FHWA
- MAG
- MCDOT
- City of Avondale
- City of Phoenix



The attendees brainstormed potential solutions in four focus areas: neighborhood, pedestrian, and bicycle safety; intersections; freight and truck movement; and roadway segments. Ideas were written down and voted on by the attendees. Table 23 shows the top priority solutions identified.

Table 23. Safety Summit High-Priority Solutions Summary

Neighborhood, Pedestrian, and Bicycle Safety	Intersections	Freight and Truck Movement	Roadway Segments
Protected "left-only" turns	Conflicting movement mitigation	Improved pavement markings & signage	Trailing left turn arrows and pavement conditions
Education – all levels	Confusion on speed limits and separate users	Education and commercial driver license (CDL) training	Truck restrictions
Enhanced enforcement at specific times of day	Signal coordination	Targeted education	Roundabouts
Consistent roadway design	Signal phasing wiring, EMS pre-emption, and coordination across jurisdiction signals	Enhanced enforcement	Educational campaign and distracted drivers
Increased visibility/lighting	More crossings in strategic locations	Freeway access management	Social media type information
Raised speed tables	Community Bridges Inc. (CBI) concerns	Study freight movement to target strategies	Refresh pavement markings
Lights on bikes	School crossing at 93rd Street	Lower truck speed limit and truck lanes	Targeted enforcement
Photo enforcement	Railings along segments to separate users	Parking enforcement	Improve signal timing & detection
	Combine EMS forces	Towing & recovery support	Advanced closure & taper, TIM training, ATSSA training, and enforcement

A second Safety Summit was held virtually on February 27, 2025. This meeting was held to establish the Vision and Goals of the RSAP and discuss safety strategies and policies that require commitments from the different departments within Tolleson. The attendees included:

- TAC
- School District Officials
- City Management Group
- Law Enforcement
- Emergency Services

The meeting attendees accepted the safety Vision, goals, objectives, and evaluation matrix presented, which are included in the final recommendations of this RSAP.

A third Safety Summit was held virtually on April 9, 2025. This meeting discussed the safety strategies and projects developed through the RSAP and how they need to be coordinated with the adjacent agencies for Implementation. The attendees of this meeting were:

- City Engineering
- MCDOT Staff
- Avondale Staff
- Phoenix Staff

This meeting aimed to develop a strategy and synergy between the agencies to initiate coordination and discussion on all infrastructure in and around Tolleson, which will directly and indirectly impact traffic safety in Tolleson. Some of the highlights of this meeting included:

- The City is to lead a semi-annual Safety Coalition meeting with Phoenix, MCDOT, and Avondale to discuss infrastructure projects along the roadways that border Tolleson
- The City will be included as one of the project reviewers and may request necessary safety improvements (if not included in the project scope) for these infrastructure projects
- Partner agencies acknowledge that they will coordinate with Tolleson as a joint request on any systemic safety improvement funding, such as 3" retro-reflective tape for all signal heads or one signal head per lane for Freight Corridors
- Partner agencies acknowledge coordinating with the City to develop uniform speed limits along Buckeye Road, 83rd Avenue, and 107th Avenue
- Partner agencies to work with MAG and ADOT to develop safety strategies for Freight Corridors

Safety Strategies

Many factors contribute to safe mobility within a region, including roadway design, travel speeds, vehicle mix, land uses, enforcement, behaviors, technology, and policies. To deploy a successful plan, it is imperative to approve a group of actionable strategies that, over time, will achieve the shared goal of zero fatalities and serious injuries that encompass the five E's. The review of crash data and further public input led to the identification of three emphasis areas and four focus areas where implementation of safety strategies is anticipated to have the highest impact on reducing traffic fatalities and serious injuries.

EMPHASIS AREA

General Strategies - Develop a safety culture and practice within the City

Human Behavior Strategies - Use of Education and Enforcement to inculcate safety behavior related to:

a. Young Drivers, Pedestrians, Bicyclists, Motorcyclists, Freight Drivers

b. Neighborhood and School Zone Safety

Infrastructure Strategies - Use of Engineering and Evaluation methods to identify infrastructure improvements to address:

a. Vulnerable Road Users: Pedestrian, Bicycle, Motorcycle

b. Diverse Vehicular Mix in Tolleson

Safety projects for the infrastructure emphasis areas are specifically applied to develop countermeasures for the following four focus groups, developed based on the crash patterns identified in Tolleson:

1. Active Transportation (Pedestrian and Bicyclist Movements)
2. Freight Travel
3. Major Intersections
4. Roadway Segments

Within each emphasis area, objectives provide distinct guidance on what needs to be accomplished. Each objective has time-bound performance metrics to measure success throughout the implementation of this RSAP. Performance metrics will track and evaluate either programmatic metrics, an increase/decrease in a given metric, or the installation/improvement of infrastructure.

Table 24 and Table 25 shows the general and human behavior policies and strategies recommended for this RSAP, respectively. Table 26 shows recommended studies and practices to reduce fatal and serious injury crashes. The infrastructure strategies and projects are covered in the next section.

Table 24. Planned and Recommended General Strategies for Tolleson RSAP

Objectives/ Strategy No.	Strategies	5 E's Addressed					Application of the Strategy	Departments Involved
		Evaluation	Engineering	Enforcement	Education	Equity	Systemic, Specific Location, or Programmatic	
Objective: Establish foundational elements of Safety First, with an ultimate Vision Zero goal, including a timeline & goals for implementation & evaluation								
GN 01	Implement a Safety Task Force Committee consisting of a multi-department team for continued oversight of reducing KSI crashes *Timeline: October 2025*	☑	☑	☑	☑	☑	Programmatic	Engineering, PD, City Management Education, Public Relations, Maintenance, Planning & Development Services
GN 02	Create a Road Safety status report on objectives, updated every year-end and published in Spring *Timeline: Fall 2026*	☑	☑	☑	☑	☑	Programmatic	
Objective: Reduce crash risk on roadways by creating a culture of road safety within the city								
GN 03	Integrate safety review in the development of capital improvement plan (CIP) projects & private development projects *Timeline: July 2025 and continuous*	☑	☑			☑	Programmatic	Engineering
GN 04	Establish a new City Road Safety Coordinator to oversee all the actions in this RSAP *Timeline: December 2025 and continuous*	☑					Programmatic	Engineering/Public Relations
GN 05	Implement a smaller emergency response crew and vehicles for response to neighborhood crashes *Timeline: July 2027*			☑			Programmatic	PD/Fire

GN 06	Conduct monthly enforcement for speeding, illegal on-street truck parking, Alcohol and drug *Timeline: July 2025 and continuous every quarter*			☑			Programmatic	PD
Objective: Reduce crash risk on roadways by enhancing safety data collection & evaluation								
GN 07	Create a road safety crash dashboard available to all departments of the City to analyze, identify, and rank high crash locations and develop countermeasures *Timeline: July 2025 and annual update July each year*	☑	☑	☑	☑	☑	Programmatic	Engineering, PD, Education , Public Relations
GN 08	Create a crash data coding training program and train first responders on appropriate crash data coding *Timeline: July 2027 and annual refresher course*	☑			☑		Programmatic	PD
GN 09	Integrate crash data from Tolleson PD / ADOT *Timeline: July 2025 and continuous every six months*	☑					Programmatic	PD
GN 10	Conduct before/after evaluations for previously implemented safety projects, including enforcement projects *Timeline: July 2027 and annual update*	☑	☑				Programmatic	Engineering, PD

Table 25. Planned and Recommended Strategies Involving Human Behavior Change to Reduce Fatal and Serious Injury Crashes

Objectives/ Strategy No.	Strategies	5 E's Addressed					Application of the Strategy	Departments Involved
		Evaluation	Engineering	Enforcement	Education	Equity	Systemic, Specific Location, Programmatic	
Objective: Reduce crashes involving young drivers through behavioral changes								
BR 01	Establish transportation safety education programs as part of the high school curriculum. Conduct at least one road safety education program per year for young drivers (High school students) *Timeline: Starting from the 2026-2027 academic year and maintaining an annual program*				☑	☑	Programmatic	Engineering, PD, Education
BE 02	Expand transportation safety enforcement near high school areas. *Timeline: Starting from the 2026-2027 academic year and quarterly enforcement*			☑			Programmatic	PD
Objective: Reduce crashes involving pedestrians, bicycles and motorcycles through behavioral changes								
BR 03	Establish transportation safety education media campaigns focusing on pedestrians/bicyclists/ motorcycle users Timeline: One in Spring and the second in Fall				☑	☑	Programmatic	Public Relations
BR 04	Develop a transportation safety education program for student pedestrian & bicyclist education, safety, and awareness efforts, focusing on elementary and middle school students *Timeline: Starting from the 2026-2027 academic year and maintaining an annual program*				☑	☑	Programmatic	Engineering, Education, Public Relations

Objective: Reduce crashes related to impaired driving (drugs and alcohol), speeding, distracted driving and aggressive driving								
BR 05	Expand DUI, speeding, distracted, and aggressive driving behavior enforcement through the use of high-visibility enforcement techniques, saturation patrols, and integrated enforcement tactics. *Timeline: Fall 2025 and quarterly enforcement*			☑			Programmatic	PD/Engineering
BR 06	Develop roadway safety awareness and education campaigns for people driving vehicles, in concert with enforcement efforts, to specifically target change in road user behavior related to speeding, red-light running, distracted driving, and aggressive driving *Timeline: Fall 2026 and semi-annual media outreach*		☑	☑	☑	☑	Programmatic	PD, Public Relations

Table 26. Planned and Recommended Strategies/Policies to Reduce Fatal and Serious Injury Crashes through New Studies, Practices, and Policies

Objectives/ Strategy No.	Strategies	5 E's Addressed					Application of the Strategy	Departments Involved
		Evaluation	Engineering	Enforcement	Education	Equity		
Objective: Develop safety projects through studies								
Study 01	Conduct Safe Routes to School Study for all schools in the City. *Timeline: School year 2025-2026*	☑	☑	☑	☑	☑	School Zones (All schools in Tolleson)	Engineering
Study 02	Conduct Road Safety Audits (RSA) for high-injury locations. *Timeline: Annual review and one project per year*	☑	☑				High Crash Locations	Engineering, PD
Study 03	Partner with ADOT, MAG, and regional partners in the upcoming freight study to develop policies and standards for freight corridors *Timeline: Project anticipated to begin in fall 2025*	☑	☑			☑	Programmatic	Engineering
Study 04	Evaluate and implement uniform travel speed along the freight corridor *Timeline: Study Fall 2025, annual review, one corridor per year*		☑				Systemic	Engineering
Objective: Develop new standards, visualizing through the safety lens								
Policy 01	Develop roadway cross-sections for each roadway type within the City, defining spaces for each mode of transport. *Timeline: Next General Plan update*	☑	☑			☑	Programmatic	Engineering
Policy 02	Develop a Neighborhood Traffic Calming Toolbox and implement one project each year. *Timeline: Next update on City Standards and Policies*		☑		☑	☑	Neighborhood Roadways & Intersections	Engineering

Policy 03	Develop and implement design standards for driveway and intersection design to accommodate trucks *Timeline: Next General Plan update*		☑				Programmatic	Engineering
Policy 04	Develop signal design standards: - Install one signal head per lane - 3" retro-reflective tape. *Timeline: Next update on City Standards and Policies*		☑				Freight Corridors and Arterials	Engineering
Policy 06	Require streetlights on both sides of the road *Timeline: Next update on City Standards and Policies*		☑				Freight Corridors & Arterials	Engineering
Policy 07	Develop access management standards and policies for Freight Corridors to avoid closely spaced truck driveways *Timeline: Next update on City Standards and Policies*		☑				Programmatic	Engineering
Policy 08	Enforce no on-street freight parking on Arterials, Collectors and local street *Timelines: July 2025 and quarterly enforcement*			☑	☑			PD, Engineering

Infrastructure Projects

The core of this RSAP consists of implementable infrastructure strategies that have the potential to significantly reduce fatal and serious injury crashes in Tolleson. These strategies are also connected to at least one of the five E's of the Safe System Approach. Each strategy also lists the City's departments and agencies needed for its implementation.

Through the safety analysis and public and stakeholder input, the project team was able to identify 47 potential solutions to improve safety, divided between the following improvement types:

- Active Transportation Improvements – focused on improving pedestrian and bicyclist movements
- Enforcement – specific roadways and corridors
- Road Construction/Maintenance – improve capacity, access management, and visibility
- Traffic Control – improve signal timing, signal visibility, and safer operations

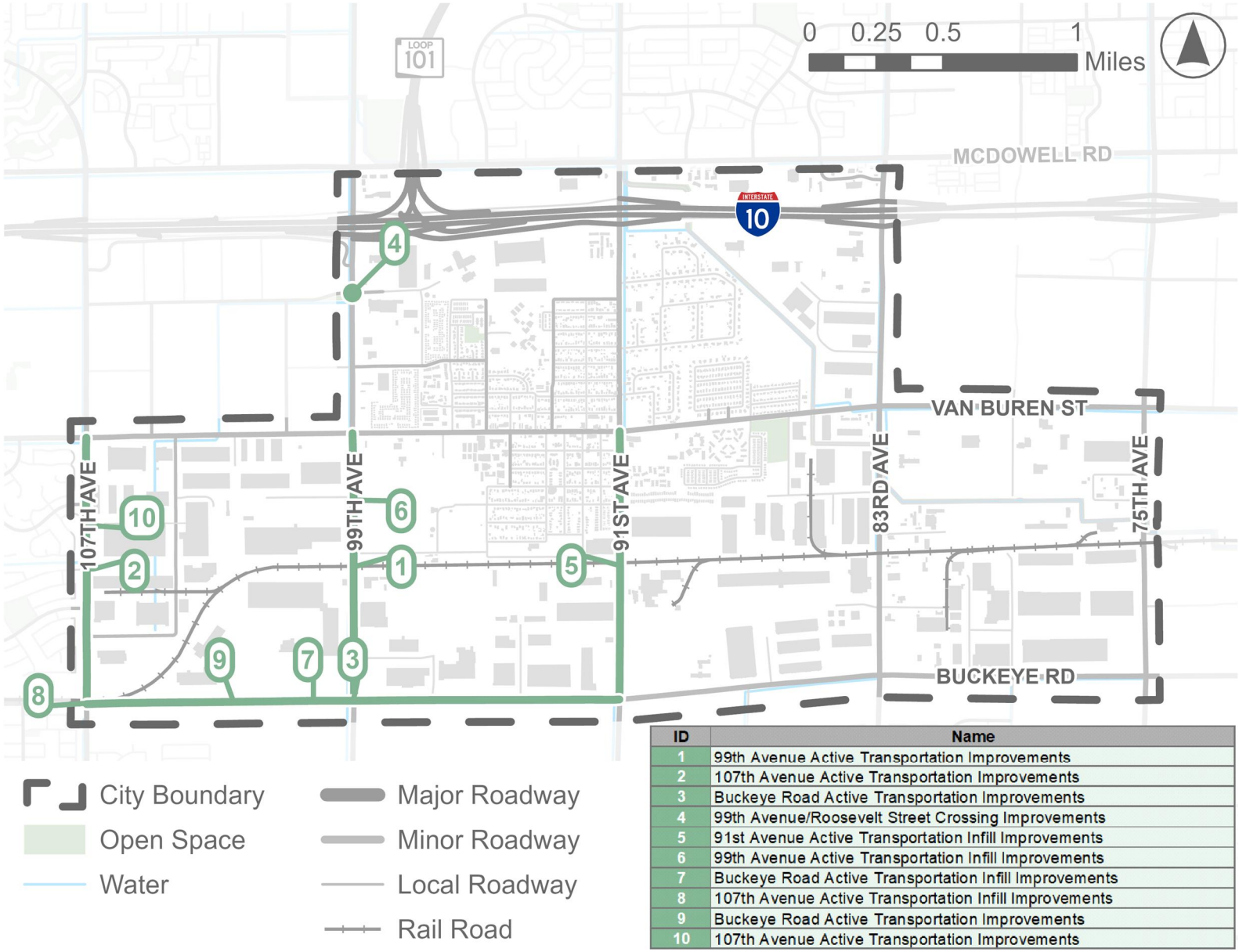
Active Transportation Improvements

Potential active transportation improvements include a variety of measures aimed at creating greater separation between motor vehicle travel lanes and people walking and bicycling. Table 27 and Figure 28 show the preliminary potential active transportation solutions in Tolleson.

Table 27. Active Transportation Improvements

ID	Name	Description
1	99th Avenue: Buckeye Road to Van Buren Street	Install new continuous sidewalk and/or multi-use path (MUP) to separate pedestrian/bicyclist traffic from travel lanes.
2	107th Avenue: Buckeye Road to Van Buren Street	Install new continuous sidewalk and/or MUP to separate pedestrian/bicyclist traffic from travel lanes.
3	Buckeye Road: 107th Avenue to 93rd Avenue	Install a new continuous sidewalk, buffered bike lane, or multi-use path to separate pedestrian/bicyclist traffic from travel lanes.
4	99th Avenue/Roosevelt Street Crossing Improvements	Install a pedestrian crosswalk at the south leg of the intersection and remove the crosswalk at the north leg.
5 6 7	91st Avenue: Buckeye Road to Van Buren Street 99th Avenue: Buckeye Road to Van Buren Street 107th Avenue: Buckeye Road to Van Buren Street	Complete the missing sidewalk. Consider developing MUP in place of the sidewalk to function as a grade-separated bike lane or installing a 2-foot buffer between the travel lane and bike lane.
8 9 10	99th Avenue: Van Buren Street to I-10 Buckeye Road: 91st Avenue to 75th Avenue 107th Avenue: Buckeye Road to Van Buren Street	Install a 2-foot buffer between the travel lane and bike lane.

Figure 28. Active Transportation Improvements



ID	Name
1	99th Avenue Active Transportation Improvements
2	107th Avenue Active Transportation Improvements
3	Buckeye Road Active Transportation Improvements
4	99th Avenue/Roosevelt Street Crossing Improvements
5	91st Avenue Active Transportation Infill Improvements
6	99th Avenue Active Transportation Infill Improvements
7	Buckeye Road Active Transportation Infill Improvements
8	107th Avenue Active Transportation Infill Improvements
9	Buckeye Road Active Transportation Improvements
10	107th Avenue Active Transportation Improvements

Speed Mitigation and Enforcement

Speed mitigation strategies include conducting speed studies to deploy appropriate and uniform speed limits along corridors, installing flashing speed feedback signs, and implementing targeted police enforcement. Police enforcement measures are designed to enhance understanding of and compliance with traffic laws. Table 28 Shows the preliminary potential enforcement solutions in Tolleson.

Table 28. Speed Mitigation with Enforcement

ID	Name	Description
11	91st Avenue Speed Improvements	Implement uniform posted speed limits for the corridor through studies and periodically enforce it to address speeding, DUI, and red light running
12	Buckeye Road Speed Improvements	Implement uniform posted speed limits for the corridor through studies and periodically enforce it to address speeding, DUI, and red light running
13	83rd Avenue Speed Improvements	Implement uniform posted speed limits for the corridor through studies and periodically enforce it to address speeding, DUI, and red light running
14	Buckeye Road Freight Parking Restrictions	Enforce no on-street freight parking.
15	83rd Avenue Freight Parking Restrictions	Enforce no on-street freight parking.
16	99th Avenue Freight Parking Restrictions	Enforce no on-street freight parking.
17	99th Avenue Speed Limit Improvements	Implement uniform posted speed limits for the corridor through studies and periodically enforce it to address speeding, DUI, and red light running
18	91st Avenue Speed Feedback Signs	Install flashing speed feedback signs.
19	107th Avenue Speed Feedback Signs	Install flashing speed feedback signs.

Road Construction/Maintenance

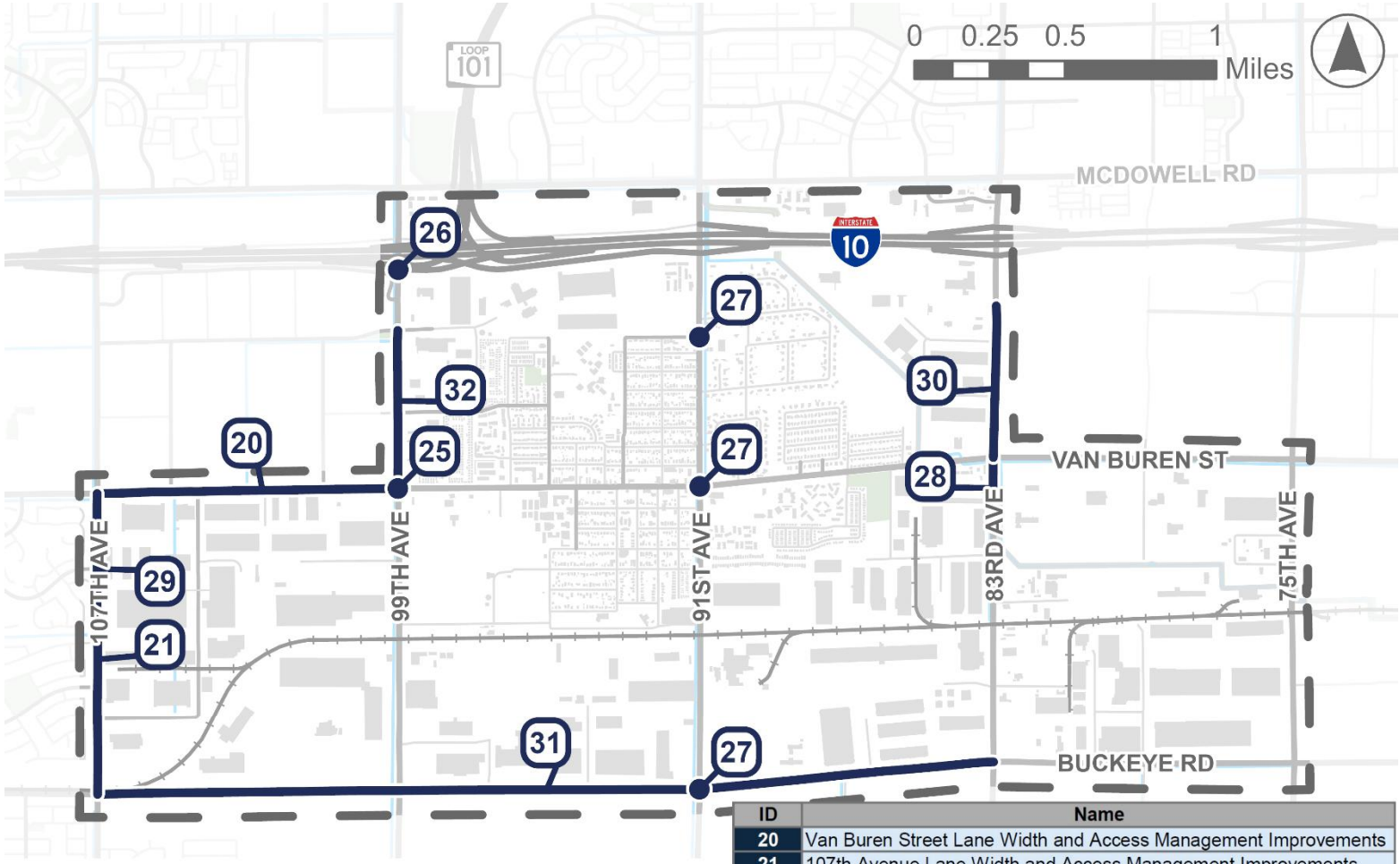
Potential road construction/maintenance improvements include a variety of measures aimed at improving safety on specific segments and intersections throughout the City. Table 29 and Figure 29 show the preliminary potential road construction/maintenance solutions in Tolleson (note: not all potential improvements are on the map).

Table 29. Road Construction/Maintenance Improvements

ID	Name	Description
20	Van Buren Street: 99th Avenue to 107th Avenue - Lane Width and Access Management Improvements	Design and implement uniform lane widths and continuous lanes (to reduce scalloped streets). Reduce and consolidate closely spaced driveways. Install median and street lights on both sides of the road
21	107th Avenue Lane: Buckeye Road to Van Buren Street - Lane Width and Access Management Improvements	Design and implement uniform lane widths and continuous lanes (to reduce scalloped streets). Reduce and consolidate closely spaced driveways. Install median and street lights on both sides of the road.
24*	Signal Visibility Improvements	Install 3" retro-reflective tape on all traffic signal back plates throughout the City
25	99th Avenue/Van Buren Street - Intersection Reconfiguration	Redesign the intersection to accommodate appropriate lane widths and turn radii, minimizing crossing distance.
26	99th Avenue/I-10 Eastbound On-Ramp - Intersection Improvements	Design and install an exclusive northbound right-turn lane on 99th Avenue.
27	91st Avenue: I-10 to Buckeye Road - Street Lighting Improvements	Install streetlights at intersections.
28	83rd Avenue: I-10 to Buckeye Road - Street Lighting Improvements	Install streetlights on both sides of the road.
29	107th Avenue: Buckeye Road to Van Buren Street - Lighting Improvements	
30	83rd Avenue: I-10 to Buckeye Road - Pavement Marking Improvements	Improve pavement markings and install raised pavement markers (RPMs).
31	Buckeye Road: 75th Avenue to 107th Avenue - Lane Reconfiguration	Provide uniform lane sizes and limit the number of lane drops
32	99th Avenue: Roosevelt Road to Pierce Lane - Midblock Crossing Mitigation	Install raised medians and safety railings along the sidewalk on the west side of 99th Avenue between Van Buren Street and Roosevelt Street to prevent mid-block crossing.

**not included on the Road Construction/Maintenance Improvements map on the following page*

Figure 29. Road Construction/Maintenance Improvements



ID	Name
20	Van Buren Street Lane Width and Access Management Improvements
21	107th Avenue Lane Width and Access Management Improvements
25	99th Avenue/Van Buren Street Intersection Reconfiguration
26	99th Avenue/I-10 Eastbound On-Ramp Intersection Improvements
27	91st Avenue Street Lighting Improvements
28	83rd Avenue Street Lighting Improvements
29	107th Avenue Street Lighting Improvements
30	83rd Avenue Pavement Marking Improvements
31	Buckeye Road Lane Reconfiguration
32	99th Avenue Midblock Crossing Mitigation

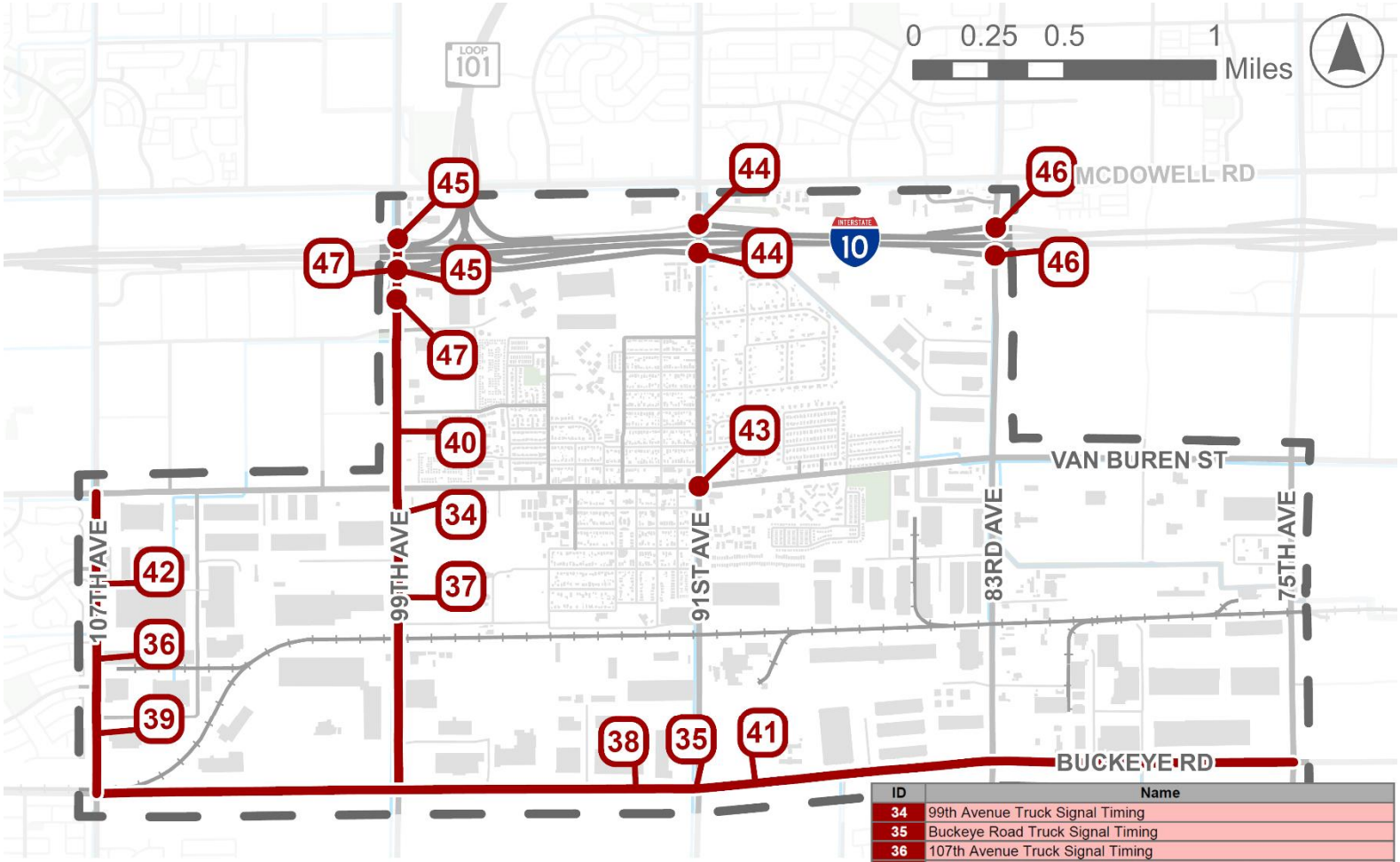
Traffic Control

Potential traffic control improvements include a variety of measures aimed at improving traffic signal timing, traffic signal visibility, and access management. Table 30 and Figure 30 show the preliminary potential traffic control solutions in Tolleson (note: not all potential improvements are on the map).

Table 30. Traffic Control Improvements

ID	Name	Description
34	99th Avenue Truck Signal Timing	Evaluate and implement traffic signal progression and truck-appropriate clearance intervals.
35	Buckeye Road Truck Signal Timing	
36	107th Avenue Truck Signal Timing	
37	99th Avenue Traffic Signal Visibility Improvements	Install one signal head per lane and near side signal heads to improve traffic signal visibility.
38	Buckeye Road Traffic Signal Visibility Improvements	
39	107th Avenue Traffic Signal Visibility Improvements	
40	99th Avenue FYA Improvements	Install flashing yellow arrows (FYA) to allow for protected left-turn phasing during peak hours.
41	Buckeye Road FYA Improvements	
42	107th Avenue FYA Improvements	
43	91st Avenue/Van Buren Street Protected Left-Turns	Install FYA to allow for protected left-turn phasing during daytime and FYA operations at night
44	I-10/91st Avenue Signal Timing Improvements	Improve signal phasing at the traffic interchange to reduce queuing and improve progression between signals.
45	I-10/99th Avenue Signal Timing Improvements	
46	I-10/83rd Avenue Signal Timing Improvements	
47	99th Avenue Traffic Signal Coordination	Improve signal phasing and coordination along 99th Avenue between Roosevelt Street and I-10.

Figure 30. Traffic Control Improvements



ID	Name
34	99th Avenue Truck Signal Timing
35	Buckeye Road Truck Signal Timing
36	107th Avenue Truck Signal Timing
37	99th Avenue Traffic Signal Visibility Improvements
38	Buckeye Road Traffic Signal Visibility Improvements
39	107th Avenue Traffic Signal Visibility Improvements
40	99th Avenue FYA Improvements
41	Buckeye Road FYA Improvements
42	107th Avenue FYA Improvements
43	91st Avenue/Van Buren Street Protected Left-Turns
44	I-10/91st Avenue Signal Timing Improvements
45	I-10/99th Avenue Signal Timing Improvements
46	I-10/83rd Avenue Signal Timing Improvements
47	99th Avenue Traffic Signal Coordination

Prioritization Methodology

After identifying potential solutions, the project team prioritized the solutions. To do this, the project team developed prioritization criteria based on input from the TAC and the public. Safety history, crash rate, crash frequency, and cost were determined to be the most important elements. The results of the prioritization evaluation of all potential solutions can be found in Appendix A.

Safety History

Safety history was determined using crash data of the area surrounding the proposed solution. Table 31 shows the breakdown of the safety criteria used for the evaluation.

Table 31. Safety History Criteria for Solution Evaluation

Criteria	Points
# of fatal crashes addressable by the proposed solution	5 per crash
# of serious injury crashes addressable by the proposed solution	3 per crash

Crash Rate

Crash rate was determined by dividing the number of crashes encompassed by a proposed solution by the annual average daily traffic (AADT). Table 32 shows the breakdown of the crash rate criteria used for the evaluation.

Table 32. Crash Rate Criteria for Solution Evaluation

Criteria	Points
Greater than 2.0	3
Between 1.5 – 2.0	2
Between 1 – 1.5	1

Crash Frequency

Crash frequency was based on the number of crashes encompassed by a proposed solution each year. Table 33 shows the breakdown of the crash frequency criteria used for the evaluation.

Table 33. Crash Frequency Criteria for Solution Evaluation

Criteria	Points
More than 100 crashes	3
50 – 100 crashes	2
25 – 50 crashes	1

Cost

Cost was determined based on planning-level cost estimates derived from aggregated unit costs for solution components. Table 34 shows the breakdown of the cost criteria used for the evaluation.

Table 34. Cost Criteria for Solution Evaluation

Criteria	Points
Planning-level cost estimate under $250,000	3
Planning-level cost estimate under $500,000	2
Planning-level cost estimate under $1,000,000	1

Top Potential Solutions

Non-construction-related safety solutions include enforcement, education, safety studies, signal timing improvements, and regular maintenance. These solutions were prioritized using the criteria described in Tables 31 through 34. These solutions are identified as programmed improvements and summarized in Table 35.

Table 35. Top Non-Infrastructure Potential Solutions

Non-Infrastructure Solution
Speed/DUI Enforcement: 83rd Avenue, Buckeye Road, 99th Avenue and 91st Avenue
Uniform Speed Limit Establishment Buckeye Road, 83rd Avenue and 99th Avenue
Signal Timing Plans (Freight Corridor): Buckeye Road, 83rd Avenue, and 99th Avenue
Freight Parking Restrictions: Buckeye Road, 83rd Avenue, and 99th Avenue
Refresh Pavement Markings and Signs 83rd Avenue: Buckeye Road to I-10
Interchange Signal Timing and Phasing Improvements: I-10/83rd Avenue, I-10/91st Avenue, and I-10/99th Avenue
Road Safety Audit: 91st Avenue at Van Buren Street, 99th Avenue at Van Buren Road
Safe Routes to School Studies for all Tolleson Schools
Neighborhood Traffic Calming Program
Semi-Annual Road Safety Education Campaign Targeting Pedestrians, Bicyclists, and Motorcyclists
Driver Education – Annual High School Program
Safe Pedestrian and Bicycle Education in Elementary Schools – Annual school program

Table 36 shows the highest ranked preliminary potential solutions that require construction. These solutions are prioritized based on the evaluation criteria summarized in Tables 31 through 34.

Table 36. Top Potential Infrastructure Solutions

Infrastructure Solution	Score
Buckeye Road, 107th Ave to 75th Ave – Traffic Signal Visibility Improvement	57
Buckeye Road – Medians and Access Management	52
91st Avenue – Speed Feedback Signs and Improve Signing and Marking	48
99th Avenue, I-10 to Van Buren Rd - Median and Access Management	45
99th Avenue – Traffic Signal Visibility Improvement	43
Buckeye Road – Install FYA for Protected Left-Turn Phasing During Peak Hours	37
99th Avenue between Pierce Street and Roosevelt Street – Median Fencing	33
Buckeye Road, 107th Avenue to 91st Avenue – Construct Uniform Roadway Cross-Section and Reduce Scalloped Streets	29
107th Avenue – Install Flashing Speed Feedback Signs	27
Van Buren Street, 107th Avenue to 99th Avenue – Construct a Uniform Roadway Cross-Section, Access Management, and Reduce Scalloped Streets	27

Project Recommendations

The project team conducted a field review of the top potential solutions, summarized in Table 36, and compiled them into implementable projects anticipated to have the highest impact on improving safety in Tolleson. These projects were prioritized using the criteria in Tables 31 through 34. These recommendations are divided between projects within the City of Tolleson's jurisdiction and projects outside of the City's jurisdiction. Table 37 and Figure 31 shows the recommended projects that encompass most of the top potential solutions, as well as some lower-ranked solutions in the same vicinity.

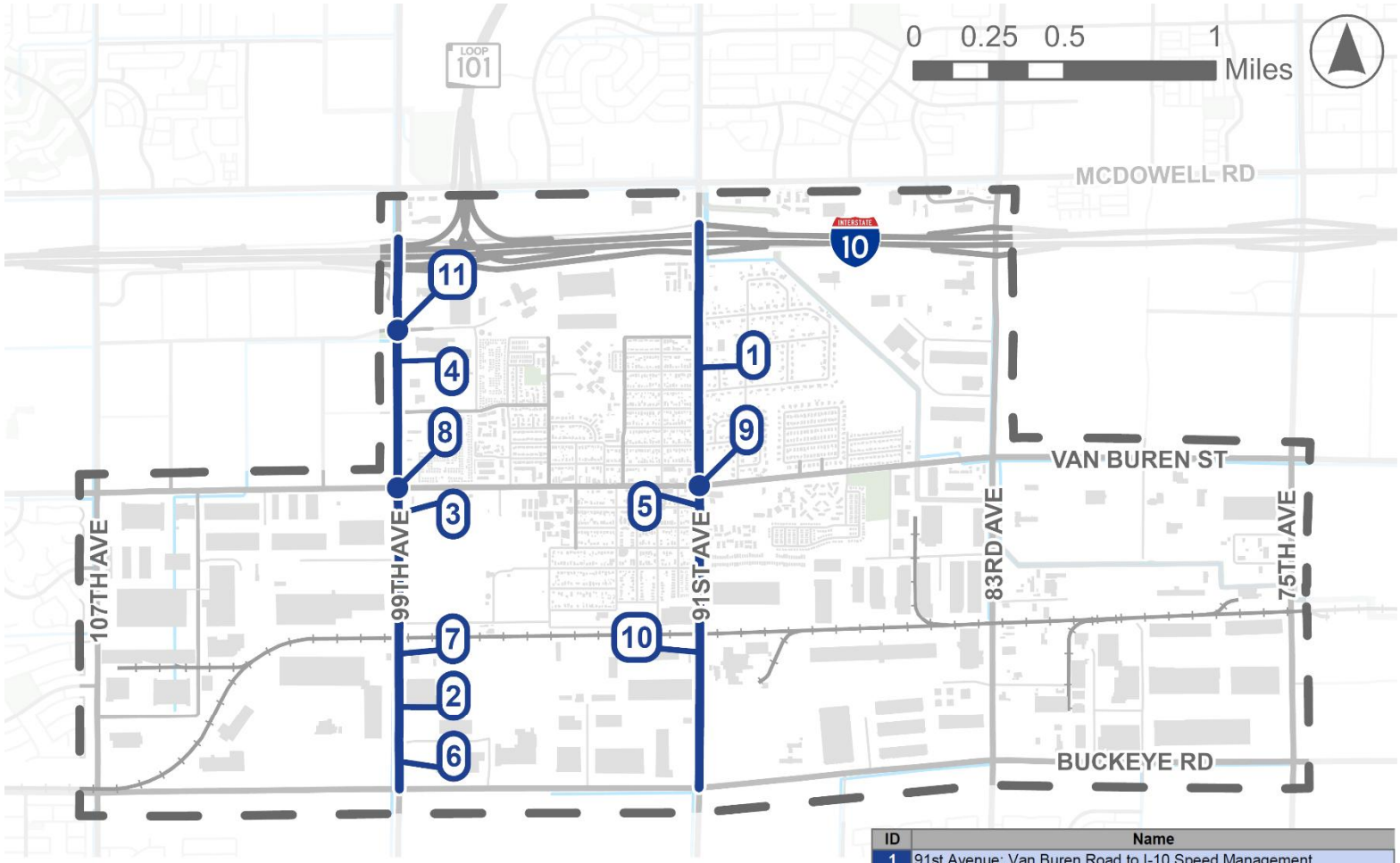
Projects Within the City of Tolleson's Jurisdiction

Infrastructure Projects

Table 37. Prioritized List of Infrastructure Projects for Tolleson

ID	Solution Name	Solution Description	Score
1	91st Avenue: Van Buren Road to I-10 Speed Management	Install flashing speed feedback signs and reduce signing and marking clutter near Van Buren Road *Potential funding source: City CIP*	48
2	99th Avenue Freight Corridor Medians Installation	Install medians along truck corridors *Potential funding source: SS4A Implementation Grant or HSIP*	45
3	99th Avenue Traffic Signal Visibility Improvements	Install one signal head per lane and near-side signal heads to improve traffic signal visibility *Potential funding source: HSIP or MAG Safety Funds*	43
4	99th Avenue: Midblock Crossing Mitigation	Van Buren Street and Roosevelt Street: Install raised medians and safety railings along the median to prevent mid-block crossing *Potential funding source: SS4A Implementation Grant or HSIP*	33
5	91st Avenue Street Lighting Improvements	Install streetlights at arterial/collector intersections *Potential funding source: MAG Safety Funds*	25
6	99th Avenue FYA Improvements	Install flashing yellow arrows to allow for protected left-turn phasing during peak hours *Potential funding source: HSIP*	22
7	99th Avenue Active Transportation Improvements	Install continuous sidewalk and/or multi-use paths to separate pedestrian/bicyclist traffic from travel lanes *Potential funding source: TA funds*	21
8	99th Avenue/Van Buren Street Intersection Reconfiguration	Redesign the intersection to appropriate lane widths and turn radii to minimize crossing distance *Potential funding source: City CIP*	19
9	91st Avenue/Van Buren Street FYA Improvements	Install flashing yellow arrows to allow for protected left-turn phasing during peak hours *Potential funding source: HSIP*	17
10	91st Avenue Active Transportation Infill Improvements	Sidewalk gap infill from Buckeye Road to Van Buren Street, 2-foot buffer lane between travel and bike lane *Potential funding source: TA Funds*	14
11	99th Avenue/Roosevelt Street Crossing Improvements	Install a pedestrian crosswalk at the south leg and remove the crosswalk at the north leg of the intersection *Potential funding source: City CIP*	1

Figure 31. Prioritized Infrastructure Projects for Tolleson



ID	Name
1	91st Avenue: Van Buren Road to I-10 Speed Management
2	99th Avenue Freight Corridor Medians Installation
3	99th Avenue Traffic Signal Visibility Improvements
4	99th Avenue: Midblock Crossing Mitigation
5	91st Avenue Street Lighting Improvements
6	99th Avenue FYA Improvements
7	99th Avenue Active Transportation Improvements
8	99th Avenue/Van Buren Street Intersection Reconfiguration
9	91st Avenue/Van Buren Street FYA Improvements
10	91st Avenue Active Transportation Infill Improvements
11	99th Avenue/Roosevelt Street Crossing Improvements

Non-Infrastructure Projects

Table 38. Non-Infrastructure Projects for Tolleson

Non-Construction Related Project
91st Avenue and 99th Avenue: Speed/DUI Enforcement (Quarterly) *Potential funding source: Governor's Office of Highway Safety*
91st Avenue and 99th Avenue: Uniform Speed Limit Establishment *Potential funding source: City CIP*
99th Avenue: Signal Timing Plans (review and revise every 3 years) *Potential funding source: MAG TSOP*
99th Avenue Freight Parking Restrictions *Potential funding source: City CIP/PD*
Road Safety Audit: 91st Avenue I-10 to Van Buren Street (to evaluate truck traffic flow along this road), and 99th Avenue at Van Buren Road Intersection *Potential funding source: MAG Safety Program*
Safe Routes to School Studies for all Tolleson Schools *Potential funding source: MAG Safety Program*
Neighborhood Traffic Calming Program *Potential Funding Source: City CIP*
Semi-Annual Road Safety Education Campaign targets: Pedestrians, Bicyclists, Motorcyclists. *Potential funding source: CIP/Public Relations//Governor's Office of Highway Safety*
Driver Education – annual high school program *Potential funding source: HSIP Education Funds/Governor's Office of Highway Safety*

Projects Outside City of Tolleson Jurisdiction

Tables 39, 40, and 41 list the safety projects that Tolleson must coordinate with other jurisdictions to ensure the safety improvements are implemented.

Table 39. Buckeye Road: 107th Avenue – 75th Avenue, Lead Agencies: MCDOT and Phoenix

Solution Name	Solution Description	Prioritization Score
Buckeye Road Freight Parking Restriction	Enforce no on-street freight parking *Potential funding source: Governor's Office of Highway Safety*	60
Buckeye Road Truck Signal Timing	Evaluate and implement traffic signal progression with appropriate clearance intervals *Potential funding source: MAG TSOP*	60
Buckeye Road Traffic Signal Visibility Improvements	Install one signal head per lane and near-side signal heads to improve traffic signal visibility *Potential funding source: HSIP or MAG Safety Funds*	57
Buckeye Road Freight Corridor Medians	Install medians along truck corridors *Potential funding source: CIP*	52
Buckeye Road FYA Improvements	Install flashing yellow arrows to allow for protected left-turn phasing during peak hours *Potential funding source: HSIP*	37
Buckeye Road Speed Enforcement	Implement uniform travel speed along the freight corridor *Potential funding source: Governor's Office of Highway Safety*	30
Buckeye Road Lane Reconfiguration	Uniform lane sizes and limit the number of lane drops *Potential funding source: CIP*	29
Buckeye Road Lighting Improvements	Install streetlights along both sides of the roadway *Potential funding source: MAG Safety Funds*	24
Buckeye Road Active Transportation Improvements	Install continuous sidewalks and/or multi-use paths on both sides of the roadway to separate pedestrian/bicyclist traffic from travel lanes. *Potential funding source: TA Funds*	22

Table 40. The 107th Avenue: Van Buren Street – Buckeye Road, Lead Agencies: MCDOT and Avondale

Solution Name	Solution Description	Prioritization Score
107th Avenue Speed Feedback Signs	Install flashing speed feedback signs *Potential funding source: HSIP or MAG Safety Funds*	30
107th Avenue Lane Width Improvements	Design and implement uniform lane widths and continuous lanes (reduce scalloped streets) *Potential funding source: CIP*	27
107th Avenue Traffic Signal Visibility Improvements	Install one signal head per lane and near-side signal heads to improve traffic signal visibility *Potential funding source: HSIP or MAG Safety Funds*	22

107th Avenue Access Management Improvements	Reduce and consolidate closely spaced driveways *Potential funding source: CIP*	12
107th Avenue Freight Corridor Medians	Install median along the truck corridor *Potential funding source: CIP*	11
107th Avenue Street Lighting Improvements	Install streetlights on both sides of the road *Potential funding source: MAG Safety Funds*	10
107th Avenue FYA Improvements	Install flashing yellow arrows to allow for protected left-turn phasing during peak hours *Potential funding source: HSIP or MAG Safety Funds*	7
107th Avenue Active Transportation Improvements	Install a bike lane and a sidewalk along both sides of the road. If possible, consider MUP on both sides of the road. *Potential funding source: TA Funds*	3
107th Avenue Truck Signal Timing	Evaluate and implement traffic signal progression and truck-appropriate clearance intervals *Potential funding source: MAG TSOP*	3

Table 41 The I-10 Intersections: Signal Timing Improvements. Lead Agency: ADOT

Solution Name	Solution Description	Prioritization Score
99th Avenue/I-10 Eastbound On-Ramp Intersection Improvements	Design and install an exclusive northbound right-turn lane on 99th Avenue *Potential funding source: MAG TSOP*	10
I-10 at 99th Avenue Signal Timing Improvements	Improve signal phasing at the traffic interchange to reduce queueing and improve progression between signals *Potential funding source: MAG TSOP*	9
I-10 at 83rd Avenue Signal Timing Improvements	Improve signal phasing at the traffic interchange to reduce queueing and improve progression between signals *Potential funding source: MAG TSOP*	9
I-10 at 91st Avenue Signal Timing Improvements	Improve signal phasing at the traffic interchange to reduce queueing and improve progression between signals *Potential funding source: MAG TSOP*	8

Policy Recommendations

As part of the SAP, the project team reviewed key documents and recommended changes to City's policies and processes to promote improved traffic safety performance. Implementation of any potential policy and process changes will be at the discretion of the Town and may require additional engineering study. The potential policy and process changes are for consideration and further study and are not intended to establish City code or engineering standards.

A summary of the recommended potential policy and process changes is subsequently provided.

Tolleson, Arizona Code of Ordinances, Chapter 6 (Traffic)

The purpose of the Town code is to communicate enforceable ordinances enacted by the City's elected officials. Chapter 6 of the code, titled "Traffic Code," addresses duty of police, traffic control, parking, Trucks, abandoned vehicles, Impoundment of vehicles, and motorized play vehicles. A key goal in reviewing the City code was to identify provisions in the code that should be updated to be consistent with the most recent safety best practices.

The City should consider looking into updating safety rules related to the following sections:

Collision terminology

Purpose of traffic signals

Obedience to traffic signs

Special event permit requirements

Traffic safety studies

Limitations on U-turns

Vehicle operation on private property

Blocking traffic

On-Street Parking Restrictions

The crash analysis found a large number of truck-related crashes involving parked vehicles. To expedite the process of eliminating on-street parking along arterials and collectors, it is recommended the City consider revising City Code Article 6-4-4, which can allow the Town Engineer or Traffic Engineer be given authority to approve parking restrictions rather than requiring Town Council approval.

Roadway Cross Sections

The City should implement its own set of General Plan Cross Sections. These would be dependent on the typical roadway functional classifications within Tolleson's City limits, mainly including minor arterials, major and minor collectors. Due to its similar urban nature, the City of Phoenix's general cross sections are suggested templates that Tolleson may adopt and revise in producing its own set of standard cross-section drawings. Figure XX shows a general cross-section recommended for Tolleson's arterials and collector roads

Medians

Raised medians are highly desirable as they tend to control access and increase safety. It is recommended that Tolleson include in their general plan cross-section details of raised medians along corridors that are designated as truck routes. It is also highly desirable to adopt landscape medians for their traffic calming benefits. Median widths ranging between 5 and 24 ft are desirable, depending on the functional classification and roadway widths.

Multi-Use Path

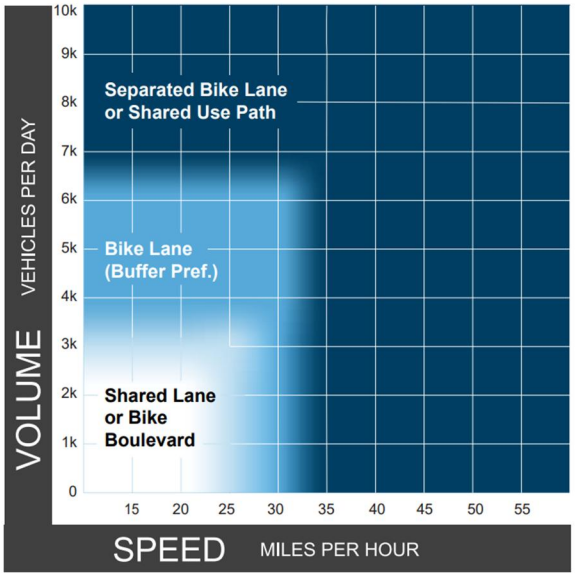
Multi-use paths are typically used to provide grade separation between the travel lanes and pedestrian and bicycle travel modes. The path should be a minimum of 12-feet wide. It is recommended that Tolleson include in their general plan cross-section details of raised medians along corridors that are designated as truck routes.

Bicycle Lane Identification and Regulation Standards

The City of Tolleson should consider various bicycle facilities depending on motor vehicle speed and volume on a given corridor. Figure 32 from the Federal Highway Administration (FHWA) Bikeway Selection Guide provides guidance for how motor vehicle speed and volume should be taken into consideration when determining which bicycle facilities to use. The City should develop updated standards for bicycle lane markings and signage that are

based on the FHWA Bikeway Selection Guide and the latest American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities.

Figure 32. FHWA Preferred Bikeway Type



Pavement Marking Guidelines

In addition to displaying cross sections, the City Pavement Marking Guidelines provide direction to contractors and developers about the appropriate use of pavement markings on projects within the City's limits. The City could adopt and revise (if needed) the City of Avondale's pavement marking guidelines. The City should consider looking into updating the following guidelines to be more consistent with best practices:

Pavement markers	Pavement marking width
Atypical lane line markings	Bike lane right-side edge line and Bike buffer
Dual curb ramps	Unmarked pavement duration

Potential Additional Policies and Processes

The following additional policies and processes are suggested for potential further consideration by the City as they may provide potential safety benefits:

- Sharing crash data (such as on an online dashboard)
- Enforcement policies and processes on speeding, on-street trucking, DUI and red light running
- Policies and processes on driver speed feedback signs
- Establishing new neighborhood traffic calming practices
- Project prioritization process in the Tolleson CIP that emphasizes safety
- Supporting safety education campaigns and enforcement activities

Improving Visibility Along Roadway Segments

The City of Tolleosn should develop infrastructure projects that improve visibility along roadway segments. Short-term projects may include 3" retro-reflective tape on signal head, retro-reflective pavement markings and signing. The Long-term projects may include:

- Installation of one signal head per lane at signalized intersections,
- Review of each intersection near side signal depending on the truck traffic along the corridor,

- The City should adopt City of Avondale's street lighting standards to address the lighting requirement for arterials, collectors, intersections, shared use paths

Left-Turn Offsets

Left-turn offsets represent the lateral distance between the left edge of a left-turn lane and the right edge of the opposing left-turn lane. If the right edge of the opposing left-turn lane is to the left of the left edge of the left-turn lane, the offset is defined as negative. Conversely, if it is to the right, the offset is positive. According to the MAG, a 2-foot positive offset provides unrestricted sight distance when the opposing left-turn vehicle is a passenger car, and a 3.5-foot positive offset provides unrestricted sight distance when the opposing left-turn vehicle is a truck[1]. It is recommended that the City provide a standard detail drawing as a separate document under the suggested Tolleson Uniform Standard Details resembling Figure 33 to communicate the desired left-turn offset. Additionally, a sample policy to be adopted under the Tolleson's Code of Ordinances would be:

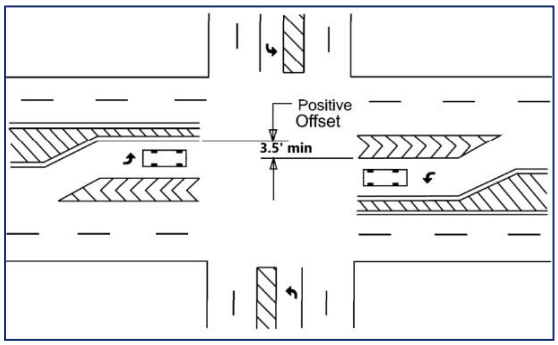


Figure 33. Minimum Positive Offset for New Left-Turn Lanes Source: MAG Left Turn Crash Mitigation Implementation Template and Guidance (May 2019)

"When installing left-turn lanes or designing new intersections where left turning traffic must yield to on-coming traffic, provide a minimum of 3.5 feet of positive offset for opposing left-turn lanes, to ensure adequate sight distance for left-turning drivers."

This policy could also be included as a note under the proposed general plan cross sections.

Access Management

Access control is achieved through the regulation of public access rights to and from properties abutting the roadway facilities. Control is generally categorized as full control of access, partial control of access, and driveway/entrance regulations. The principal advantage of controlling access is the improvement of service and the reduction of crash frequency and severity. Access management calls for setting access policies for various types of roadways, keying designs to these policies, having the access policies incorporated into legislation, and having the legislation upheld in the courts.

It is recommended that the City create an Access Management section under the City of Tolleson, Arizona Code of Ordinances Chapter 6: Traffic Code that lists policies restricting access control along roadways within the City boundaries. These policies should be specific to access facilities such as driveways and frontage/access roads. The following criteria listed under the City of Phoenix Street Planning and Design Guidelines (2009), Chapter 8 Section 1 and MCDOT Roadway Design Manual 1996 (Rev. 2024):are suggested to be added to the new Access Management section:

- Driveways must be constructed to City standards under a permit issued by the Development Services Department.
- Existing, unused driveways must be replaced with curb, gutter and sidewalk built to City standards.
- A single parcel or contiguous parcels comprising one development should be limited to one driveway, unless traffic volume or street frontage warrants additional driveways.
- On major arterial and arterial streets, the sharing of driveways between adjacent properties and common ingress/egress easements are strongly encouraged.

[1] Source: *Left Turn Crash Mitigation Implementation Template & Guidance,* MAG, May 2018, Pg. 9

- Existing driveways that are unnecessary or substandard should be removed or upgraded in conjunction with any new on-site or street construction.
- On major arterial streets, large developments should consolidate major driveways at 1/4 or 1/8 mile locations and align them with driveways on the opposite side of the street.
- Driveways to corner lots should be located per the corner clearance requirements per the required roadway classification.
- Driveways are prohibited within the passenger waiting area of bus stops unless relocation of the facility is approved by Public Transit. Driveways should be located such that bus stop improvements are beyond the projection of driveway visibility triangles and drivers will be able to see around bus stop improvements, both existing and planned. Driveways are not to be located within the flat portion of the bus bay (bus standing area).
- Driveway connections should be placed at locations that facilitate the efficient entry and exit of vehicles to properties on both sides of a street and minimize conflicts with transit facilities, left turn pockets as well as traffic on the streets or neighboring properties.
- Driveways with access on arterial roads may be subject to future turning movement restrictions.[2]
- Driveways connecting to arterial or major collector streets are to have adequate turnaround space on the private property or a circular driveway to eliminate backing onto the roadway.[3]

The City must account for variances by including a variance clause similar

- Exceptions may be made by the City of Tolleson Engineer where the application of these standards would create an undue hardship to the abutting property owners and good traffic management practice can be maintained.

Driveway Spacing

The City should adopt the driveway spacing is based on section 3.19 of Avondale's General Engineering Requirements Manual (2018) the following is recommended:

- The minimum distance driveway spacing should be based on the functional road classification; driveways should be spaced by minimum 250 ft in Arterial roads and 150 ft in Collector roads as illustrated by Table 4242. A 50% factor may reduce the prior values if the driveways are right-in/right-out only. The designated minimum spacings applies to proposed site driveway separation and separation from existing driveways or planned driveways on adjacent parcels or across the street. Accordingly, new driveways shall align with existing driveways on the opposite side of the street on street lacking raised medians. The distance is measured from the nearest curb return (point of curvature) of either an intersecting street or nearby driveway. These would be provided under the suggested Tolleson set of Uniform Standard Details

Table 42. Minimum Driveway Spacing Source: Avondale General Engineering Requirements Manual (2018)

Street Classification	Minimum Distance Driveway Spacing
Arterial	250 feet*
Minor Collector	150 feet
Industrial Collector	150 feet

*Can be 50% less if right-in/right-out only

[2] *Residential Paved Driveway - Information Required for Permit,* MCDOT, August 2015
[3] *Residential Driveways Guidelines,* MCDOT, June 2015, Pg. 1

Corner Clearance

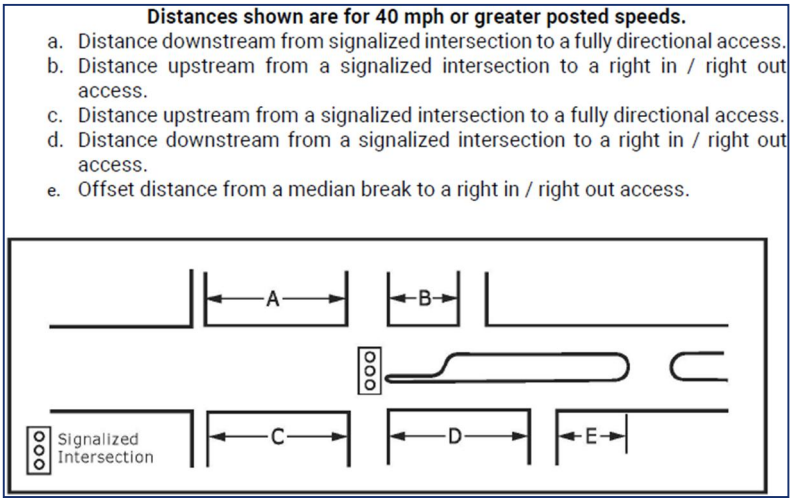
The City should consider adopting its own minimum corner clearance requirement thresholds to regulate access in their functionally classified arterial and collector roads. These would be provided under the suggested Tolleson set of Uniform Standard Details and would specify the minimum clear distances between the edge of the roadway and the edge of the driveway. Table 433 and Figure 34 are example excerpts thresholds taken from MCDOT's Roadway Design Manual 1993 (Rev 2024) for arterial and collector roads corner clearances. Adopting standards following the templates below is recommended.

Table 43. Minimum Corner Clearances (Signalized Intersections) Source: MCDOT Roadway Design Manual (2024)

Distance	Functional Classification of Road	
	Arterial (ft.)	Collector (ft.)
A	360	250
B	180	125
C	360	250
D	360	250
E	75	75

Number of Driveways

Figure 34. Minimum Corder Clearance (Signalized Intersections) Source: MCDOT Roadway Design Manual (2024)



Reducing the number of driveways is a fundamental aspect in access management as it reduces congestion and the likelihood of crashes by reducing the number of access points that inhibit the continuous flow of traffic in through lanes. Unless justified by a traffic impact analysis, at least one driveway is recommended per abutting street. An additional driveway may be incorporated in sites with continuous frontage of at least 300 feet and two additional driveways (total of three) may be incorporated for sites with a total frontage of no less than 600 feet. A fourth driveway may be added in a site with a total frontage exceeding 600 feet, if the driveway is designed to be unlikely used by customers of any businesses on site[4]. These would be provided under the suggested Tolleson set of Uniform Standard Details

Signal Timing Parameters

It is recommended that the City of Tolleson develops its own Clearance and Change Interval standard to potentially encourage agents actively performing public works construction within Tolleson's ordinance to adhere to a set of uniform standards. As a result, this would simplify the review process by Tolleson's engineering department and facilitate the accountability of agents who deviate from the City's specific procedure. Tolleson currently follows the

[4] *General Engineering Requirements,* City of Avondale, 2018, Pg. 3-54 Section 3.19.2

City of Phoenix *Clearance and Change Interval SOP* (August 2023) which represents a template that can be utilized to produce their own standard policies and procedures.

The following policy must be adopted in conjunction with the suggested Clearance and Change Internal standard document:

"A traffic signal clearance analysis shall be performed for all traffic signal projects (new signals and existing signal modifications) in Tolleson. The analysis shall be submitted with the submittal of traffic signal plans in the form of a letter or memorandum and shall be sealed by a professional engineer registered in the state of Arizona"

Implementation

The RSAP establishes the goal of a 20 percent reduction in fatal and serious injury crashes by 2030 and an eventual goal of eliminating fatal and serious injury crashes on City roadways. To accomplish these goals, the plan must be implemented in a deliberate way. Successful plan implementation will rely on committed leadership from the City of Tolleson.

Next Steps

Short-Term (0-2 Years)

The City should focus short-term efforts on low-cost recommendations that can be implemented quickly. These recommendations include:

1. Implementing operational improvements mentioned earlier in the RSAP:
    - 91st Avenue and 99th Avenue: Speed/DUI Enforcement (Quarterly)
    - 91st Avenue flashing speed feedback signs, pavement marking, and sign management
    - 83rd Avenue refresh pavement markings
    - Uniform Speed Limit Establishment on 83rd Avenue, 91st Avenue, 99th Avenue and Buckeye Road
    - Signal Timing Plans (Review and revision every 3 years) on 99th Avenue, Buckeye Road, and 83rd Avenue
    - Freight Parking Restrictions on 83rd Avenue, 99th Avenue and Buckeye Road
    - Enhance Signal Visibility using 3" retro reflective tape, citywide signals, including 83rd Avenue, Buckeye Road, and 107th Avenue
2. Creating educational campaigns and programs to increase awareness of traffic safety:
    - Neighborhood Traffic Calming Program
    - Semi-Annual Road Safety Education Campaign targets: Pedestrians, Bicyclists, Motorcyclists.
    - Driver Education – annual high school program
    - Good pedestrian and bicycle education – annual program for elementary schools
3. Conduct location-specific studies:
    - Safe Routes to School Studies for all Tolleson Schools
    - Road Safety Audit: 91st Avenue at Van Buren Street

Medium-Term (2-8 Years)

The City should focus its medium-term efforts on infrastructure projects within its jurisdiction. These recommendations include:

1. 91st Avenue improvements:
    - 91st Avenue Speed Feedback Signs and reduce signing and marking clutter
    - 91st Avenue Street Lighting Improvements
    - 91st Avenue/Van Buren Street Protected Left-Turns
    - 91st Avenue Active Transportation Infill Improvements
2. 99th Avenue improvements:
    - 99th Avenue Medians
    - 99th Avenue: Midblock Crossing Mitigation
    - 99th Avenue FYA Improvements
    - 99th Avenue Active Transportation Improvements
    - 99th Avenue/Van Buren Street Intersection Reconfiguration
    - 99th Avenue/Roosevelt Street Crossing Improvements

3. I-10 Intersections

- I-10/99th Avenue Signal Timing Improvements
- I-10/83rd Avenue Signal Timing Improvements
- I-10/91st Avenue Signal Timing Improvements

Long-Term (8+ Years)

The City should focus its long-term efforts on infrastructure projects outside its jurisdiction. These projects include:

1. Buckeye Road: 107th Avenue – 75th Avenue
    - Buckeye Road Medians
    - Buckeye Road FYA Improvements
    - Buckeye Road Lane Reconfiguration
    - Buckeye Road Lighting Improvements
    - Buckeye Road Active Transportation Improvements
2. 107th Avenue: Van Buren Street – Buckeye Road
    - 107th Avenue Speed Feedback Signs
    - 107th Avenue Lane Width Improvements
    - 107th Avenue Medians
    - 107th Avenue Street Lighting Improvements
    - 107th Avenue FYA Improvements
    - 107th Avenue Active Transportation Improvements
3. I-10 Intersections
    - 99th Avenue/I-10 Eastbound On-Ramp Intersection Improvements

Add Projects to City Capital Improvement Plan

The City should place the recommended projects in its CIP to coordinate the timing and financing of projects. Additionally, more detailed studies may be needed to refine project recommendations. If funding is not available to implement all projects, the City should consider implementing individual solutions within projects, with a focus on higher-ranked solutions, until funding can be secured for all project components.

Apply for Grant Funding

SS4A Implementation grants provide federal funding to implement projects and strategies identified in an RSAP to address roadway safety issues. The City should apply for an SS4A Implementation grant to construct the projects recommended within the RSAP, particularly the higher-cost projects. The City should also consider federal grants such as the HSIP, SRTS, and TA funds, and state and regional funds and grants, to implement the rest of the projects.

Conduct Monitoring and Evaluation

On an annual basis, the City should review the most recent year's crash data, comparing it to trends from prior years as well as the RSAP goal of reducing fatal and serious injury crashes by 20% by 2030. Before-and-after studies should be conducted to evaluate the effectiveness of implemented safety improvements. The Tolleson Safety Committee should communicate safety performance evaluation findings to City leadership and the general public, either by updating the crash dashboard created for the RSAP or by posting the information on the City's website.

Appendices

Appendices

Appendix A. Solution Prioritization Evaluation