CENTRAL TEXAS

CAMPO

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

# BURNET COUNTY SAFETY ACTION PLAN

## PART OF THE GREATER CAMPO REGIONAL SAFETY ACTION PLAN

JULY 2025

# ACKNOWLEDGMENTS


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# DISCLAIMER

Under 23 U.S. Code § 148 and 23 U.S. Code § 407, safety data, reports, surveys, schedules, lists, compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not 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.

# DEDICATION

THIS PLAN IS DEDICATED TO ALL THE LIVES LOST AND TO THOSE WHO HAVE BEEN FOREVER CHNAGED BECAUSE OF A TRAFFIC CRASH IN BURNET COUNTY. A SINGLE DEATH OR SERIOUS INJURY ON OUR ROADWAYS IS ONE TOO MANY.

LET US ACHIEVE THE ROAD TO ZERO TOGETHER.

# ACRONYMS

**ADA –** Americans with Disabilities Act

**CAMPO –** Capital Area Metropolitan Planning Organization

**CARTS –** Capital Area Rural Transportation System

**CRIS –** Crash Records Information System

**FHWA –** Federal Highway Administration

**HIN –** High Injury Network

**HSIP –** Highway Safety Improvement Program

**KABCO –** Crash Severity Scale

- **K –** Fatal Injury
- **A –** Suspected Serious Injury
- **B –** Suspected Minor Injury
- **C –** Possible Injury
- **O –** Non-injury
- **KA –** Combined Fatal and Serious Injury

**LPI –** Leading Pedestrian Interval

**NHTSA –** National Highway Transportation Safety Administration

**RSAP –** Regional Safety Action Plan

**SAP –** Safety Action Plan

**SHSP –** Strategic Highway Safety Plan

**SS4A –** Safe Streets and Roads for All

**TxDOT –** Texas Department of Transportation

**TxHSO –** Texas Highway Safety Office

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# Executive Summary

This Executive Summary describes the road safety challenge in Burnet County, provides an overview of the core content in this Safety Action Plan (SAP), and describes why this will support a safer future.

## The Road Safety Challenge in Burnet County

Every day, people travel on Burnet County roads expecting to arrive safely. Unfortunately, recent years have shown a troubling reality. Between 2019 and 2023, Burnet County experienced 54 fatal crashes and 255 serious injury crashes. The individuals in these crashes are our families, friends, and neighbors. The effects of these roadway tragedies affect all communities in Burnet County.

A detailed safety analysis identified the most common contributors to fatal and serious injury crashes. **Figure 1** provides highlights of this plan, including the top five crashes by type in Burnet County, and the infrastructure projects recommended.

The good news is that we know these tragedies are preventable, and we are committed to changing this story.

The project team conducted a series of analyses and key activities to inform the development of this SAP. These activities included a detailed safety analysis, an analysis of underserved communities, robust community engagement, and a policy review. Through these efforts and **collaboration with stakeholders**, a set of **policy recommendations**, **infrastructure projects**, and **behavioral strategies** were identified.

Targeted proposed improvements include **19** corridor enhancements and **6** intersection improvements. The goal for these recommendations is to enhance road safety, ensuring that all residents and visitors can work, live, and enjoy their activities in Burnet County.

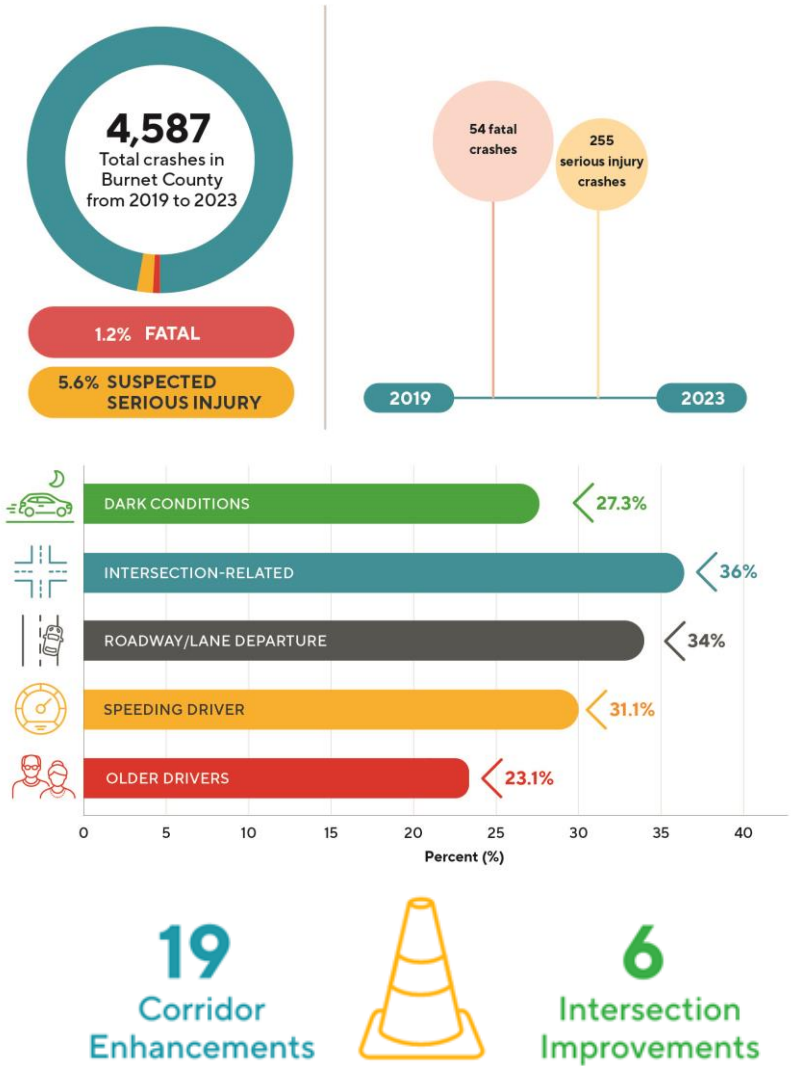



FIGURE 1: SAFETY PLAN SUMMARY

## The Safety Action Plan

Burnet County and its member jurisdictions have joined forces with regional and federal partners to tackle traffic safety issues directly. The Burnet County SAP is a strategic initiative to establish a safer transportation system. Embracing the vision that "Burnet County's diverse stakeholders are committed to a safe and connected transportation network for all users and will improve transportation safety through strategic planning and collaboration," the SAP aspires to **cut roadway fatalities and serious injuries in half by 2035 and eliminate them entirely by 2050**. Simply put, everyone traveling in Burnet County should be able to reach their destination safely every time.

> THE SAFETY ACTION PLAN ASPIRES TO CUT ROADWAY FATALITIES AND SERIOUS INJURIES IN HALF BY 2035 AND **ELIMINATE THEM ENTIRELY BY 2050**

This plan is part of the broader Capital Area Metropolitan Planning Organization (CAMPO) Regional Safety Action Plan (RSAP), which aims to enhance traffic safety across the region by addressing systemic safety needs and facilitating access to funding. Each member agency, including Burnet County and its cities, contributes a county-level plan that aligns with the overarching goals of CAMPO and the statewide Road to Zero initiative. This means our communities are not working alone – we are coordinating with neighboring counties and aligning with national best practices.

The core outcomes of the SAP include key strategies, community actions, countermeasure identification and prioritization, and accountability and transparency.

### KEY STRATEGIES

Achieving safer travel in Burnet County requires a **comprehensive**, **multi-faceted approach**. The SAP outlines a range of proven strategies that address roadway safety from different angles:

**Safer Roads.** Improving the design and operation of our roadways involves engineering solutions like better signage, pavement markings, lighting, and intersection upgrades, as well as innovative designs such as roundabouts and safer crosswalks. Many of these measures are low-cost, high-impact changes that can dramatically reduce risk for all road users.

**Safer Road Users.** Fostering a culture of safety supports educational campaigns and law enforcement to encourage responsible driving behavior and protect vulnerable road users. This means expanding public outreach – from school programs for young drivers to awareness campaigns about distracted and impaired driving – so that everyone understands their role in keeping our roads safe.

**Safer Alternatives.** Providing and promoting safe options other than driving reduces exposure to high-speed traffic, which reduces the risk of fatal and serious injury. Treatments include expanding sidewalks, bike lanes, and trails; developing and expanding Safe Routes to School programs; and enhancing public transit services and facilities to make travel safer and more accessible for those who walk, bike, and roll.

## COMMUNITY ACTIONS

The Burnet County SAP is **community focused**. It was shaped by local input and calls for ongoing collaboration with cities, law enforcement, schools, businesses, and residents to ensure the solutions make sense for our community. Community engagement and underserved community considerations are foundational to the SAP. Public outreach was conducted to gather input on safety priorities, revealing concerns about aggressive and distracted driving, speeding, and infrastructure needs for pedestrians and cyclists. The underserved communities analysis ensures that safety improvements are prioritized in high-risk areas disproportionately affecting underserved populations.

Crucially, the plan brings everyone to the table: engineers, planners, law enforcement, health professionals, educators, local officials, and residents are all partners in this effort. This collaboration combines local knowledge with broad buy-in, making safety initiatives more effective and reflective of community needs.

## COUNTERMEASURE IDENTIFICATION AND PRIORITIZATION

By understanding where and why crashes happen, we can take targeted action before the next tragedy occurs, rather than simply reacting afterward. The SAP employs a **data-driven**, **systemic safety approach**, recommending strategies aligned with the Texas Strategic Highway Safety Plan (SHSP) and the associated Road to Zero framework.

Proposed countermeasures include **low-cost systemic safety treatments** such as signing and pavement markings; **behavior-focused initiatives** including public education, enforcement programs, and community engagement; and **policy and program recommendations** like developing a Safe Routes to School program or a Complete Streets policy. These over-arching programs are supported with high-impact capital project recommendations at those intersections and roadway segments exhibiting the most severe crash history.

Implementing the SAP involves prioritizing projects based on factors such as potential for crash reduction, cost-effectiveness, benefits to vulnerable road users (e.g., bicyclists and pedestrians), and readiness for implementation. Funding strategies encompass federal grants like the Safe Streets and Roads for All (SS4A) program, TxDOT-administered funds from the Highway Safety Improvement Program (HSIP), and other state, regional, and local sources. Collaborative efforts with entities such as TxDOT, CAMPO, local jurisdictions, transit agencies, law enforcement, and community organizations are essential to the plan's success.

## ACCOUNTABILITY AND TRANSPARENCY

To ensure accountability, the SAP includes a performance measurement and evaluation framework that tracks the funding, design, and construction of safety strategies over time, policy revisions implemented, and the resulting changes in the number and severity of crashes on city, county, and state roads.

## A Safer Future Ahead

The Burnet County SAP is a commitment to action and a roadmap to a safer future. By fully understanding our safety challenges and working together on proven countermeasures, we are improving communities, so no family fears a preventable, life-altering crash. We acknowledge that the challenge is serious, but we approach it with hope and determination, knowing that even one death on our roads is one too many.

> THE JOURNEY TOWARD ZERO FATALITIES AND SERIOUS INJURIES WILL NOT BE EASY OR IMMEDIATE, **BUT IT IS ACHIEVABLE.**

With strong leadership, engaged community partners, and a focus on saving lives, Burnet County, its cities, and all safety stakeholders are on a clear path toward safer roads for all residents and visitors. Every step we take, every intersection improved, every safety campaign launched, every risky behavior changed—makes Burnet County a safer place for *all*.

# How Did We Get Here?

This section describes the need for safety planning and how it fits into CAMPO's RSAP.

## Setting the Stage for Safety

Texas roads have experienced at least one traffic fatality every day since November 7, 2000 — a tragic streak that continues to this day. With focused efforts and a shared commitment to safety, Texas can one day mark another death-free day on its roads. In Burnet County, there were **54 fatal crashes** that resulted in 57 fatalities and 255 serious injury crashes that resulted in 307 people with serious injuries **from 2019 to 2023.** These were not just numbers; they were our friends, our family, and our neighbors. Every loss is a tragedy, and as a community, we must refuse to accept this as the norm.

Burnet County and CAMPO acknowledge the profound impact of this ongoing tragedy and remain committed to improving safety for our community and the region. In 2022, the U.S. Department of Transportation granted CAMPO funding from the Safe Streets for All (SS4A) Grant Program to develop an RSAP to improve roadway safety for all users. CAMPO's RSAP aims to decrease and eventually eliminate fatal and serious injury crashes in the region through a data-driven, comprehensive plan of action.

## CAMPO Regional Safety Action Plan

CAMPO is developing its RSAP from the bottom up, starting with county-level safety planning. Each county within the CAMPO region – Bastrop, Burnet, Caldwell, Hays, Travis, and Williamson – is developing its own county-level SAP. The localized safety needs, priorities, and solutions for each county will then be aggregated to inform broader regional strategies for inclusion within the larger CAMPO RSAP. The Burnet County SAP was developed as part of this broader regional effort and is included as a chapter in the RSAP.

# Vision, Goals, and Objectives to Achieve a Safer Burnet County

This section presents Burnet County's transportation safety vision, supporting goals, and objectives. The objectives are organized around safer traffic, fostering a culture of safety, and reducing risk exposure through active transportation and transit. This section also includes a discussion on measuring and evaluating the performance of the goals and objectives.

## A Vision for the County

Everyone traveling on streets and roads in Burnet County should be able to reach their destination safely every time. This inspired the vision statement for the Burnet County SAP:

*Burnet County's diverse stakeholders are committed to a **safe** and **connected** transportation network for **all users** and will improve transportation safety through strategic planning and collaboration.*

Burnet County's transportation safety goals and objectives are based on research and analyses of the roadway safety goals, objectives, and strategies set by the federal government, TxDOT, and various municipalities, regional planning organizations, and agencies. The specific objectives differ from one department and agency to the next, but the goals they aim to achieve are consistent. Across the U.S., the State of Texas, and Burnet County, the reduction and elimination of fatalities and serious injuries on streets and roads is identified as the top priority.

The objectives described herein are organized under three separate categories (Traffic, Culture, and Active Transportation Modes and Transit), but many apply across multiple categories. These objectives are not exhaustive either; rather, they provide a foundation for action. Achieving Burnet County's goal of reducing and eliminating traffic-related deaths and serious injuries will require ongoing collaboration among all stakeholders working across these categories to create a safer, more connected, and accessible transportation system for everyone in Burnet County.

## Burnet County's Road to Zero Goals

In May 2019, the Texas Transportation Commission (TTC) set the Road to Zero Goal—the first statewide, official roadway safety goal in Texas to reduce and eventually eliminate transportation-related deaths. Multiple regional, county, and local agencies in Texas have since adopted the same or similar goals to support the TTC's efforts. The Road to Zero Goal has guided TxDOT to work toward reducing the number of deaths on Texas streets and roads by half by the year 2035 and to zero by the year 2050.

**Burnet County's Goals:** Burnet County's transportation safety goals are consistent with the TTC's Road to Zero Goal:

1. Reduce the number of fatal and serious injury crashes in Burnet County by half by 2035.
2. Eliminate all fatal and serious injury crashes in Burnet County by 2050.

To regularly track progress and identify funding and staff resources to achieve this goal, Burnet County's stakeholders set a target of a 5% annual reduction in KA (killed or seriously injured) crashes.


## Road to Zero Safety Objectives

Addressing this trend and achieving Burnet County's safety goals requires establishing specific, measurable objectives and a strategic plan of action. The objectives shown in black are shared objectives across the CAMPO region. Objectives in ***blue*** are unique to Burnet County.

As previously noted, the County's safety objectives are organized into three categories:

## SAFER TRAFFIC FOR ALL

The objectives in the Traffic category aim to find specific ways to make street and road traffic (which includes motorists, pedestrians, cyclists, and transit users) safer in Burnet County communities.

**Traffic Safety Objectives:**

1. Reduce the number of fatal and serious injury crashes in Burnet County that:
   - Involve bicycles, pedestrians, ***and motorcyclists***.
   - ***Are the results of the most common crash types:*** roadway and lane departures***, speed-related, single vehicle crashes, same direction crashes, angle crashes, and opposite direction crashes.***
2. Maintain or reduce emergency and incident response time to crash events throughout the county.
3. ***Promote safe and efficient freight and commercial traffic, particularly on roadways where truck traffic is appropriate based on land use and roadway context (i.e., highways and designated truck routes).***

## FOSTERING A CULTURE OF SAFETY

The objectives laid out in the Culture category aim to shift the current roadway user and driver culture to one more focused on safety, particularly that of vulnerable road users.

**Culture of Safety Objectives:**

1. ***Coordinate efforts among public agencies and organizations across Burnet County, including TxDOT, to address traffic safety.***
2. Reduce distracted driving, driving under the influence of alcohol or other drugs, aggressive driving, and speeding in Burnet County.
3. Educate the public in Burnet County on their role in keeping their streets and roads safe to create a prosocial traffic safety culture.
4. Educate younger and older drivers on safe transportation practices.

### REDUCING RISK EXPOSURE THROUGH ACTIVE TRANSPORTATION AND TRANSIT

Mode shift from personal motor vehicle travel to active transportation and transit is key to improving transportation safety by reducing exposure to motor vehicle travel. First, reducing vehicle miles traveled reduces the potential for crashes to occur. Additionally, providing non-driving travel options can have an even greater benefit when statistically riskier driver types (based on crash history) choose these modes. Examples include young and novice drivers, aging drivers, impaired drivers, and drowsy drivers.

These objectives aim to improve transit and active modes of transportation, since shifting more trips to these modes will help reduce and eventually eliminate the number of fatal and serious injury crashes.

**Active Transportation and Transit Safety Objectives:**

1. Connect key corridors throughout Burnet County so that pedestrians and cyclists have safe access and connections to different parts of the region.

2. Maintain a safe, efficient, reliable, and well-connected intraregional transit system throughout Burnet County.

## Performance Measures and Evaluation

It is important to ensure ongoing transparency with stakeholders and the public regarding the progress of projects and strategies in this plan and their effects. As part of an ongoing task within the CAMPO RSAP, **a Safety Planning framework and a toolkit for project tracking** are being developed to measure progress over time during the implementation of this county-level SAP and future updates, looking at both outputs and outcomes. CAMPO is expected to maintain tools for tracking progress and will rely on Burnet County and its member jurisdictions to regularly provide relevant data on policies and projects.

### PROJECT PROGRESS: OUTPUTS

The measured outputs are the direct projects and strategies implemented from this safety plan. Each is evidence that activities were performed toward the goal of reducing the number and severity of collisions in Burnet County. The following examples outline areas where impacts can be made on roadway safety outcomes:

5% ***Track progress of the target of 5% annual reduction in fatal and serious injury crashes, through county and regional data.***

Assess the frequency and effectiveness of coordination meetings and communication among stakeholders, aiming for continuous improvement in collaboration.

Safety projects

- Number of safety projects completed on the High Injury Network
- Number of projects completed that address system risk factors
- Number of projects completed in a transportation underserved community
- Number of bicycle, pedestrian, and transit enhancement projects completed

Plan adoptions (e.g., Complete Streets, Active Transportation Plans, etc.)

Policy revisions (such as speed limit setting and neighborhood traffic calming)

Public engagement

- Number of public meetings
- Number of responses received for public participation
- Distribution of public meetings and responses across the county

Regular updates and tracking of the Crash Records Information System (CRIS) Dashboard data

For projects, this progress includes securing federal, state, regional, and/or local funding, completion of plans, specifications, and estimates, and construction of the project on the street. For policy revisions or additions, steps include assessment and analysis of a current policy, draft and final versions of revisions submitted to local governing bodies, and implementation of the new policy that may lead to a safer roadway system.

#### PROJECT EFFECTIVENESS: OUTCOMES

Beyond tracking each action and activity, it is important to know how effective those projects, strategies, and policy changes are to the ultimate outcome - improving safety in Burnet County. The most common measures in traffic safety are the number, type, and severity of roadway collisions:

- Total number of fatal crashes and serious injury crashes
    - Separated by mode (motorists - including motorcyclists, pedestrians, and cyclists).
    - Number of fatal crashes and serious injury crashes that involve risky road user behaviors (e.g., speeding, driving impaired by substances).
- Rate of fatal crashes and serious injury crashes, often normalized by population or vehicle miles traveled.
- Before and after studies at project locations to determine effectiveness.

CAMPO will continue to maintain a publicly accessible CRIS dashboard that displays available crash data, including, at a minimum, the number, type, and severity of crashes occurring in member counties, including Burnet. In addition, CAMPO will consider incorporating datasets gained through the RSAP into its existing dashboards. Burnet County and its member jurisdictions are encouraged to track the effectiveness of each project and strategy, using data available based on the type of implementation. For example, before-and-after crash data can be used to study the change in annual collisions at an intersection or along a corridor. For behavior-based strategies, studying the public's awareness of a campaign and their self-identified behavior in a survey are considered outcomes, as these metrics can indicate the benefits of outreach and engagement.

# Safety Analysis

This section describes the need to improve roadway safety in Burnet County, the data analysis methodology, and the safety analysis results.

## Why Does the County Need to Improve Roadway Safety?

**Burnet County experienced 54 fatal crashes and 255 serious injury crashes from 2019 to 2023.** These are our friends, our family, and our neighbors – our Burnet County community – and these deaths and life-altering injuries are unacceptable. Many of these crashes were preventable, which is why Burnet County has committed to improving roadway safety.

The Burnet County SAP aims to reduce and eventually eliminate fatal and serious injury crashes by 2050. The recommended ways to achieve this goal are based on the results from the safety analysis.

Crash data from the most recent five years (2019 – 2023) was obtained for Burnet County, and crash patterns by many contributing factors (e.g., mode of travel, lighting condition, weather condition, impaired driving involvement) were studied and presented in this Plan. Analyzing crash patterns revealed common factors contributing to fatalities and serious injuries, which provide the County focus areas for improving roadway safety.

**Hotspot** and **High Injury Network** (HIN) analyses enable us to take a reactive approach to addressing safety in locations known to have crashes that resulted in fatal and serious injuries. Systemic analysis helps identify location characteristics more susceptible to fatal and serious injuries in the future, so we can take proactive steps to reduce safety risks before

crashes occur. This plan provides recommendations and countermeasures that target both locations with a history of severe crashes and locations with high risk factors for severe crashes for all roadway users in the County.

See **Appendix A** for the detailed Burnet County Crash Safety Analysis, including the methodology and results.

## Data Analysis Methodology

This section describes the core data analysis methodology: how crash data was gathered and used, how the county's crash history was evaluated, how commonalities and crash risks were evaluated, and how high injury networks were used in the analysis.

### HOW WAS CRASH DATA GATHERED AND USED?

Crash data from 2019 to 2023 was collected from the Texas Crash Records Information System maintained by TxDOT. The crash data consists of crashes by severity using the **KABCO scale**[1]: fatal injury (K), suspected serious injury (A), suspected minor injury (B), possible injury (C), non-injured (O), and unknown. This dataset also contains information such as different crash contributing factors, manner of collision, and date and time. This dataset relies on law enforcement reporting and may not have all the information for all the crashes. For example, hit and run crashes where the driver's injury is unknown fall under the "unknown" crash severity type.

As part of the systemic and HIN analysis, crash and roadway inventory datasets are used. The crashes are associated with the respective roadway corridors that provide an understanding of crash patterns by different roadway characteristics such as functional classification, roadway ownership, and number of travel lanes.

### HOW DO WE EVALUATE BURNET COUNTY'S CRASH HISTORY?

A historical crash analysis was conducted for all of Burnet County and then broken down by state-owned roadways and locally owned roadways. The state-owned roadways are freeways, ramps, and highways. The locally owned roads are all other roadways, excluding the state-owned ones. Crash patterns by years, severity type, and combined fatal and suspected serious injury type are studied. **Figure 2** below shows how the various analyses support plan development. The following subsections describe statewide safety emphasis areas and county-specific emphasis areas.

[1] The KABCO scale, developed by the Federal Highway Administration (FHWA), is a standardized system used by law enforcement to classify traffic crash injuries.

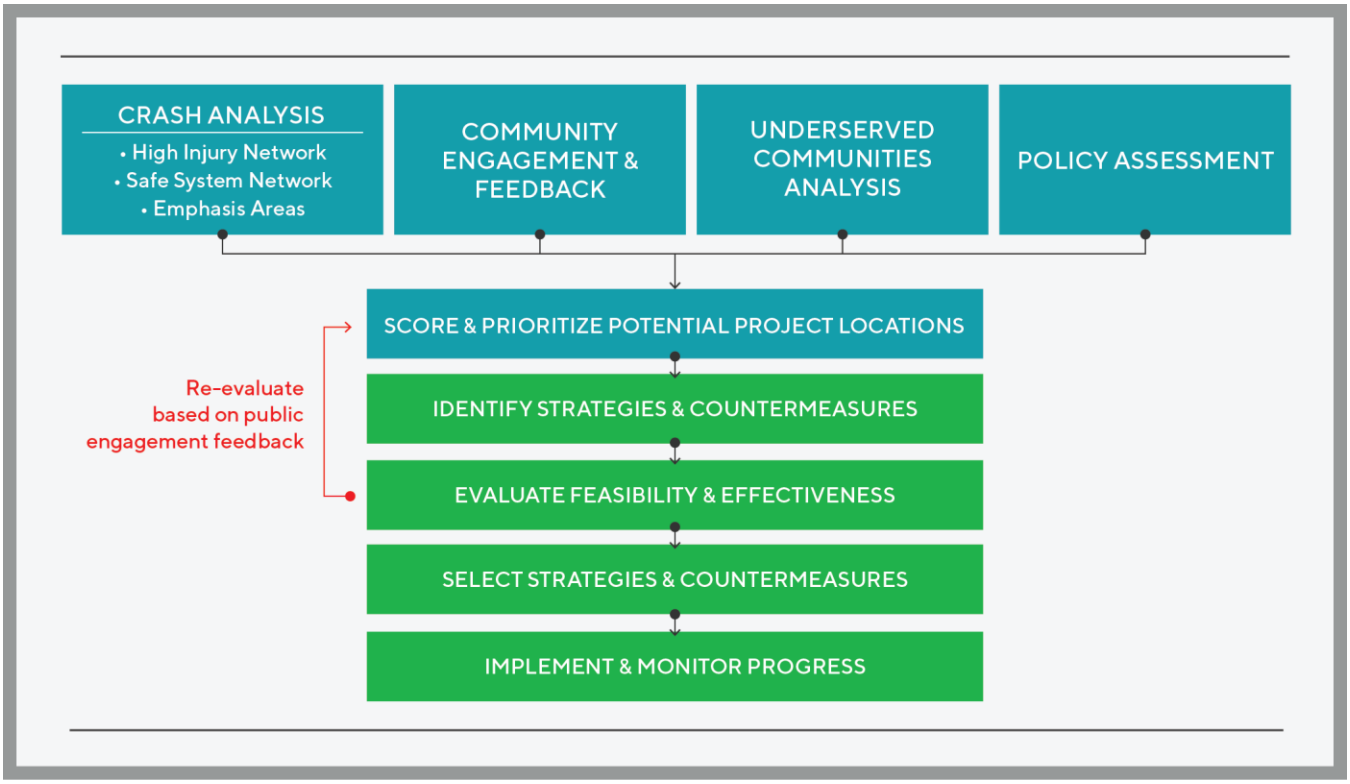



FIGURE 2: BURNET COUNTY CRASH ANALYSIS METHODOLOGY

### Statewide Emphasis Areas

In a Strategic Highway Safety Plan context, "emphasis areas" refer to specific focus areas identified to address key safety issues on roadways. These areas are prioritized based on data analysis, crash trends, and overall safety goals. By concentrating resources and efforts on these emphasis areas, agencies aim to reduce fatalities and serious injuries more effectively.

The Texas SHSP recommends the emphasis areas shown in **Table 1** for reducing highway fatalities and serious injuries on all public roads of Texas.

TABLE 1: TEXAS STRATEGIC HIGHWAY SAFETY PLAN EMPHASIS AREAS

| | EMPHASIS AREA | DESCRIPTION |
|---|---|---|
|  | ROADWAY OR LANE DEPARTURES | Crashes where a vehicle departs from the traveled way by crossing an edge line, a centerline, or otherwise leaving the roadway |
|  | OCCUPANT PROTECTION | Crashes involving improper or complete lack of vehicle occupant protection such as wearing a seatbelt or using a car seat for children |

| | EMPHASIS AREA | DESCRIPTION |
|---|---|---|
|  | OLDER DRIVERS | Crashes involving drivers 65 years old or older |
|  | YOUNGER DRIVERS | Crashes involving drivers between the ages of 15 and 20 |
|  | SPEED RELATED | Crashes where speeding was a contributing factor |
|  | IMPAIRED DRIVING | Crashes involving drug or alcohol impairment |
|  | INTERSECTION RELATED | Crashes occurring at or near an intersection |
|  | DISTRACTED DRIVING | Crashes involving inattention or distractions such as use of a cell phone |
|  | PEDESTRIAN | Crashes involving pedestrians |
|  | PEDALCYCLIST | Crashes involving cyclists |
|  | POST CRASH CARE | Enhance the survivability of crashes through expedient access to emergency medical care, while creating a safe working environment for vital first responders and preventing secondary crashes through robust traffic incident management practices |

The Texas SHSP framework was used to identify crashes in the above-mentioned emphasis areas. Given that the crash database does not contain sufficient data on post-crash care, this emphasis area is not analyzed in this Plan.

### County-Specific Emphasis Areas

The countywide crash trends are analyzed to capture statewide, regional, and local emphasis areas. Local emphasis areas are specific to crash trends found in Burnet County:

**School Zones -** Crashes occurring at or near schools.

**Passing Related -** Crashes related to vehicles passing unsafely, leading to head-on collisions or crashes because of avoidant action.

**Construction Related -** Crashes involving commercial vehicles are believed to be related to ongoing development in Burnet County.

**Dark Conditions -** Crashes occurring at night or in areas with low or no lighting.

#### HOW DO WE EVALUATE COMMONALITIES AND CRASH RISKS IN THE COUNTY?

The systemic safety approach used the same fatal and suspected serious injury (KA) crash dataset from the historical crash analysis, emphasizing areas associated with the highest crash proportions. This data-driven methodology aims to uncover patterns and commonalities across emphasis areas to identify the most critical crash types and their corresponding contributing factors. By analyzing these relationships, the study targeted systemic characteristics associated with high crash proportions rather than isolated hotspots, enabling a broader and more effective application of countermeasures. See **Appendix A** for the detailed Systemic Safety Analysis, including the methodology used to develop the analysis and the results.

#### HOW WAS A HIGH INJURY NETWORK USED IN THE ANALYSIS?

A vital component of regional safety analysis is the development of a high injury network that identifies areas with a high need for safety enhancements. To conduct a more localized and thorough evaluation of transportation safety issues in Burnet County, both an intersection HIN and a road segment HIN were developed. Establishing these two networks can identify high-priority intersections and segments of roadways that require improvements to minimize potential safety risks.

See **Appendix A** for the detailed High Injury Network analysis, including the methodology used to develop the analysis.

## Safety Analysis Results

The following subsections provide safety analysis results, including historical crash trends, systemic safety findings, and the high injury network**.**

**Figure 3** below displays crashes in Burnet County between 2019 to 2023. All (KABCO) crashes are shown in orange. Crashes that resulted in a fatal or serious injury (KA) are shown in red.

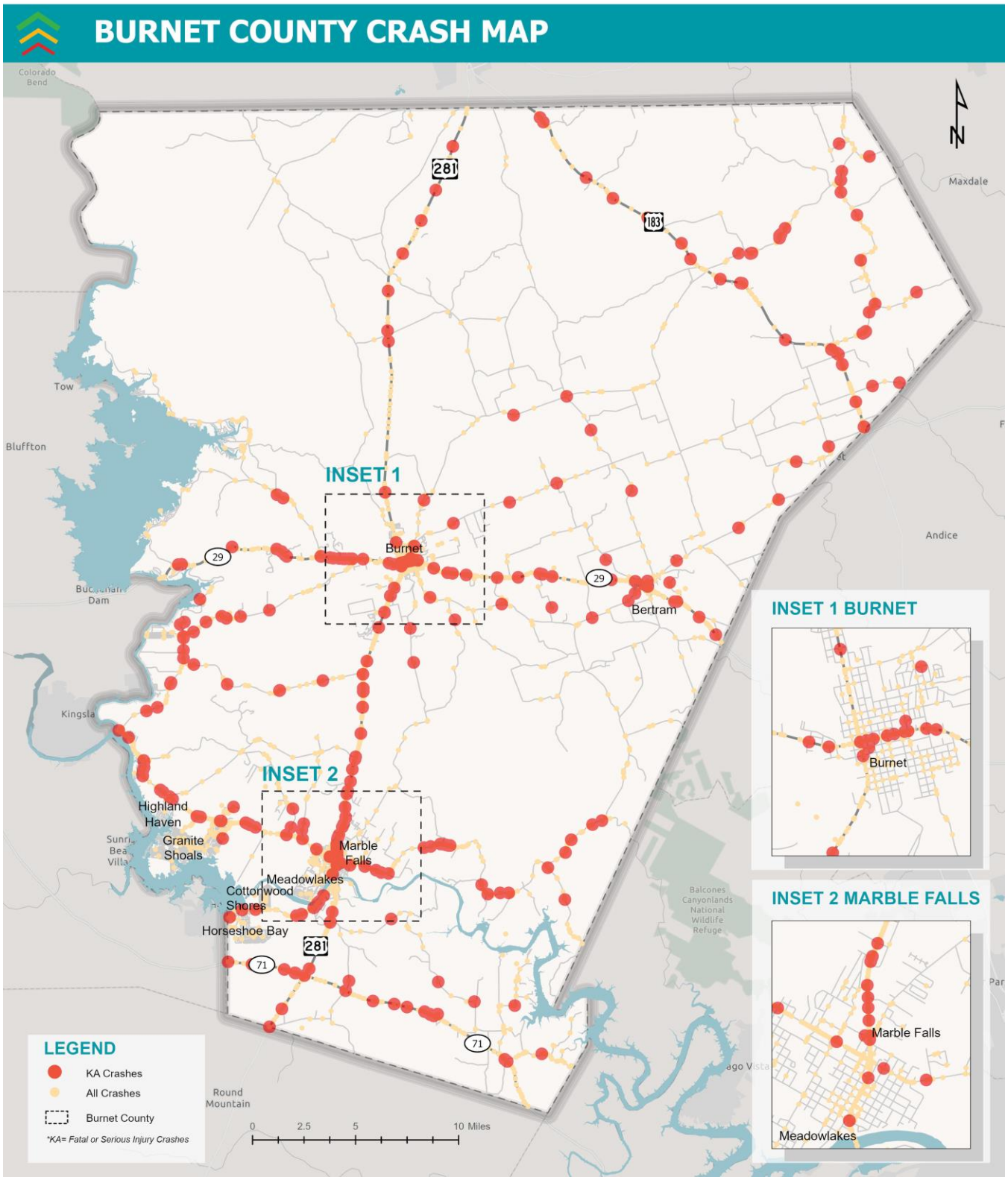
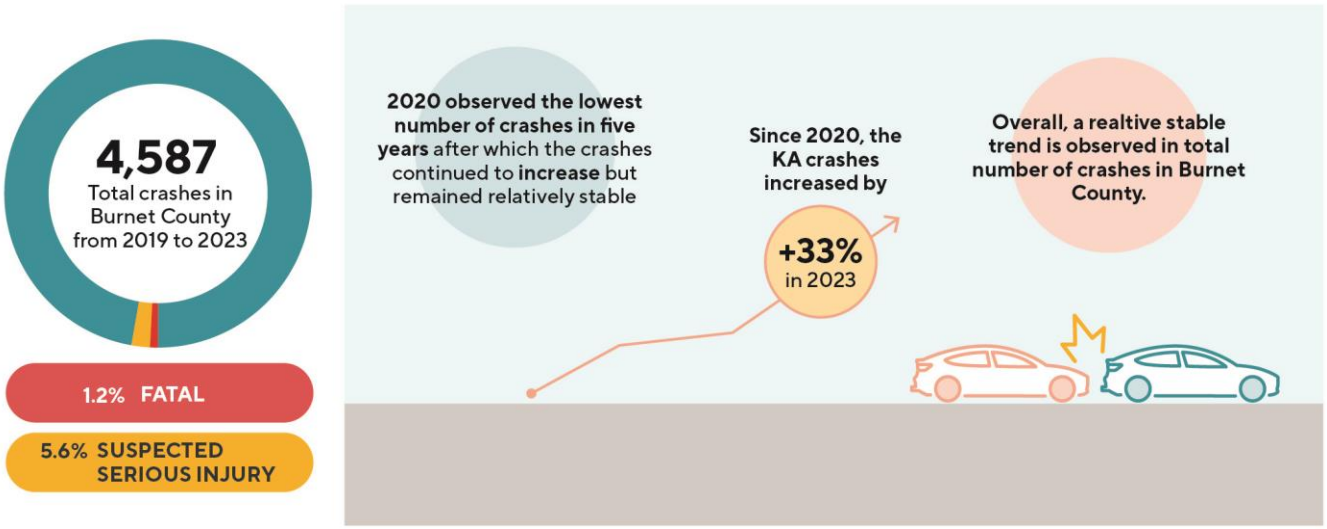



FIGURE 3: ALL CRASHES (2019-2023) IN BURNET COUNTY

### CRASH TRENDS IN BURNET COUNTY

The following section describes crash trend factors that contributed to the greatest number of reported fatal and serious injury crashes. See **Appendix A** for the detailed historical crash analysis results, including location, temporal, and other contributing factors for all crash types and severities.




Crashes increased 6% from 2020 to 2023. Overall, an upward trend in the total number of crashes in Burnet County is observed, which is consistent with regional, state, and federal crash trends. There are 116 (2.5%) crashes with unknown severity types. During the five years (2019 -2023), the year 2020 has the lowest number of crashes, which could be the result of the lower traffic volumes affected by the COVID-19 pandemic. While total crashes increased by 6%, fatal and serious injury crashes (KA) have risen much more sharply- by 33% between 2020 and 2023.

**Figure 4** summarizes the crashes resulting in injury in Burnet County between 2019 to 2023. Injury severity is reported by police officers at the time of the crash, thus, people who have worsening effects and/or visit a hospital following a crash do not get their crash report updated based on known severity following the crash. The figure excludes crashes that resulted in no injuries or where the injury severity, if any, is unknown.

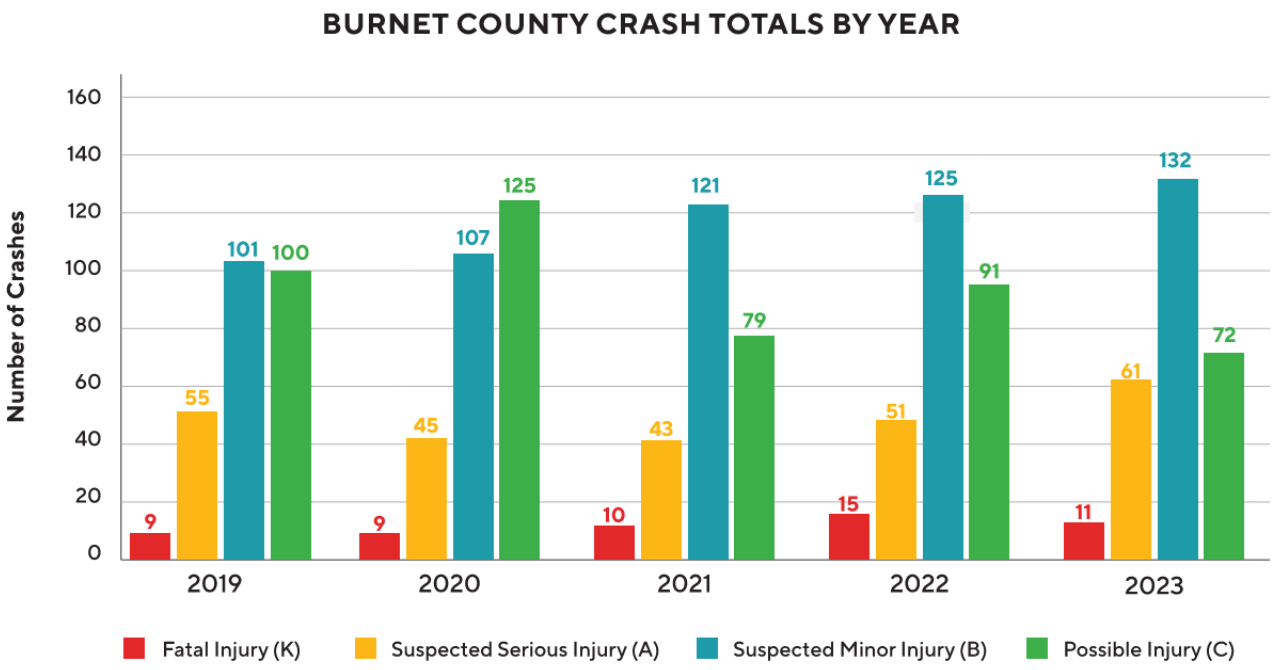



FIGURE 4: INJURY CRASHES BY YEAR AND SEVERITY (2019-2023)

**Figure 5** presents the crash trend for fatal and suspected serious injury crashes by year.

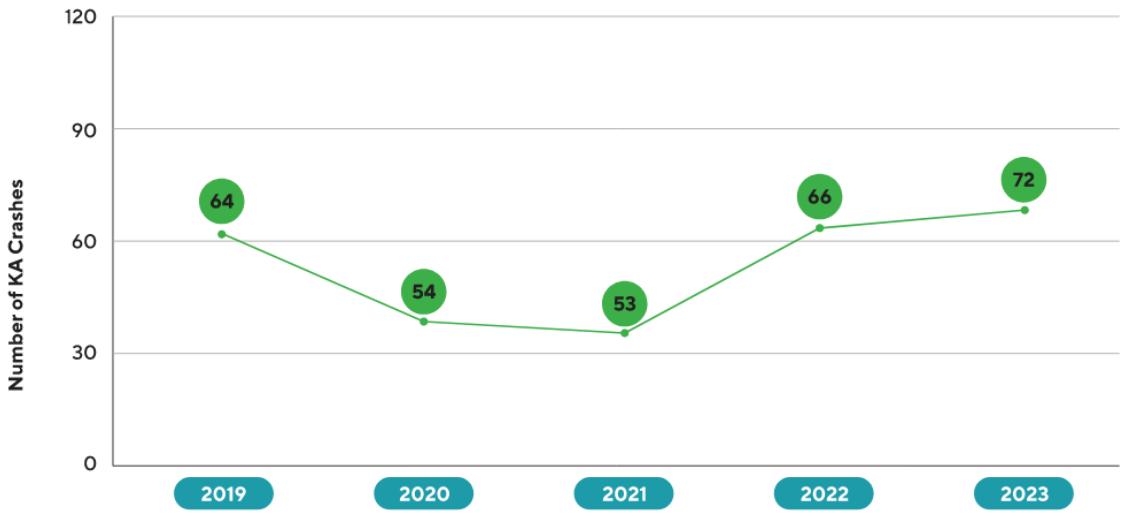



FIGURE 5: FATAL (K) AND SUSPECTED SERIOUS INJURY (A) CRASHES (2019-2023) BY YEAR

**Figure 6** summarizes crashes in Burnet County from 2019-2023 by crash type and whether they occur at an intersection or non-intersection. Intersection-related crashes comprise 36% of all crashes and 21% of KA crashes. Most intersection-related crashes are angle crashes and same direction crashes. Roadway and lane departure crashes are the most common crash type, representing 34% of all crashes and the greatest share (58%) of KA crashes. Roadway and lane departure crashes and single vehicle crashes account for a larger share of fatal and serious injury (KA) crashes than their share of all (KABCO) crashes, making these crash types more severe.

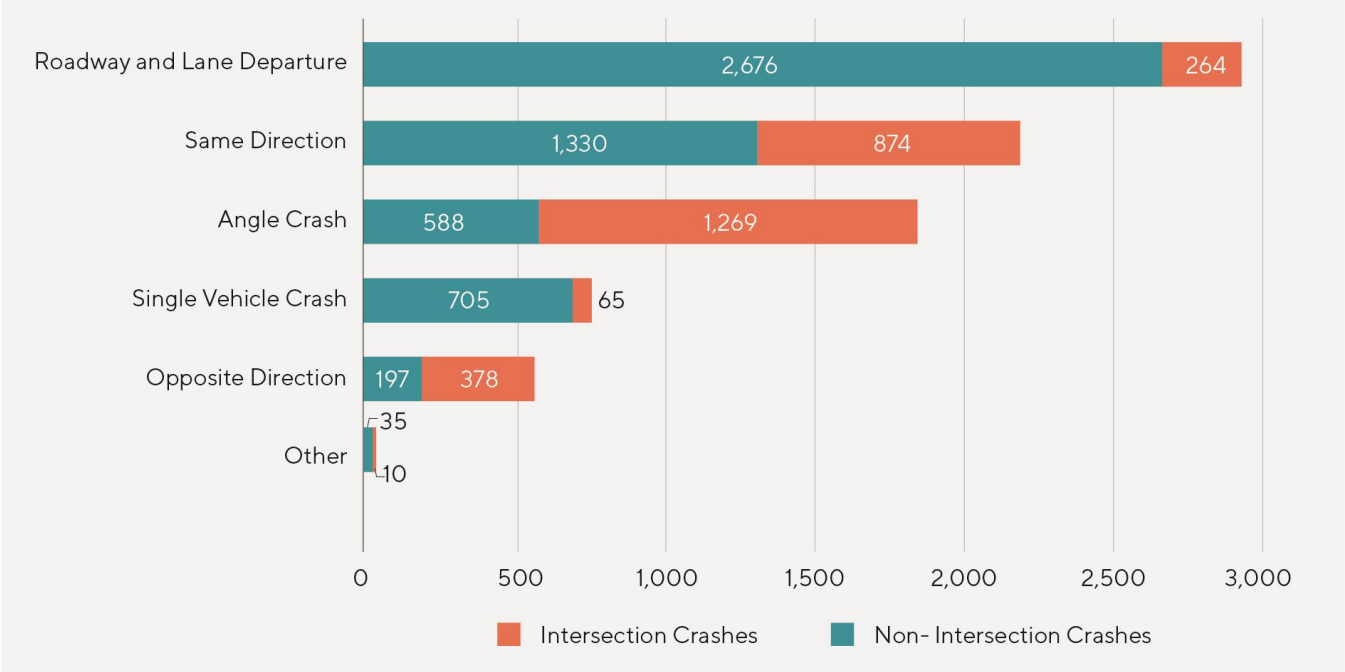


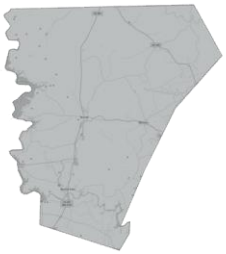

FIGURE 6: FATAL AND SERIOUS INJURY CRASHES BY TYPE (2019-2023)

Crashes are reviewed by those occurring on-system and off-system, as roadway ownership and maintenance responsibilities differ. On-system roadways include freeways, ramps, and state-owned highways, including Farm-to-Market roads. In Burnet County, on-system roadways account for 77% of total crashes and 85% of fatal and suspected serious injury (KA) crashes. In contrast, off-system roadways, which comprise all other roads, represent 23% of total crashes and 15% of KA crashes. Given the structure and usage patterns of the county's roadway network, it was deemed appropriate to analyze crashes from both on- and off-system roads collectively as a single system in the final safety analysis and conclusions. TxDOT is represented in the Safety Task Force and will be an important stakeholder to coordinate safety strategies recommended in this Plan.

Texas Department of Transportation

**77%** Total Crashes

**85%** KA crashes



**23%** Total Crashes

**15%** KA crashes

**Figure 7** presents a summary of when most crashes occur in Burnet County by time of day and weekday/weekend and trends are described below:

- Crashes are most frequent during the afternoon and evening periods and are lowest in early morning and late evening hours.
- On weekdays, crash numbers peak between 7 AM and 8 AM and 12 PM to 5 PM, respectively.

- On weekends, crashes are most frequent in the afternoon, between 1 PM and 6 PM.
- The greatest number of crashes per day occurred on a Saturday.
- The lowest number of crashes per day occurred on a Monday.
- Fatal, and serious injury (KA) crashes are most frequent from 11 AM to 9 PM.
- While all crashes are most common during typical commute periods, fatal and serious injury crashes occur more steadily throughout the evening hours.

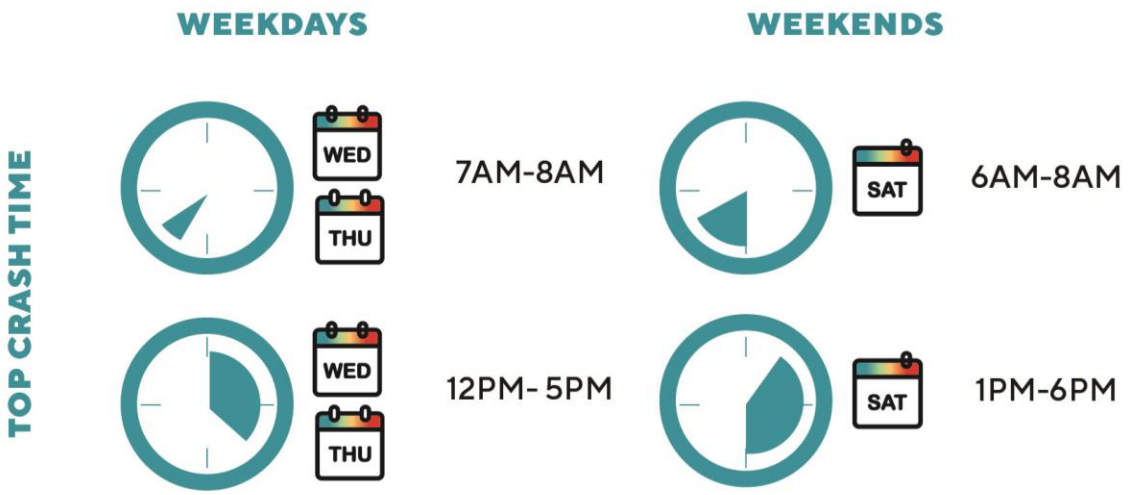



FIGURE 7: TOP CRASHES BY DAY AND TIME OF THE WEEK (2019-2023)

All crashes are summarized by lighting conditions, weather conditions, road surface conditions, and gender in **Figure 8** below.

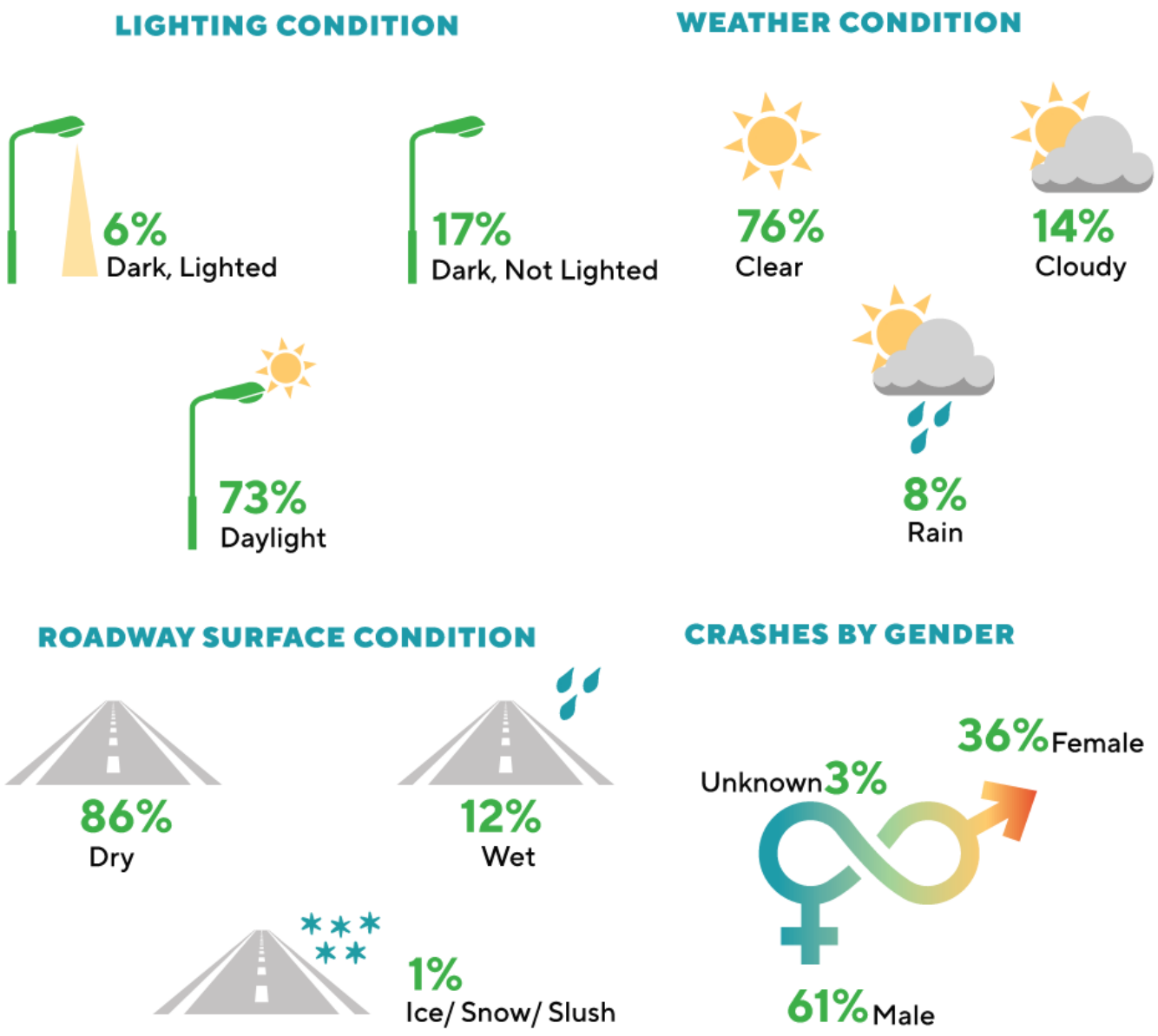



FIGURE 8: ALL CRASHES SUMMARY BY LIGHTING, WEATHER CONDITIONS, ROAD SURFACE CONDITIONS AND GENDER (2019-2023)

**Figure 9** illustrates collision factors reported in the greatest number of fatal and serious injury crashes on all roads in Burnet County from 2019 to 2023. Notably, roadway departures, motorcycle-related incidents, occupant protection issues, impaired driving, crashes occurring during dark conditions, and crashes involving vulnerable road users—including pedestrians and bicyclists—are disproportionately represented in fatal and serious injury statistics compared to all severity crashes. This suggests a higher likelihood of severe injuries in these emphasis areas. The leading three areas of emphasis in terms of fatal and serious injury crashes are **dark conditions**, **speed-related**, and **roadway departures**. The following sections provide additional insights into these three emphasis areas.

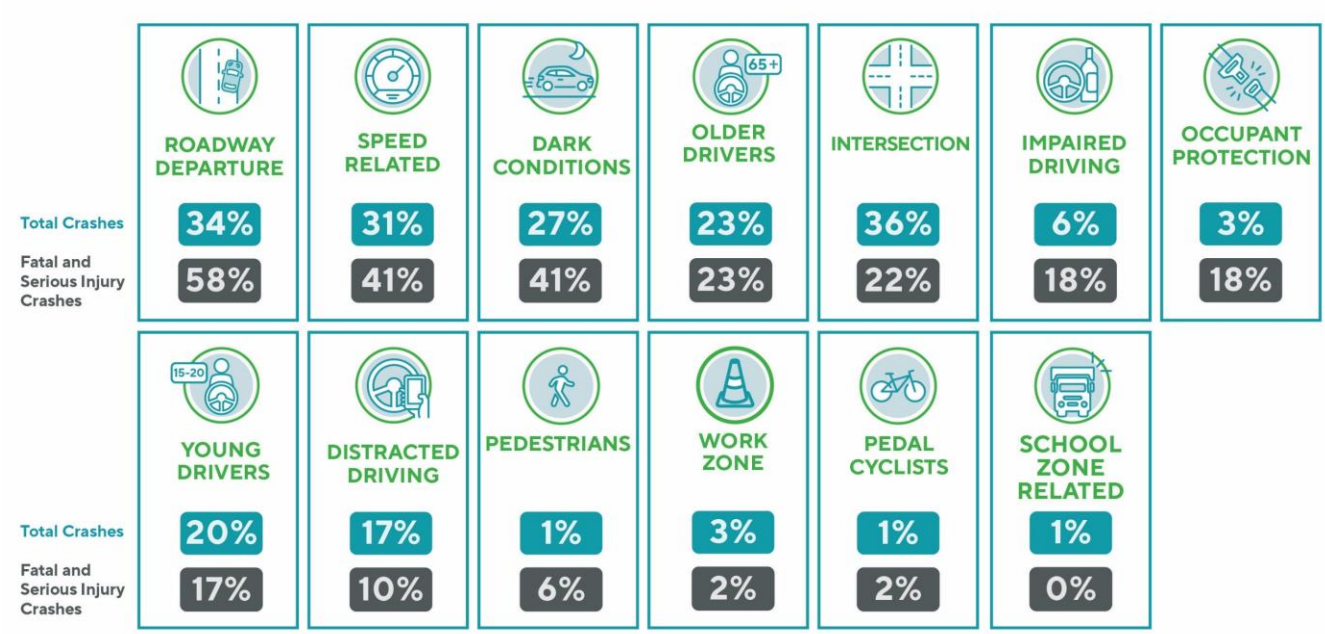
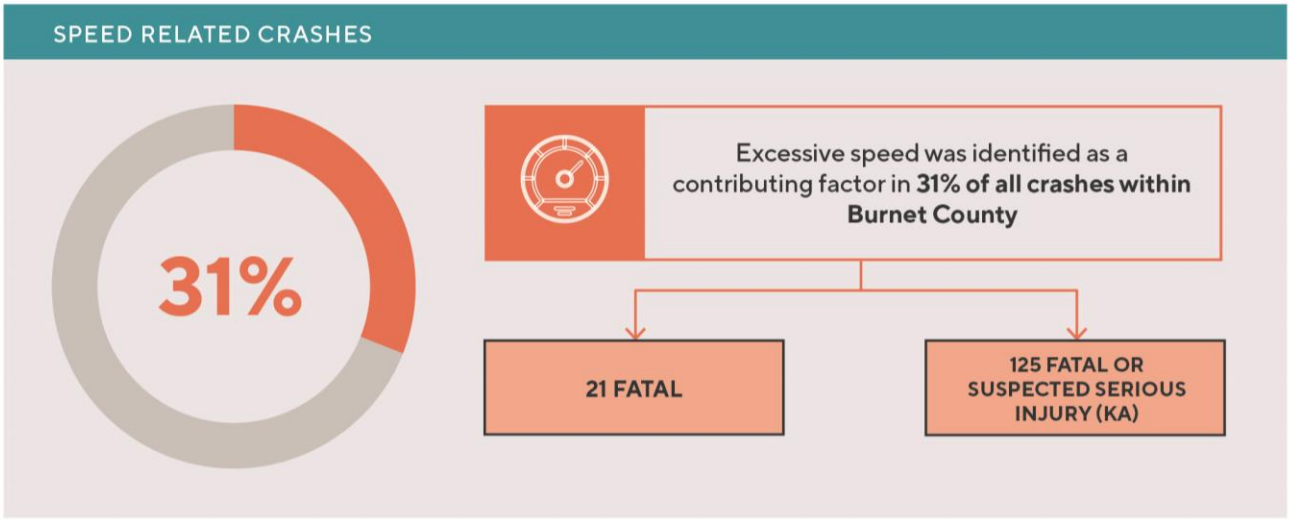



FIGURE 9: EMPHASIS AREAS WITH THE MOST FATAL AND SERIOUS INJURY CRASHES (2019-2023)

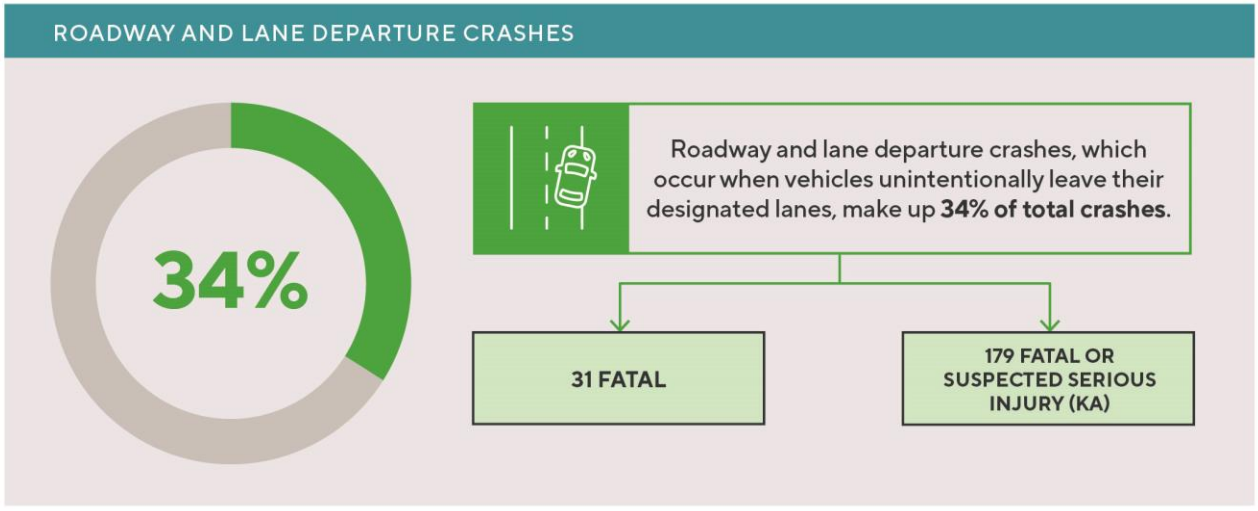
### Focus Crash Types

Following a review of collision factors in crashes from 2019-2023, Burnet County has identified the top three crash types that are significantly associated with serious injuries and fatalities: speed related, roadway and lane departure, and dark conditions. Each focus area highlights specific conditions and contributing factors that demand targeted safety improvements.

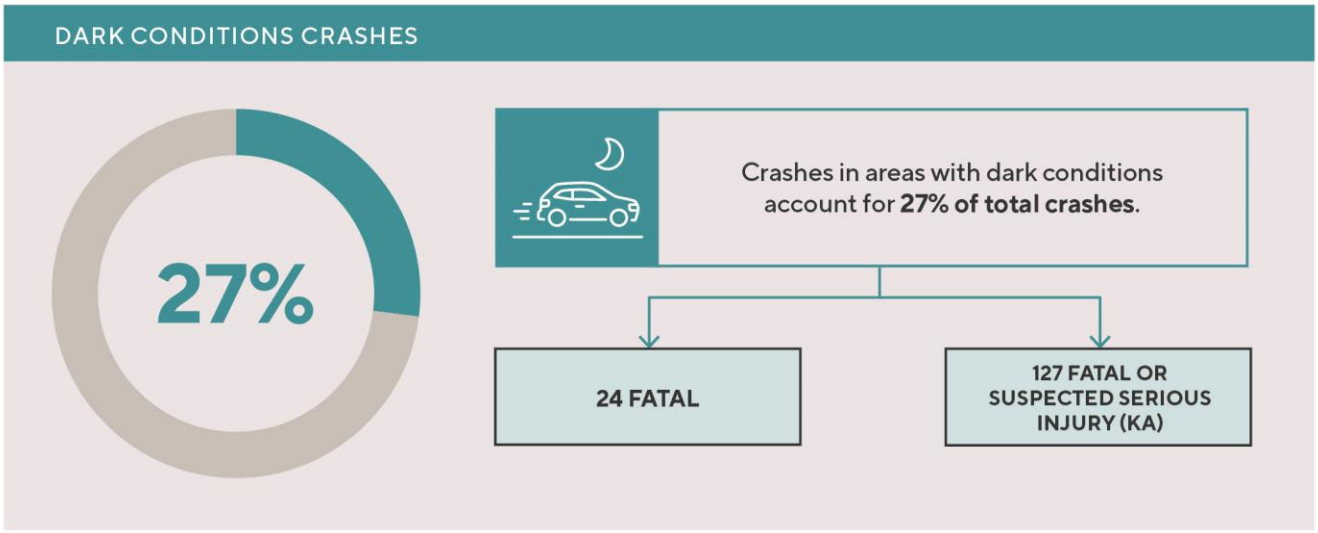
**Speed Related**: Excessive speed was a contributing factor in 31% of all crashes, playing a significant role in crash severity. Speeding was a factor in 21 fatal crashes and 104 suspected serious injury – accounting for 40% of all KA crashes. These results highlight the need for targeted traffic calming strategies and implementation of speed control measures to enhance roadway safety.




**Roadway and Lane Departure**: Roadway and lane departure crashes - incidents where vehicles unintentionally leave their designated lanes - account for 34% of total crashes in the county. These incidents are among the most severe, resulting in 31 fatal crashes and 148 crashes involving a suspected serious injury (KA). In total, they represent 58% of all KA crashes, marking a critical need to address lane departure risks.



**Dark Conditions**: Crashes occurring in dark conditions highlight the need for improved roadway and intersection lighting to enhance visibility and reduce nighttime crashes. These crashes represent 27% of total crashes. Low visibility contributed to 24 fatal crashes and 103 crashes resulting in a suspected serious injury - accounting for 41% of all KA crashes in the county.




### SYSTEMIC SAFETY ANALYSIS RESULTS

A historical crash analysis is vital to understanding trends and patterns of crashes in Burnet County; however, it is a reactive approach. A systemic safety analysis considers the crash history alongside a multitude of other crash factors to find locations that are systemically unsafe based on a variety of metrics, not just the crash data from the last five years.

By identifying patterns across these dimensions, we can identify commonalities and overlaps among emphasis area crash types, aiding in a more holistic understanding of systemic safety issues and needs. This will not only help develop a more holistic approach to countermeasures but also provide the County with a ***proactive approach*** to identifying safety issues and providing appropriate solutions in the future.

The Systemic Safety Analysis examines the relationship between **collision factors** (such as crash type and time of day) and **contextual factors** (including roadway and land use characteristics). The goal is to identify specific collision profiles that are overrepresented in fatal or severe crashes, allowing for the development of targeted countermeasures. This analysis revealed the following two collision profiles: roadway and lane departures on curves and dark conditions on rural roads.

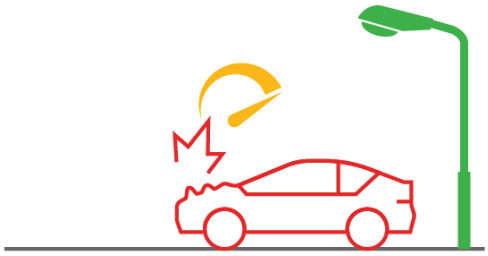
**Roadway and Lane Departure on Curves**: Roadway and lane departure crashes occurring on curves - where the road alignment is Curved/Level, Curved/Grade, or Curved/Hillcrest- represent approximately 17% of all crashes (782 out of 4,587). However, they account for 32% of KA crashes (99 out of 309). Notably, speeding was identified as a contributing

factor in approximately 63% of these KA crashes, (63 out of 99). Speeding is a high-risk factor for severe crash outcomes on curved road segments.

About **17%** of all crashes are related to road/ lane departure related crashes on curves but contributes to **32%** of KA Crashes.

**Dark Conditions on Rural Roads**: Crashes occurring in dark, not-lighted conditions on rural roads—defined as locations outside of city limits—accounted for 14% of all crashes (641 out of 4,587) and made up a significantly larger share of serious and fatal (KA) crashes at 27% (82 out of 309). Approximately half of these severe crashes involved speeding. Speeding is a high-risk factor for severe crash outcomes.

About **14%** of all crashes are related to dark not lighted conditions on rural roads but contributes to **27%** of KA Crashes, of which half are related to speeding.



### Shared Patterns Across Emphasis Areas

Contributing crash factors often overlap in locations with KA crashes. For example, crashes in dark conditions were common and closely tied to intersections, roadway departures, and speeding-related crashes. Intersection-related crashes were also linked to speed-related crashes, young driver involvement, and dark conditions. Roadway departures and speed-related crashes often involved dark conditions, intersections, and impaired driving. These overlaps highlight the need for strategies that address several emphasis areas. Countermeasures described in the next section address multiple factors present in KA crashes.

### Countermeasure Selection

The systemic approach to safety in Burnet County focuses on deploying countermeasures across the network to address crash types at multiple locations with similar risk characteristics. This allows County jurisdictions to implement cost-effective safety measures across a broader range of sites with similar high-risk site characteristics, supporting widespread safety improvements.

Countermeasures for Burnet County's focus crash types were selected based on data-driven analysis and TxDOT's Highway Safety Improvement Program guidance. These systemic countermeasures follow TxDOT's HSIP guidelines, which use specific "work codes" to help with planning and implementation. See **Appendix A** for a list of the focus crash types, and the corresponding systemic countermeasures selected for evaluation across the County.

## HIGH INJURY NETWORK ANALYSIS AND RESULTS

The High Injury Network (HIN) identifies the specific roadways and intersections where a disproportionate number of severe and fatal crashes occur. By focusing on locations with the highest concentrations of serious injuries and fatalities, the HIN serves as a foundational tool for prioritizing safety improvements and resource allocation. It highlights critical areas where targeted interventions can have the greatest impact on reducing severe crash outcomes and improving overall roadway safety. To support a more localized and detailed evaluation of transportation safety issues in Burnet County, the project team developed both an **Intersection HIN** and a **Road Segment HIN**.

An **online GIS webmap** was developed by the Regional SAP to represent the HIN of intersection and non-intersection (segment) crashes in Burnet County, using crash data from 2019 to 2023. The webmap displays detailed information about crash severity, emphasis areas, roadway ownership, and segment lengths for both intersections and roadway segments.

Given the level of technical detail, the webmap — along with a supporting data dashboard containing crash trends and statistics for each HIN — was provided to stakeholders for a more in-depth review. Neither the webmap nor the dashboard are included directly within this plan, but they serve as key resources to guide ongoing safety efforts.

### High Injury Network Results

**The Intersection HIN** includes **all roads** (both on-system and off-system intersections). This approach helps identify HIN locations that may not appear on TxDOT road segments.

The project team used a Sliding Window methodology to identify segments that represented the most fatal and serious injury crashes for the segment HIN. Only crashes **not** occurring at intersections (Intersection Related field equal to "NON-INTERSECTION" or "DRIVEWAY ACCESS") were considered for the segment HIN. **Appendix A** describes the methodology for developing the HIN.

The HIN captures **60%** of KA crashes occurring on local roads and highways and covers **5%** of the road network.

A small portion of the roadway network accounted for a disproportionate share of crashes. Just 5% of roadway miles where crashes occurred in the past 5 years observed 60% of all fatal and serious injury crashes. The HINs indicate a strong concentration of severe safety issues on a limited portion of the network, **highlighting key opportunities for targeted improvements**. The task force prioritized twenty intersections which capture 45% of fatal and serious injury (KA) crashes on the Intersection HIN.

The following 20 intersections represent critical locations within the network where safety improvements are most needed:

1. US 281 & RM 2147
2. US 183 & CR 210/218
3. US 281 & SH 29
4. US 281 & Mission Hill Road/Mormon Mill Road
5. US 281 & 2nd Street
6. US 281 & RM 1855

7. US 281 & W Jackson Street
8. US 281 & RM 1431/Main Street
9. SH 29 & RM 2341
10. SH 29 & RM 0243
11. US 281 & N Pierce Street
12. US 281 & Northwood
13. RM 1431 & Avenue J
14. RM 1431 & RM 2342
15. RM 1431 & Industrial Blvd
16. US 281 & SH 71
17. RM 2342 & PR 04
18. US 281 & Broadway Street/Sunset Drive
19. RM 1431 & Sunset Drive
20. SH 29 & S Rhomberg

**Figure 10** presents the high-injury segments and intersections. **Figure 11** highlights the segment and intersection HIN for all roads in different regions in Burnet County.

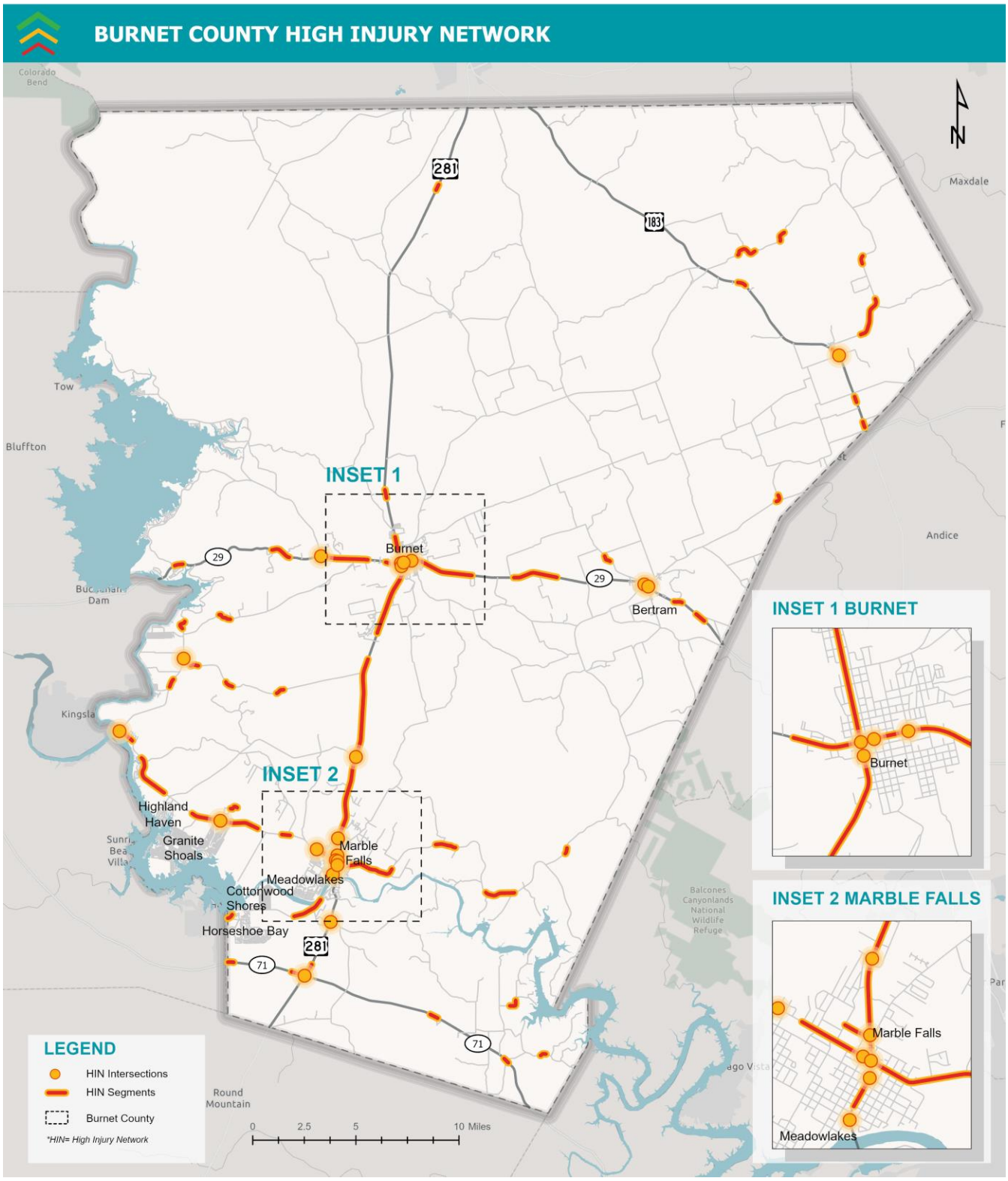
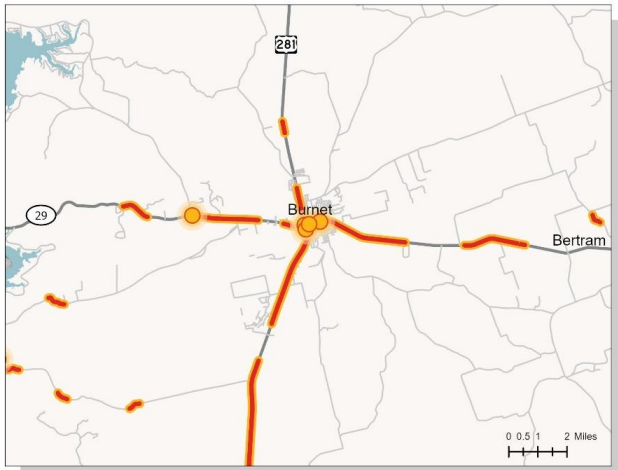


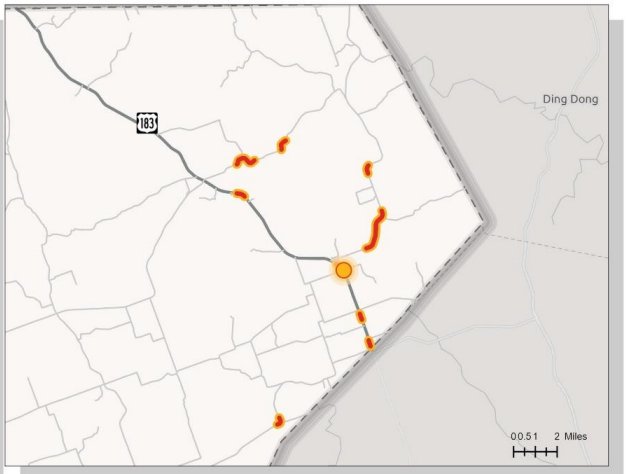

FIGURE 10: BURNET COUNTY SEGMENT AND INTERSECTION HIGH INJURY NETWORKS (2019-2023)

# BURNET COUNTY HIGH INJURY NETWORK

## INSET 1 BURNET




## INSET 2 NE INTERSECTION




## INSET 3 MARBLE FALLS


## INSET 4 BERTRAM


## KEY MAP

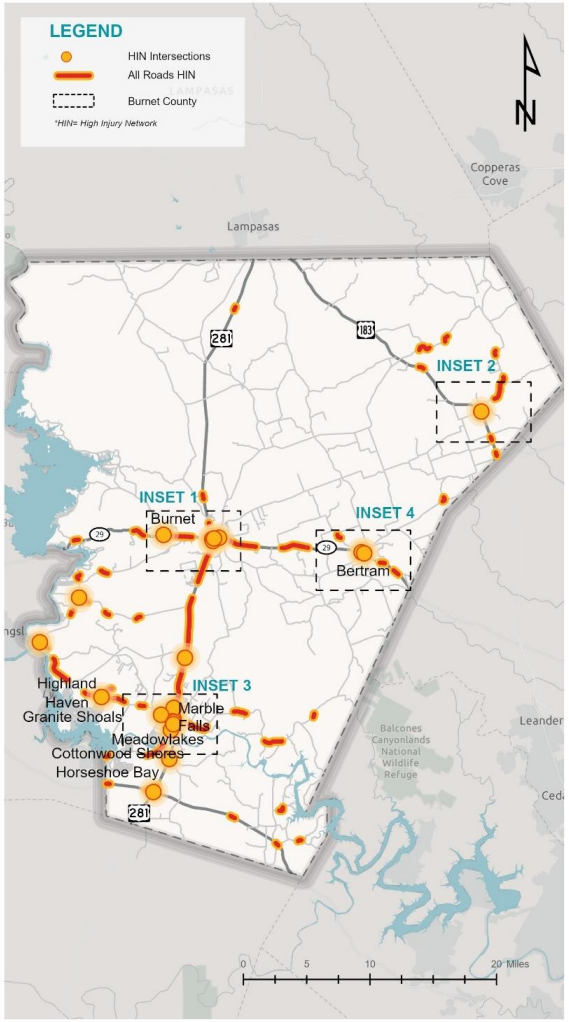



FIGURE 11: REGIONAL SEGMENT AND INTERSECTION HIGH INJURY NETWORKS IN BURNET COUNTY (2019-2023)

## Underserved Communities Analysis

The underserved communities analysis aims to identify the populations in Burnet County disproportionately affected by the safety risks within the transportation system. Historically, underserved communities face mobility challenges because they may be unable to drive or are less likely to have access to a vehicle or public transportation. As a result, this plan can promote investments in facilities and services designed to alleviate these obstacles.

This analysis serves as a strategic framework to guide decision-making and investments aimed at addressing socio-demographic disparities through transportation improvements. A key focus is supporting vulnerable populations, with benefits to underserved communities prioritized in the planning process. The identified emphasis areas informed the selection of effective countermeasures to reduce fatal and serious injury crashes in the county.

This analysis is limited to available data and may not fully capture how transportation safety affects all underserved populations. The methodology used to identify underserved need areas, along with the subsequent analysis, aligns with the approach applied in the CAMPO RSAP. To identify the underserved community, the following three publicly available datasets were used:

1. **Areas of Persistent Poverty** information from the U.S. Department of Transportation. An area is defined as "Areas of Persistent Poverty" if its poverty rate is at least 20 percent.
2. **Title VI -** Census Tracts with less than 50% of the population identifying as "White, non-Hispanic" using the most recent American Community Survey (ACS) data.
3. **Vulnerable Population** – CAMPO used a sociodemographic index to identify Vulnerable Populations. This index combines seven demographic measures to create a vulnerability score for each census block group and tract. These measures include low-income populations, minority populations, senior populations, school-aged populations, disabled populations, limited English proficiency populations, and zero-car households. This approach is consistent with federal planning guidance (e.g., Title VI of the Civil Rights Acts of 1964).

**Figure 12** displays the results of the regional analysis specifically for Burnet County. In Burnet County, there are no areas of persistent poverty. Vulnerable populations are found near and within urban areas, including the City of Burnet, Marble Falls, Cottonwood Shores, Horseshoe Bay, and Granite Shoals. Underserved communities make up 5% of Burnet County's land area and 32% of the fatal and serious injury crashes. **The overall crash rate by area is nine times higher in the underserved communities compared to the non-underserved communities.**

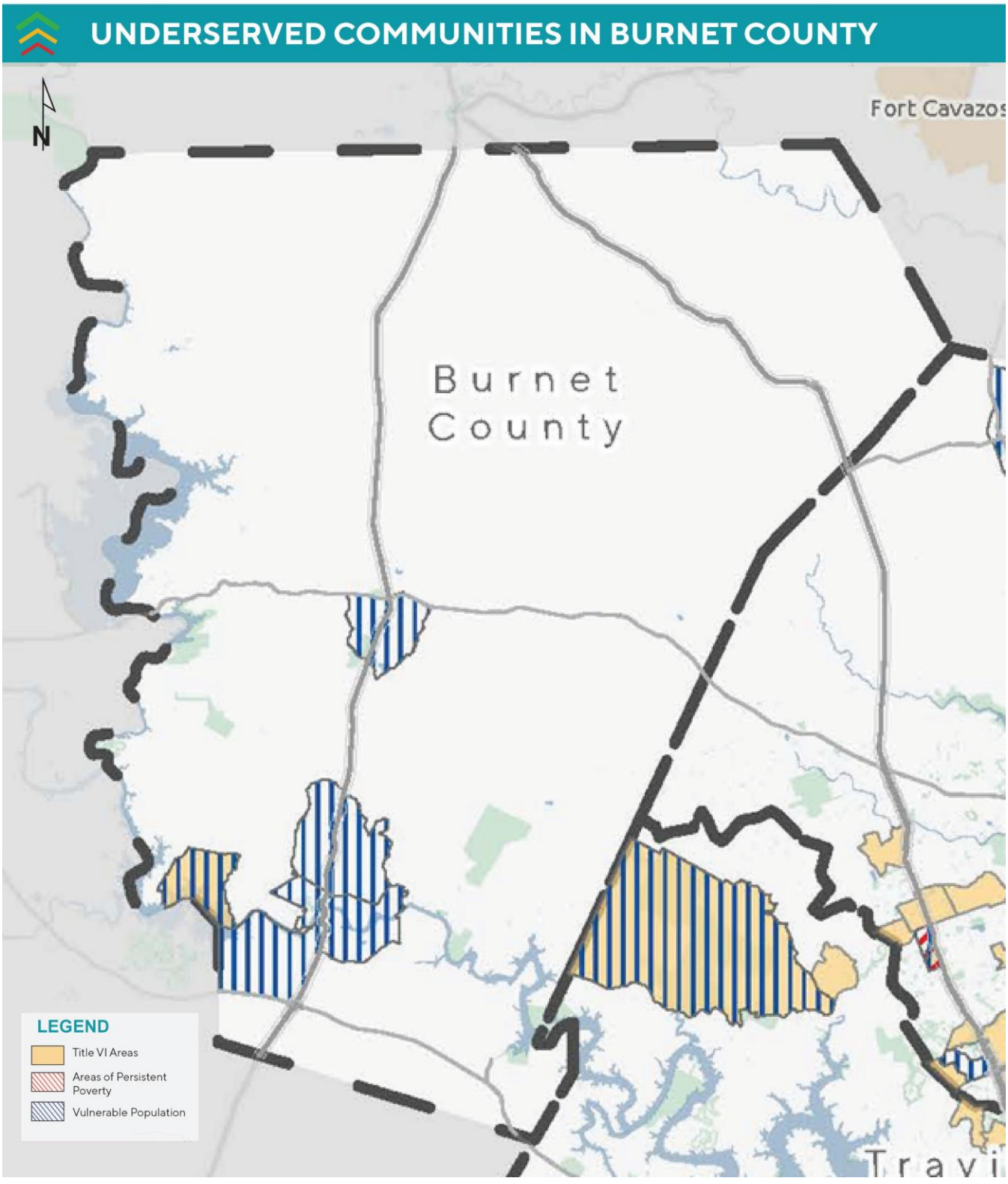



FIGURE 12: UNDERSERVED COMMUNITIES IN BURNET COUNTY

Throughout the region, the most common contributing factors to fatal and serious injury crashes in underserved communities are **intersection related, vulnerable road users, and older drivers.** The crash rate trends observed in Burnet County are consistent with the CAMPO regional trends.

> THE FATAL AND SERIOUS INJURY CRASH RATE (PER SQUARE MILE) IS NINE TIMES HIGHER IN UNDERSERVED COMMUNITIES COMPARED TO OTHER AREAS.

**Figure 13** presents the fatal and serious injury crash rates by area, population, and roadway lane miles for underserved need areas compared with non-underserved communities. KA crashes per roadway lane mile are two times greater in underserved communities compared to non-underserved communities. Underserved communities represent overrepresentation of KA crashes per square mile and per length of roadway miles. KA crashes per population are greater in non-underserved communities.

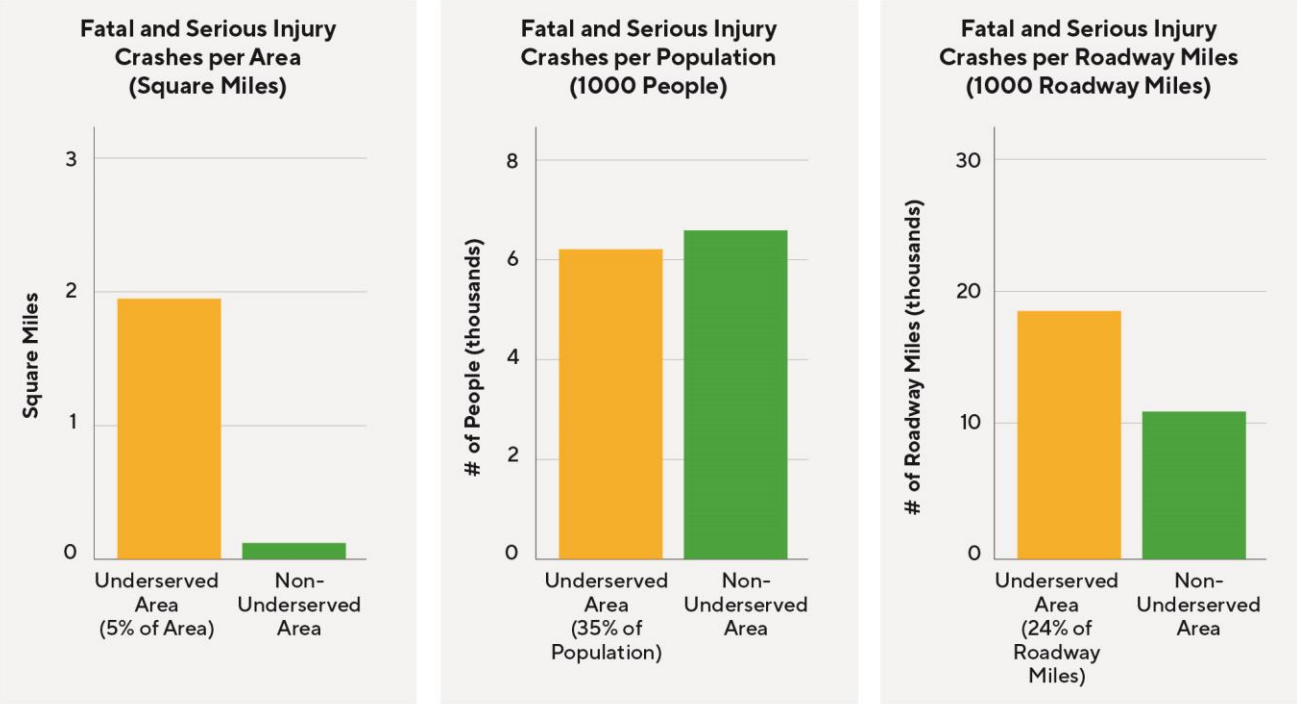



FIGURE 13: FATAL AND SERIOUS INJURY CRASH RATE BY AREA, POPULATION, AND LANE MILES

Additionally, the County identified "Transportation Vulnerable Areas" using the following data:

- **Percentage of Zero-Vehicle Households**: Project locations situated in Census Block Groups where more than 2% of households do not own a vehicle are identified as priority areas.
- **Percentage of Low-Wage Workers**: Census Block Groups with more than 15% low-wage workers are considered vulnerable areas.

The two data layers mentioned above overlap in many locations. For this analysis, a transportation-vulnerable area is defined as any area that overlaps with at least one of the two mentioned data sets. **Figure 14** illustrates the distribution of low-wage workers in Burnet County, while **Figure 15** represents the locations of zero-vehicle households. A substantial

portion of Burnet County has more than 15% of its employed population classified as low-wage workers, with the highest concentration located in the southwestern region near Highland Haven. Meanwhile, zero vehicle households are most commonly found in urban areas of Burnet and Marble Falls.

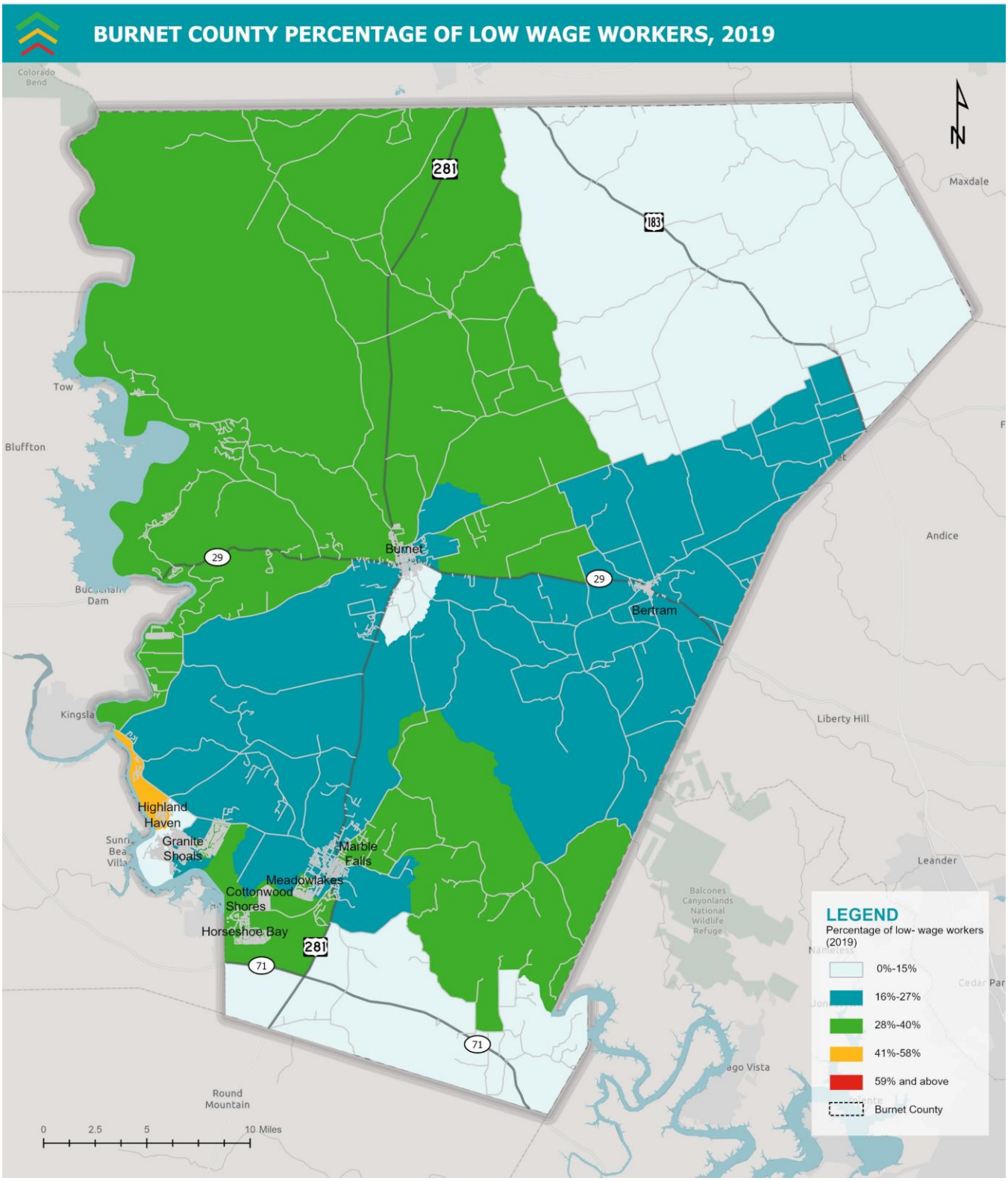



FIGURE 14: LOW-WAGE WORKERS IN BURNET COUNTY (2019)

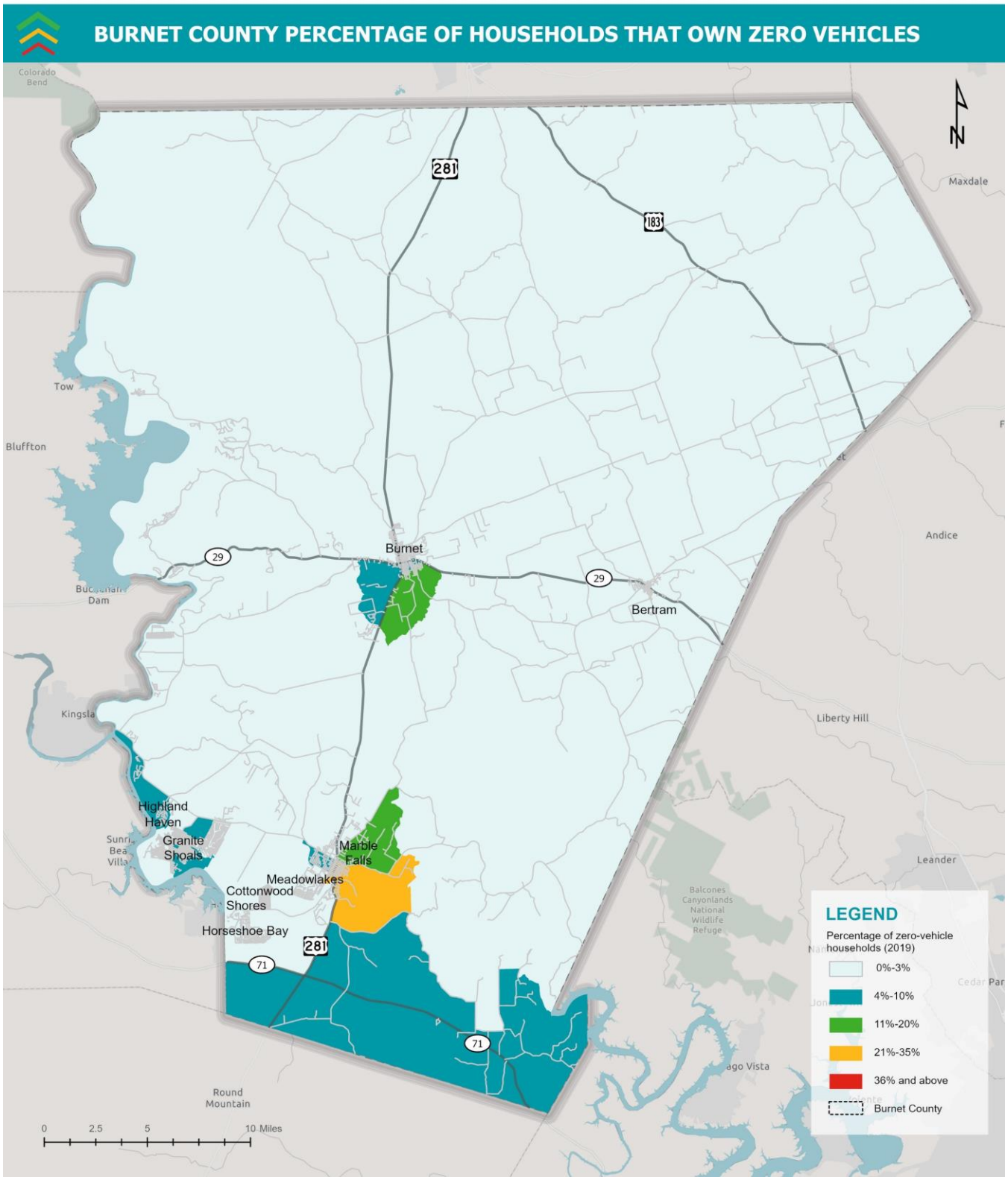



FIGURE 15: ZERO-VEHICLE HOUSEHOLDS IN BURNET COUNTY (2019)

## Task Force Considerations

A crash analysis was conducted for Burnet County to identify high-risk areas and patterns. Following this analysis, task force members were invited to provide input on locations of concern. **Figure 16** displays the crash locations, including the key areas of interest identified by the Burnet County Safety Task Force. The key areas of interest include school zones, quarry locations, areas with high truck volumes and ongoing development and construction activities, as well as other roadways with a perceived safety risk. Areas identified on **Figure 16** as "Areas of Interest" were identified by the task force based on anecdotal crash experience and on previous planning efforts with TxDOT.

Crash analyses were performed to further explore these areas of interest. These follow-up analyses reflect concerns raised during task force meetings and community engagement efforts, incorporating relevant comments, contributing factors, and locations identified as vulnerable or high risk for crashes.

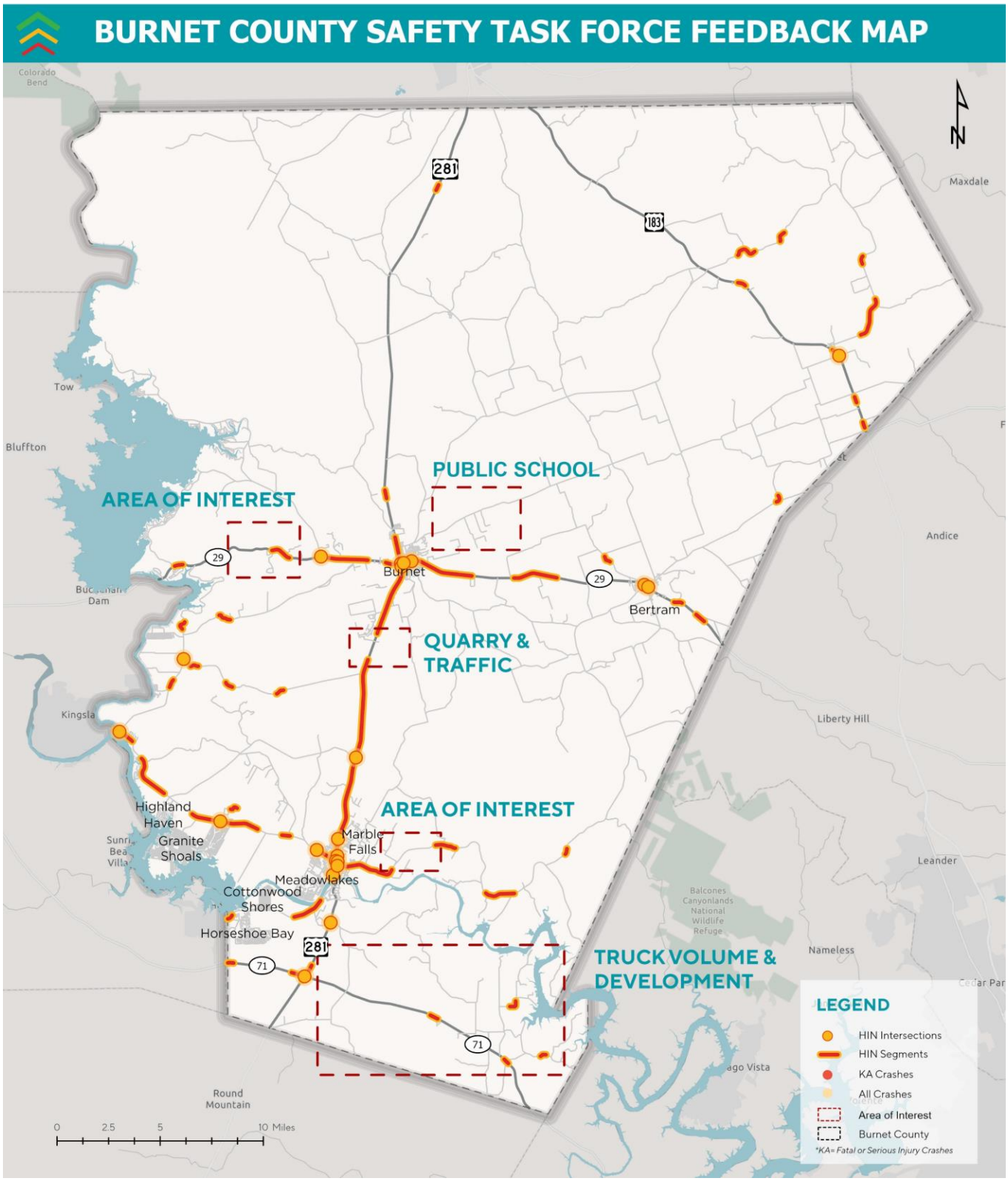



FIGURE 16: STAKEHOLDER-LED LOCATIONS OF SAFETY CONCERN

### ELEMENTARY SCHOOL LOCATIONS

Crashes occurring within or near school zones were analyzed to inform stakeholder discussions and support the prioritization of safety improvements around educational facilities. **Figure 17** shows the school locations in Burnet County overlayed with crashes from 2019-2023. This spatial analysis helps identify risk patterns and guides the development of targeted safety measures near schools. Most of the crashes that occurred near schools did not result in a fatal or serious injury. **Figure 18** shows KA crashes that occurred in school zones compared to all crashes in Burnet County. Crashes in school zones are those where the "School Zone" flag was assigned in the crash report. From 2019-2023, six crashes were recorded within school zones, five of which did not result in an injury (O) and one that was recorded as unknown injury. Overall, crashes in school zones do not represent a significant share of all crashes in Burnet County.


FIGURE 17: SCHOOL LOCATIONS IN BURNET COUNTY

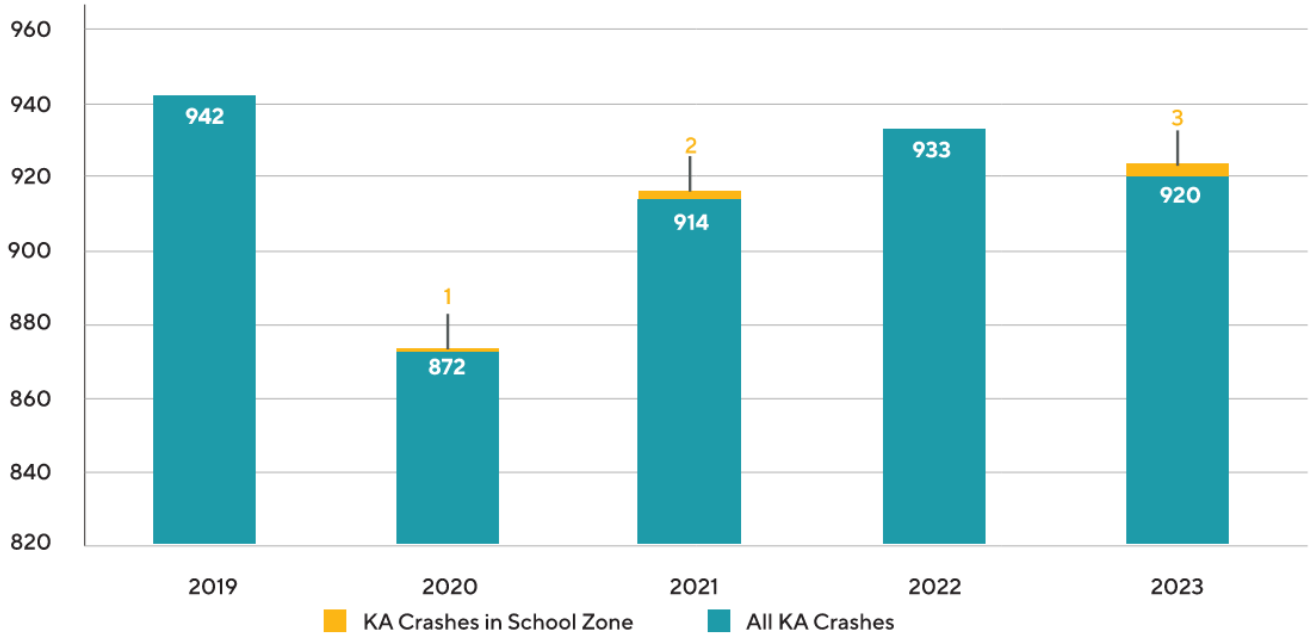



FIGURE 18: KA CRASHES IN SCHOOL ZONES IN BURNET COUNTY

## QUARRY LOCATIONS

Task force members expressed concerns regarding heavy quarry vehicle activity in Burnet County. Crashes within a 5-mile radius of quarry sites are analyzed in response to these concerns. Stakeholders indicated that quarry operations may influence driver behavior and traffic patterns, potentially contributing to increased crash risk on roadways frequently used for heavy truck access in Burnet County. **Figure 19** shows the quarry locations with Burnet County and nearby crash locations as of 2024, which are located along US 281 approximately four miles south of downtown Burnet near Ramsey's Way and Park Road 4 S.

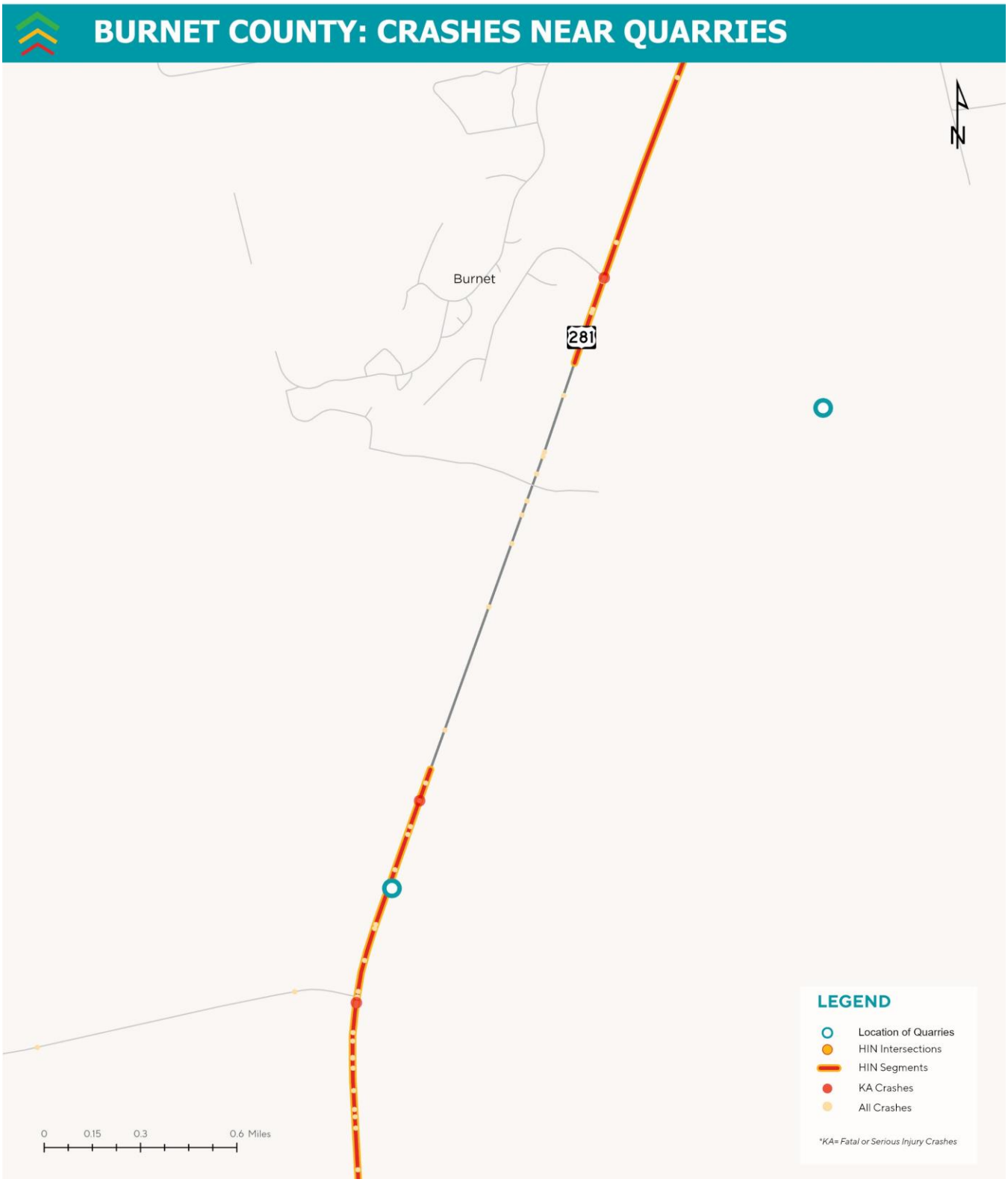



FIGURE 19: QUARRY LOCATIONS IN BURNET COUNTY (2024) AND CRASH HISTORY (2019-2023)

### TRUCK ACTIVITY

Heavy truck and construction traffic emerged as a major safety concern among stakeholders, particularly on roads frequently used by large trucks. To better understand this issue, a targeted analysis was conducted to compare crash locations with areas of high truck activity.

**Figure 20** presents 2023 truck volume data (AADT) alongside crash locations from the same year, which is reported from TxDOT. Trucks are classified as commercial or freight-carrying. Data from 2023 was evaluated as the most recent year of crash data available from CRIS. Roads in Burnet County with greater volumes of trucks include State Highway 71, US-281, and US-183. The majority of crashes in Burnet County —161 in total—occurred on roads with a 70-mph speed limit. In contrast, roads with speed limits between 30 and 65 mph experienced significantly fewer crashes, with counts ranging from 4 to 22 crashes. These findings suggest that roads with higher speed limits may pose a greater risk of crashes, highlighting the need for focused safety improvements in these areas, particularly along State Highway 71.

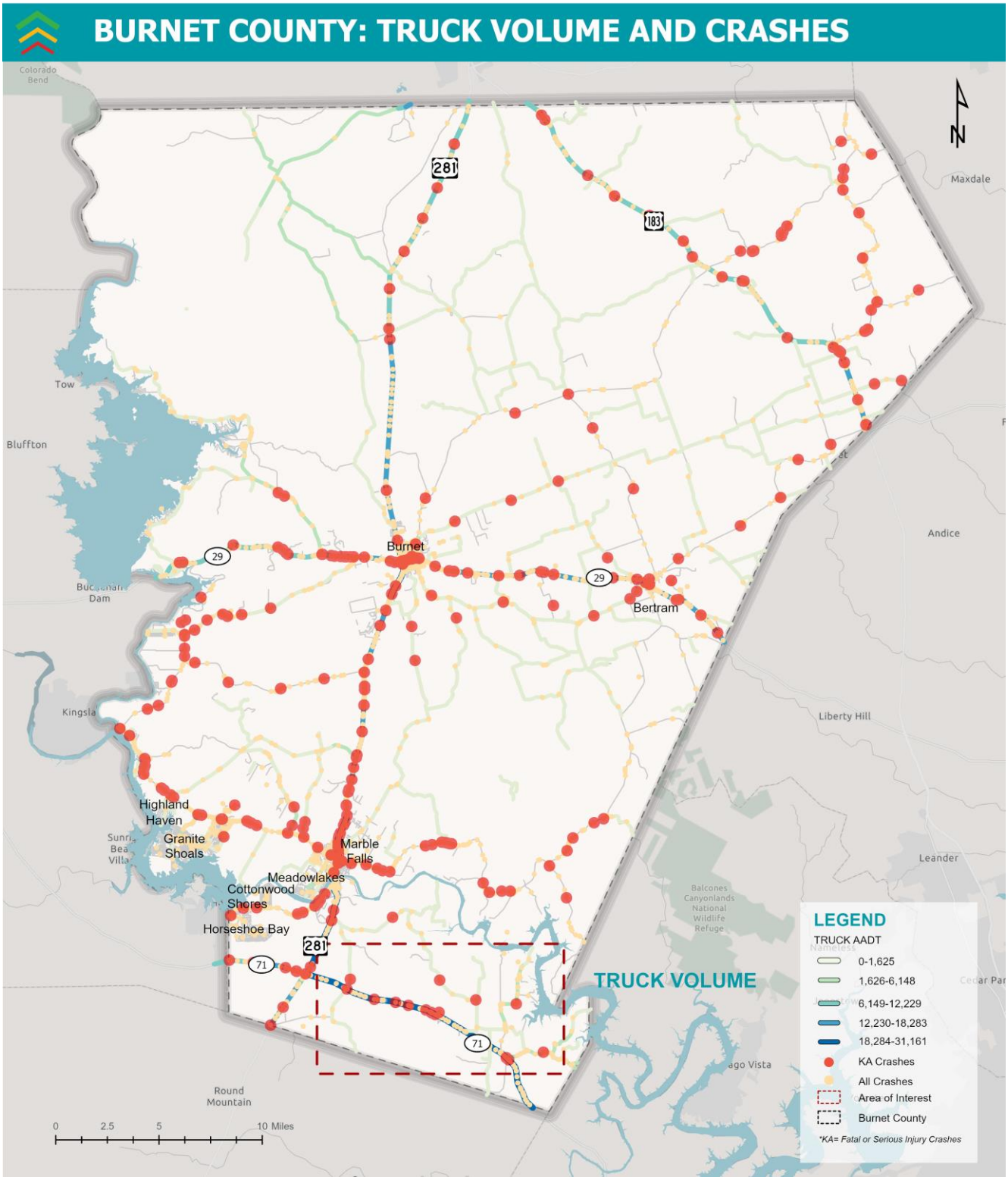



FIGURE 20: TRUCK VOLUME AND CRASHES IN BURNET COUNTY (2023)

**Figure 21** shows crashes by commercial vehicles using the **KABCO –** Crash Severity Scale. The U crash type are crashes with unknown crash severity. Crashes that involve larger vehicles tend to result in more severe injuries due to the greater density and impact force large vehicles exert in a crash. However, in Burnet County, the distribution of crashes by injury severity for commercial vehicles is similar to that of crashes for all modes, indicating crashes that involve a commercial vehicle are not disproportionately represented in fatal and serious injury crashes.

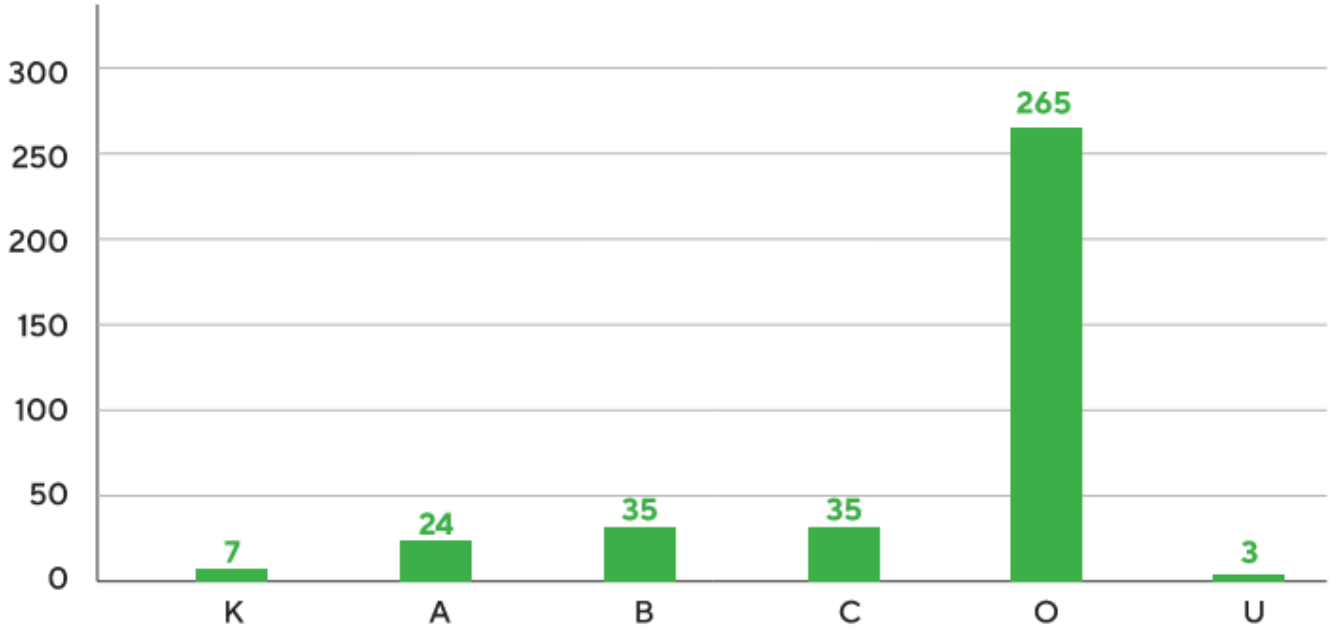



FIGURE 21: COMMERCIAL VEHICLES INVOLVED IN CRASHES BY SEVERITY

### OTHER AREAS OF INTEREST

Two other areas of interest identified in **Figure 16** include W State Highway 29, approximately five miles west of downtown Burnet, and E Farm to Market 1431, approximately three miles east of downtown Marble Falls. These roadway segments were identified by task force members as areas of concern due to perceived safety, including from roadway geometry and curvature.

## Engaging the Community

CAMPO invited the public to participate in the Regional Safety Action Plan outreach efforts. The efforts were divided into two rounds of engagement done regionally, focusing on supporting the county Safety Action Plans. Both rounds of outreach included **an online open house** and **in-person pop-up** engagement events in Bastrop, Burnet, Caldwell, Hays, and Williamson counties. The first two rounds of outreach events and planning were done concurrently with the CAMPO 2050 Regional Transportation Plan. This section describes both rounds of engagement. Round 3 of public engagement will occur in summer 2025 for feedback on the RSAP.

### Round 1 Engagement

Round 1 of the outreach efforts introduced the project to the public and collected input from the community on the most pressing roadway safety issues and specific areas of concern.

The first public engagement phase included an in-person engagement event in Burnet County, an online open house, and a comment period open from October 14 through November 14, 2024. The same information was made available online and in-person. The open house materials included downloadable informational exhibits, a fact sheet, a survey, and an interactive mapping tool. All the outreach materials were posted online and available in English and Spanish.

Public input was collected through printed or online survey responses, emailed comments, the mapped comment tool, or verbally at in-person engagement events.

The following subsections describe the engagement approach and what we heard from the community.

## THE ENGAGEMENT APPROACH

This section provides an overview of the approach for an in-person engagement event and the notification tools used for outreach.

### In-Person Engagement Events

A pop-up engagement event in Burnet County, shown in Error! Reference source not found. **Figure 2 2** occurred at the City of Marble Falls Fall Fest on October 26, 2024. The project team collected verbal comments about safety concerns, promoted the survey and mapping tool, and distributed push cards with additional information about the online open house and comment period. Public feedback gathered during Fall Fest highlighted safety concerns near Marble Falls High School, as well as the need for sidewalks to improve access to nearby stores. A total of 21 people were engaged during the pop-up at Fall Fest.


FIGURE 22: ROUND 1 ENGAGEMENT POP-UP AT MARBLE FALLS FALL FEST

### Notification Tools

This section describes the notification tools used- webpage, social media, ads, media, emails, and other methods.

#### CAMPO Webpage Announcement

An announcement was posted on the webpage on October 15, 2024, notifying the public about the launch of the online open house and open comment period.

#### Social Media

From October 16 through November 27, 2024, CAMPO's X (formerly known as Twitter), Facebook, Instagram, and LinkedIn accounts distributed information about the plan and how to participate.

### Advertisements

Print and digital advertisements were placed in *Community Impact* , as shown in **Table 2** from October 15 through November 16, 2024, and in local newspapers from October 16 to 18, 2024, including the Burnet Bulletin and the Marble Fallas Highlander.

TABLE 2: REGIONAL ADVERTISEMENTS IN COMMUNITY IMPACT

| COMMUNITY IMPACT REGIONAL ADVERTISEMENTS | |
|---|---|
| **REGION** | **RUN DATE** |
| LEANDER / LIBERTY HILL | October 15, 2024 |
| GEORGETOWN | October 18, 2024 |
| CEDAR PARK/FAR NORTHWEST AUSTIN | November 2, 2024 |
| ROUND ROCK | November 5, 2024 |
| PFLUGERVILLE | November 8, 2024 |

### Media Outreach

A media release was distributed to local media outlets throughout the region on October 21, 2024.

### Emails

To promote participation, email notices were sent to stakeholders, task force members, and community partners on October 21 and October 24, 2024.

### Additional Outreach


The outreach team made direct phone calls and emails throughout the comment period to promote and encourage the distribution of online open house materials throughout October and November. Push cards were distributed to local jurisdictions, Meals on Wheels deliveries throughout the CAMPO region, health centers, libraries, senior centers, churches, and CARTS stations throughout the comment period. Additionally, the outreach team shared a social media toolkit, including a newsletter and social media content with task force members, regional public information officers, and communications directors from October 16 through November 21, 2024.

### WHAT WE HEARD FROM THE COMMUNITY

CAMPO received 42 survey submissions and 71 online mapped comments. Verbal comments and questions from in-person engagement events were also noted.

**Survey Feedback**

During the Round 1 comment period, CAMPO received 42 completed or partially completed surveys. **Figure 23** shows the Round 1 engagement summary where 20% live or own property in Burnet County and 80% travel to Burnet County for recreation purposes.

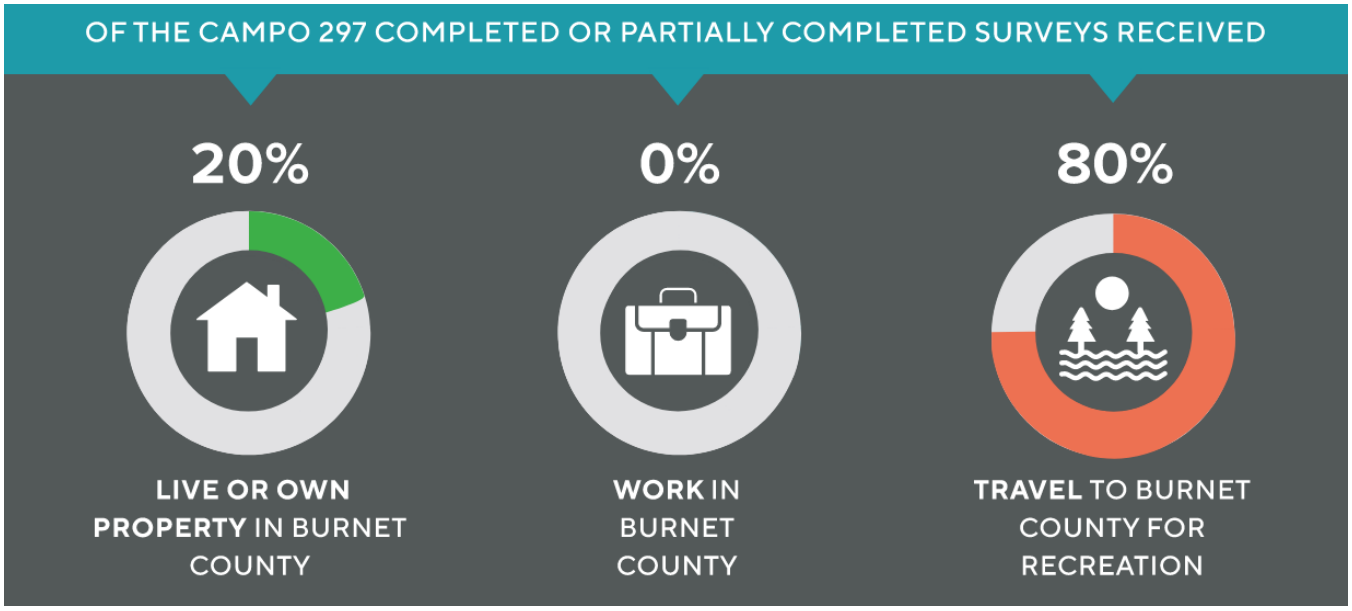



FIGURE 23: ROUND 1 ENGAGEMENT SUMMARY

**Figure 24** shows major transportation factors affecting safety in Burnet County and respondents' perception of safety in Burnet County.

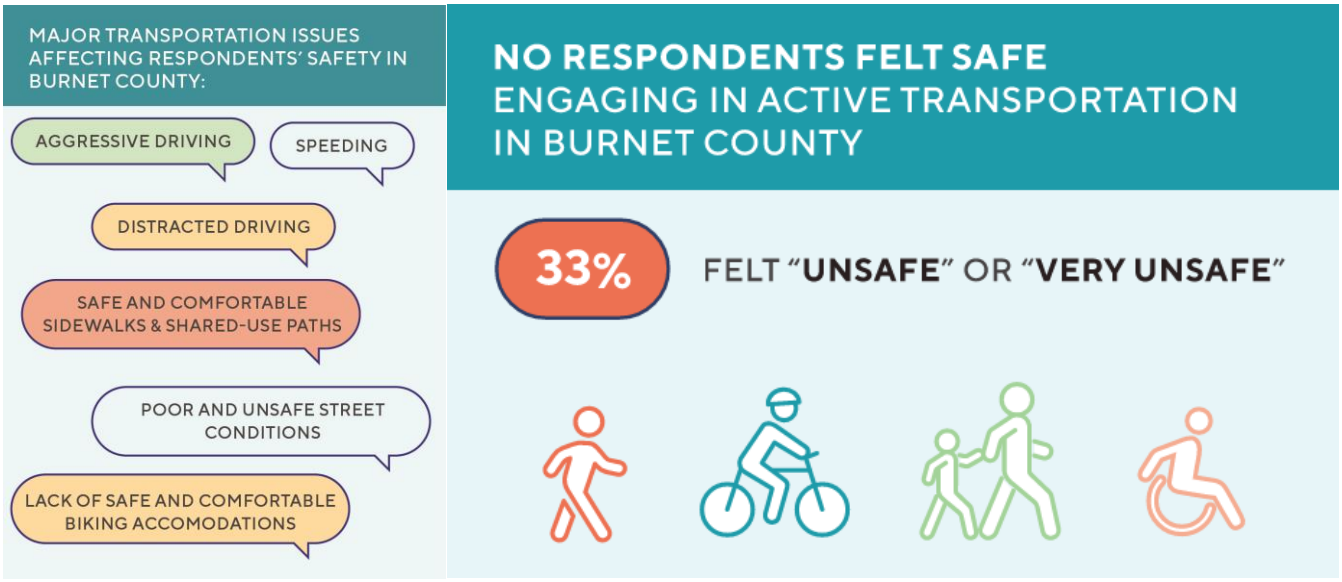



FIGURE 24: ROUND 1 SURVEY RESPONSES RELATED TO SAFETY

In Burnet County, aggressive driving, distracted driving, and speeding were identified as top concerns. None of the survey respondents reported feeling safe while engaging in active transportation. In fact, 33% indicated they felt "unsafe" or "very unsafe," while the remaining respondents were "unsure" about their safety.

**Interactive Comment Map Feedback**

The overarching themes of the interactive mapped comments within Burnet County included needed safety improvements and enhancements:

- Improving sidewalk conditions
- Protected bike lanes
- Improving crosswalks
- Stricter enforcement of road safety laws
- Improving street conditions
- Having transportation alternatives

## Round 2 Engagement

In Round 2 of the outreach efforts, the public was presented with a map highlighting suggested improvement locations along with descriptions of proposed safety countermeasures. Feedback was collected through a survey, asking participants whether the listed safety countermeasures for each county addressed their personal roadway safety concerns.

The second public engagement phase included two in-person events, an online open house, and a comment period open from February 10, 2025, through April 15, 2025. The same information was made available online and in-person. The open house materials included downloadable informational exhibits, a fact sheet, a brief survey, and an interactive map. All the outreach materials were posted online and available in English and Spanish.

Public input was collected through printed or online survey responses, emailed comments, or verbal comments at in-person engagement events.

The following subsections describe the engagement approach and what we heard from the community.

## THE ENGAGEMENT APPROACH

This section provides an overview of the approach for in-person engagement events and the notification tools used for outreach.

### In-Person Engagement Events

Two pop-up engagement events in Burnet County occurred during the Round 2 outreach efforts. The project team held an event in Burnet at the Joann Cole Mitte Memorial Library on February 21, 2025, which included 18 attendants.

Another event was held on April 11, 2025, in Burnet at the Bluebonnet Festival, in which 53 people were engaged. **Figure 25** shows visitors engaging with the project material.


FIGURE 25: ROUND 2 ENGAGEMENT POP-UP AT THE BLUEBONNET FESTIVAL

At both events, the project team collected both verbal and written survey responses to assess whether the proposed safety countermeasures effectively addressed participants' roadway safety concerns. If concerns were not addressed, the project team documented the specific details of those concerns for further review. Additionally, the team distributed push cards with more information about the Safety Action Plan, the online open house, and the comment period.

### Notification Tools

This section describes the notification tools used- webpage, social media, ads, media, emails, and other methods.

#### CAMPO Webpage Announcement

An announcement was posted on the CAMPO webpage on February 14, 2025, notifying the public of the launch of the online open house and open comment period.

#### Social Media

Information about the plan and how to participate was distributed through CAMPO's X (formerly known as Twitter), Facebook, Instagram, and LinkedIn accounts from February 14 to April 15, 2025.

#### Advertisements

Print and digital advertisements were placed in *Community Impact* and local newspapers from February 14 to March 14, 2025, including the Burnet Bulletin and the Marble Falls Highlander. **Table 3** identifies the dates for various regional advertisements in *Community Impact*.

TABLE 3: COMMUNITY IMPACT REGIONAL ADVERTISEMENTS

| COMMUNITY IMPACT REGIONAL ADVERSTISEMENTS | |
|---|---|
| **REGION** | **RUN DATE** |
| CEDAR PARK/FAR NORTHWEST AUSTIN | February 19, 2025 |
| LEANDER/LIBERTY HILL | February 21, 2025 |
| SAN MARCOS/BUDA/KYLE | February 25, 2025 |
| GEORGETOWN | February 27, 2025 |
| BASTROP/CEDAR CREEK | March 3, 2025 |

### Media Outreach

A media release was distributed to local media outlets throughout the region on February 14, 2025.

### Emails

Email notices were sent on February 17, February 28, March 5, and March 14, 2025, to stakeholders, task force members, and community partners to promote participation.

### Additional Outreach

The outreach team made direct phone calls and emails throughout the comment period to promote and encourage participation in the online open house. Push cards were distributed to health centers, libraries, senior centers, churches, CARTS stations, city offices, and others throughout the comment period. Additionally, the outreach team shared a social media toolkit including a newsletter blurb and social media content with local jurisdictions, agencies, and community partners on February 14 through April 15, 2025.

### WHAT WE HEARD FROM THE COMMUNITY

CAMPO received 297 survey submissions during the Round 2 outreach efforts. From the survey respondents that answered the question about where they live, work, own property, and travel to for recreation. **Figure 26** summarizes the results from Round 2 of public engagement: 78% of respondents reported living or owning property in Burnet County, 48% worked in the county, and 36% traveled there for recreation.

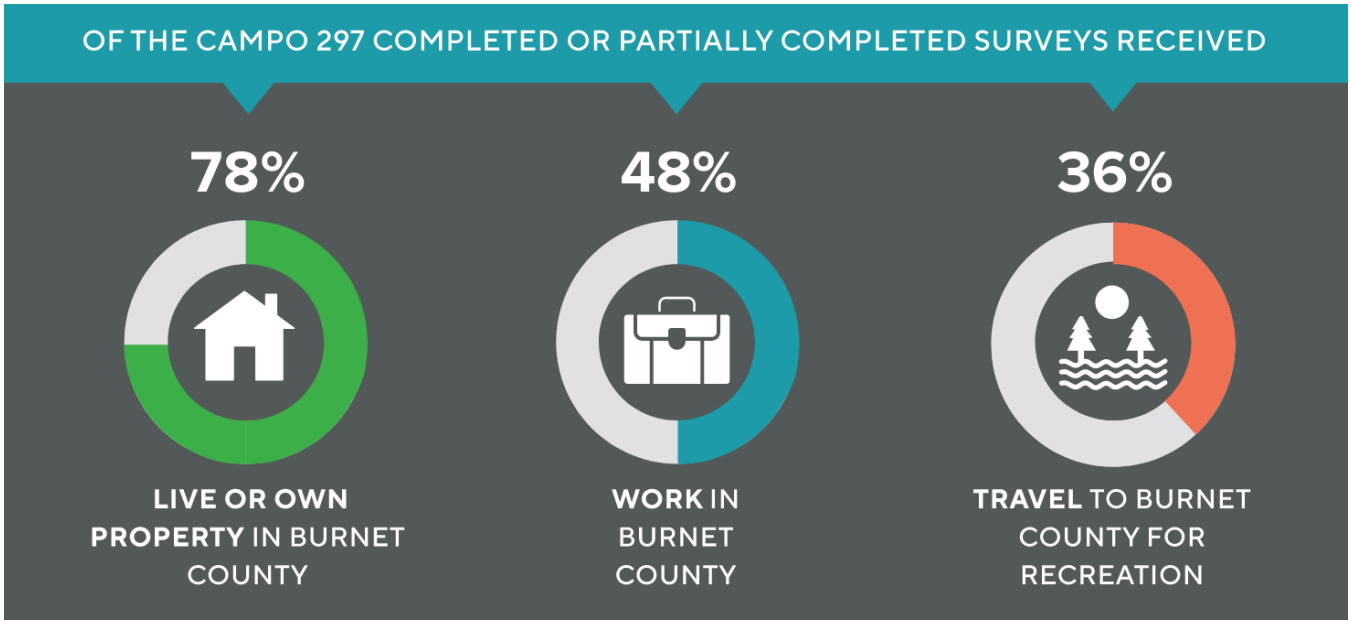



FIGURE 26: ROUND 2 ENGAGEMENT SUMMARY

In the survey, community members were asked whether the proposed safety countermeasures adequately addressed their roadway safety concerns. If respondents felt their concerns were not addressed, they were prompted to provide specific feedback identifying their areas or issues of concern. During the development of the safety plan, community members across Burnet County shared feedback highlighting concerns about **traffic congestion, truck traffic, roadway design, and speeding.** Residents emphasized the need for safety-focused road expansions, better roadway lighting and signage, and stronger enforcement and education to address reckless driving and speeding, particularly in work zones.

In response, the plan was updated to include additional targeted projects, behavioral strategies, and policy recommendations. These include addressing concerns such as congestion and freight movement through roadway improvements, expanding driver education and enforcement initiatives, and introducing policy refinements aimed at improving overall roadway safety — except in areas where existing or planned projects are already mitigating the identified issues.

## Burnet County Safety Task Force

A Burnet County Safety Action Plan Task Force was formed to guide the development of this SAP. The Task Force included community and industry leaders from state, regional, and local agencies, as shown in **Figure 27**. These leaders met with the project team on four occasions, beginning July 2024 to February 2025.

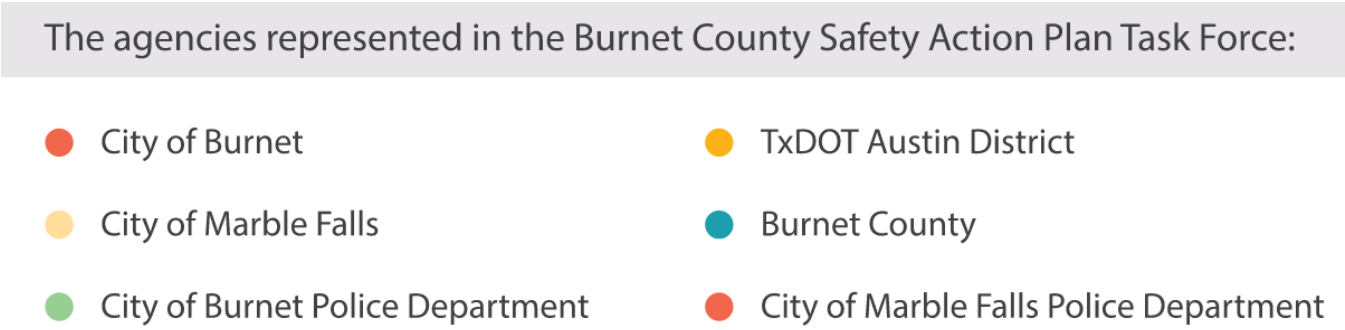



FIGURE 27: AGENCIES REPRESENTED IN THE BURNET COUNTY TASK FORCE

The Task Force was actively engaged throughout the development of the SAP, not only through four scheduled meetings but also via email updates and one-on-one sessions. These individual meetings provided the project team with valuable, jurisdiction-specific feedback on the recommended improvements. Task Force members contributed input at key project milestones, helped coordinate public engagement efforts within their communities, and reviewed all components of the SAP. Moving forward, the Task Force will also serve as a body for monitoring the implementation progress of the recommended improvements. **Figure 28** illustrates the timeline of Task Force engagement throughout the SAP development process.

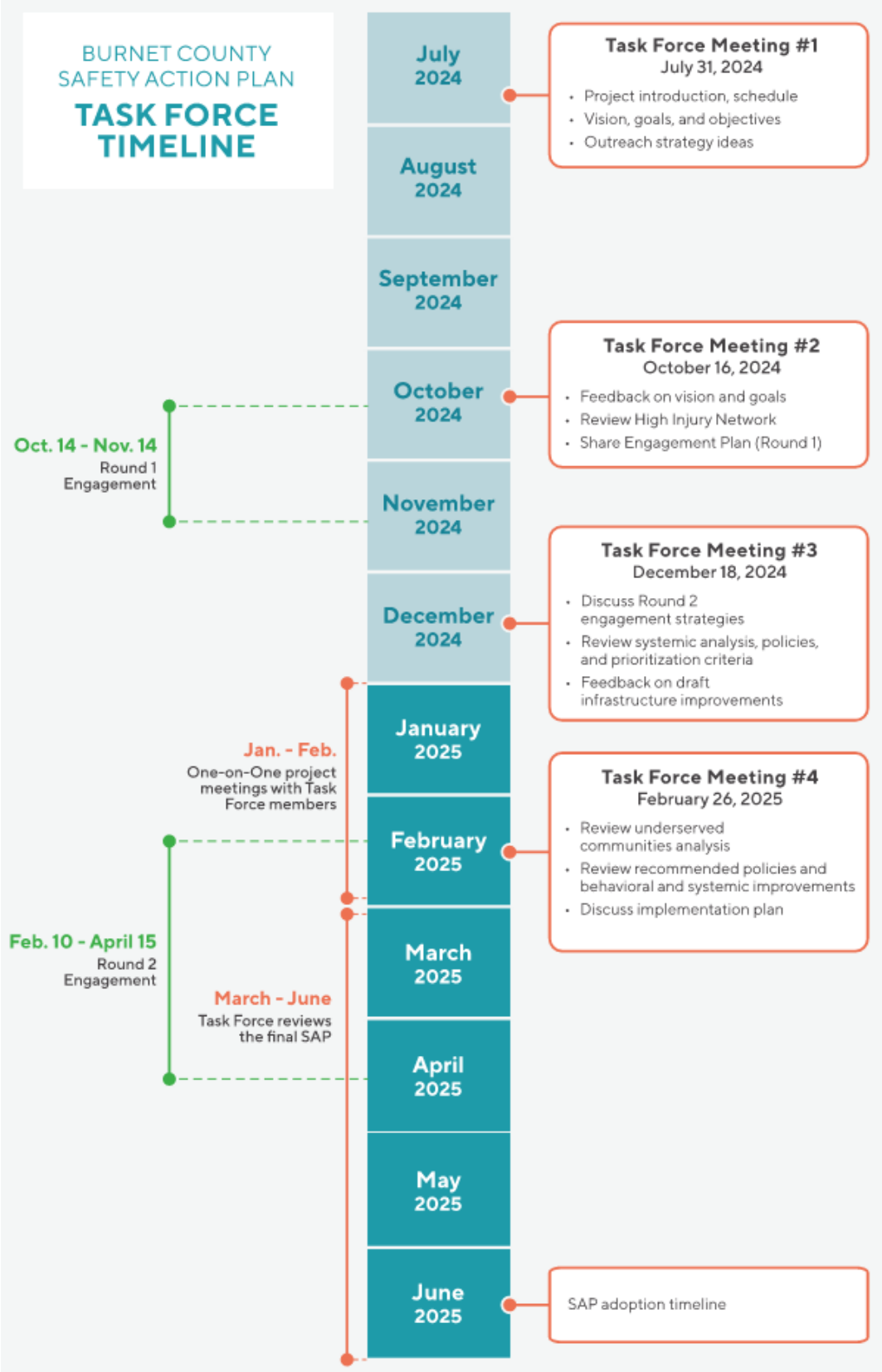



FIGURE 28: BURNET COUNTY SAP TASK FORCE TIMELINE

# Policy Recommendations

This section summarizes the review of existing plans, policies, programs, guidelines, and standards regarding transportation safety and recommends updating these policies and programs and adopting new ones.

## Safety Plan Review

As part of the development of the Burnet County Safety Action Plan, an assessment was conducted of existing policies, guidelines, standards, and plans related to transportation planning and the current prioritization of safety. The review concentrated on important county and city documents that affect the safety of roadways, sidewalks, trails, and other transportation facilities within Burnet County. This process established a baseline and found additional opportunities and policy recommendations to enhance transportation safety for all road users.

The policy focus reflects a commitment to public safety and enhancements that better protect and serve the transportation network and its users. The transportation plans for Burnet County and the broader Capital Area focus on improving safety, accessibility, and efficiency in both urban and rural settings.

The 2020 Burnet County Transportation Plan identified key roadway challenges, including *high crash corridors, emergency response times, and increasing traffic demand*. Public engagement efforts further emphasized the need for improved roadway safety features. In response, **the plan prioritizes enhancements to major roadways, including US 281, US 183, SH 29, SH 71, and RM 1431, and recommends upgrades to the arterial network to support future growth and development.**

The 2020 Burnet County Transportation Plan identified key roadway issues, including high crashes corridors, emergency response times, and traffic demand.

The 2023 Capital Area Rural Transportation System (CARTS) Development Plan aims to address transportation accessibility and efficiency in rural communities. Its key objectives include ensuring comprehensive coverage, identifying unmet transportation needs, and expanding services such as inter-city bus connections, additional routes, and more frequent service. The plan also proposes innovative strategies, including on-demand transit services, vanpooling, and enhanced mobility options for seniors and individuals with disabilities.

At the state, regional, and local levels, multiple plans and initiatives contribute to transportation development. State efforts include TxDOT multimodal and safety plans, while regional strategies are guided by CAMPO's long-term transportation and active mobility plans. Locally, ongoing studies and comprehensive updates, such as the Northeast Burnet County Transportation Study and the 2024 Marble Falls Comprehensive Plan Update, further refine transportation infrastructure and land use planning.

Together, these plans provide a framework for enhancing transportation networks, improving safety, and expanding mobility options for residents across Burnet County and surrounding rural areas. Efforts from these plans were acknowledged and built upon by members of the Burnet County Task Force.

## Policy and Program Recommendations

A comprehensive review of transportation safety needs - through data analysis, public feedback, and an evaluation of current policies and practices- led to the development of targeted policy and program recommendations for Burnet County and its cities. These recommendations aim to enhance transportation safety by:

- Closing communication gaps
- Promoting stronger coordination among local agencies, schools, and law enforcement
- Reducing fatal and serious injury crashes, and
- Ensuring safer travel for all road users.

Each recommendation is guided by the core elements of the Safe System Approach and aligned with the emphasis areas outlined in the Texas Road to Zero initiative, as detailed in the 2022-2027 Strategic Highway Safety Plan. By aligning with these frameworks, the recommendations focus on proactive strategies and system-level improvements to create a transportation system that is safe, reliable, and resilient.

A complete list of policy, plan, and program recommendations is provided in **Appendix B.**

Burnet County continues to develop and face road-related safety challenges. Increased commercial vehicle traffic and rising congestion are top concerns for many residents and were recurring themes in Task Force meetings. Although these issues did not rise to the level of statistical significance seen in other focus areas, they are nonetheless addressed through program and policy recommendations.

Strategies are identified under the three core elements to achieve Road to Zero:

- Safer traffic for all
- Fostering a culture of safety, and
- Reducing risk exposure through active transportation and transit.

Strategies in black are shared objectives across the CAMPO region, while strategies in ***blue*** are unique to Burnet County.

### SAFER TRAFFIC FOR ALL

Traffic Safety strategies aim to find specific ways to make street and all road traffic (which includes motorists, pedestrians, cyclists, and transit users) safer in Burnet County communities.

**Traffic Safety Strategies:**

1. ***Develop design strategies to address speeding and cut-through traffic to improve safety and traffic congestion, considering impacts on emergency response.***
2. ***Update development policies and procedures to facilitate safer roadway access.***
3. ***Monitor and update the HIN to inform short-, medium-, and long-term project prioritization. Use data-driven and collaborative decision-making to regularly update and identify hot spots and trends and prioritize interventions based on the most critical needs.***
4. ***Implement projects to improve safety along the HIN and at locations with identified systemic risk factors.***

5. ***Prioritize projects on identified high-risk corridors such as RM 1431, US 281, and SH 71, with specific measures to address speeding, heavy truck traffic, and hazardous intersections.***
6. Implement intersection designs and operational strategies (e.g., roundabouts, protected left turns and lead pedestrian intervals at signals) to improve safety at intersections.
7. Implement regional Transportation Systems Management and Operations (TSMO) and Intelligent Transportation Systems (ITS) to improve emergency/incident management.
8. Perform speed studies throughout the region and implement new posted speed limits where appropriate.
9. ***Collaborate with rail operators to improve traffic delays and improve emergency response times due to rail activities.***
10. ***Develop policies to address freight and truck travel in Burnet County.***

### FOSTERING A CULTURE OF SAFETY

The strategies laid out in the Culture category aim to shift roadway user behavior toward a stronger emphasis on safety—particularly for vulnerable road users. These efforts focus on fostering a safety-first mindset among drivers and promoting a culture of shared responsibility on the road.

**Culture of Safety Objectives:**

1. ***Support the Burnet County Task Force following the plan's adoption by providing ongoing training to public agency staff and stakeholders. This training will clarify their roles in promoting traffic safety and outline their responsibilities in implementing the CSAP.***
2. Develop and share roadway safety public service announcements, roadside billboards, community activities, and online engagement tools with appropriate entities: local businesses, schools, community groups, advocacy groups, etc.
3. Foster relationships with local restaurants and bars to encourage safe roadway practices such as designating a driver or ride sharing.
4. Develop and distribute educational materials for both drivers and non-drivers that explain who vulnerable road users are and how to interact with them safely within the transportation system.
5. Develop and maintain open and communicative relationships with school district officials.

6. ***Conduct public engagement campaigns to raise awareness of traffic safety issues and gather community input on proposed safety measures by using a combination of in-person meetings and online platforms to effectively reach and engage diverse audiences.***
7. ***Regularly evaluate public engagement activities and adjust strategies as needed to ensure effective and inclusive participation that reflects the diversity of local communities.***
8. ***Develop programs to educate and target distracted driving, driving under the influence of alcohol or other drugs, aggressive driving, and speeding behaviors.***
9. ***Develop programs to educate younger and older drivers on safe transportation practices.***
10. ***Foster collaborative planning and implementation by actively involving all relevant stakeholders- including city engineers, planners, law enforcement, transportation agencies, and community members- in the development and execution of safety initiatives.***

## REDUCING RISK EXPOSURE THROUGH ACTIVE TRANSPORTATION AND TRANSIT

These strategies aim to improve transit and active transportation modes, as increasing the use of these modes plays a critical role in reducing - and ultimately eliminating - fatal and serious injury crashes in Burnet County.

**Active Transportation and Transit Safety Objectives:**

1. Develop and implement a Complete Streets program.
2. ***Develop an Active Transportation Plan to achieve a complete network for walking, biking, and emerging micromobility options. The Active Transportation Plan should include proposed facilities to expand sidewalks and improve pedestrian safety along major highways and roadways.***
3. Implement and maintain a Safe Routes to Schools program to keep students and their guardians safe while traveling to and from school.
4. Collaborate with CARTS to enhance existing transit facilities and routes, creating a safer, more accessible, and enjoyable experience for all transit users.

# Safety Countermeasures

The proposed improvements and strategies incorporate a range of safety countermeasures tailored to Burnet County's specific needs. This section briefly describes each infrastructure improvement, behavioral strategy, and policy recommendation, as well as the types of collisions they address and high-level cost estimates. Safety countermeasures are categorized into segment-related (non-intersection), intersection-related, and vulnerable road users.

Common safety countermeasures for projects include:


- Warning Signage and Detection: dynamic speed feedback signs to address speeding, roadway departure, and curve-related crashes.
- Speed Management: raised rumble strips (centerline and edge line) for speed, curve, and road/lane departure issues.
- Roadway Departure Improvements: widening paved shoulders to address safety needs on curves, dark roads, and rural segments.
- Roadway Lighting: enhanced safety lighting for intersections and rural roads.
- Access Management: Raised medians, striping, and other pavement markings to reduce conflicts along corridors.

## Segment-Related Safety Countermeasures

Roadway and lane departure crashes account for 58% of fatal and serious injury crashes in Burnet County. **Figure 29** presents a summary of safety countermeasures recommended for projects on the segment HIN. **Table 4** provides a list of recommended segment-related safety countermeasures including infrastructure treatments, behavioral strategies, and policy recommendations.

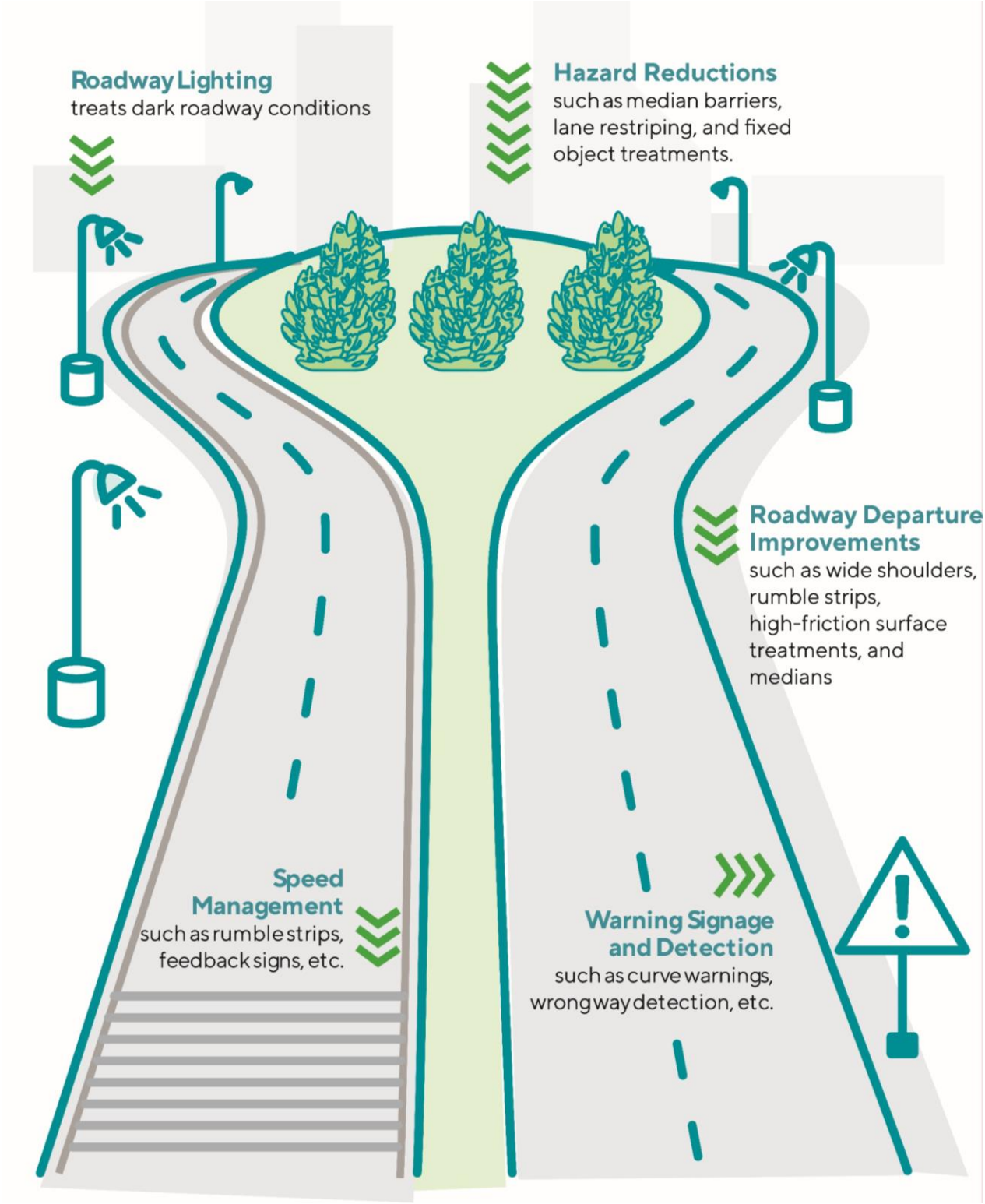



FIGURE 29: SAFETY COUNTERMEASURES FOR ROADWAY SEGMENT CRASHES

TABLE 4: RECOMMENDED SEGMENT-RELATED SAFETY COUNTERMEASURES

| STRATEGY | COUNTERMEASURES |
|---|---|
| **Infrastructure Treatments**  | • Install:<br>  ○ Centerline rumble strips.<br>  ○ Raised medians or median barriers.<br>  ○ Raised pavement markers or profiled center lines.<br>  ○ Chevron signs, curve warning signs, posted speed limit reductions, and/or sequential flashing beacons in curves.<br>  ○ High-friction pavement surface treatments.<br>  ○ Wider, brighter, and more durable edge lines, especially on curves.<br>  ○ Signage to increase awareness of vulnerable road users who may be in the clear zone or in a sight-limited location such as a curve or tunnel.<br>  ○ Roadside safety hardware such as guardrail, cable barrier, or concrete barrier.<br>• Locate and inventory fixed objects inside the clear zone to support development of programs and projects to reduce the severity of lane departure crashes.<br>• Widen shoulders.<br>• Reconfigure vehicle lanes to mixed-use lanes. |
| **Behavioral Strategies**  | • Disseminate outreach materials and social media posts educating the public on the major causes of lane departure crashes (e.g., speeding).<br>• Arrange for hosting the NHTSA Speed Management Program course for local engineers, planners, and law enforcement.<br>• Utilize Dynamic Speed Feedback Signs (DSFS) on sections of roadways where speed related crashes are of concern.<br>• Encourage the use of coordinated high-visibility enforcement activities addressing high-risk driving behavior, particularly on weekends and evenings for alcohol and drug-impaired crashes.<br>• Use TxHSO Law Enforcement Liaisons (LELs) to improve participation from law enforcement in conducting high-visibility enforcement to address impaired driving and distracted driving. |

| STRATEGY | COUNTERMEASURES |
|---|---|
| **Policy Recommendations**  | • Develop a policy consistent with TxDOT's and the Illuminating Engineering Society's guidelines for roadway lighting installation, focusing on areas identified with CRIS data analysis.<br>• Implement a feedback mechanism for road users to report maintenance issues in real time.<br>• Follow TxDOT's and Department of Public Safety's guidelines for high-visibility enforcement operations and public awareness campaigns targeted at aggressive driving.<br>• Partner with local organizations in Central Texas to implement interactive workshops and virtual reality simulations to demonstrate the dangers of impaired driving and distracted driving.<br>• Develop a program that aligns with TxDOT's "Talk. Text. Crash." campaign aimed at informing drivers of the risks of distracted driving.<br>• Incorporate data from the HIN to determine areas where safety enhancement strategies (rumble strips, guardrail, wider edge lines, etc.) are prioritized.<br>• Deploy automated speed enforcement tools in work zones. Ensure compliance with TxDOT's work zone safety regulations.<br>• Develop an implementable regular maintenance schedule of existing road signs to ensure sign visibility and compliance.<br>• Develop a speed limit policy and procedures process based on current research and methodologies that include contextual factors and align with TxDOT's Speed Zone Manual. |

## Intersection-Related Safety Countermeasures

Intersection-related crashes account for 22% of fatal and serious injury crashes in Burnet County. Intersections present complex traffic interactions that contribute to higher crash frequencies. A summary of intersection related safety countermeasures recommended for the projects on the intersection HIN are shown in **Figure 30**. **Table 5** provides a list of recommended countermeasures to reduce potential conflicts at an intersection.

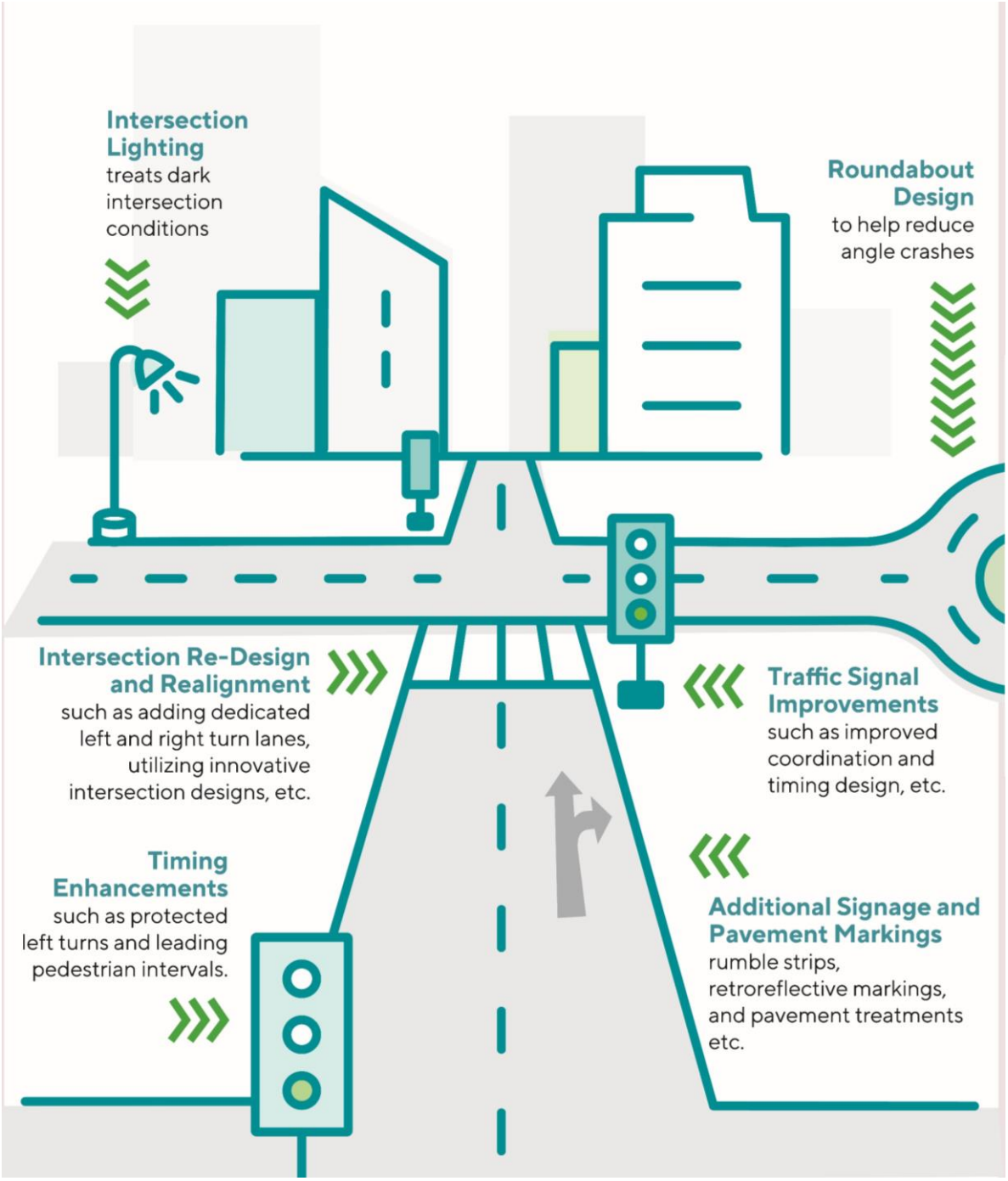



FIGURE 30: SAFETY COUNTERMEASURES FOR INTERSECTION CRASHES

TABLE 5: RECOMMENDED INTERSECTION-RELATED SAFETY COUNTERMEASURES

| STRATEGY | COUNTERMEASURES |
|---|---|
| **Infrastructure Treatments: Speed Reduction/ Management**  | • Install transverse rumble strips on rural stop-controlled approaches.<br>• Provide advanced dilemma zone detection (real-time warning) for high-speed approaches at rural signalized intersections.<br>• Install curb extensions or daylighting treatments at intersections. |
| **Infrastructure Treatments: Intersection Reconfiguration**  | • Install or convert intersections to roundabouts.<br>• Convert permitted left turns to protected left turns at signals.<br>• Use intersection conflict warning systems (real-time warning) to warn drivers on mainline or side roads of conflicting traffic at rural intersections.<br>• Increase pavement friction using high-friction surface treatments at intersection approaches.<br>• Restrict or eliminate turning maneuvers at intersections that create conflicts for drivers, pedestrians, and/or bicyclists.<br>• Restrict access to properties/driveways adjacent to intersections using closures or turn restrictions. |
| **Infrastructure Treatments: Traffic Signal Improvements**  | • Install emergency vehicle signal preemption.<br>• Modify signal phasing to implement a leading pedestrian interval. Add bicycle traffic signals where bike lanes are installed.<br>• Implement flashing yellow arrows at signals.<br>• Optimize traffic signal clearance intervals, including consideration for leading pedestrian intervals.<br>• Coordinate arterial signals. |

| STRATEGY | COUNTERMEASURES |
|---|---|
| **Infrastructure Treatments: Intersection Visibility Improvements**  | • Increase sight distance (visibility) of intersections on approaches such as applying daylighting treatments (e.g., markings, curb bulb-outs) and increasing vegetation management.<br>• Add retroreflective borders to traffic signal head back plates.<br>• Increase the visibility of signals and signs at intersections.<br>• Add lighting, including pedestrian-scale lighting.<br>• Install retroreflective markings and pavement treatments to enhance visibility at night. |
| **Behavioral Strategies**  | • Support and educate the public on the safety advantages of using emerging technologies such as intelligent transportation systems and connected vehicles.<br>• Use TxHSO Law Enforcement Liaisons to improve participation from law enforcement in conducting high-visibility enforcement to address red light running.<br>• Conduct focused intersection enforcement patrols with high-visibility behavioral campaigns (e.g., impaired driving, occupant protection, distracted driving).<br>• Encourage the use of coordinated high-visibility enforcement activities addressing high-risk driving behavior, particularly on weekends and evenings for alcohol and drug-related crashes.<br>• Conduct impaired driving training for law enforcement personnel, including Drug Recognition Expert (DRE) and Advanced Roadside Impaired Driving Enforcement (ARIDE) training programs. |
| **Policy Recommendations**  | • Develop an Intersection Control Evaluation (ICE) policy consistent with TxDOT's ICE framework to determine appropriate intersection improvements.<br>• Develop a traffic calming program.<br>• Follow FHWA and TxDOT guidance for adaptive signal control to improve traffic flow and emergency response. |

## Vulnerable Road User Safety Countermeasures

Vulnerable road users include pedestrians and cyclists. Pedestrians accounted for four fatal and serious crashes, and cyclists accounted for two such crashes in Burnet County from 2019 to 2023. **Figure 31** presents an overview of countermeasures to address crashes that involve bicycles and pedestrians. **Figure 31**: safety countermeasures for bicycle and pedestrian crashes

Table 6 provides a list of recommended countermeasures to improve the safety of vulnerable road users.


FIGURE 31: SAFETY COUNTERMEASURES FOR BICYCLE AND PEDESTRIAN CRASHES

TABLE 6: RECOMMENDED VULNERABLE ROAD USER SAFETY COUNTERMEASURES

| STRATEGY | COUNTERMEASURES |
|---|---|
| **Infrastructure Treatments: Enhance Pedestrian and Bicycle Crossings**  | • Update existing or develop new pedestrian crossings with additional features such as marked crosswalks, rectangular rapid flashing beacons, curb extensions, raised crosswalks, or advanced warnings.<br>• Increase sight distance and visibility at pedestrian and bicyclist crossings by clearing vegetation, extending crossing times, adding pedestrian and bicyclist leading intervals, and/or adding pedestrian-scale illumination. At mid-block locations, provide adequate distance between stop bars and the crossing, apply speed management as needed to give sufficient stopping time to motorists, and consider the use of raised crossings.<br>• Add refuge islands and raised pedestrian and bicyclist crossings and shorten crossing distances with bicycle-friendly curb extensions or daylighting treatments where these crosswalk enhancements are needed. |
| **Infrastructure Treatments: Improve Lighting**  | • Illuminate crosswalks with positive contrast to make it easier for a driver to identify the pedestrian visually. |
| **Infrastructure Treatments: Roadway Reconfiguration**  | • Reduce the number of travel lanes, assess posted speed limits, narrow travel lanes, and install separated bicycle and pedestrian facilities in areas with high multi-modal use.<br>• Install center and/or bicycle-friendly edge line rumble strips.<br>• Install separated pedestrian facilities (sidewalks and multi-use paths), especially in urban areas and adjacent to schools, bus stops, and school walk areas. Right-size the facilities to the projected pedestrian and cyclist demand. |

| STRATEGY | COUNTERMEASURES |
|---|---|
| **Infrastructure Treatments: Intersection Improvements Designed for Active Transportation User Safety**  | • Install left turn lanes designed and operated with explicit consideration for safety of active transportation users.<br>• Restrict or eliminate turning maneuvers at intersections that create conflicts for drivers, pedestrians, and/or bicyclists.<br>• At traffic signals, add bicycle signal heads and provide a leading signal interval. At intersections, install colored bicycle boxes where appropriate for bicycle movements. |
| **Infrastructure Treatments: Separated Pedestrian/Bicycle Facilities**  | • Remove permissive left turn signals that conflict with pedestrian/bicyclist movements, eliminate right turn on red at signals, and provide protected signal phases for pedestrian/bicyclist movements.<br>• Install separated pedestrian and bicycle facilities such as sidewalks, buffered or protected bike lanes, shared use paths, and regional trails. Right-size the facilities to the projected pedestrian and cyclist demand.<br>• Add a delay between pedestrian walk phase and vehicle green phase. |

| STRATEGY | COUNTERMEASURES |
|---|---|
| **Behavioral Strategies**  | • Educate the public about the need to be self-aware when traveling and be conspicuous, particularly when walking or biking. Encourage the public to wear bright-colored clothing and carry a flashlight in low lighting conditions. Provide reflective tapes and materials to the public.<br>• Partner with local law enforcement to conduct high-visibility speed enforcement in and around school zones during start and end times.<br>• Use dynamic speed feedback signs in school zones during start and end times.<br>• Promote public awareness of vulnerable user safety issues, contributory circumstances, and provide education/ training for pedestrians, bicyclists, and motorists of all ages on ways to avoid crashes.<br>• Coordinate and support vulnerable road user safety and enforcement by law enforcement to conduct high-visibility enforcement of bicyclists, pedestrians, and motorists who are violating traffic safety laws that may endanger them or other multi-modal travelers.<br>• Disseminate outreach materials and provide training to educate the public and law enforcement personnel on new traffic control device installations, such as Pedestrian Hybrid Beacons (HAWK signals). |

| STRATEGY | COUNTERMEASURES |
|---|---|
| **Policy Recommendations**  | • Increase enforcement strategies (speed feedback signs, high-visibility enforcement, etc.) that comply with Texas state laws regarding speeding within a school zone.<br>• Develop a policy to include crash data analysis and community input involving vulnerable road users in Central Texas to identify specific needs and concerns.<br>• Develop initiatives to improve safety for vulnerable road users and adhere to TxDOT's design standards and national best practices. These include pedestrian countdown signals, protected bike lanes, and public engagement campaigns.<br>• Develop a Complete Streets policy to enhance the pedestrian/bicyclist environment along roadways with higher-than-normal pedestrian/bicyclist activity.<br>• Consider developing a policy based on TxDOT's methodologies for assessing pedestrian and bicyclist level of traffic stress (LTS).<br>• Develop a plan to assess existing Americans with Disabilities Act (ADA) and TxDOT's accessibility guidelines to prioritize improvements in areas with high ped/bike activity and documented accessibility issues.<br>• Develop a policy in accordance with TxDOT's guidelines on truck routes and consider local ordinances for designated truck routes to identify areas where freight routes and ped/bike paths intersect and implement measures such as designated truck lanes or time-based restrictions.<br>• Develop a program that collaborates with local schools and parent-teacher associations to identify areas for enhanced safety improvements (e.g., rectangular rapid flashing beacons, speed feedback signs).<br>• Develop a program that follows national best practices for traffic calming guidelines. |

## Systemic Safety Countermeasure Packages

Systemic safety countermeasure packages are a proactive approach to eliminating traffic fatalities and serious injuries. Unlike traditional safety measures that react to past crashes, systemic safety focuses on identifying and addressing high-risk factors before crashes occur. By analyzing roadway design, traffic patterns, and human behavior, these improvements implement proven countermeasures to create safer streets for all users. Emphasizing data-driven decision-making, systemic safety projects aim to build a transportation network where mistakes do not result in severe harm, ultimately advancing the goal of zero traffic deaths.

For example, a package of systemic treatments to improve safety at rural stop-controlled intersections could include several of the following HSIP-eligible countermeasures:

- Install Overhead Signs
- Install Advanced Warning Signals (Intersection - Existing Warning Signs)
- Install Advanced Warning Signals and Signs (Intersection)
- Install Advanced Warning Signs (Intersection) (see **Figure 32**)
- Install Flashing or LED-embedded Stop Signs (see **Figure 33**)
- Install Pavement Markings

This combination of treatments addresses crash patterns in which drivers fail to stop, including angle, turning vehicle, and rear-end crashes.


FIGURE 32: ADVANCED PEDESTRIAN CROSSING WARNING SIGN


FIGURE 33: FLASHING LED STOP SIGN

# Targeted Improvement Development and Prioritization

This section describes the development of targeted safety improvements and prioritization of those improvements.

## Targeted Improvement Development

Targeted safety improvements focus on locations within the HIN where the severity and frequency of crashes are most concentrated. By prioritizing these high-risk areas, these improvements aim to deliver immediate, life-saving interventions where they are needed most. Using crash data, local knowledge, and community input, proven countermeasures are recommended to mitigate safety risks. These improvements were developed for many of the highest-ranking corridors and intersections within the Burnet County HIN and other locations identified by the task force and the public.

## Prioritization

This section outlines the Prioritization Criteria Process to guide the implementation of safety-driven infrastructure improvements within the county. The prioritization criteria are tailored towards selecting the most beneficial safety projects that implement the vision of the Burnet County Safety Action Plan.

The criteria are also intended to be a helpful framework for ranking identified safety projects to use multiple funding sources through local, regional, statewide, and national programs. Through prioritization, Burnet County and its partner agencies can employ data-driven decision-making regarding the allocation of limited funds to address the most prominent safety issues and support the County in moving towards zero traffic fatalities and serious injuries.

To support data-driven decision-making, Burnet County implemented a structured scoring methodology to evaluate and prioritize transportation safety projects. This framework integrates multiple criteria reflecting crash risk, stakeholder priorities, community needs, and project readiness. Each project received a cumulative score based on six evaluation categories, with a maximum possible score of 51 points:

- **Collision Frequency and Severity (Max 10 Points)**: Projects are evaluated based on the number and severity of crashes at each location:
    - Up to 5 points were assigned based on total crash frequency, with locations experiencing more than 20 crashes receiving the maximum score.
- Up to 5 points were also assigned for fatal and serious injury (KA) crashes, with locations reporting more than 6 KA crashes receiving the maximum score.
- **Crash Reduction Potential (Max 4 Points):** Points are assigned based on the estimated crash reduction effectiveness of potential countermeasures, following the 2025 HSIP Crash Reduction Factors:
    - Projects with >60% expected crash reduction received the maximum points.
    - Projects with <40% expected reduction received fewer points.
- **Alignment with Stakeholder Input (Max 17 Points):** Stakeholder engagement helped identify community concerns, key crash contributors, and priority locations:
    - Proximity to schools or quarries, up to 5 points.
    - High truck traffic (Truck AADT >900) received 2 points.
    - Public feedback demonstrating community interest received 4 points.

  - Stakeholder-identified priority locations received 6 points.
- **Project Readiness (Max 8 Points):** Projects were scored on their level of readiness for implementation:
  - "Shovel-ready" or already funded projects received higher scores.
  - Projects listed in local or regional plans, or already under design, were also given priority.
- **Support for Vulnerable Populations (Max 8 Points):** This metric indicates transportation-need:
  - Census block groups with >2% zero-vehicle households received 4 points.
  - Areas with >15% of low-wage workers received 4 points.
- **Investment Requirements (Max 4 Points):** Points were inversely related to estimated project cost:
  - Projects estimated under $100,000 received the maximum points.
  - Larger, more costly projects received fewer points.

After evaluating projects based on the prioritization criteria, each improvement receives a total score by summing the points across all six criteria. The total score comprehensively measures the improvement's overall benefit, feasibility, and alignment with County goals.

**Figure 34** and **Figure 35** shows all 25 project locations, which includes 19 roadway segments and 6 intersections. **Figure 35** identifies priority project locations in yellow, which represent the top five scoring locations. **Table 7** provides a description for each of the corridor projects (lettered A-S) including safety issues and recommended improvements listed in order from highest scoring to lowest scoring. **Table 8** provides information for the six intersection projects (numbered 1-6). The top five scoring projects (priority projects) are identified with an asterisk in **Table 7** and **Table 8.**

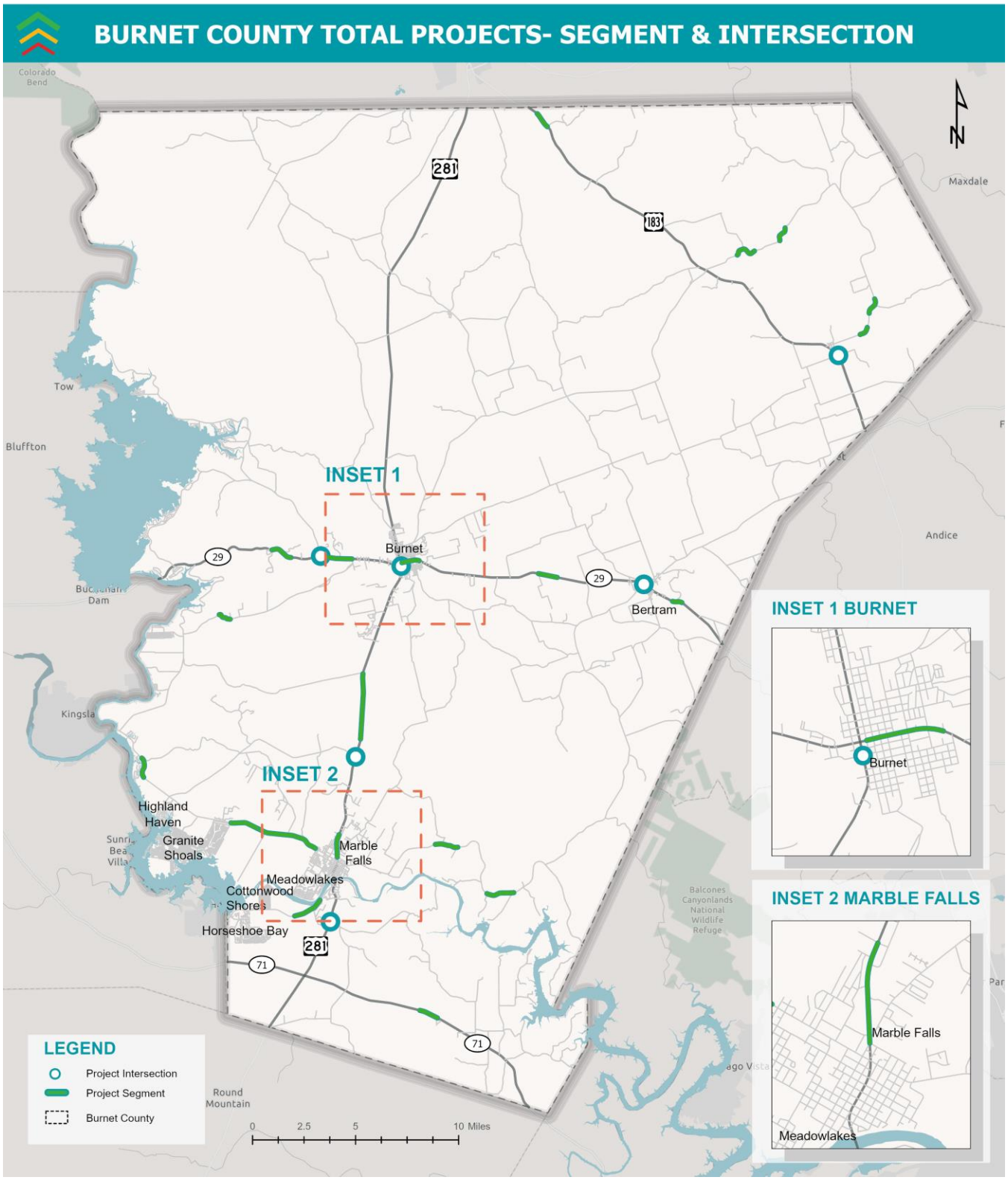



FIGURE 34: TARGETED IMPROVEMENT LOCATIONS

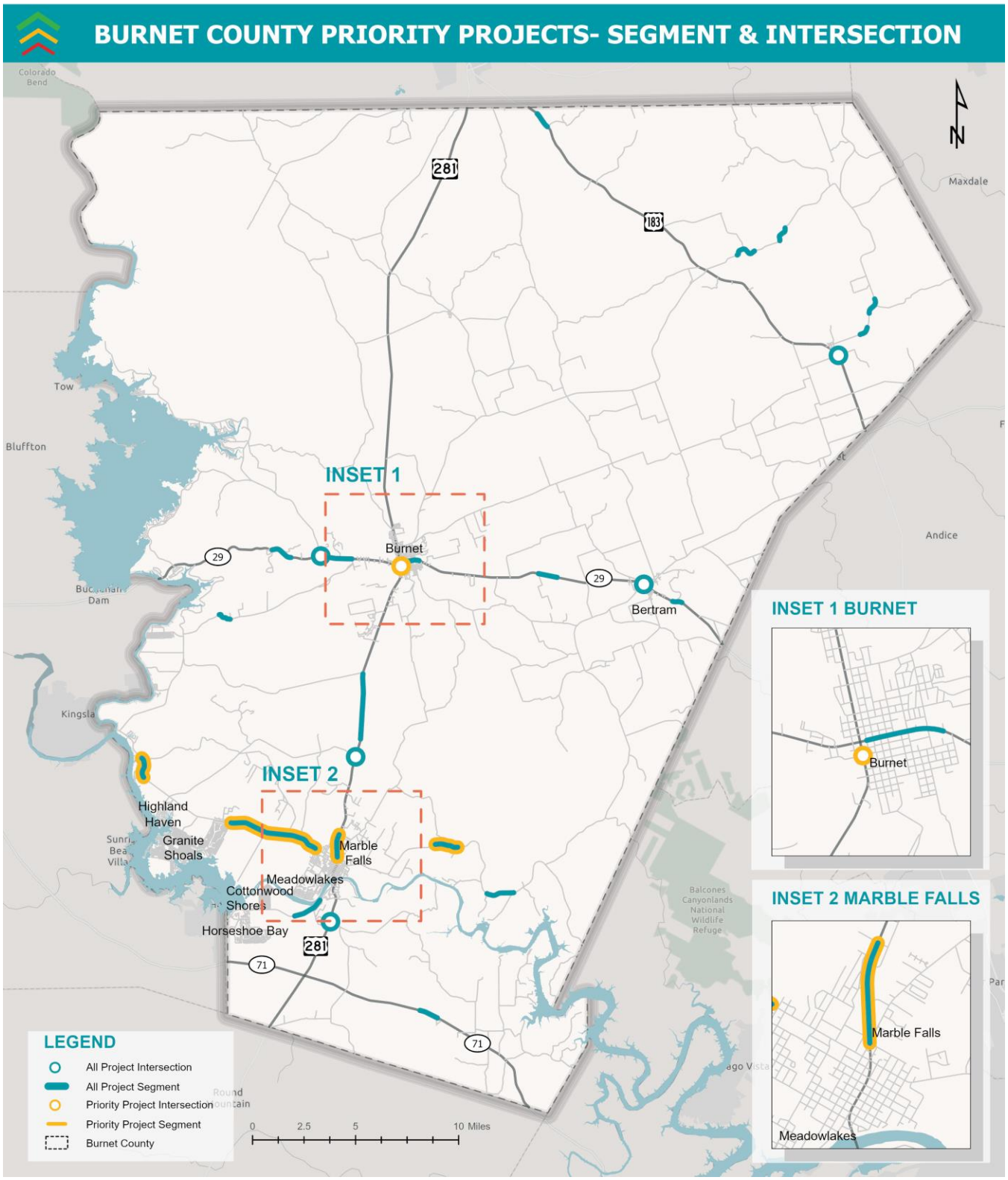



FIGURE 35: TARGETED IMPROVEMENT LOCATIONS

TABLE 7: LIST OF TARGETED CORRIDOR IMPROVEMENTS

| ID | ROADWAY NAME | LIMITS FROM | LIMITS TO | IMPROVEMENT DESCRIPTION | SAFETY ISSUES |
|---|---|---|---|---|---|
| **A** | RM 1431* | North of Mill Creek Road | South of CR 136A | Install chevrons (curve), dynamic speed feedback signs, and raised reflective edgeline rumble strips; Widen paved shoulders (to <5 ft) | Road Lane Departure, Curve, Speed, Wet |
| **B** | RM 1431* | West of CR 341 | CR 341A | Install chevrons (curve), dynamic speed feedback signs, and raised reflective edgeline rumble strips; Widen paved shoulders (to <5 ft) | Road Lane Departure, Curve, Speed, Dark, Single Vehicle |
| **C** | RM 1431* | Valley View Lane | West of Wirtz Dam Road | Widen paved shoulders (to <5 ft); Install raised reflective edgeline rumble strips | Rural, Dark |
| **D** | US 281* | 12th Street | Colt Circle | Install raised median | Speed, ROW Yield, Ped |
| **E** | RM 2147 | 2706 RM 2147 | East of Rocky Road | Widen paved shoulders (to <5 ft); Install raised reflective centerline rumble strips | Road Lane Departure, Dark, Failed to Drive in a single lane |
| **F** | SH 29 | West of Rocky Hollow Drive | Center Street | Widen paved shoulders (to <5 ft); Install raised reflective edgeline rumble strips | Road Lane Departure, Curve, Speed, Failed to Yield ROW Turning Left |
| **G** | SH 71 | East of Vista View Trail | Parr Avenue | Add safety lighting at intersection | Rural, Dark |
| **H** | SH 29 | N Main Street | East of N Hill Street | Add lighting | Ped, Road Lane Departure |
| **I** | RM 1431 | CR 343A | E FM 1431 Business | Install advanced warning signs (curve) | Road Lane Departure, Speed, Single Vehicle |

| ID | ROADWAY NAME | LIMITS FROM | LIMITS TO | IMPROVEMENT DESCRIPTION | SAFETY ISSUES |
|---|---|---|---|---|---|
| **J** | SH 29 | East of RR 2341 | FM 3509 | Add lighting and dynamic speed feedback signs | Rural, Dark |
| **K** | CR 116 | West of 6850 CR 116 | East of Vista Hermosa | Install advanced warning signs (curve) and raised reflective edgeline rumble strips | Road Lane Departure, Curve, Speed, Single Vehicle |
| **L** | US 281 | Park Road 4 South | South of Southern Pacific Railroad | Install raised reflective edgeline rumble strips, Resurface roadway | Road Lane Departure, Speed, Wet |
| **M** | FM 2657 | South of 2800 FM 2657 | North of 3555 FM 2657 | Install LED flashing chevrons (curve), dynamic speed feedback signs, raised centerline rumble strips, and advanced warning signs (curve) | Road Lane Departure, Curve, Speed |
| **N** | US 183 | 20910 US 183 | CR 228 | Install safety lighting at intersection | Rural, Dark, Single Vehicle |
| **O** | RM 963 | East of 22520 RM 963 | 23898 RM 963 | Install LED flashing chevrons (curve), dynamic speed feedback signs, and raised centerline rumble strips | Road Lane Departure, Curve, Speed |
| **P** | FM 2657 | 1630 FM 2657 | North of 2000 FM 2657 | Install LED flashing chevrons (curve), dynamic speed feedback signs, and raised centerline rumble strips | Road Lane Departure, Curve, Speed |
| **Q** | RM 963 | 25546 RM 963 | South of Smith Cemetery Road | Install LED flashing chevrons (curve), dynamic speed feedback signs, and raised reflective edgeline rumble strips | Road Lane Departure, Curve, Speed |
| **R** | SH 29 | 1634 SH 29 | West of Oaks Road | Install advanced warning signals (curve- existing warning signs) | Rural, Dark |
| **S** | SH 29 | CR 304 | East of Lehne Road | Install dynamic speed feedback signs, raised centerline rumble strips, and advanced warning signals and signs | Road Lane Departure, Speed |

Note: * Represents project is a priority.

TABLE 8: LIST OF TARGETED INTERSECTION/SPOT LOCATION IMPROVEMENTS

| ID | LOCATION | IMPROVEMENT DESCRIPTION | SAFETY ISSUES |
|---|---|---|---|
| **1** | US 281 & West Jackson Street* | Implement Leading Pedestrian Interval (LPI) timing; Install safety lighting at intersection | Angle, ROW Yield |
| **2** | US 183 & Loop 308 | Replace the flashing beacon with a traffic signal | Angle, ROW Yield |
| **3** | US 281 & RM 2147 | Replace the flashing beacon with a traffic signal | ROW Yield, Opposite Direction |
| **4** | SH 29 & RR 2341 | Install advanced warning signals and signs (intersection) | Angle, ROW Yield |
| **5** | US 281 & FM 1855 | Install advanced warning signals and signs (intersection) and install pavement markings | Angle, ROW Yield, Speed |
| **6** | SH 29 & RM 243 | Install advanced warning signals and signs (intersection) and dynamic speed feedback signs | Angle, ROW Yield |

Note: * Represents project is a priority.

# Implementation Plan

The recommended improvements, safety countermeasures, and policy updates identified in the Burnet County SAP require guidance and transparency. The County SAP Implementation Plan includes a general approach to different funding sources for implementing the project strategies, methods for championing and achieving policy updates, and a method to measure and monitor progress in reaching the Road to Zero goal.

## Funding Safety Improvements

To be awarded funding from most sources, the suggested improvements, safety countermeasures, and policy updates need to be identified in a publicly available document, which this SAP accomplishes. The suggested improvements and project strategies in this plan are more likely to be awarded funding if they are included in other plans or programs, such as local agency long-range transportation plans or a transportation/capital improvement program. Incorporating the identified improvements in other areas allows the agency to cast a wider net for funding sources.

Funding to help implement the suggested project strategies and improvements and to advocate and enact policy updates can come from various federal, regional, state, and local sources. State funding for roadway safety improvements includes, but is not limited to, programs such as the HSIP and Transportation Alternatives (TA) set-aside program. Regionally, agencies can apply for funding from sources such as the CAMPO call for projects. Improvements found in this SAP can also be used to apply for federal funds from programs such as the federal SS4A Grant Program.

## Championing Policy Changes

Policy changes and adoption can often be challenging, with much of the effort falling to dedicated advocates who may feel isolated in their pursuit. The updates to roadway safety policies in Burnet County require strong advocacy and robust collaboration within agencies and departments such as planning, engineering, and zoning, public health, emergency response, transit, schools, and elected officials.

Task Force members can help achieve the Road to Zero goal in Burnet County and propel these policy changes locally by

- Identifying a governing body and/or official, ideally one that advocates transportation or roadway safety.
- Contacting the governing body and/or official about the SAP, informing them of policy improvements identified in the plan, and encouraging the development and adoption of the policy update(s).
- Publicly promoting the policy update(s) publicly and building support among other advocates.
- Facilitating a public commitment to the Road to Zero goal by encouraging adoption of key policy updates across the county.

## Measuring & Monitoring Progress

Through the RSAP, CAMPO is developing a process for monitoring the implementation of the recommended improvements, safety countermeasures, and policy updates to measure the projects' effectiveness and desired outcomes. Member jurisdictions within Burnet County can continue collaborating with CAMPO to track and evaluate progress toward the SAP goals. This ongoing process will assess key outcomes— such as the number and severity of roadway crashes – to measure advancement toward the Road to Zero goal.

CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

# APPENDIX

## CONTENTS

# Appendix A

BURNET COUNTY SAFETY ANALYSIS TECHNICAL MEMORANDUM

# BURNET COUNTY ROADWAY SAFETY HOT SPOT STUDY TECHNICAL MEMORANDUM

DATE: December 4, 2024

TO: Nicholas Samuel | CAMPO
Burnet County Task Force

FROM: Josh Peterman, Stephen Spana and Rithvika Dara | Fehr & Peers

SUBJECT: Burnet County Safety Roadway Safety Hot Spot Study

Project 24083-000
Task 4.4

## Introduction

The Capital Area Metropolitan Planning Organization (CAMPO) is developing a county-level safety action plan (CSAP) for Burnet County, including local agencies and other partners within the county. The Burnet County-level CSAP will be integrated into the Regional Safety Action Plan (RSAP), which CAMPO is developing concurrently.

This report summarizes the safety analysis conducted for Burnet County. This county-level analysis considers all roadway classes, including local roads (i.e., the analysis is not constrained by the regional significance thresholds defined in the 2045 Regional Transportation Plan). Crash data from the most recent five years (2019 – 2023) is obtained for Burnet County and crash patterns by severity, lighting condition, weather condition, intersections, impaired driving and many other contributing factors are studied and presented in this report. Analyzing crash patterns by contributing factors will help identify focus areas which are areas of high potential safety risks in Burnet County. Hotspot and high injury network development enables the project team to geospatially locate safety issues related to crash history data.

## Crash Analysis Methodology

Crash analysis is conducted using the most recent five years of crash data from 2019 to 2023 in Burnet County. The project team obtained crash data from the Texas Crash Records Information System (CRIS) maintained by the Texas Department of Transportation (TxDOT). Crash data was obtained in CSV file format via the public request portal available at **https://cris.dot.state.tx.us/**. The crash data consist of crashes by severity type: fatal injury (K), suspected serious injury (A), suspected minor injury (B), possible injury (C), non-injured (O), and unknown. This dataset also consists of information on different crash contributing factors, manner of collision, date and time, among other information. This dataset is reliant on law enforcement reporting and may not have all

the information for all the crashes. For example, hit and run crashes where the injury of the driver is unknown fall under the "unknown" crash severity type.

A roadway inventory dataset of Burnet County is downloaded from the TxDOT GIS Portal. The crash data is overlayed on this roadway layer. This layer has information on the name, functional classification, and facility type of the roadway. As part of the systemic and high injury network (HIN) analysis, crash and roadway inventory datasets are used to conduct the analysis. The crashes are associated with the respective roadway corridors which allows the project team to understand crash patterns by different roadway characteristics such as facility type, length of the corridor, etc.

As part of the HIN network analysis, crashes with severity are weighted based on the Texas Highway Safety Improvement Program (HSIP) cost per crash. The cost per crash is

- $4,000,000 for a fatal or suspected serious injury crash and
- $330,000 for a suspected minor injury crash

For Burnet County analysis, the study team elected to use all crashes, regardless of severity, in the development of the High Injury Network (HIN). Fatal (K) and suspected serious injury (A) crashes are weighted 12 points (approx. $4,000,000/$330,000) and suspected minor injury (B), possible injury crashes (C), and non-injured (O) are weighted 1 point.

## Existing Condition Analysis

The existing condition analysis is conducted for Burnet County and then broken down by on-system roadways and off-system roadways. On-system roadways include freeways, ramps, and state-owned highways, including Farm-to-Market roads. The off-system roadways are all others. Crash patterns by years, severity, and contributing factors are studied.

### STATEWIDE EMPHASIS AREAS

In the context of a Strategic Highway Safety Plan (SHSP), "emphasis areas" refer to specific focus areas identified to address key safety issues on roadways. These areas are prioritized based on data analysis, crash trends, and overall safety goals. By concentrating resources and efforts on these emphasis areas, agencies aim to reduce fatalities and serious injuries more effectively.

The Texas SHSP (https://www.texasshsp.com/texas-shsp/) recommends the following emphasis areas for reducing highway fatalities and serious injuries on all public roads of Texas.

- Roadway Departures
- Occupant Protection
- Older Drivers
- Younger Drivers
- Speed Related
- Impaired Driving
- Intersection Related
- Distracted Driving
- Pedestrian
- Pedalcyclist
- Post Crash Care

The project team used the Texas SHSP framework to identify crashes for the above-mentioned emphasis areas. It should be noted that there is insufficient data involving post-crash care in the crash database, so it is not analyzed directly in this study. Instead, policy and programmatic strategies will be identified to address emergency medical responses.

### COUNTYWIDE EMPHASIS AREAS

The countywide crash trends are analyzed to capture regional emphasis areas in addition to the statewide emphasis areas. The following additional emphasis areas are identified:

- School Zones
- Low Lighting related
- Work Zones
- Time of Day/Day of Week

## High Injury Network Analysis

A vital component of regional safety analysis is the development of a high injury network (HIN) that identifies areas with a significant crash history relative to other roadways. To carry out a more localized and thorough evaluation of transportation safety issues in Burnet County, the project team created both intersection HIN and a road segment HIN. To better understand trends based on roadway typology, we identified two interim HINs segments – one for all the roads (on-system and off-system), and a second related to off-system roads.

The results of this evaluation identify roadways and intersections with a disproportionate number of fatal and suspected serious injury collisions - and secondarily those with a disproportionate number of all crashes - prioritizing them for targeted safety interventions, projects, and strategies.

### HIN DATA

The HIN was developed using a 5-year collision dataset (2019-2023) from the TxDOT Crash Records Information System (CRIS), obtained by the project team. This dataset includes collisions classified as fatal (K), serious injury (A), suspected minor injury (B), possible injury (C), and property damage only (O). Only mapped collisions with latitude and longitude were analyzed for the HIN, while collisions without geographic data were excluded. However, both mapped and unmapped collisions are included in the Collisions Landscape Summary.

Collisions were categorized into all road (on-system and off-system) collisions and off-system collisions. The purpose of this roadway categorization is to reduce the skew of the HIN towards only state highways, and to understand the localized crash severity locations on the local roads.

Major highway collisions occurred on the following highways in Burnet County:

- US Highway 281
- US Highway 183
- State Highway 29
- State Highway 71
- Ranch to Market 1431
- Ranch to Market 963
- Ranch to Market 2147

- Ranch to Market 243
- Farm to Market 2657

**Intersection Data**

Crashes identified as 'at intersection' or 'intersection-related' were flagged and separated from the HIN data to prevent duplication of intersection crashes. These were then examined separately.

**Roadway Data**

The roadway network that was used was derived from the CAMPO region database. Two networks were created for the analysis from this network:

- All Roads (inclusive of on-system and off-system roads)
- Off-System Roads (other roadways excluding the on-system roads)

## COLLISION SEVERITY WEIGHTING

Collision weights are derived based on the 2023 TxDOT Highway Safety Improvement Program (HSIP) Guidelines costs for each collision severity.

Cost assumptions are generally based on costs included in the HSM First Edition. The HSM uses "comprehensive" or "societal" crash costs to associate costs with each crash severity level. Comprehensive costs include both economic costs and monetized pain and suffering costs. Economic costs are monetary costs associated with emergency services deployment, medical services, productivity loss due to victim injury, insurance and legal costs, costs as a result of congestion impacts as a result of the collision, and property damage costs. Monetized pain and suffering costs are an assumption of the costs associated with lost quality-of-life (or Quality-Adjusted Life Years [QALY]), accounting for reductions in life expectancy and quality of life changes because of a crash.

**TABLE 1: COLLISION WEIGHTS**

| SEVERITY | CRASH COST | WEIGHT |
|---|---|---|
| Fatal (K) And Severe Injury (A) | **$4,000,000** | **12** |
| Suspected Minor Injury (B) | **$330,000** | **1** |
| Possible Injury (C) | **$330,000*** | **1** |
| Not Injured (Only Property Damage) (O) Or Unknown (U) | **$330,000*** | **1** |

*C, O, and U collision severities adopt the B collision severity crash cost for the purpose of this analysis.

## INTERSECTION HIGH INJURY NETWORK

The following is the methodology adopted to identify the intersection HIN:

1. High Injury Intersection (HIN) Analysis: The analysis focused on crashes with 'INTERSECTION' or 'INTERSECTION RELATED' values in the 'Intrsct_Relat_ID' field.
2. Base Roadway Network: The Roadway Inventory dataset from the TxDOT GIS Portal was used as the base roadway linework for the study.
3. Associating Collisions to Intersections: Intersection collisions (identified by the 'At Intersection' or 'Intersection Related' field) were spatially joined

4. Crash Severity and Costs: Intersection crashes were linked to crash severity and associated costs using Table 1: Collision Weights. Crashes were summarized by severity type and joined back to the intersection layer in GIS for detailed analysis.
5. Crash Severity Weighting: Crashes were weighted based on Texas HSIP cost per crash:
    a. Fatal (K) and serious injury (A) crashes: 12 points.
    b. Minor injury (B), possible injury (C), Non-injured (O), and unknown severity (U) crashes: 1 point.
    c. Total points for each intersection were calculated to identify intersections with the highest crash severity

**SEGMENT HIGH INJURY NETWORK**

The project team adopted a Sliding Window methodology to identify segment HIN. A recent technical report on innovative safety analysis tools in identifying highway safety improvement projects (link) recommended this method to perform network screening in Texas. Only crashes **not** occurring at intersections (Intersection Related field equal to "NON-INTERSECTION" or "DRIVEWAY ACCESS") were considered for the segment HIN.

**Sliding Window Method**

In this method, a window of a certain length is moved by incremental length along a study segment from start to end of the study segment. For each window of the segment, performance measures are calculated and are used to rank the segments. In this study, the project team used a window of 0.25 miles with a 0.1-mile increment. The following are the steps to perform the sliding window method:

1. The TxDOT GIS roadway layer is used as the base network roadway layer. Using the Dissolve tool, this roadway layer is dissolved based on the name and facility type of the roadway.
2. Associating collisions with roadway segments: Collisions were associated with roadway segments using a 60-foot roadway segment buffer.
3. Calculate HIN Score: A score for each roadway and/or intersection (known as the HIN Score) was calculated by aggregating the weighted collision sum, which was joined to the network.
4. HIN Building: The top 97.5$^{th}$ percentile scoring segments will be identified and connected to form the HIN. Quarter-mile segments are dissolved together based on proximity. If the distance between 98$^{th}$ percentile scoring segments is three quarters of a mile or less and segments have the same roadway name, they were connected. Additionally, if the distance between a 98$^{th}$ percentile scoring segment and the end of the roadway is three quarters of a mile or less, the segment will be extended to the end of the roadway. HIN corridors will be 0.5 miles longer because of this process.
5. HIN Check and Refinement: It was verified that the HIN accurately incorporates the 95$^{th}$ percentile scoring segment gap threshold into the final HIN.
6. Repeat for State Highways: The process described in steps 1-5 was repeated for state highways and state highway collisions. However, the top 99$^{th}$ percentile scoring segments were identified and connected to form the HIN. A final HIN that combines the local roadways HIN and the state highways HIN was then created.

## Systemic Safety Analysis

The Systemic Safety Analysis uncovers the relationship between collision factors (e.g. crash type, time of day, etc.) and contextual factors (e.g. roadway characteristics, land use characteristics, etc). The goal is to uncover certain collision profiles which are overrepresented in fatal or severe crashes, so they can be addressed through targeted countermeasures. In this analysis, the following collision profiles were discovered.

- **Road/lane departure related crashes on curves** (Road alignment is Curved/Level, Curved/Grade, or Curved/Hillcrest): These crashes make up approximately 17% (782/4587) of all crashes, but 32% (99/309) of KA crashes. Of these 99 KA crashes, approximately 63% (63/99) were flagged as being related to speeding.
- **Dark, not lighted crashes on rural roads** (where rural is defined as occurring outside of city limits). These crashes made up 13.9% (641/4587) of all crashes, but 26.5% (82/309) of KA crashes. About half of the KA crashes were related to speeding.

# 6. Crash Analysis and Results

## Existing Condition Analysis Results

### EXISTING CONDITION ANALYSIS FOR BURNET COUNTY

The following Table 1 and Figure 1 summarize the crashes in Burnet County by year and severity for all roadway types. The crashes were analyzed based on the following criteria of severity: K for fatal injury, A for suspected serious injury, B for suspected minor Injury, C for a possible injury that might have happened in the crash, and O for the crashes that did not have any injuries and there was only loss of the property. There are 4,587 crashes from 2019 to 2023 of which 1% are fatal injury type and 2% are suspected serious injury type crashes. There are 116 (3%) crashes with 'unknown' severity type. The year 2020 observed the lowest number of crashes in five years after which the crashes continued to increase every year. Since 2020, the total number of crashes increased by 23% in 2023.

**TABLE 1: SUMMARY OF CRASHES (2019-2023) BY SEVERITY TYPE IN BURNET COUNTY**

| YEAR | FATAL INJURY (K) | SUSPECTED SERIOUS INJURY (A) | SUSPECTED MINOR INJURY (B) | POSSIBLE INJURY (C) | NOT INJURED (O) | UNKNOWN | TOTAL |
|---|---|---|---|---|---|---|---|
| **2019** | 9 | 55 | 101 | 100 | 648 | 29 | 942 |
| **2020** | 9 | 45 | 107 | 125 | 558 | 29 | 873 |
| **2021** | 10 | 43 | 121 | 79 | 637 | 26 | 916 |
| **2022** | 15 | 51 | 125 | 91 | 633 | 18 | 933 |
| **2023** | 11 | 61 | 132 | 72 | 633 | 14 | 923 |
| **TOTAL** | 54 | 255 | 586 | 467 | 3,109 | 116 | 4,587 |
| **%** | 1% | 2% | 13% | 13% | 68% | 3% | 100% |

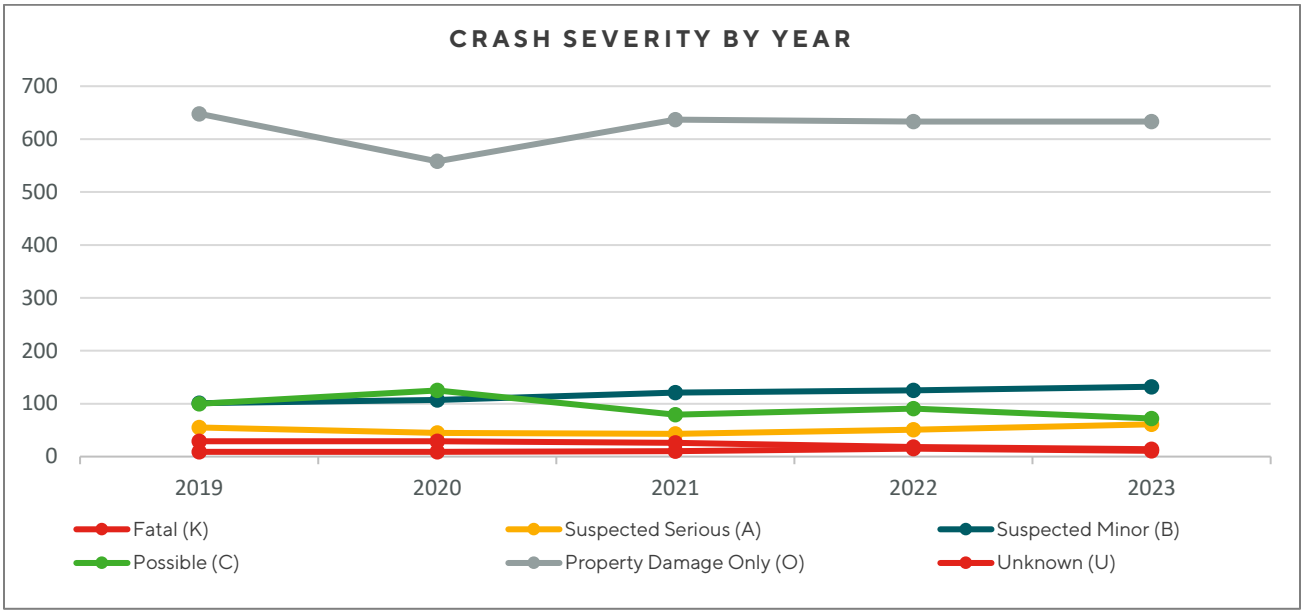



**FIGURE 1: CRASHES (2019-2023) BY YEAR IN BURNET COUNTY**

## FATAL AND SERIOUS INJURY CRASHES IN BURNET COUNTY

The following Figure 2 presents fatal and suspected serious injury crashes in Burnet County.

The highest number of 15 fatal crashes are observed in 2022 and the lowest of 9 fatal crashes in 2019 and in 2020. The serious injury crashes show a consistent upward trend since 2021, reaching 61 in 2023.

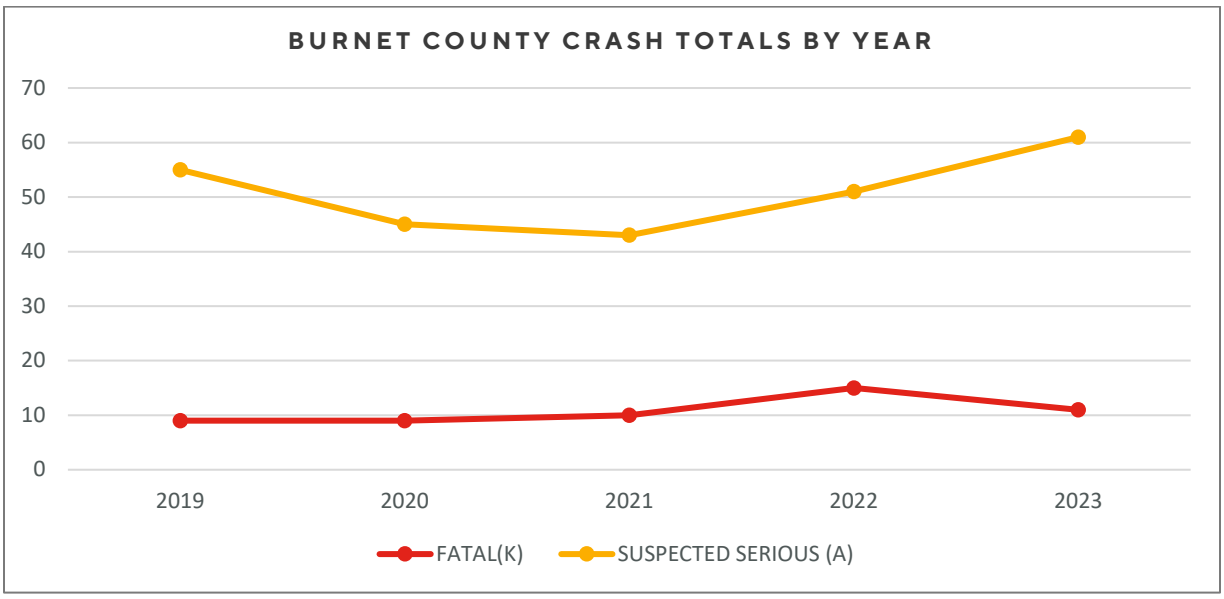



**FIGURE 2: FATAL (K) AND SUSPECTED SERIOUS INJURY (A) CRASHES (2019-2023) BY YEAR IN BURNET COUNTY**

## CRASH ANALYSIS BY OTHER FACTORS

The percentage distribution of crashes based on lighting condition, weather condition, and road surface condition are shown in Figure 3. More than 70% of crashes occurred in daylight, clear sky, and dry road surface condition.

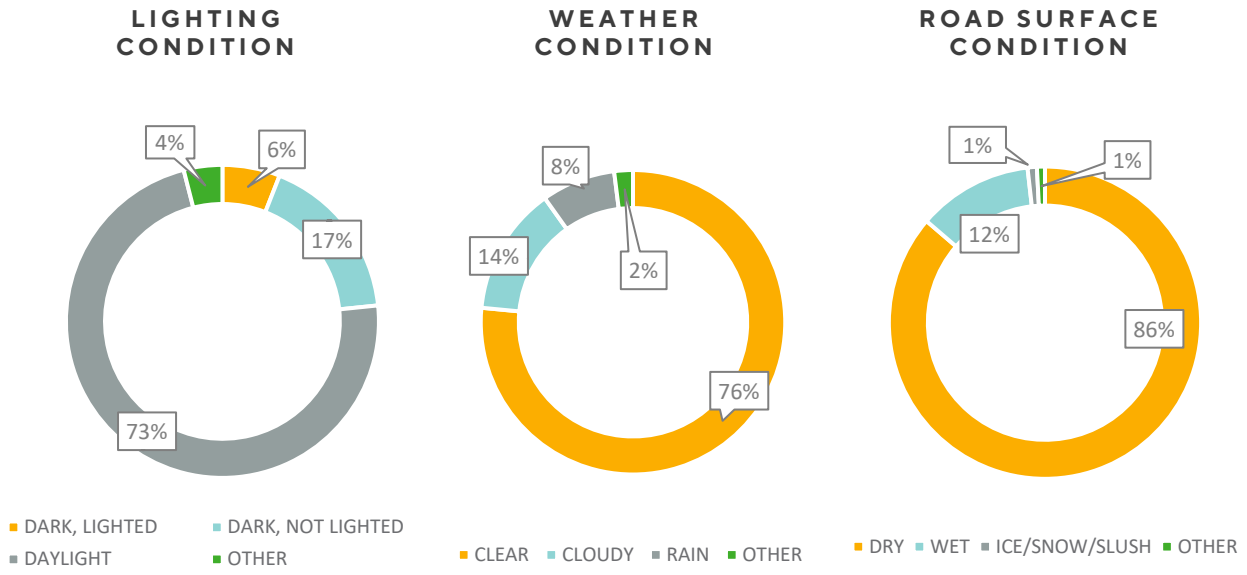



**FIGURE 3: PERCENTAGE DISTRIBUTION OF CRASHES FOR LIGHTING CONDITIONS, WEATHER CONDITIONS, ROAD SURFACE CONDITIONS**

The summary of crashes by gender of the driver is presented in Figure 4. The crash database provides "male", "female" and "unknown" type information. A majority of the drivers involved in crashes are male

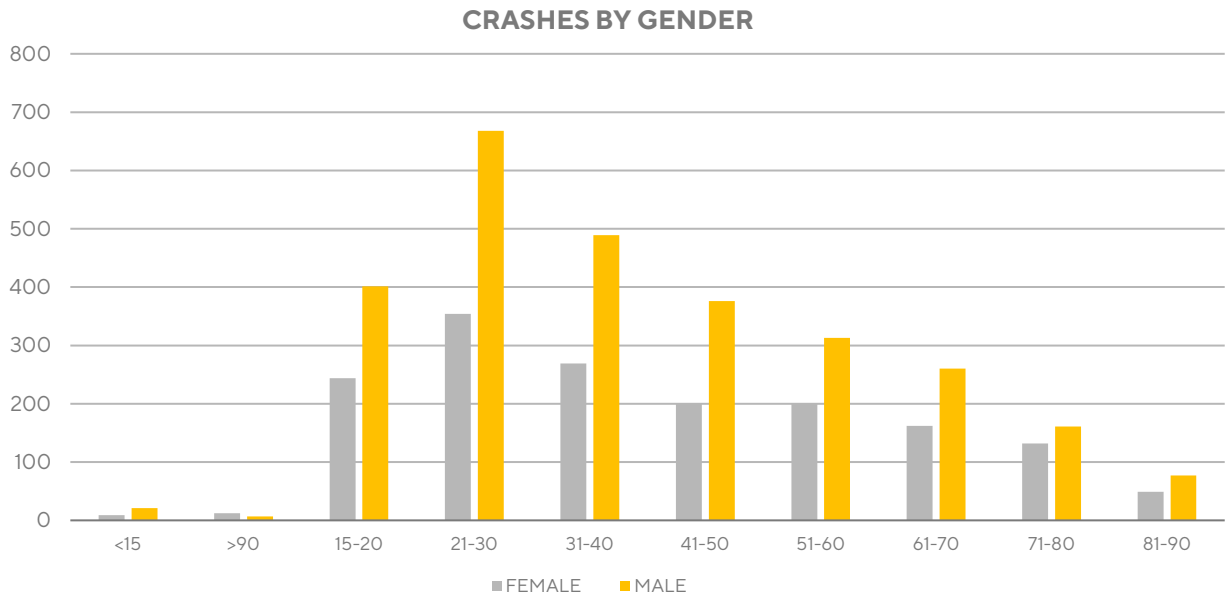



**FIGURE 4: NUMBER OF CRASHES (2019-2023) BY GENDER OF THE DRIVER**

The following Table 2 presents a summary of crashes by crash types. The highest percentage of crashes are related to roadway and lane departures. High severity type crashes also involve roadway departure, same direction, and angle crashes.

**TABLE 2: SUMMARY OF CRASHES (2019-2023) BY CRASH TYPES**

| CRASH TYPE | NO OF CRASHES | % | KA | %KA |
|---|---|---|---|---|
| ROADWAY AND LANE DEPARTURE | 1,541 | 34% | 179 | 58% |
| SAME DIRECTION | 1,258 | 27% | 38 | 12% |
| ANGLE CRASH | 1,046 | 23% | 36 | 12% |
| SINGLE VEHICLE CRASH | 385 | 8% | 35 | 11% |
| OPPOSITE DIRECTION | 330 | 7% | 21 | 7% |
| OTHER | 27 | 1% | 0 | 0% |
| TOTAL | 4,587 | 100% | 309 | 100% |

The crash types are further analyzed by crash contributing factors. In the crash database, there were more than 70 contributing factors. These factors are aggregated and presented in Table 3 below.

Overall, speed-related, failure to yield right of way, aggressive driving, or distracted driving contributed to 64% of crashes in Burnet County. Speed-related crashes (34%) were a major contributing factor for same-direction crash types. More than 90% of angle and opposite-direction crash types occurred at intersections, with failure to yield the right of way being the major contributing factor for these two crash types. Aggressive driving and distracted driving are the third and fourth highest contributing factors, with the majority of these crashes occurring in same-direction crash types.

**TABLE 3: SUMMARY OF CRASHES (2019-2023) BY CRASH TYPES AND CRASH CONTRIBUTING FACTORS**

| CONTRIBUTING FACTORS | ANGLE CRASH | OPPOSITE DIRECTION | OTHER | ROADWAY AND LANE DEPARTURE | SAME DIRECTION | SINGLE VEHICLE CRASH | TOTAL | % |
|---|---|---|---|---|---|---|---|---|
| FAILED TO YIELD ROW | 632 | 178 | 21 | 11 | 4 | 2 | 848 | 18% |
| DISREGARD TRAFFIC SIGN | 117 | 12 | 10 | 2 | 13 | 0 | 154 | 3% |
| DRIVER DISTRACTION | 84 | 19 | 157 | 60 | 128 | 4 | 452 | 10% |
| AGGRESSIVE DRIVING | 71 | 44 | 257 | 14 | 92 | 1 | 479 | 10% |
| OTHER | 71 | 42 | 66 | 64 | 161 | 16 | 420 | 9% |
| NONE | 36 | 19 | 71 | 34 | 84 | 4 | 248 | 5% |
| SPEED RELATED | 16 | 5 | 595 | 38 | 533 | 0 | 1187 | 26% |
| FAILURE TO FOLLOW RULE | 10 | 2 | 34 | 9 | 190 | 0 | 245 | 5% |
| IMPAIRED/DRUG/DRINKING | 5 | 0 | 12 | 23 | 134 | 0 | 174 | 4% |
| PEDESTRIAN | 2 | 0 | 0 | 2 | 1 | 0 | 5 | 0% |
| PASSING RELATED | 1 | 8 | 29 | 0 | 4 | 0 | 42 | 1% |
| WRONG SIDE | 1 | 1 | 1 | 1 | 36 | 0 | 40 | 1% |
| ANIMAL | 0 | 0 | 1 | 123 | 92 | 0 | 216 | 5% |
| FATITGUED or ASLEEP | 0 | 0 | 4 | 4 | 69 | 0 | 77 | 2% |
| **TOTAL** | 1046 | 330 | 1258 | 385 | 1541 | 27 | 4587 | 100% |
| | 23% | 7% | 27% | 8% | 34% | 1% | 100% | |

The Table 4 presents a summary of crashes by time of day and day of week. Saturday had the highest and Monday had the lowest number of crashes. The occurrence of crashes is highest on average from 12 pm to 6 pm, which partially coincides with the evening rush hour traffic. The highest number of crashes occurred at 5 PM, particularly on Saturday. The morning crashes begin to increase significantly starting at 7 AM, with a peak between 7 AM and 8 AM. Overall, crashes are more frequent during the afternoon and evening rush hours, particularly on weekdays and Saturdays, and drop during early morning and late evening hours.

**TABLE 4: SUMMARY OF CRASHES (2019-2023) BY TIME OF DAY AND DAY OF WEEK**

| CRASH HOUR | MON | TUES | WED | THURS | FRI | SAT | SUN | TOTAL |
|---|---|---|---|---|---|---|---|---|
| 12 AM | 21 | 8 | 10 | | 7 | 5 | 16 | 67 |
| 1 AM | 12 | | 7 | | 5 | 4 | 11 | 39 |
| 2 AM | 18 | 5 | 5 | 3 | 5 | 4 | 12 | 52 |
| 3 AM | 10 | 5 | 3 | 3 | 3 | 13 | 14 | 51 |
| 4 AM | 14 | 9 | 6 | 6 | 3 | 3 | 8 | 49 |
| 5 AM | 10 | 16 | 9 | 13 | 10 | 14 | 6 | 78 |
| 6 AM | 14 | 14 | 27 | 27 | 22 | 35 | 12 | 151 |
| 7 AM | 17 | 41 | 52 | 54 | 42 | 49 | 16 | 271 |
| 8 AM | 18 | 28 | 32 | 49 | 41 | 45 | 22 | 235 |
| 9 AM | 24 | 32 | 26 | 19 | 27 | 27 | 23 | 178 |
| 10 AM | 18 | 29 | 41 | 29 | 40 | 31 | 38 | 226 |
| 11 AM | 23 | 30 | 35 | 38 | 38 | 55 | 40 | 259 |
| 12 PM | 38 | 53 | 51 | 40 | 46 | 47 | 55 | 330 |
| 1 PM | 31 | 55 | 37 | 41 | 45 | 55 | 50 | 314 |
| 2 PM | 29 | 47 | 46 | 45 | 37 | 45 | 41 | 290 |
| 3 PM | 29 | 43 | 48 | 51 | 45 | 67 | 36 | 319 |
| 4 PM | 34 | 50 | 52 | 57 | 58 | 67 | 28 | 346 |
| 5 PM | 40 | 46 | 56 | 75 | 58 | 76 | 32 | 383 |
| 6 PM | 32 | 42 | 31 | 32 | 27 | 66 | 40 | 270 |
| 7 PM | 15 | 29 | 18 | 30 | 40 | 40 | 28 | 200 |
| 8 PM | 17 | 16 | 11 | 22 | 20 | 27 | 29 | 142 |
| 9 PM | 18 | 14 | 15 | 18 | 16 | 37 | 23 | 141 |
| 10 PM | 16 | 9 | 16 | 13 | 12 | 26 | 25 | 117 |
| 11 PM | 4 | 6 | 11 | 11 | 6 | 18 | 23 | 79 |
| Total | 502 | 627 | 645 | 676 | 653 | 856 | 628 | 4,587 |

Table 5 presents a summary of crashes by time of day and month. October has the highest number of crashes and February has the lowest. The average crashes throughout the year do not change significantly over different months.

**TABLE 5: SUMMARY OF CRASHES (2019-2023) BY TIME OF DAY AND MONTH**

| HOUR | JAN | FEB | MA | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 AM | 9 | 8 | 5 | 7 | 4 | 3 | 7 | 4 | 3 | 4 | 5 | 8 | 67 |
| 1 AM | 4 | 1 | 4 | 4 | 3 | 2 | 6 | 2 | 1 | 3 | 5 | 4 | 39 |
| 2 AM | 1 | 9 | 2 | 6 | 4 | 5 | 2 | 5 | 2 | 3 | 5 | 8 | 52 |
| 3 AM | 3 | 9 | 4 | 3 | 1 | 2 | 5 | 5 | 6 | 3 | 5 | 5 | 51 |
| 4 AM | 4 | 1 | 1 | 4 | 7 | 3 | 6 | 6 | 4 | 8 | 3 | 2 | 49 |
| 5 AM | 8 | 6 | 6 | 9 | 5 | 2 | 8 | 6 | 6 | 8 | 6 | 8 | 78 |
| 6 AM | 18 | 12 | 20 | 13 | 13 | 9 | 9 | 8 | 12 | 13 | 13 | 11 | 151 |
| 7 AM | 35 | 26 | 15 | 17 | 23 | 17 | 13 | 23 | 29 | 30 | 29 | 14 | 271 |
| 8 AM | 18 | 27 | 21 | 16 | 16 | 16 | 12 | 23 | 18 | 20 | 28 | 20 | 235 |
| 9 AM | 14 | 9 | 13 | 16 | 15 | 14 | 24 | 12 | 13 | 17 | 15 | 16 | 178 |
| 10 AM | 18 | 9 | 14 | 14 | 21 | 24 | 25 | 12 | 19 | 18 | 27 | 25 | 226 |
| 11 AM | 18 | 16 | 19 | 19 | 24 | 30 | 18 | 22 | 22 | 23 | 18 | 30 | 259 |
| 12 PM | 32 | 19 | 36 | 30 | 34 | 24 | 30 | 22 | 29 | 25 | 23 | 26 | 330 |
| 1 PM | 20 | 30 | 35 | 24 | 28 | 31 | 24 | 25 | 12 | 34 | 24 | 27 | 314 |
| 2 PM | 23 | 16 | 22 | 24 | 31 | 28 | 19 | 36 | 22 | 26 | 24 | 19 | 290 |
| 3 PM | 21 | 21 | 35 | 23 | 27 | 36 | 22 | 20 | 30 | 28 | 29 | 27 | 319 |
| 4 PM | 26 | 21 | 29 | 26 | 30 | 31 | 29 | 28 | 32 | 33 | 26 | 35 | 346 |
| 5 PM | 28 | 29 | 32 | 30 | 40 | 35 | 30 | 34 | 32 | 36 | 29 | 28 | 383 |
| 6 PM | 20 | 24 | 22 | 24 | 21 | 20 | 27 | 21 | 19 | 20 | 29 | 23 | 270 |
| 7 PM | 17 | 15 | 25 | 22 | 19 | 14 | 12 | 15 | 10 | 20 | 16 | 15 | 200 |
| 8 PM | 8 | 3 | 20 | 10 | 10 | 13 | 7 | 12 | 11 | 21 | 15 | 12 | 142 |
| 9 PM | 7 | 6 | 13 | 8 | 11 | 12 | 15 | 17 | 18 | 17 | 5 | 12 | 141 |
| 10 PM | 8 | 9 | 7 | 11 | 12 | 12 | 15 | 11 | 6 | 8 | 9 | 9 | 117 |
| 11 PM | 3 | 8 | 6 | 5 | 6 | 8 | 12 | 5 | 9 | 5 | 6 | 6 | 79 |
| Total | 363 | 334 | 406 | 365 | 405 | 391 | 377 | 374 | 365 | 423 | 394 | 390 | 4,587 |

## EXISTING CONDITION ANALYSIS FOR ON-SYSTEM ROADWAYS

Crash summaries by severity in Burnet County are presented in Table 6 66 and Figure 5 55 for on-system roadways. These roadways are federal and state-owned roadways, where 77% of total crashes and 85% of combined fatal and suspected serious injury crashes in Burnet County are on on-system roadways.

**TABLE 6: SUMMARY OF ON-SYSTEM ROADWAY CRASHES (2019-2023) BY SEVERITY TYPE IN BURNET COUNTY**

| YEAR | FATAL INJURY (K) | SUSPECTED SERIOUS INJURY (A) | SUSPECTED MINOR INJURY (B) | POSSIBLE INJURY (C) | NOT INJURED (O) | UNKNOWN | TOTAL |
|---|---|---|---|---|---|---|---|
| **2019** | 7 | 43 | 82 | 81 | 495 | 13 | 721 |
| **2020** | 9 | 40 | 80 | 103 | 421 | 14 | 667 |
| **2021** | 9 | 38 | 104 | 69 | 474 | 13 | 707 |
| **2022** | 14 | 43 | 101 | 78 | 466 | 8 | 710 |
| **2023** | 11 | 48 | 117 | 61 | 494 | 6 | 737 |
| **TOTAL** | 50 | 212 | 484 | 392 | 2,350 | 54 | 3,542 |
| **%** | 1% | 6% | 14% | 11% | 66% | 2% | 100% |

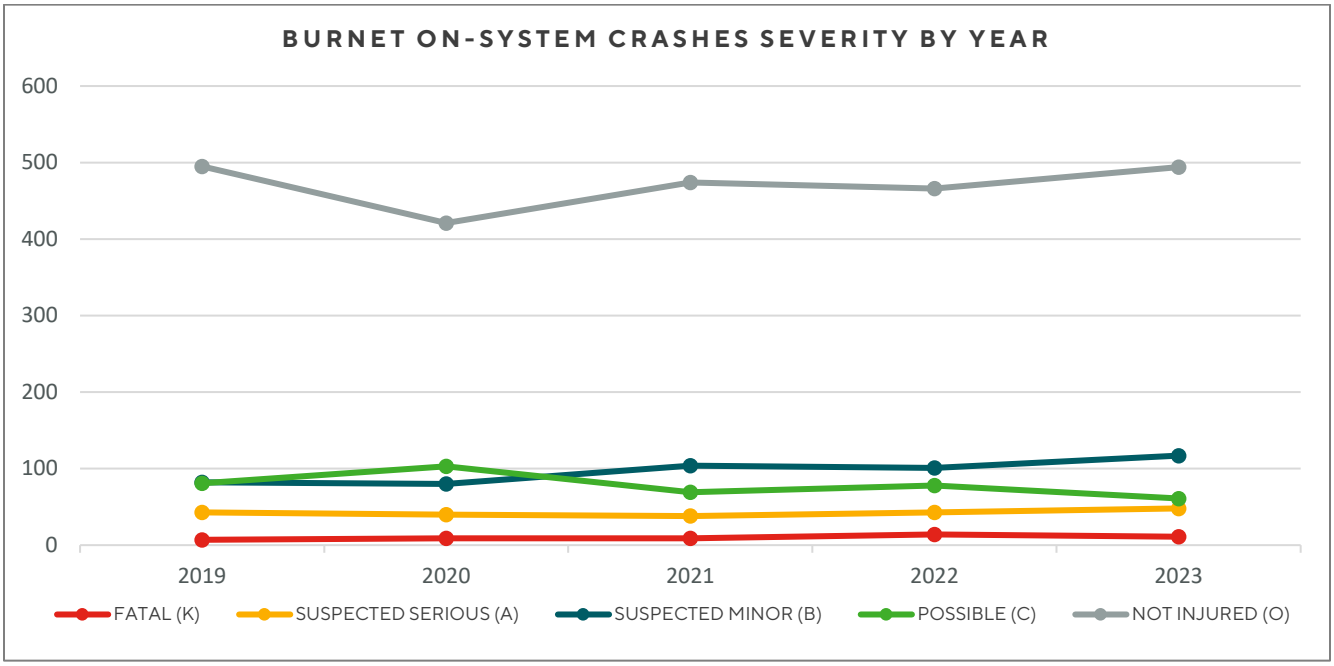



**FIGURE 5: ON-SYSTEM CRASHES (2019-2023) BY YEAR IN BURNET COUNTY**

## EXISTING CONDITION ANALYSIS FOR OFF-SYSTEM ROADWAYS

Crashes in Burnet County by severity for off-system roadways are summarized in Table 7 and Figure 6. These roadways include all the roadways that are classified as off-system. Off-system roadways account for 23% of total crashes and 15% of combined fatal and suspected serious injury crashes in Burnet County.

**TABLE 7: SUMMARY OF OFF-SYSTEM ROADWAYS CRASHES (2019-2023) BY SEVERITY TYPE IN BURNET COUNTY**

| YEAR | FATAL INJURY (K) | SUSPECTED SERIOUS INJURY (A) | SUSPECTED MINOR INJURY (B) | POSSIBLE INJURY (C) | NOT INJURED (O) | UNKNOWN | TOTAL |
|---|---|---|---|---|---|---|---|
| **2019** | 2 | 12 | 19 | 19 | 153 | 16 | 221 |
| **2020** | 0 | 5 | 27 | 22 | 137 | 15 | 206 |
| **2021** | 1 | 5 | 17 | 10 | 163 | 13 | 209 |
| **2022** | 1 | 8 | 24 | 13 | 167 | 10 | 223 |
| **2023** | 0 | 13 | 15 | 11 | 139 | 8 | 186 |
| **TOTAL** | 4 | 43 | 102 | 75 | 759 | 62 | 1,045 |
| **%** | 0% | 4% | 10% | 7% | 73% | 6% | 100% |

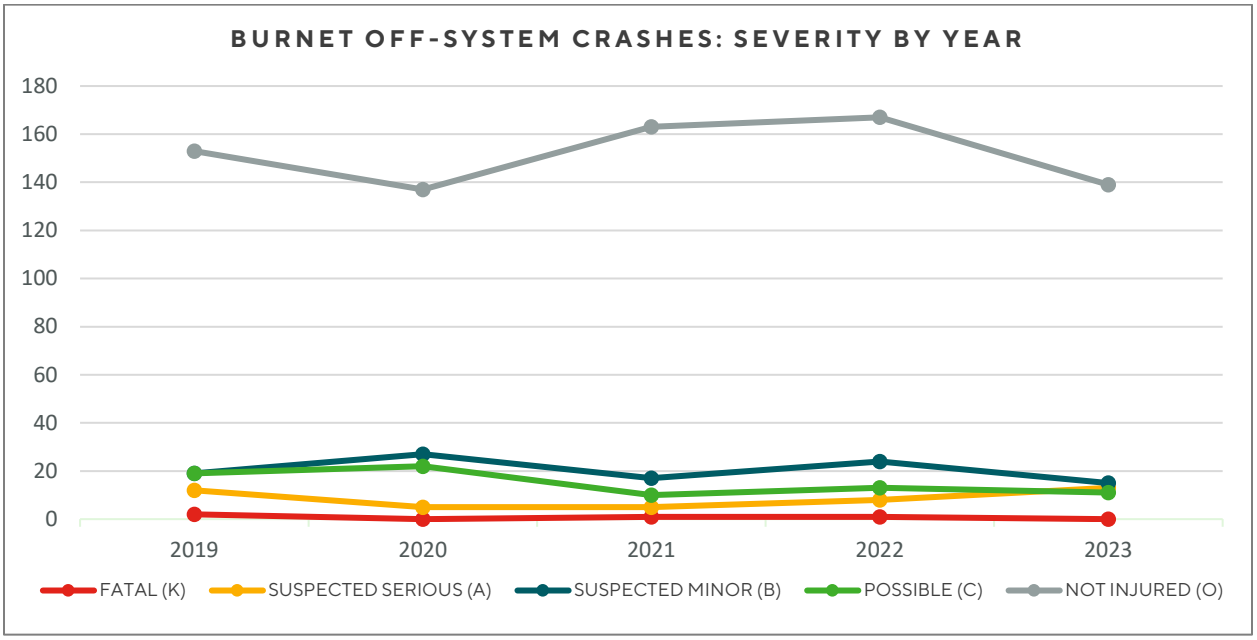



**FIGURE 6: OFF-SYSTEM CRASHES (2019-2023) BY YEAR IN BURNET COUNTY**

## EMPHASIS AREA ANALYSIS

Crash data from 2019 to 2023 is analyzed for the emphasis areas identified in this study. Table 8 summarizes the crashes by year and emphasizes areas for all public roadways in Burnet County. Trendline rates in this table present a linear trendline fitted by the crashes and year, where the higher trendline rate relates to an increase in crashes over the years.

**TABLE 8: SUMMARY OF CRASHES BY YEAR (2019 – 2023) AND EMPHASIS AREAS IN BURNET COUNTY**

| EMPHASIS AREAS | 2019 | 2020 | 2021 | 2022 | 2023 | TOTAL CRASHES | TRENDLINE RATE OF INCREASE IN CRASHES PER YEAR |
|---|---|---|---|---|---|---|---|
| INTERSECTION RELATED | 424 | 392 | 434 | 446 | 503 | 2199 | 21.2 |
| SPEED RELATED | 287 | 276 | 304 | 283 | 277 | 1427 | -1.3 |
| ROADWAY DEPARTURES | 198 | 153 | 140 | 144 | 133 | 768 | -13.9 |
| DISTRACTING DRIVING | 198 | 153 | 140 | 144 | 133 | 768 | -13.9 |
| LOW AMBIENT LIGHTING | 166 | 162 | 170 | 160 | 141 | 799 | -5.2 |
| YOUNGER DRIVERS | 191 | 148 | 167 | 191 | 197 | 894 | 5.5 |
| IMPAIRED DRIVING | 59 | 52 | 46 | 52 | 47 | 256 | -2.4 |
| OLDER DRIVERS | 203 | 179 | 215 | 207 | 257 | 1061 | 13.6 |
| WORK ZONE | 23 | 34 | 19 | 16 | 26 | 118 | -1.2 |
| OCCUPANT PROTECTION | 35 | 20 | 18 | 36 | 31 | 140 | 0.8 |
| PEDESTRIANS | 14 | 8 | 8 | 11 | 9 | 50 | -0.7 |
| PEDALCYCLISTS | 4 | 3 | 1 | 6 | 1 | 15 | -0.3 |

The following Table 9 summarizes total crashes and combines KA crashes. The percentages are respective to countywide total crashes and total combined KA crashes respectively.

- Except for the school-related emphasis area, all other categories had the lowest number of crashes in 2020, aligning with the countywide trend. Since 2020, crashes have continued to rise each year, except in the school and pedal cyclist emphasis areas.
- The four emphasis areas with the highest number of total crashes are intersection-related, speed-related, roadway departure, and distracting driving. These four emphases also have the highest trendline rates; the crashes in these four emphasis areas are increasing at a higher rate compared to other emphasis areas.
- From Table 999, intersection-related, roadway departure, speed-related, and low ambient lighting are the emphasis areas with a high number of combined KA crashes,
- From Table 999, roadway departure, low ambient lighting, impaired driving, occupation protection, and pedestrian and pedal cyclists have a higher percentage of KA crashes compared to the total crashes; these emphasis areas are more susceptible to high injury type crashes.

**TABLE 9: SUMMARY OF CRASHES BY EMPHASIS AREA AND COMBINED FATAL AND SUSPECTED SERIOUS INJURY CRASHES IN BURNET COUNTY**

| EMPHASIS AREAS | TOTAL | % TOTAL CRASHES | KA | % KA CRASHES |
|---|---|---|---|---|
| INTERSECTION RELATED | 1632 | 48% | 65 | 4% |
| ROADWAY DEPARTURES | 1541 | 34% | 179 | 12% |
| SPEED RELATED | 1427 | 31% | 125 | 9% |
| LOW AMBIENT LIGHTING | 1250 | 27% | 127 | 10% |
| OLDER DRIVERS | 1061 | 23% | 70 | 7% |
| YOUNGER DRIVERS | 894 | 19% | 51 | 6% |
| DISTRACTING DRIVING | 768 | 17% | 29 | 4% |
| IMPAIRED DRIVING | 256 | 6% | 55 | 21% |
| OCCUPANT PROTECTION | 140 | 3% | 55 | 39% |
| WORK ZONE | 118 | 3% | 6 | 5% |
| PEDESTRIANS | 50 | 0% | 19 | 38% |
| PEDALCYCLISTS | 15 | 1% | 5 | 33% |

***NOTE – THE PERCENTAGES ARE CALCULATED BASED ON THE COUNTYWIDE TOTAL AND COMBINED KA CRASHES***

Emphasis areas by on-system and off-system are studied. The following tables, Table 10 and Table 11 illustrate the distribution of total and combined KA crashes for each emphasis area respectively. The number of pedestrians, pedal cyclists, and school-related crashes is higher on off-system roadways.

The difference in the percentage of total crashes for speed-related, roadway departure, distracting driving, low ambient lighting, impaired driving, older drivers, work zone, and occupant protection-related crashes between the on-system and off-system roadways are less than 10 %. From Table 11, the percentage difference for these emphases is greater than 20% for KA crashes, meaning on-system roadways are more susceptible to high-severity type crashes.

**TABLE 10: SUMMARY OF CRASHES (2019-2023) FOR EMPHASIS AREAS BY ON-SYSTEM AND OFF-SYSTEM ROADWAYS IN BURNET COUNTY**

| EMPHASIS AREAS | TOTAL CRASHES | | | | |
|---|---|---|---|---|---|
| | Countywide | On-System | | Off-System | |
| | No. of Crashes | No. of Crashes | % | No. of Crashes | % |
| INTERSECTION RELATED | 2199 | 1793 | 82% | 406 | 18% |
| SPEED RELATED | 1427 | 1083 | 76% | 344 | 24% |
| ROADWAY DEPARTURES | 1548 | 1010 | 65% | 538 | 35% |
| DISTRACTING DRIVING | 768 | 568 | 74% | 200 | 26% |
| LOW AMBIENT LIGHTING | 799 | 547 | 68% | 252 | 32% |
| YOUNGER DRIVERS | 894 | 686 | 77% | 208 | 23% |
| IMPAIRED DRIVING | 256 | 161 | 63% | 95 | 37% |
| OLDER DRIVERS | 1061 | 868 | 82% | 193 | 18% |
| WORK ZONE | 118 | 113 | 96% | 5 | 4% |
| OCCUPANT PROTECTION | 140 | 91 | 65% | 49 | 35% |
| PEDESTRIANS | 50 | 33 | 66% | 17 | 34% |
| PEDALCYCLISTS | 15 | 10 | 67% | 5 | 33% |
| SCHOOL ZONE RELATED | 6 | 5 | 83% | 1 | 17% |

*NOTE:*

1. *THE PERCENTAGES FOR ON-SYSTEM AND OFF-SYSTEM ARE CALCULATED BASED ON RESPECTIVE EMPHASIS AREA COUNTYWIDE CRASH NUMBERS*

**TABLE 11: SUMMARY OF KA CRASHES (2019-2023) FOR EMPHASIS AREAS BY ON-SYSTEM AND OFF-SYSTEM ROADWAYS IN BURNET COUNTY**

| EMPHASIS AREAS | KA CRASHES | | | | |
|---|---|---|---|---|---|
| | Countywide | On-System | | Off-System | |
| | No. of Crashes | No. of Crashes | % | No. of Crashes | % |
| INTERSECTION RELATED | 84 | 77 | 92% | 7 | 8% |
| SPEED RELATED | 125 | 98 | 78% | 27 | 22% |
| ROADWAY DEPARTURES | 183 | 149 | 81% | 34 | 19% |
| DISTRACTING DRIVING | 29 | 21 | 72% | 8 | 28% |
| LOW AMBIENT LIGHTING | 127 | 108 | 85% | 19 | 15% |
| YOUNGER DRIVERS | 51 | 41 | 80% | 10 | 20% |
| IMPAIRED DRIVING | 55 | 45 | 82% | 10 | 18% |
| OLDER DRIVERS | 70 | 55 | 79% | 15 | 21% |
| WORK ZONE | 6 | 6 | 100% | 0 | 0% |
| OCCUPANT PROTECTION | 55 | 42 | 76% | 13 | 24% |
| PEDESTRIANS | 19 | 14 | 74% | 5 | 26% |
| PEDALCYCLISTS | 5 | 4 | 80% | 1 | 20% |
| SCHOOL ZONE RELATED | 0 | 0 | - | 0 | - |

*NOTE:*

1. *THE PERCENTAGES FOR ON-SYSTEM AND OFF-SYSTEM ARE CALCULATED BASED ON RESPECTIVE EMPHASIS AREA COUNTYWIDE KA CRASH NUMBERS*

## High Injury Network (HIN) Analysis Results

### HIN INTERSECTIONS

Combined High Injury Networks (HINs) Intersections were developed for Burnet County intersections: which include intersections both on-system and off-system intersections. This approach identifies high-injury intersection locations beyond those found on TxDOT highway road segments.

The following Table 12 provides the top twenty scoring intersections, capturing a significant share of fatal and serious injury (KA) crashes. These intersections represent critical locations within the network where safety improvements are most needed. Figures 7 and 8 illustrate the geographic distribution of these high-risk intersections across the county.

Table 12 shows the top twenty scoring intersections (along with the number of KA crashes) for all intersections HIN.

**TABLE 12: TOP TWENTY SCORING INTERSECTIONS WITH THE HIGH INJURY NETWORK**

| INTERSECTION NAME | WEIGHTED SCORE | KA CRASHES |
|---|---|---|
| US 281 & RM 2147 | 89 | 4 |
| US 183 & CR 210/218 | 77 | 5 |
| US 281 & SH 29 | 65 | 1 |
| US 281 & MISSION HILL ROAD/ MORMON MILL ROAD | 44 | 0 |
| US 281 & 2ND STREET | 42 | 1 |
| US 281 & RM 1855 | 41 | 2 |
| US 281 & W JACKSON STREET | 38 | 2 |
| US 281 & RM 1431/MAIN STREET | 38 | 0 |
| SH 29 & RM 2341 | 37 | 2 |
| SH 29 & RM 0243 | 36 | 2 |
| US 281 & N PIERCE STREET | 32 | 1 |
| US 281 & NORTHWOOD | 30 | 2 |
| RM 1431 & AVENUE J | 30 | 0 |
| RM 1431 & RM 2342 | 30 | 1 |
| RM 1431 & INDUSTRIAL BLVD | 30 | 1 |
| US 281 & SH 71 | 28 | 1 |
| RM 2342 & PR 04 | 28 | 1 |
| US 281 & BROADWAY STREET/SUNSET DRIVE | 28 | 1 |
| RM 1431 & SUNSET DRIVE | 25 | 1 |
| SH 29 & S RHOMBERG | 25 | 1 |
| RM 243 & GRANGE STREET/SH 29 | 25 | 1 |

## HIN - SEGMENTS

We developed two segment-focused High Injury Networks (HINs) for Burnet County, one considering all roadways, and another considering only off-system roadways. This was done to show high-injury locations beyond those occurring on TxDOT highways. The following Table 13 shows the percent KA capture for each HIN that was developed. The All Roads HIN captures 60% of KA crashes occurring on local roads and highways and covers 5% of the road network. The Off-System Roads HIN captures 80% of the KA crashes occurring on off-system roads and covers 2% of the off-system road network. Figures 9 and 10 highlight the locations of HIN segments at the County and sub-county level.

**TABLE 13: HIN SEGMENT STATISTICS**

| NETWORK | % CENTERLINE MILES | % KA CAPTURE |
|---|---|---|
| ALL ROADS HIN | 5% | 60% |
| OFF-SYSTEM HIN | 2% | 80% |

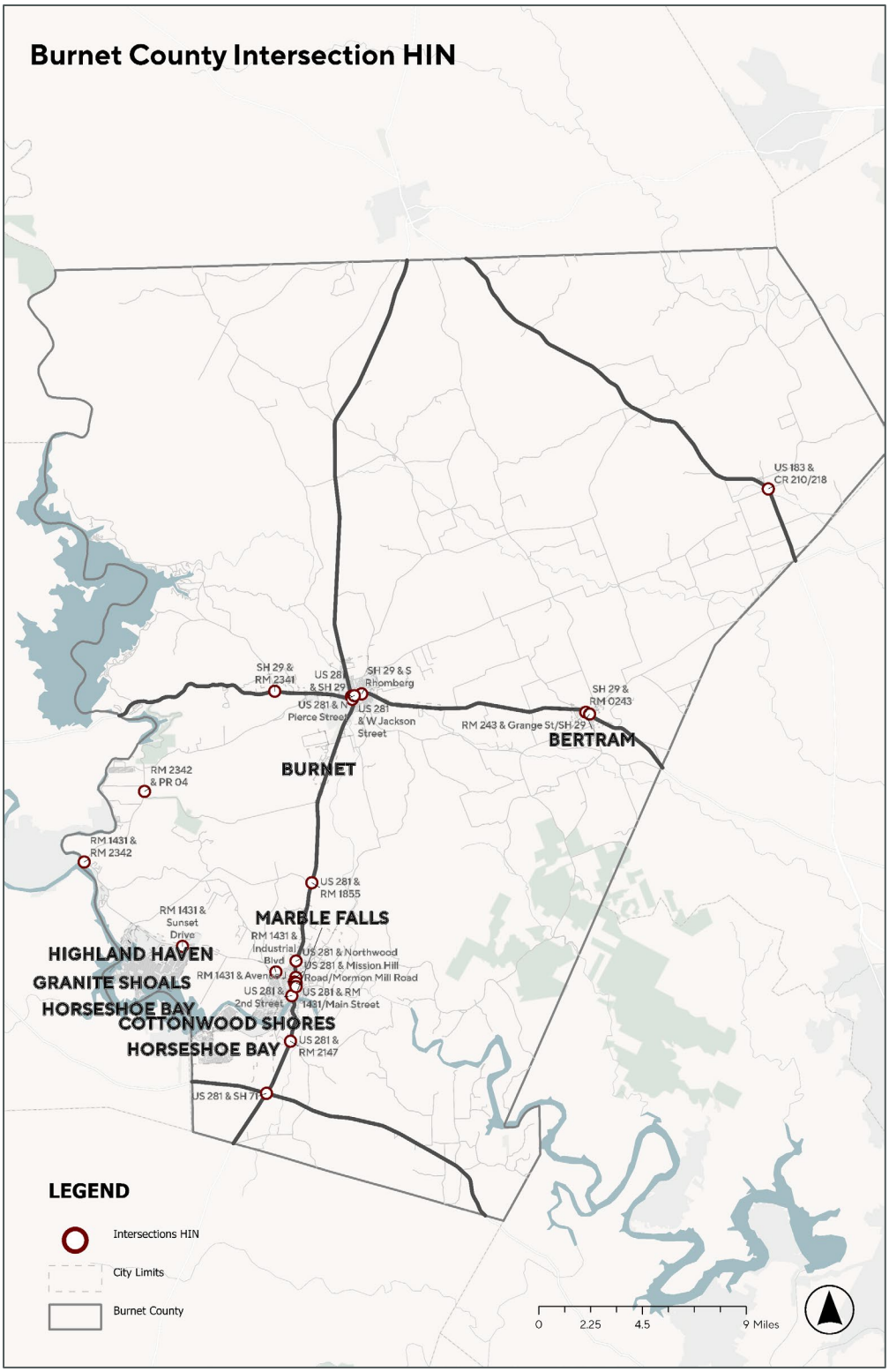



**FIGURE 7: MAP OF BURNET COUNTY INTERSECTION HIN**

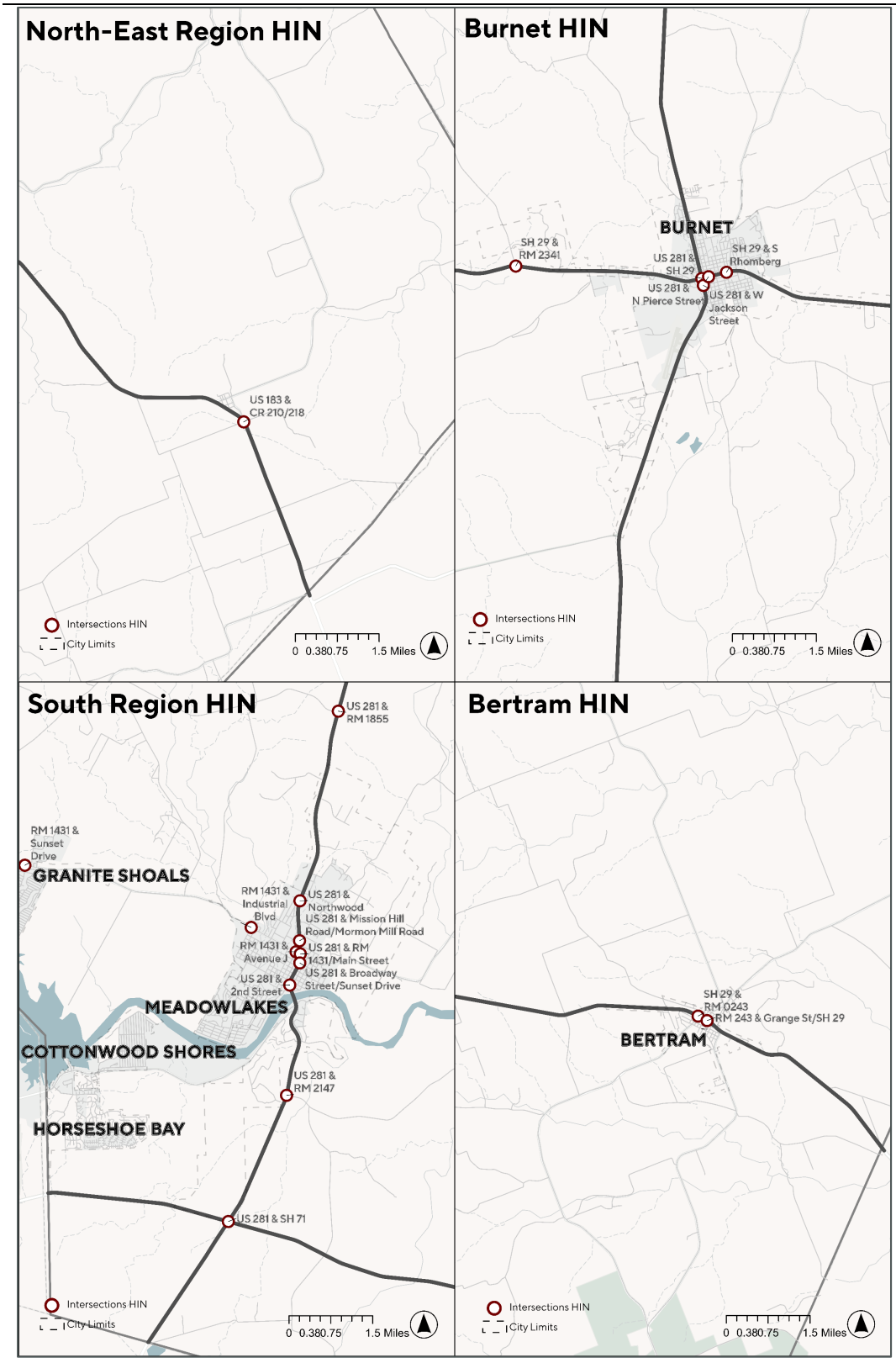



**FIGURE 8: MAP OF INTERSECTION HIN FOR DIFFERENT REGIONS IN BURNET COUNTY**

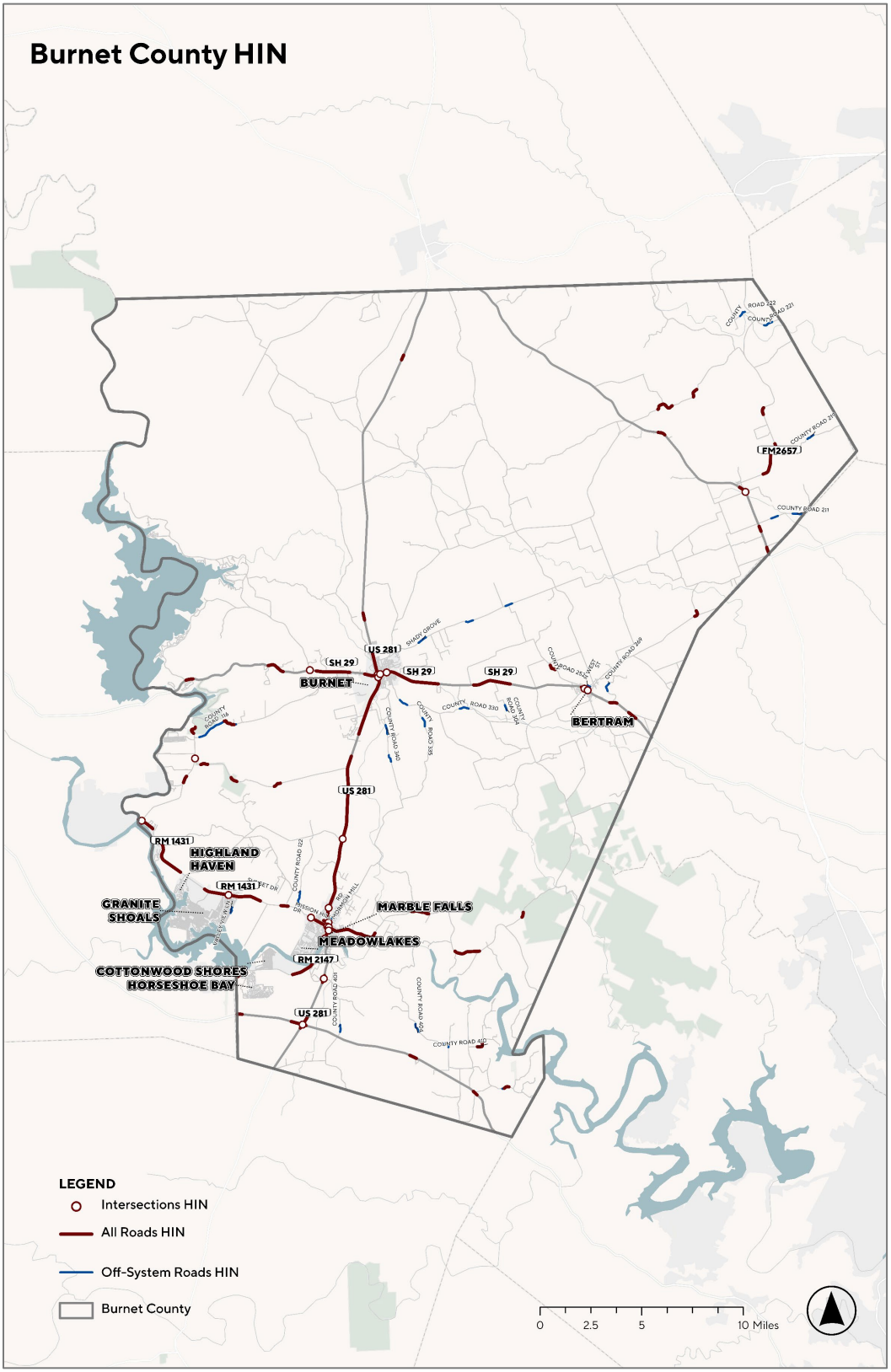



**FIGURE 9: MAP OF BURNET COUNTY SEGMENT HIN**

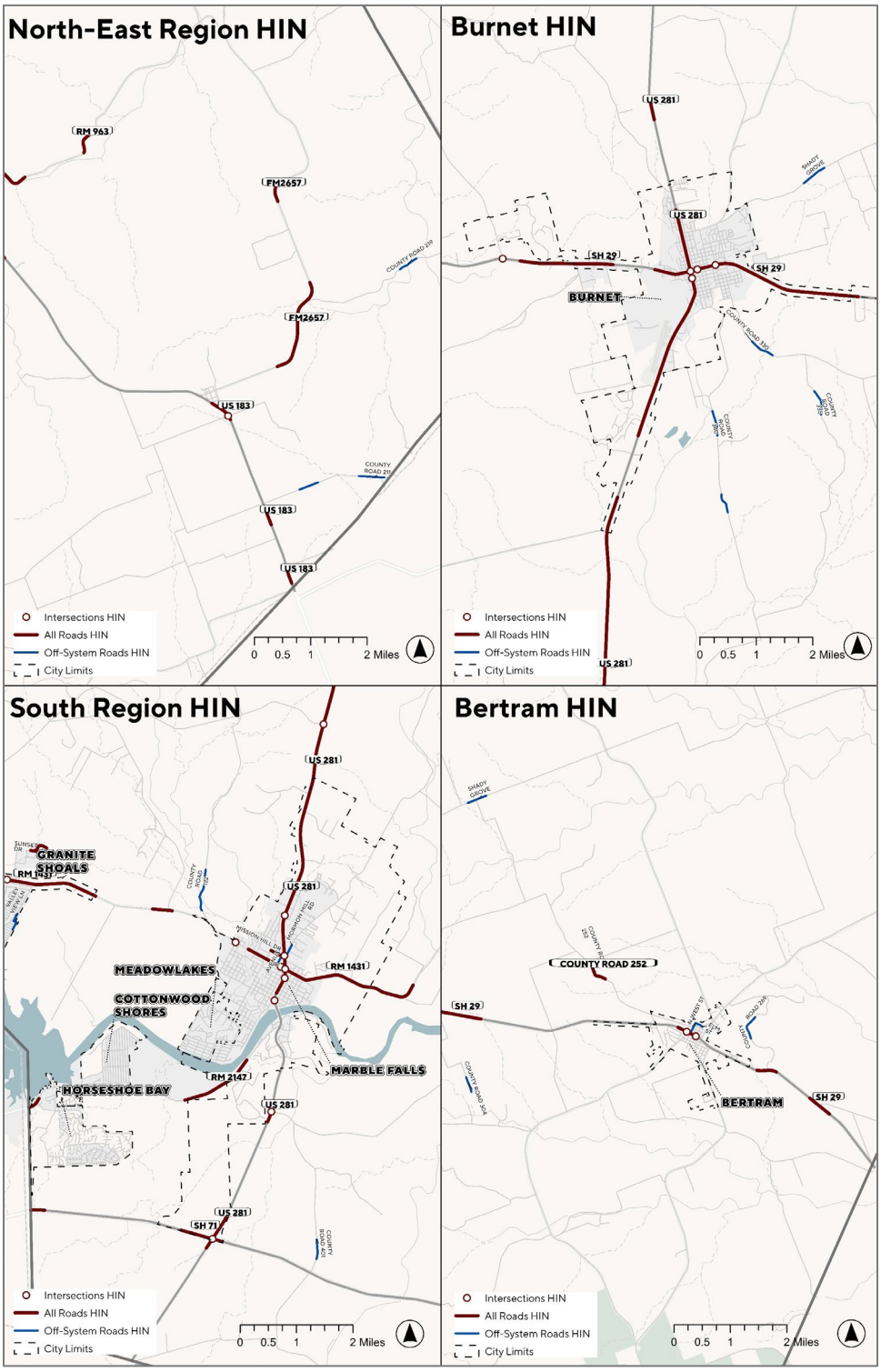



**FIGURE 10: MAP OF SEGMENT HIN FOR DIFFERENT REGIONS IN BURNET COUNTY**

# Appendix B

## BURNET COUNTY POLICY RECOMMENDATIONS TECHNICAL MEMORANDUM

# BURNET COUNTY POLICY RECOMMENDATIONS TECHNICAL MEMORANDUM

## Introduction

The Capital Area Metropolitan Planning Organization (CAMPO) is developing a county-level safety action plan (CSAP) for Burnet County, including local agencies and other partners within the county. The Burnet County-level CSAP will be integrated into the Regional Safety Action Plan (RSAP) which CAMPO is developing simultaneously. The purpose of the safety action plan is to find specific, actionable projects and strategies to improve roadway safety for all road users in all communities throughout the CAMPO region.

As part of the CSAP development, an assessment was conducted of existing plans, policies, guidelines, and standards pertaining to transportation planning and how safety is currently being prioritized in Burnet County. The review focused on significant county and city documents that impact the safety of roadways, sidewalks, trails, and other transportation facilities. This process established a baseline and provided a path forward for the identification of county- and city-level policy recommendations and opportunities to improve transportation safety for all road users, including the most vulnerable.

## Assessment of Existing Policies and Plans

The initial region-wide assessment of existing policies, plans, and guidelines included reviewing several safety-related search terms on a sample of documents in each county, including Burnet. These key search terms were *safe; traffic; signal; intersection; speed; calming; crash; seatbelt; texting; stop sign; construction zone; safe routes; light and signal synchronization; speed bumps; pedestrian; bike or bicycle; driver safety; complete streets; curb cuts; and access management.* The list of assessed documents is included at the end of the document.

The assessment provided the team with an understanding of the safety-related efforts already in place across the county and cities and a foundation for making the recommendations in this memo.

# Policy and Program Recommendations

A set of targeted policy and program recommendations were formulated based on the comprehensive assessment and a review of safety needs through crash data analysis and public engagement efforts. This review will assist transportation safety enhancements in the county and its cities. These recommendations are designed to address existing gaps; enhance coordination among local agencies, educational institutions, and law enforcement; implement effective strategies to reduce fatal and serious injury collisions; and promote safer travel for all road users.

Each recommendation is rooted in the core elements of the Safe System Approach and aligned with the emphasis areas of the Texas Road to Zero effort as described in the 2022-2027 Strategic Highway Safety Plan. By aligning with these principles, the recommendations focus on creating a transportation system that is safe, reliable, and resilient, prioritizing both proactive measures and system-level improvements.

An Excel-based workbook has been developed to organize and track each policy and program recommendation, with each categorized under the relevant Safe Systems Approach element. This structure allows for a clear overview of how each contributes to the overarching goal of improving transportation safety for all road users in Burnet County. **Tables 1 through 6** summarize the recommended policies and programs, including a description and who may lead the effort along with their primary and secondary support.

**TABLE 1: RECOMMENDED TRANSPORTATION POLICIES AND PROGRAMS ADDRESSING POST CRASH CARE**

| SAFE SYSTEM APPROACH CORE ELEMENT: POST CRASH CARE | | | | | |
|---|---|---|---|---|---|
| POLICY OR PROGRAM RECOMMENDATION | DESCRIPTION | CATEGORY | LEAD | PRIMARY SUPPORT | SECONDARY SUPPORT |
| **Traffic Safety & Emergency Response Coordination** | Task force to meet regularly (quarterly) with PD, Fire, Emergency response units and hospitals to discuss collision trends, emergency response times, and safety implementations. | Partnerships | Task Force | Emergency Responders (Police, EMS, Fire) | |
| **Emergency Services Roadway Design Feedback Loop** | Receive feedback from emergency service providers for potential roadway design elements regarding impact on operations, allowing for design flexibility where possible. | Partnerships | Task Force | Emergency Responders (Police, EMS, Fire) | |

TABLE 2: RECOMMENDED TRANSPORTATION POLICIES AND PROGRAMS ADDRESSING SAFER ROAD USERS

| SAFE SYSTEM APPROACH CORE ELEMENT: SAFER ROAD USERS | | | | | |
|---|---|---|---|---|---|
| POLICY OR PROGRAM RECOMMENDATION | DESCRIPTION | CATEGORY | LEAD | PRIMARY SUPPORT | SECONDARY SUPPORT |
| **Transparent Safety Reporting Initiative** | Develop, maintain, and publish regular (at least annual) safety reports to the public, offering information about safety efforts and offering opportunities for public input. | Leadership | Task Force | City and County Staff | |
| **Equitable Roadway Safety Access Program** | Work with non-government organizations and community groups to make roadway safety information and communications available to lower income and non-native speaking populations. | Leadership | Task Force | City and County Staff | Community Organizations |
| **Safe Travel Partnership Program** | Foster relationships and offer outreach materials with local restaurants, bars, and organizations (MADD, AAA, etc.) to encourage safe roadway practices such as designating a driver or ride sharing. | Partnerships | Task Force | City and County Officials | |
| **Distracted & Impaired Driving Awareness Campaign** | Work with regional partners to develop and publish resources for people that target distracted driving, driving under the influence of alcohol or other drugs, aggressive driving, and speeding behaviors. | Partnerships | Task Force | Community Organizations | Health Departments |
| **School Roadway Safety Engagement Plan** | Develop and maintain regular (at least annually) communications with school district officials and individual school leaders regarding roadway safety and educational needs. | Partnerships | Task Force | Schools | |
| **High Injury Network Monitoring & Action Plan** | Monitor and update (at least annually) the high injury network to inform short-, medium-, and long-term project prioritization. Use data-driven and collaborative decision-making to regularly update and identify hot spots, trends and prioritize interventions based on the most critical needs. | Local Policies | Task Force | City and County Staff | |

| SAFE SYSTEM APPROACH CORE ELEMENT: SAFER ROAD USERS | | | | | |
|---|---|---|---|---|---|
| **POLICY OR PROGRAM RECOMMENDATION** | **DESCRIPTION** | **CATEGORY** | **LEAD** | **PRIMARY SUPPORT** | **SECONDARY SUPPORT** |
| **Burnet County Traffic Safety Task Force** | Sustain Burnet County Task Force following plan adoption, and train public agency staff and stakeholders in Burnet County on their roles in contributing to traffic safety, and their responsibilities for implementing the CSAP. | Leadership | Task Force | City and County Staff | |
| **Complete Streets Policy Implementation** | Develop and implement a Complete Streets policy for use within Burnet County. | Local Policies | Task Force | City and County Staff | |
| **Active Transportation Network Plan** | Develop an Active Transportation Plan for use within Burnet County, to achieve a complete network for walking, biking, and emerging micromobility options. | Local Policies | Task Force | City and County Staff | |
| **Transit Safety & Experience Enhancement Project** | Collaborate with Capital Area Rural Transportation System (CARTS) to improve existing transit facilities and routes to create a safer and more enjoyable experience for transit users. | Partnerships | Task Force | City and County Staff | Transit Organization |

TABLE 3: RECOMMENDED TRANSPORTATION POLICIES AND PROGRAMS ADDRESSING SAFER ROADWAYS

| SAFE SYSTEM APPROACH CORE ELEMENT: SAFER ROADWAYS | | | | | |
|---|---|---|---|---|---|
| POLICY OR PROGRAM RECOMMENDATION | DESCRIPTION | CATEGORY | LEAD | PRIMARY SUPPORT | SECONDARY SUPPORT |
| **Community Input & Rapid Response Initiative** | Consider, respond, and prioritize community input for implementation within context of the HIN and CSAP. Consider a 311-style app to reach more constituatnts. Consider low-cost, quick-build measures where appropriate. | Local Policies | Task Force | Information Technology Departments | |
| **Targeted Enforcement Strategy** | Refocus enforcement efforts on HIN and on factors leading to largest share of KA collisions. | Enhanced Enforcement | Task Force | Enforcement | Texas Department of Public Safety |
| **Safe School Zones Enhancement Program** | Enhance school speed zones with additional safety improvements, such as enhanced crossings, flashing warning lights, updated signage and traffic controls as appropriate. | Street Design that Protects People | Task Force | Schools | Public Works |
| **Emergency Traffic Management & ITS Program** | Implement regional Transportation Systems Management and Operations (TSMO) and Intelligent Transportation Systems (ITS) to improve emergency/incident management and common crash types, focusing first on HIN priority corridors. | Street Design that Protects People | Task Force | Public Works | |
| **Rail Corridor Traffic Impact Assessment** | Implement system to measure and report delays, travel time on routes affected by rail crossings. | Local Policies | Task Force | Planning and Public Works | Information Technology Departments |
| **Project Effectiveness Study Initiative** | Study efficacy of installed projects through before and after studies (looking at speeds, collisions) and public surveys. | Street Design that Protects People | Task Force | City and County Staff | |
| **Neighborhood Traffic Safety & Calming Program** | Develop a Neighborhood Traffic Management Program that includes design strategies to address speeding and cut-through traffic to improve safety and traffic congestion, considering impacts on emergency response. | Street Design that Protects People | Task Force | Public Works | Emergency Responders (Police, EMS, Fire) |
| **HIN-Centric Project Deployment Strategy** | Prioritize HIN in project deployment. | Local Policies | Task Force | Planning and Public Works | |

| SAFE SYSTEM APPROACH CORE ELEMENT: SAFER ROADWAYS | | | | | |
|---|---|---|---|---|---|
| **POLICY OR PROGRAM RECOMMENDATION** | **DESCRIPTION** | **CATEGORY** | **LEAD** | **PRIMARY SUPPORT** | **SECONDARY SUPPORT** |
| **Proven Safety Countermeasures Adoption Program** | Deploy project recommendations and countermeasures from the CSAP on the HIN. Prioritize use of FHWA's Proven Safety Countermeasures (e.g. refuge islands, road diets, roundabouts). | Street Design that Protects People | Task Force | Planning and Public Works | |
| **Roadway Investment & Safety Alignment Initiative** | Review roadway investment programs (bond, CIP, pavement, rehab, etc.) and their projects for opportunities for safety enhancement, alignment with the Safe System Approach and Roadway Design Hierarchy. | Local Policies | Task Force | City and County Staff | |
| **Multimodal Roadway Design Guidelines** | Develop multimodal design guidelines for new developments that match land use context and support roadway safety. | Local Policies | Task Force | City and County Staff | Planning and Public Works |
| **Roadway Safety Grants & Funding Strategy** | Apply for regional, state (e.g. HSIP), and federal (e.g. SS4A) safety implementation grant funds regularly. Use funding for identified projects, demonstration projects, and local SRTS programs. | Local Policies | Task Force | City and County Staff | Schools |
| **Intersection Safety Optimization Plan** | Implement intersection designs and operational strategies (e.g., roundabouts, protected left turns and lead pedestrian intervals at signals) to improve safety at intersections, focusing first on HIN priority locations. | Intersection Design | Task Force | City and County Staff | Public Works |
| **Railway Traffic Flow & Emergency Response Collaboration** | Collaborate with rail operators to improve traffic delays and improve emergency response times as a result of rail activities. | Partnerships | Task Force | | |

**TABLE 4: RECOMMENDED TRANSPORTATION POLICIES AND PROGRAMS ADDRESSING SAFER SPEEDS**

| SAFE SYSTEM APPROACH CORE ELEMENT: SAFER SPEEDS | | | | | |
|---|---|---|---|---|---|
| **POLICY OR PROGRAM RECOMMENDATION** | **DESCRIPTION** | **CATEGORY** | **LEAD** | **PRIMARY SUPPORT** | **SECONDARY SUPPORT** |
| **Procedure for Establishing Speed Zones** | Develop a speed limit policy and procedures process based on current research and methodologies that include contextual factors and align with TxDOT's Speed Zone Manual. | Local Policies | Task Force | City and County Staff | Public Works |
| **School Zone Enhancement Program** | Develop a program that collaborates with local schools and parent-teacher associations to identify areas of enhanced safety improvements (rapid flashing beacons, speed feedback signs, etc.). | Street Design that Protects People | Task Force | City and County Staff | Local School Districts |
| **Targeted Speed Limit Evaluation Program** | Perform regular (at least annual) speed studies and make speed limit recommendations that align with concept of "target speed" using USLIMITS and determine new posted speed limits where appropriate. | Safe Speeds | Task Force | City and County Staff | |

**TABLE 5: RECOMMENDED TRANSPORTATION POLICIES AND PROGRAMS ADDRESSING SAFER VEHICLES**

| SAFE SYSTEM APPROACH CORE ELEMENT: SAFER VEHICLES | | | | | |
|---|---|---|---|---|---|
| **POLICY OR PROGRAM RECOMMENDATION** | **DESCRIPTION** | **CATEGORY** | **LEAD** | **PRIMARY SUPPORT** | **SECONDARY SUPPORT** |
| **VEHICLE ADVANCEMENT (V2X) PROGRAM** | Evaluate and identify TxDOT's initiatives on connected and autonomous vehicles (Connected and Autonomous Vehicle Task Force) in order to provide the necessary infrastructure and facility upgrades. | Autonomous Vehicles | Task Force | City and County Staff | Public Works |
| **TRUCK/FREIGHT ROUTE POLICY** | Develop a policy in accordance with TxDOT's guidelines on truck routes and truck parking restrictions. Consider local ordinances for designated truck routes and parking to identify areas where freight routes and VRU paths intersect and implement measures such as designated truck lanes or time-based restrictions to enhance safety. | Commercial Vehicle | Task Force | City and County Staff | Public Works |
| **PUBLIC TRANSPORTATION SAFETY POLICY** | Develop a safety protocol for public transit systems that includes regular vehicle inspections, driver training programs, and emergency preparedness plans. Align with state and federal transit safety regulations and collaborate with transit agencies to implement best practices. | Transit Vehicles | Task Force | Transit Organization | |

**TABLE 6: RECOMMENDED TRANSPORTATION POLICIES AND PROGRAMS ADDRESSING SAFETY LEADERSHIP AND CULTURE**

| SAFE SYSTEM APPROACH CORE ELEMENT: SAFETY LEADERSHIP AND CULTURE | | | | | |
|---|---|---|---|---|---|
| **POLICY OR PROGRAM RECOMMENDATION** | **DESCRIPTION** | **CATEGORY** | **LEAD** | **PRIMARY SUPPORT** | **SECONDARY SUPPORT** |
| **Roadway Safety Performance Report** | Report on roadway safety efforts and outcomes to elected officials and city leaders. | Leadership | Task Force | City and County Staff | |
| **Vision Zero Commitment** | Commit to a "Zero" Goal. Elected officials and department leaders adopt public commitment to eliminate traffic fatalities and serious injuries within a specific timeframe. | Leadership | City and County Officials | Task Force | |
| **CSAP Implementation & Coordination Strategy** | Identify staffing and funding needs to effectively and regularly coordinate and implement actions from CSAP systematically. | Local Policies | Task Force | | |