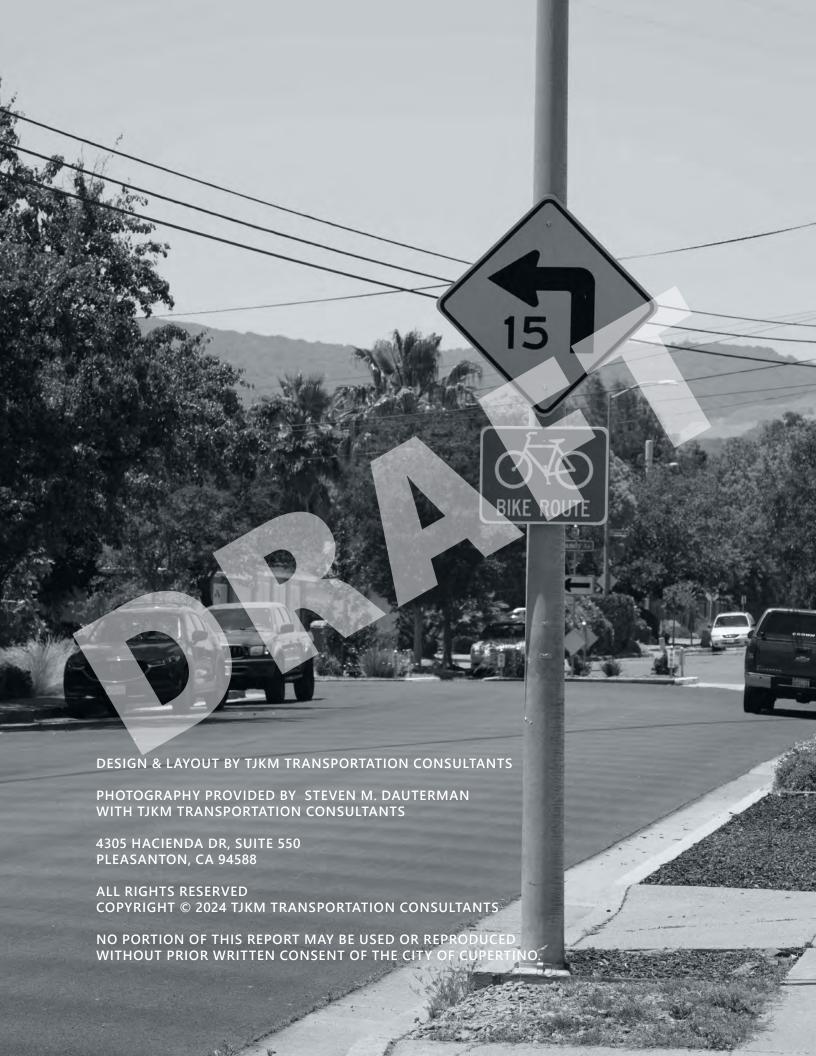


VISION ZERO & ACTION PLAN MARCH 2024





ACKNOWLEDGEMENTS

The development of Cupertino's Vision Zero Policy and Action Plan has been a collaborative endeavor, greatly benefiting from the involvement of a diverse group of stakeholders. The active participation of community members in the two virtual community meetings has been crucial in ensuring the plan's comprehensiveness and responsiveness to the community's needs. We extend our heartfelt appreciation to these individuals for their invaluable input, which has played a vital role in successfully creating the City of Cupertino Vision Zero Policy and Action Plan. We would also like to express our gratitude to the elected officials, Cupertino staff, Cupertino Bicycle Pedestrian Commission, Santa Clara County Fire Department and Sheriff Department, and school districts for their contributions throughout this process. Your feedback has been instrumental in aligning the plan with local priorities, policies, and existing programs.

Elected Officials

Sheila Mohan Liang Chao Mayor Councilmember

J.R. Fruen Kitty Moore
Vice Mayor Councilmember

Hung Wei Councilmember

City of Cupertino Staff

David Stillman Prashanth Dullu
Transportation Manager Assistant Engineer

City of Cupertino Bicycle Pedestrian Commission

Ilango Ganga Joel Wolf John Zhao Grace John

Herve Marcy

TJKM Transportation Consultants

Ruta Jariwala, PE, TE Project Manager

Gary W. Schatz, PTOE, PTP

Mark Doty

Devyani Padubidri

Key Stakeholders

Sheriff Department

Santa Clara County Fire Department

Fremont Union High School District (FUHSD)

Cupertino Union School District (CUSD)

Walk Bike Cupertino

City of Cupertino Community Outreach Specialist

City of Cupertino Community Development

City of Cupertino Safe Routes to School



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A LETTER FROM THE CITY

To the residents of Cupertino,

As we believe that one traffic death is one too many, Cupertino's Vision Zero and Action Plan is an important step towards eliminating citywide multimodal traffic fatalities and serious injuries. Through this plan, a goal is set to reduce fatalities and serious injuries to zero within the next 16 years. The City believes that collisions can be prevented instead of just avoided and we are committed to undertaking the hard tasks and investments that must be made to make this belief a reality.

We know the path to achieving Vision Zero is not a smooth one. It requires a fundamental and widespread commitment to a culture of safety that implements safer infrastructure and influences good behaviors in a way that speaks to every person, every time they move throughout the city. Our robust Vision Zero Action Plan sets us on a course to achieve our shared goals, including safe streets for all.

Ensuring all users of Cupertino roads – motorists, pedestrians, cyclists, schoolchildren, the elderly, and those with mobile impairments – have safe, comfortable, and easy access to their destinations is key to a successful Action Plan, and the City is dedicated to providing this to all Cupertino residents, employees, and visitors.

The goals and objectives laid out in this Action Plan, based not only on quantitative data but also on inclusive and robust community outreach, will build upon previous City commitments and investments to ensure optimal transportation safety.

This collaborative effort, with the City Council's leadership, City Staff's hard work, and the community's input and feedback, is a call to action for all who believe and want a safer Cupertino for future generations. We look forward to your participation.

Sincerely,

Sheila Mohan J.R. Fruen Mayor Vice Mayor

VISION STATEMENT

INTRODUCTION

It is unacceptable for people to be killed or seriously injured while traveling along or across Cupertino's streets. Through a holistic and proactive approach, the City of Cupertino commits to eliminating all fatal and serious injury traffic crashes by 2040.

GUIDING PRINCIPLES

- 1. Safety is our highest priority. Human life is more important than speed, convenience, or property. We will evaluate trade-offs and make both proactive and reactive engineering decisions about street design based on this value.
- 2. Traffic deaths and severe injuries are a preventable public health issue. We will treat fatal and severe collisions as preventable and unacceptable incidents that can and must be addressed.
- 3. People make mistakes. We will design our streets so that mistakes do not result in death or severe injury. We will not victimblame but seek to understand and respond compassionately and objectively.
- 4. Slower streets are safer streets. Mobility is the safe and efficient movement of people and goods through a transportation system. We will design, construct, and operate our streets for slower speeds to eliminate all fatal and severe collisions, and protect our most vulnerable street users.

- 5. We will create safer transportation options for people to travel. Creating safer and more comfortable transportation options for pedestrians, cyclists, and transit riders can make these modes more attractive and reduce the number of vehicle miles traveled and the risk of fatal and serious injury crashes.
- 6. Street safety must be achieved equitably. This plan emphasizes data-driven engineering and education actions first, supported by equity and data-driven enforcement and in an effort to conduct equitable traffic enforcement.
- 7. Vision Zero will be both reactive to crash data and proactive to crash risk. Crash data reveals where the risk of fatal and serious injury crashes has manifested. A proactive crash risk assessment identifies and prioritizes those locations where risk exists but crash experience has yet to materialize.
- 8. Vision Zero requires a holistic approach to land use and transportation to include policy analysis and changes at the local and regional levels.
- 9. Cupertino's response will utilize proven safety countermeasures coupled with innovative strategies. We will perform annual monitoring, reporting, and evaluation through an equity lens. We will communicate clearly what resources are necessary to achieve Vision Zero, why street design modifications are proposed, and the basis for prioritizing competing improvements.

SAFE SYSTEMS APPROACH

Reaching zero deaths requires the implementation of a Safe System approach, which was founded on the principles that humans make mistakes and that human bodies have limited ability to tolerate crash impacts. In a Safe System, those mistakes should never lead to death. Applying the Safe System approach involves anticipating human mistakes by designing and managing road infrastructure to keep the risk of a mistake low; and when a mistake leads to a crash, the impact on the human body doesn't result in a fatality or serious injury. Road design and management should encourage safe speeds and manipulate appropriate crash angles to reduce injury severity.

Six principles form the basis of the Safe System approach:

- Deaths and serious injuries are unacceptable
- Humans make mistakes
- Humans are vulnerable
- Responsibility is shared
- Safety is proactive
- Redundancy is crucial



Committing zero traffic deaths means addressing all aspects of safety through the following five Safe System elements that, together, create a holistic approach with layers of protection for road users:

SAFE ROAD USERS - The Safe System approach addresses the safety of all road users, including those who walk, bike, drive, ride transit, and travel by other modes.

SAFE VEHICLES - Vehicles are designed and regulated to minimize the occurrence and severity of collisions using safety measures that incorporate the latest technology.

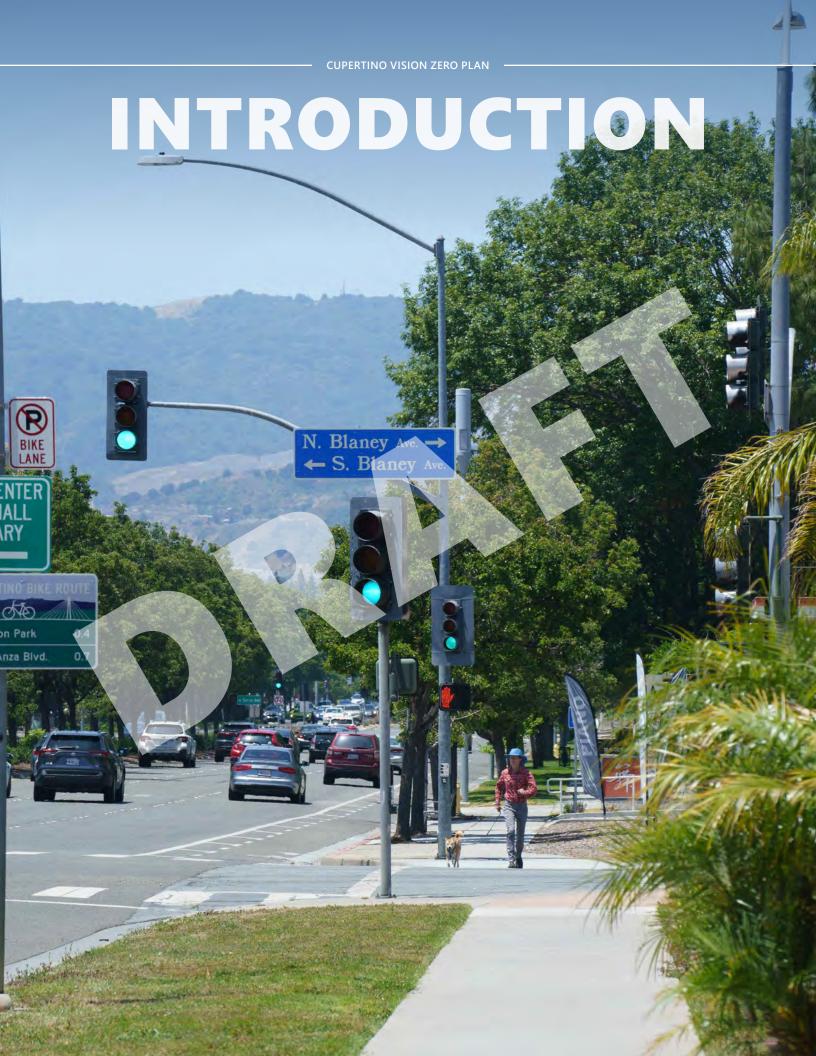
SAFE SPEEDS - Humans are unlikely to survive high-speed crashes. Reducing speeds can accommodate human injury tolerances in three ways: reducing impact forces, providing additional time for drivers to stop, and improving visibility.

SAFE ROADS - Designing to accommodate human mistakes and injury tolerances can greatly reduce the severity of crashes that do occur. Examples include physically separating people traveling at different speeds, providing dedicated times for different users to move through a space, and alerting users to hazards and other road users.

POST-CRASH CARE - When a person is injured in a collision, they rely on emergency first responders to quickly locate them, stabilize their injury, and transport them to medical facilities. Post-crash care also includes forensic analysis at the crash site, traffic incident management, and other activities. It can also include healthcare providers sharing anonymized ER data about crash victims that may not have been reported to law enforcement with local agencies that can help better identify crash trends, audiences for focused community engagement, or social needs like car seats and bicycle helmets.

The Safe System approach requires a *supporting safety culture* that places safety first and foremost in road system investment decisions. To achieve our zero deaths vision, everyone must accept that *fatalities* and serious injuries are unacceptable and preventable.¹

U. S. Department of Transportation – Zero Deaths and Dafe System. Retrieved on June 30, 2023 from link: <a href="https://https



Vision Zero is twofold: a way of believing and a way of action

INTRODUCTION

WHAT IS VISION ZERO?

Vision Zero is a heartfelt belief that no one should be killed or seriously injured while traveling along, across, or around our streets and roadways. Thinking of our own family and circle of friends, which of them would we be willing to experience their death or being seriously injured and perhaps forever maimed in a traffic crash? We would not want any of them to be seriously injured or killed, thus for us the only acceptable value is zero. Recognizing that anyone is someone's friend or family member, the idea that no one should be seriously injured or killed can and should be extended to everyone who travels.

Vision Zero is also a strategy to eliminate all fatal and severe injury traffic crashes while increasing safe, healthy, and equitable mobility for all. We plan, design, operate, and maintain our roadway networks to be as safe as possible for all users regardless of age, ability, identity, or mode of travel. First implemented in Sweden in the 1990s, Vision Zero has proved successful across Europe and is being adopted by many jurisdictions across the US. **Figure 1** shows a map of Vision Zero Communities in the United States that have adopted Vision Zero.



Source: Vision Zero Network

Figure 2: Map of Fatal Collisions in Cupertino (2012 to 2021) **85**) HOMESTEAD RD RD S WOLFE RD TANTAU AVE N DE ANZA BLVD PRUNERIDGE AVE FOOTHILL BLVD N WOLFE RE Z STEVENS CREEK BLVD STEVENS CREEK BLVD S FOOTHILL BLVD TANTAU AVE BLVD AWRENCE EXP MCCLELLAN RD MILLER AVE S DE BUBB RD BOLLINGER RD S DE ANZA BLVD BOLLINGER RD RAINBOW DR **85**) **Collision by Severity** "Over **65%** of PROSPECT RD **Fatal** Cupertino's population, Severe Injury needlessly die every year Source: Crossroads (2012-2021) while traveling along 0.25 0.5 America's streets, and thousands more injured."

WHY DO WE NEED VISION ZERO?

In 2021, the estimated population of Cupertino was 58,6222. Since 2000, on average 38,284 people³, or over 65% of Cupertino's population, needlessly die every year while traveling along America's streets, and thousands more are injured. Figure 2 shows the locations in the City of Cupertino where fatalities have occurred between 2012 and 2021. But, we as a society have become accustomed to this tragedy. We consider these horrific events to be inevitable side effects of our modern life. We call them "accidents", which is defined as "an unfortunate incident that happens unexpectedly and unintentionally, typically resulting in damage or injury" or, "an event that happens by chance or that is without apparent or deliberate cause." The term also implies that no one is at fault or is to blame, but in fact, the event may have been caused by unrecognized or unaddressed risks.

Retrieved on June 30, 2023 from link: <u>https://www.iihs.org/topics/fatality-statistics/detail/yearly-snapshot</u>

CUPERTINO VISION ZERO PLAN

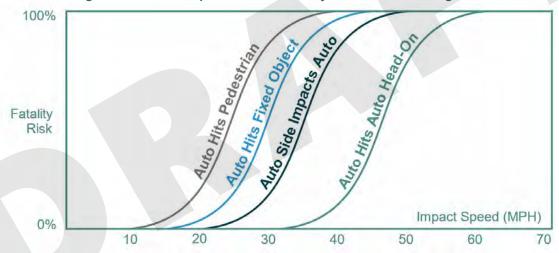
² US Census Quick Facts – Cupertino city, California. Retrieved on June 30, 2023 from link: https://www.census.gov/auickfacts/fact/table/cupertinocitycalifornia/PST045221

IIHS HLDI Fatalities Facts 2021 Yearly snapshot.

The more appropriate term is "crash" or "collision", which is the physical and violent interaction between an object moving at speed and another object, whether moving or stationary. It is an event of the laws of physics, and the human body is not designed to withstand the forces of crashes. We have very good data from emergency rooms regarding the trauma that crash victims suffer and the likelihood of a person surviving the crash given the speed of the collision. **Figure 3** shows a speed-versus-probability chart for fatal crashes, sourced from FHWA and adapted from a graphic created by the Australian Roads and Traffic Authority of New South Wales.



Figure 3: Chart of Speed vs. Probability of the Crash Being Fatal



(Source: FHWA. Adapted from a graphic created by the Australian Roads and Traffic Authority of New South Wales.)



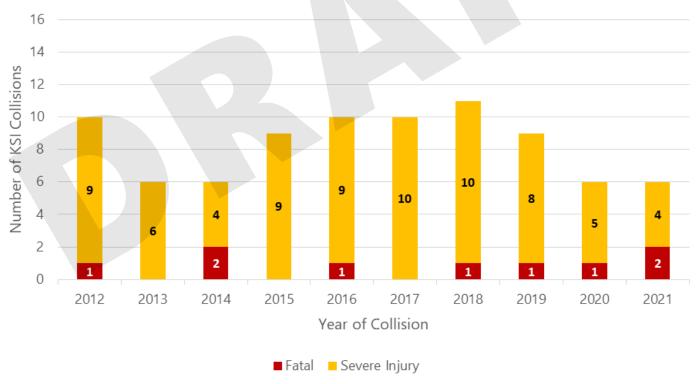
The significant loss of life exacts a tragic toll, extending beyond personal loss to deep community impacts, including personal economic costs and emotional trauma to those suffering; and significant taxpayer spending on emergency response and long-term healthcare costs. Because so many fear for their safety on our streets, there is no true freedom of mobility, and, as a result, we compromise our public health with increasing rates of sedentary diseases and higher carbon emissions.

In recent years, there has been a growing recognition that traffic fatalities and severe injuries are not just accidents but preventable incidents. The occurrence of one crash every three days⁴ in Cupertino is a significant concern for the safety of all roadway users, with vulnerable users such as pedestrians and cyclists representing 60 percent of the fatal and severe injury crashes. The need for a comprehensive strategy to address this issue is underscored by the risk of fatal or serious injury crashes at intersections, despite the presence of traffic signals.

Furthermore, while the total number of crashes in Cupertino is decreasing, the number of fatal and severe injury crashes remains steady as seen in Figure 4, making it crucial to implement a Vision Zero plan to reduce the risk of such crashes. This approach will prioritize the safety of all roadway users by creating safe and livable streets, improving infrastructure, reducing speed limits, increasing public education and awareness, and enforcing traffic laws. By adopting Vision Zero, Cupertino can create safer streets for everyone and reduce the number of fatalities and injuries caused by traffic accidents, as no loss of life is acceptable and traffic fatalities and severe injuries are preventable incidents.

Figure 4: KSI Collisions by Year

KSI Collisions by Year



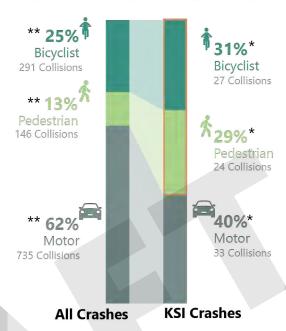
Santa Clara County's Crossroads Software's Traffic Collision Database from 2012 to 2021 Retrieved on Jan 29, 2023

Between 2012 and 2021 there were nine fatalities and 74 severe injuries reported.

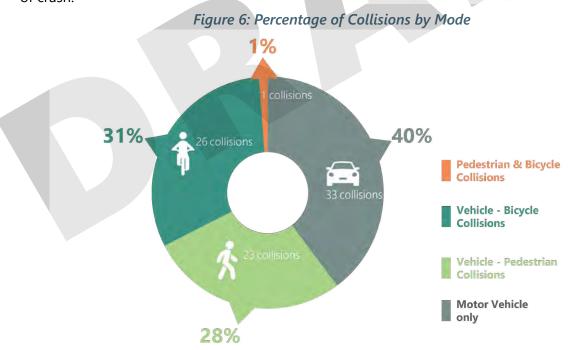
Figure 5 and **Figure 6** show that pedestrian and cyclist collisions account for about 60 percent of all fatal and serious injury crashes. While crashes involving vulnerable roadway users hold the strong majority, those in motor vehicles are victims as well. An interesting affirmation is that a crash between a cyclist and a pedestrian can result in a fatality or severe injury, reiterating that the human body is not designed to withstand the forces of any type of crash.

Figure 5: Most Vulnerable Travelers

MOST VULNERABLE TRAVELERS



Pedestrians and bicyclists are involved in 38 percent of all crashes, but account for 60 percent of serious injuries or fatalities.



^{*}The occurrence of one KSI collision which involved a pedestrian and a bicyclist, was included in the vehicle-pedestrian and vehicle-bicyclist categories as it fits into both. Note in Figure 5 that the number of bicycle and pedestrian collisions is 27 (26 + 1) and 24 (23 + 1), respectively, while in Figure 6 the number of bicycle and pedestrian collisions is 26 and 23, respectively.

^{**}The occurrence of collisions which involved a bicyclist and a pedestrian, was included in the vehicle-bicyclist and vehicle-pedestrian categories as it fits into both. Note in Figure 5 that the number of all bicycle and pedestrian collisions is 291 and 146, respectively.

A NEW VISION FOR SAFETY

Vision Zero is a significant departure from the status quo in two major ways:

Vision Zero recognizes that people will sometimes make mistakes, so the road system and related policies should be designed to ensure those inevitable mistakes do not result in severe injuries or fatalities. This means that system designers and policymakers are expected to improve the roadway environment, policies (such as speed management), and other related systems to lessen the severity of crashes.



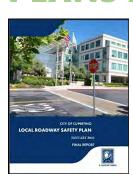
Vision Zero is a multidisciplinary approach, bringing together diverse and necessary stakeholders to address this complex problem. In the past, meaningful, cross-disciplinary collaboration among local traffic planners and engineers, policymakers, and public health professionals has not been the norm. Vision Zero acknowledges that many factors contribute to safe mobility — including roadway design, speeds, behaviors, technology, and policies — and sets clear goals to achieve the shared goal of zero fatalities and severe injuries.⁵



Vision Zero Network. Retrieved on June 30, 2023 from link: https://visionzeronetwork.org/about/what-is-vision-zero/



PLANS AND POLICIES



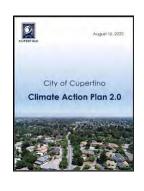
CITY OF CUPERTINO'S LOCAL ROADWAY SAFETY PLAN (LRSP) (2023)

Cupertino's Local
Roadway Safety Plan
(LRSP) identifies
t r a n s p o r t a t i o n
safety improvement

needs throughout the City for all modes of transportation and for all ages with the goal of reducing fatal and severe injury collisions. The LRSP, funded by the Federal Highway Administration (FHWA) and Caltrans, was achieved through a decision-making process that relied on a data-driven collision analysis of local roadways, partnership with stakeholders, and public outreach.

Goals of the LRSP:

- Identify and analyze road safety issues systemically and recommend improvements.
- 2. Improve pedestrian and bicyclist safety through proven effective countermeasures.
- 3. Coordinate with stakeholders to implement road safety improvements and improve emergency response in Cupertino.
- 4. Continually seek funding for safety improvements.
- 5. Ensure fair and equitable implementation of all safety improvements for all residents of Cupertino.

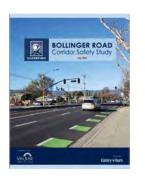


CITY OF CUPERTINO'S CLIMATE ACTION PLAN 2.0 (2022)

Cupertino envisions a future with cleaner air, resilient and renewable energy sources, livable communities,

an equitable distribution of resources, and opportunities to build and maintain resilient homes and businesses. Climate change poses a challenge to that vision and the effects of climate change are already impacting California communities on the local level. This plan recognizes that transportation alone contributes more CO₂e per capita than the sectors of solid waste, wastewater, commercial/industrial, and residential combined. Specific goals of the Climate Action Plan 2.0 that can be leveraged and supported by a Vision Zero Action Plan include:

- 1. Develop and implement an Active Transportation Plan to achieve 15% of active transportation mode share by 2030 and 23% by 2040
- 2. Implement public and shared transit programs to achieve 29% of public transit mode share by 2030 and maintain through 2040
- 3. Increase zero-emission vehicle (ZEV) adoption to 35% for passenger vehicles and 20% for commercial vehicles by 2030 and 100% for all vehicles by 2040
- 4. Re-focus transportation infrastructure away from single occupancy gasoline vehicles to support the bicycle/pedestrian cycling and walking, public transit, and ZEV goals stated above.

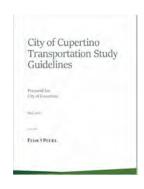


CITY OF CUPERTINO BOLLINGER ROAD CORRIDOR SAFETY STUDY (2021)

Bollinger Road is a twomile long east-west major collector street that connects Lawrence Expressway and De Anza

Boulevard, two major north-south arterials. The road lies along the border of Cupertino and San Jose, with Cupertino to the north and San Jose to the south. The road traverses through a residential neighborhood, which is home to four nearby elementary schools, Hyde Middle School, and Cupertino High School.

The City of Cupertino commissioned the Bollinger Road Corridor Safety Study ("Study") to identify improvements to create a safer and more accessible corridor for pedestrians, bicyclists, transit riders, and motorists. As part of the Study, an analysis of existing conditions and a summary of past collisions along the corridor was conducted. This was followed by an online public survey that gathered public input on location-specific improvement needs along the corridor. The feedback from the community was evaluated and used to create two conceptual corridor alternatives. These proposed alternatives were then presented to the community in a neighborhood meeting. Feedback was collected during the meeting as well as through a summarized online survey. The efforts performed for the study are summarized in this report.



CITY OF CUPERTINO TRANSPORTATION STUDY GUIDELINES (2021)

The Transportation Study Guidelines provide a clear and consistent technical approach for evaluating the

transportation effects (adverse or beneficial) of projects on the City's transportation system and services. A transportation study provides essential information for decision-makers and the public when evaluating individual development projects, small- and large-scale area plans, and transportation infrastructure projects.

The Mobility Element of the Cupertino General Plan seeks to "implement strategies that make alternative modes of transportation attractive choices, help reduce the strain on the automobile network, and improve health and quality of life for Cupertino residents and businesses." The Transportation Study Guidelines support this goal by evaluating new projects against the policies of the General Plan and other relevant documents. In addition, these Guidelines fulfill Goal M-7 of the Cupertino General Plan, which requires that the City "review and update Transportation Impact Analysis (TIA) policies and guidelines that allow for adequate consideration for all modes of transportation including automobiles, walking bicycles, and transit."

CUPERTINO VISION ZERO PLAN — CUPERTINO VISION ZERO PLAN

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CITY OF CUPERTINO 2020 PARKS AND RECREATION SYSTEM MASTER PLAN (2020)

The Parks and Recreation System Master Plan (Master Plan) integrates the City's long-term

vision and aspirations into a cohesive strategy to guide the future development, renovation, management, and programming of city parks and recreation facilities. The Master Plan will provide direction for the City and Parks and Recreation Department as it improves and enhances parks and recreation through the year 2040.

The community identified 12 primary themes to address through new policies and projects. These include improving park and facility access and trail connectivity, as well as integrating nature, the arts, and extraordinary play opportunities. Residents want a greater variety of recreation options, plus welcoming customer-friendly parks, and services that reflect the community's diverse culture and unique characteristics. Empowering youth and teens, supporting social gatherings, and collaborating with partners and stakeholders round out the priorities noted through community feedback. From this community input, the Master Plan's vision, mission, and goals were defined to guide the City in enhancing recreation opportunities for all Cupertino residents.



CITY OF CUPERTINO PEDESTRIAN TRANSPORTATION PLAN (2018)

The City of Cupertino is undertaking several ambitious initiatives to improve pedestrian and bicycling conditions

throughout the city. This Pedestrian Transportation Plan is the blueprint for Cupertino to achieve its vision of an inviting, safe, and connected pedestrian network that enhances the quality of life for all community members and visitors. The purpose of this Pedestrian Transportation Plan is to establish a guiding framework for the development and maintenance of pedestrian facilities throughout Cupertino and recommend policies, programs, and messaging to support and promote walking.

The Pedestrian Transportation Plan builds upon the City's comprehensive strategies to create a connected, multimodal transportation network, and enhance quality of life throughout Cupertino. For example, the Cupertino Bicycle Transportation Plan (adopted in 2016) envisions a citywide multimodal bicycle network, and this document complements the proposed bicycle network to create comprehensive active transportation options of safe routes for pedestrians and bicyclists.



CITY OF CUPERTINO 2016 BICYCLE TRANSPORTATION PLAN (2016)

Riding a bicycle is a great way to stay fit, and reduce air pollution, and traffic congestion. The City of Cupertino, through the implementation of projects recommended in the Cupertino Bicycle Transportation Plan, is working toward establishing a comprehensive network of bicycle facilities throughout the City to encourage cycling by providing safe and convenient routes for doing so. The Plan is a long-range planning document designed to encourage bicycling as a safe, practical, and healthy alternative to the motor vehicle. It addresses present and future needs of the bicycling community, lays the groundwork for grant funding eligibility for bicycle projects, and is in close alignment with the goals set by the Cupertino Bicycle Pedestrian Commission to significantly increase the attractiveness and safety of bicycling throughout the City, with a particular focus on safe connectivity to schools.



CITY OF CUPERTINO GENERAL PLAN 2040 CHAPTER 5: MOBILITY ELEMENT (2015)

Cupertino's transportation system is multi-faceted. It integrates walkways, sidewalks, bicycle routes, bus transit facilities, local

streets, major roadways, and freeways into a single, integrated system that supports the city's high quality of life. At the local level, this includes facilities that connect neighborhoods with pedestrian, bicycle, and automobile routes. Longer distance connections include links to major boulevards, expressways, commuter rail, and the regional freeway system.

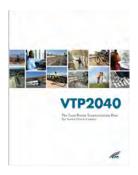
This Element includes goals, policies, and strategies that the City will use in making decisions regarding transportation network improvements needed to accommodate Cupertino's anticipated growth. The purpose of this Element is to implement strategies that make alternative modes of transportation attractive choices. This will help reduce strain on the automobile network and improve health and quality of life for Cupertino residents and businesses.



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CUPERTINO VISION ZERO PLAN — CUPERTINO VISION ZERO PLAN

12



VTP 2040: THE LONG-RANGE TRANSPORTATION PLAN FOR SANTA CLARA COUNTY

The Valley Transportation Plan 2040 (VTP 2040) provides a longrange vision for the

transportation system in Santa Clara County. VTP 2040 identifies programs, projects, and policies that Santa Clara Valley Transportation Authority's (VTA) Board of Directors is going to pursue over the lifetime of the plan. It connects projects and programs with anticipated funds and provides a framework for the development and maintenance of transportation over the next 25 years. It considers all travel modes and addresses the links between transportation, land use, air quality, energy use, and community livability.

VTA, as the Congestion Management Agency for Santa Clara County, is responsible for preparing and updating the VTP on a four-year cycle coinciding with the update of the Bay Area's Regional Transportation Plan. The 2040 update to the Regional Transportation Plan, called the Plan Bay Area, produced by the Metropolitan Transportation Commission (MTC), guides transportation funding and helps to inform planning throughout the nine-county Bay Area through the year 2040.



CUPERTINO SAFE ROUTES TO SCHOOL PROGRAM

Cupertino Safe Routes to School (SRTS) is a partnership between local schools, school districts, parent organizations, community groups, and

the Santa Clara County Sheriff's Office with the mission of creating a safer environment for students and families in Cupertino to travel to and from school safely and reducing single occupancy vehicle travel to and from school to reduce carbon emission. In pursuit of these goals, the City is actively working toward expanding beyond the traditional infrastructure and enforcement approach to traffic safety, by incorporating education, encouragement, engagement, evaluation, and equity into the program. This unique approach has led to the creation of an effective and powerful Cupertino SRTS program.



CITY OF CUPERTINO SCHOOL WALK AUDIT REPORT (2016/17)

In 2016/17, Cupertino SRTS worked with each

public school in Cupertino to develop a list of infrastructure improvements that would make walking and biking safer, and the student drop-off and pick-up operations smoother. This effort, which focused on the public roadway network within a few blocks of the schools, culminated in 14 Walk Audit Reports, one specific for each public school in the City. In 2019/20, Cupertino SRTS worked with each school to update the reports, which together contribute towards the SRTS program goals of enhancing safety, reducing congestion, and encouraging active transportation to and from Cupertino's public schools.



ALIGNING CIP IMPROVEMENTS WITH VISION ZERO

Capital Improvement Program (CIP) roadway and intersection projects should be planned and designed with Vision Zero in mind. Traditionally, roadway design has been based on the tenets of highway design developed in the 1950s and 1960s which focused on moving cars at highway speeds. While important for rural and interstate highways, this approach does not align with urban and suburban streets in multimodal contexts. Traditionally, a "design speed" is chosen that is higher than the anticipated speed limit to create a "factor of safety" for the motorist. What results in practice is the measured vehicular operating speed, typically expressed as the 85th percentile speed, is higher than the posted speed limit. Furthermore, the operating speed exceeds what the community deems appropriate for the given context, which is referred to as the "desired operating speed".

This situation creates a perception of the street or intersection as unsafe, particularly for vulnerable users and individuals with disabilities. These speeds also create higher risks of fatal and serious injury crashes, violating the tenants of Vision Zero.

Instead, the "design speed" of our streets and intersections should be equivalent to the "desired operating speed". Such designs produce lower operating speeds that align with the expectations of the community as determined through engagement and acknowledgment of the context. Then, the speed limits are set to reflect the desired operating speeds. Thus the design speed, the speed limit, the actual operating speed, and the desired operating speed are all equal or nearly so. This supports Vision Zero, better meets community expectations, and allows valuable law enforcement resources to be deployed otherwise. On the following page, Figure 7 showcases this paradigm shift.



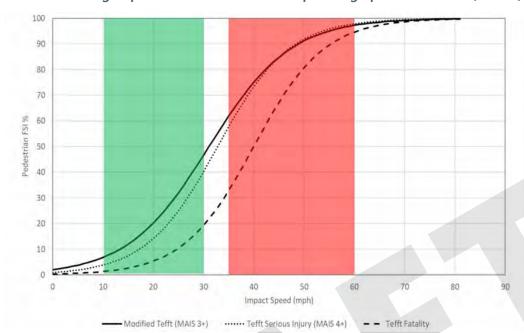
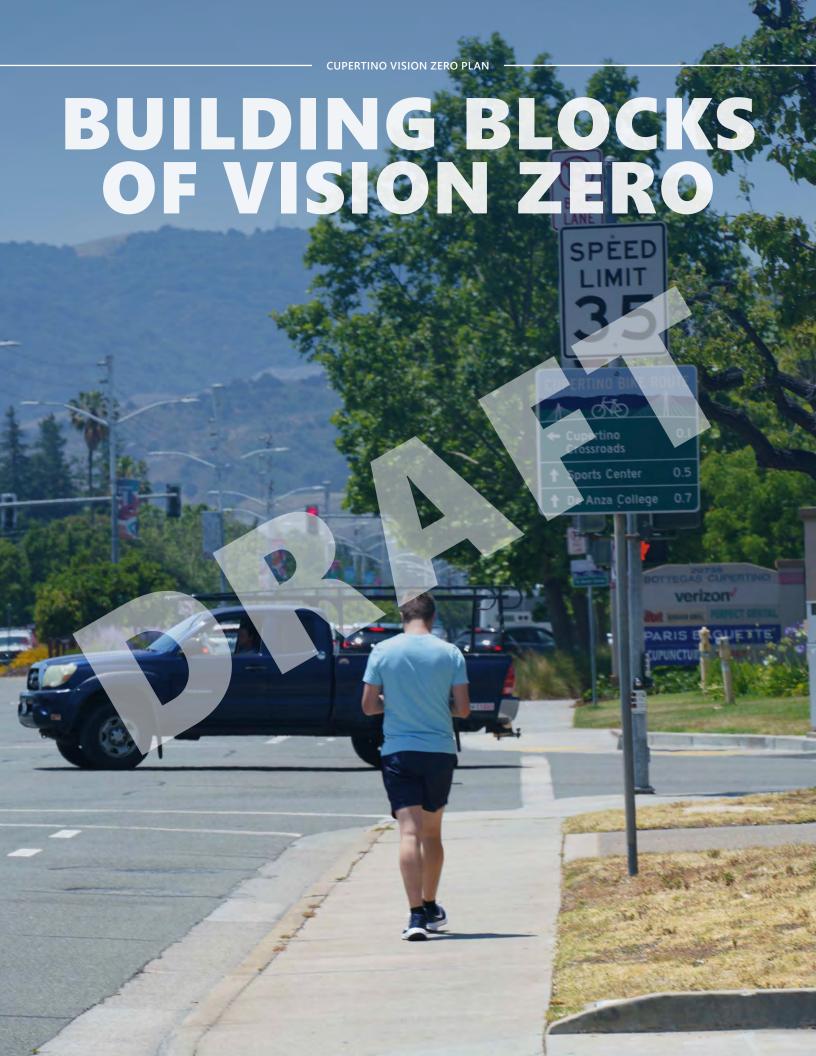


Figure 7: Probability of Pedestrian Suffering Serious Injury or Death Contrasted with Traditional Design Speeds in Red vs. Desired Operating Speeds in Green (FHWA)⁶

KEY POLICY GUIDANCE INCLUDES:

- Follow nationally vetted complete streets planning and design guidance documents.
- Create safer connections for vulnerable roadway users along, across, and around corridors. Add additional protected crossings based on engineering judgement to support desired lines between logical origins and destinations. Do not rely solely on numerical values of warrants to install such traffic control devices as traffic signals, pedestrian hybrid beacons, and other proven safety countermeasures.
- Determine the desired operating speed through effective community engagement before beginning any design efforts, then adopt that desired operating speed as the design speed of the project.
- Prioritize multimodal safety and quality of service over motor vehicle level of service and on-street parking. Consider providing signal prioritization and perhaps preemption for pedestrians, cyclists, and transit. Focus especially on the needs of people with disabilities. Prioritize protected and buffered bike lines over on-street parking where right-of-way is limited.
- Once the project is completed and open to traffic, determine if the actual operating speeds are equivalent to the desired operating speeds. If not, explore possible modifications and retrofits to the built environment to lower measured speeds. Do not rely solely on enforcement.

[&]quot;Tefft" refers to a study done by Brian C. Tefft for the AAA Foundation. Here is the cite: Tefft, B.C. (2011). Impact Speed and a Pedestrian's Risk of Severe Injury or Death (Technical Report). Washington, D.C.: AAA Foundation for Traffic Safety. "MAIS" refers to "Maximum Abbreviated Injury Scale", which is a globally accepted and widely used trauma scale used by medical professionals.lt provides an objective and reliable basis for data collection and international comparisons. The injury score is determined at the hospital with the help of a detailed classification key. The MAIS is the highest (i.e. most severe) AIS code in a patient with multiple injuries.



BUILDING BLOCKS OF VISION ZERO

The Cupertino Vision Zero Action Plan builds upon existing street safety efforts in the City of Cupertino. These efforts are supported by various transportation plans, design guidelines, and area plans. These resources complement safety initiatives of the County and State, including the Santa Clara County Valley Transportation Plan 2040, and the City's Safe Routes to School Program.

The City of Cupertino recognizes the importance of safe streets for all residents and has implemented various plans and programs to enhance traffic safety and accessibility. The Local Roadway Safety Plan (LRSP) analyzed collision data and collaborated with stakeholders to identify and address safety issues systematically, while also seeking funding for improvements. The Bollinger Road Corridor Safety Study focuses specifically on improving safety and accessibility for pedestrians, bicyclists, transit riders, and motorists along a major collector street.

The Pedestrian Transportation Plan and the Bicycle Transportation Plan aim to improve pedestrian and bicycling conditions by creating safe and connected networks, improving safety measures, and enhancing mobility. These plans include goals such as reducing collisions, improving access to community destinations, and increasing awareness and value of active transportation.

In addition to these specific plans, Cupertino's Transportation Study Guidelines and the 2015 General Plan's Mobility Element promote alternative transportation modes, reduce reliance on automobiles, and prioritize the health and quality of life for residents. The Safe Routes to School (SRTS) program encourages students to walk and bike to school through a comprehensive approach that includes encouragement, education, evaluation, enforcement, and engineering interventions.

Overall, these initiatives underscore the need for safe streets for all residents of Cupertino, ensuring fairness, equity, and accessibility while promoting sustainable transportation options, reducing congestion, and enhancing the overall quality of life in the city.





COMMUNITY ENGAGEMENT

Community input is vital to the development and implementation of the Vision Zero Action Plan. The City led a robust engagement effort to obtain input from community members and stakeholders. The community engagement effort for the Action Plan also took into account the feedback and community input received by the City during the LRSP process.

STAKEHOLDER ENGAGEMENT

Project stakeholders included City Department Staff from Public Works and Community Development, the City's Public Outreach Representatives, Santa Clara County Sheriff's Department, Santa Clara County Fire Department, Cupertino Union School District, Fremont Union High School District, Walk Bike Cupertino, and the Cupertino Bicycle Pedestrian Commission. These stakeholders attended a virtual stakeholder meeting, which was held on September 28, 2023.

COMMUNITY MEETINGS

This stakeholder outreach was supplemented by two community workshops, held on October 4, 2023, and January 23, 2024. The first community workshop introduced the project to the community, as well as collected feedback on traffic safety concerns. Community concerns were primarily focused on the following themes:

- Pedestrian and Bicyclist Safety: Residents express concerns about the safety of pedestrians and bicyclists, particularly about motor vehicle collisions.
- Traffic Priorities: Questions were raised about the city's traffic priorities, with residents seeking a balance between commuter efficiency and local safety.
- Intersection Safety: The issue of "right on red" at intersections is a notable concern, with suggestions for safer intersection design.
- Speed Limits and Infrastructure:
 Residents advocate for measures to reduce vehicle speeds, such as lowering speed limits and redesigning infrastructure for safety.
- Proactive Safety Measures: There is a clear call for proactive measures to enhance road safety and avoid waiting for accidents or fatalities to trigger action.

The second community workshop centered on key aspects outlined in the plan, including countermeasures, Vision Zero programs, partnerships, and the data collection plan. Additionally, it presented an overview of the Draft Report, with a public review opportunity announced. Primary community concerns revolved around the following themes:

- Enhancing Pedestrian and Bicyclist Safety: Recognizing the heightened vulnerability of pedestrians and bicyclists, there was an emphasis on the imperative prioritization of their safety.
- Implementing Pedestrian and Bicyclist Programs: Addressing concerns about visibility during nighttime activities for pedestrians and bicyclists, suggestions were made for a city-wide program, potentially involving the distribution of armbands or the provision of strobe lights for bicyclists.
- The community sought more explicit information on the city's leadership approach to reducing collisions. There was a call for greater clarity regarding the specific countermeasures the city plans to employ to effectively minimize these incidents.

WEBSITE & INTERACTIVE MAP INPUT PLATFORM

The project included a website hosted by the City, which was continuously maintained with project updates.

This plan also took into consideration the comments and input received by the City through the interactive map tool platform that was posted to the City's Engage Cupertino website as part of the LRSP process in 2022. The interactive map was used to solicit input from Cupertino residents and stakeholders outside the confines of traditional meetings.

Community members and stakeholders shared their observations and concerns regarding locations and situations where collisions are occurring but are not necessarily being reported. They shared their knowledge and experiences of locations where "near-miss" collisions were occurring. They also indicated

those locations that did not "feel safe" and that, despite a lack of documented crash data, a heightened risk of collisions existed.

In total, 387 comments were received through the interactive map input platform. The most comments received were about Stevens Creek Boulevard and McClellan Road, and the most common concerns involved pedestrian safety and bicycle safety. The results of the interactive map are shown below in **Figure 8** and summarized in **Figure 9** on the following page. In **Figure 8**, each dot and line represents a comment provided by a community member. Comments received from the community are attached in **Appendix A**.

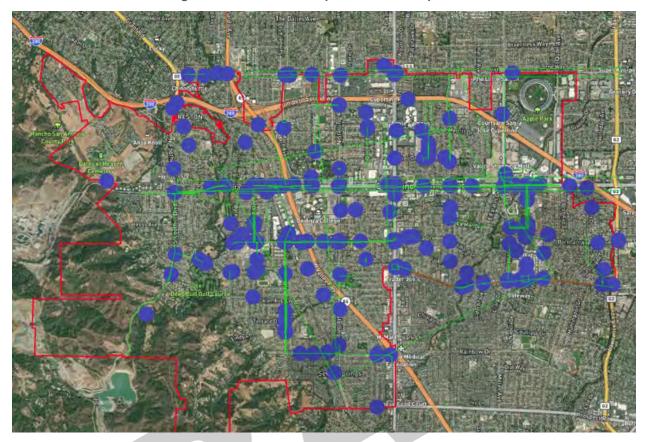
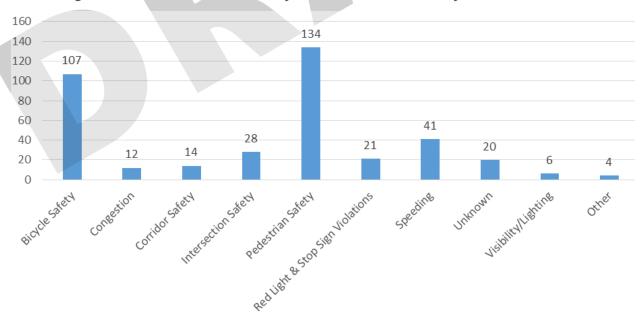
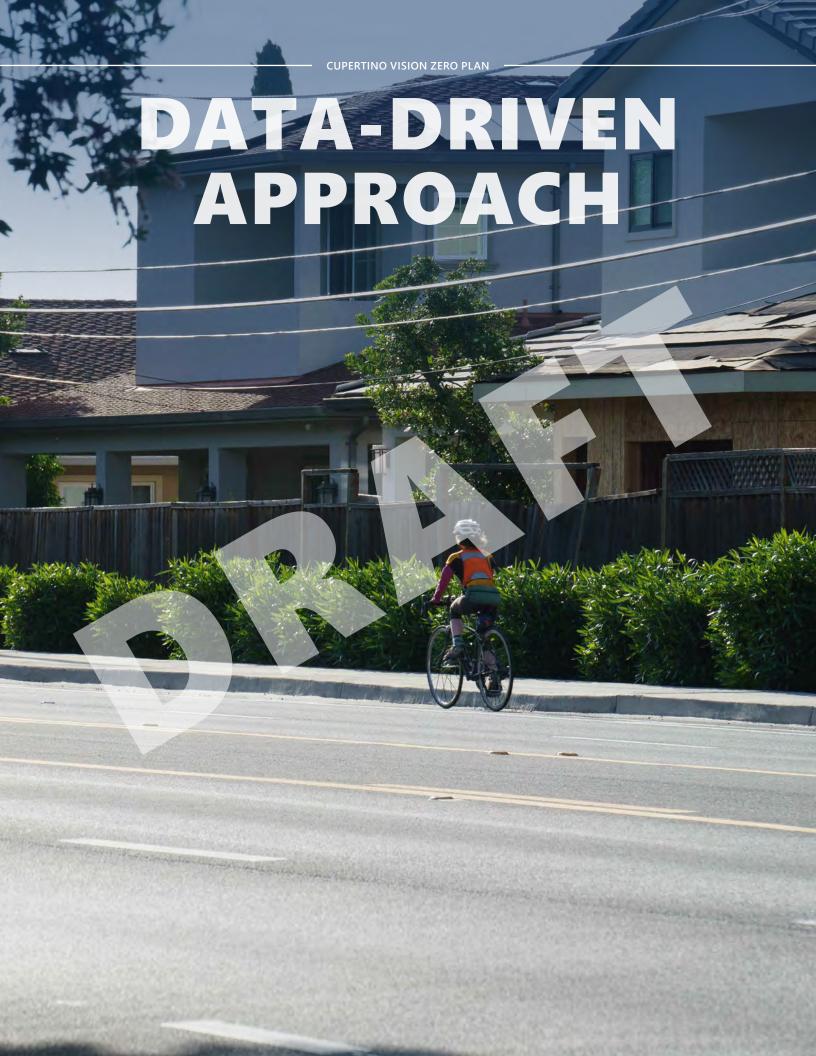


Figure 8: Interactive Map Comment Responses







DATA-DRIVEN APPROACH

The stories and perceptions shared by others are important to a successful discussion and consideration of Vision Zero. While traffic safety is frequently couched in terms of data analysis, we know that no one wants to be viewed as data, and that no one wants their neighborhood to be viewed as data. However, data does give us a place from which to start an objective conversation about roadway safety in Cupertino. The City of Cupertino analyzed collision data recorded from 2012 to 2022 that was retrieved from their collision database system called CROSSROADS.

This information is used to describe historic collision trends and identify high-risk locations within the city. This data acts as a primary resource for the Cupertino Vision Zero Action Plan. Vision Zero is a data-driven strategy intended to eliminate fatalities and severe injuries on all roadways, bikeways and sidewalks. The data driven process includes:

- 1. Identifying Collision Trends:
 Examination of collision data to
 assess patterns and trends related
 to the timing, locations, causes,
 and parties involved in crashes.
- 2. **Identifying High Injury Corridors:**Identification of specific routes where a significant number of fatal and severe injury collisions frequently occur.
- 3. *Identifying High Injury Intersections*: Identification of specific intersections where a significant number of fatal and severe injury collisions frequently occur.

- 4. Identifying Collision Profiles:
 Integration of various collision factors
 to recognize the most common
 types of crashes, and categorize
 into nine collision profiles
- Listing Countermeasure Toolbox:
 Compilation of successful countermeasures based on nationwide research and best practice, aligning them with corresponding collision profiles.
- 6. *Identifying Priority Project Locations:*The selection of seven corridors with high collision frequency, determined by collision density and confirmed by input from the local community.

COLLISION TRENDS

By analyzing collision records, the City gained insights into the individuals involved, the factors contributing to the collisions, the timing, locations, and the reasons behind collisions, especially those leading to fatalities or serious injuries. Throughout the Action Plan, the abbreviation KSI is used to denote collisions resulting in either fatalities (K) or serious injuries (SI). **Figure 9** shows the collision trends observed in Cupertino during the period from 2012 to 2021:

Figure 9: Collisions Trends in City of Cupertino (2012 to 2021)

COLLISIONS TRENDS (2012 - 2021)



Cupertino saw 1157 collisions between 2012 and 2021 including 83 KSI Collisions



BB percent (44 collisions) of pedestrian and bicycle KSI collisions occurred at intersections



Victims between 25 - 64 years represent 59 percent (261 collisions) of KSI collisions involving pedestrian and bicyclists



55 percent (24 collisions) of pedestrian and bicycle KSI collisions occurring at intersections occurred at signalized intersections



38 percent (439 collisions) of all collisions involved pedestrian and bicycle yet pedestrian and bicycle collisions comprise 62 percent (50 collisions) of KSI collisions



Pedestrian and bicycle KSI collisions were most likely to occur in the late afternoon or evening. **66 percent** (**33 collisions**) of the collisions occur between 4 P.M. and 10 P.M.

On average, in Cupertino a crash occurs every three days. Although pedestrians and bicyclists are involved in just over a third of all crashes, they make up 62 percent (50 collisions) of the crashes resulting in fatalities or severe injuries. This underscores their susceptibility as road users, thus they are referred to as vulnerable roadway users. Intersections pose the greatest risk of a fatal or serious injury crash to vulnerable roadway users, with majority (88 percent/44 collisions) of fatal and severe injury collisions occurring at intersections. The presence of a traffic signal does not guarantee safety, as more than half (55 percent/24 collisions) of the intersection collisions involving pedestrians and cyclists happen at signalized intersections. A significant portion (58 percent) of those who suffer fatal or severe injuries in such collisions fall within the age range of 24 to 64 years. Furthermore, the majority (56 percent/261 collisions) of pedestrian and bicycle fatalities and severe injuries take place during the late afternoon or evening, specifically between 4 p.m. and 10 p.m.

FOCUSING ON FATALITIES AND SEVERE INJURIES

Vision Zero is an approach aimed at eradicating all fatal and severe injury traffic crashes while simultaneously promoting safe, equitable, and healthy mobility for everyone. Figure 10 illustrates the fatalities and severe injuries that have occurred in the City of Cupertino between 2012 and 2021. Figure 11 shows the fatalities and severe injuries that occurred in the city by year. By prioritizing the prevention of fatal and severe injury crashes, Vision Zero recognizes the significant impact of such tragic events. Initiatives and enhancements directed at preventing these types of collisions yield substantial advantages, aligning with the City of Cupertino's pledge to eliminate all fatal and serious injury traffic crashes by 2040. A detailed collision analysis is available in **Appendix 1**.

Figure 11: Fatalities and Severe Injuries by Year

2013

16

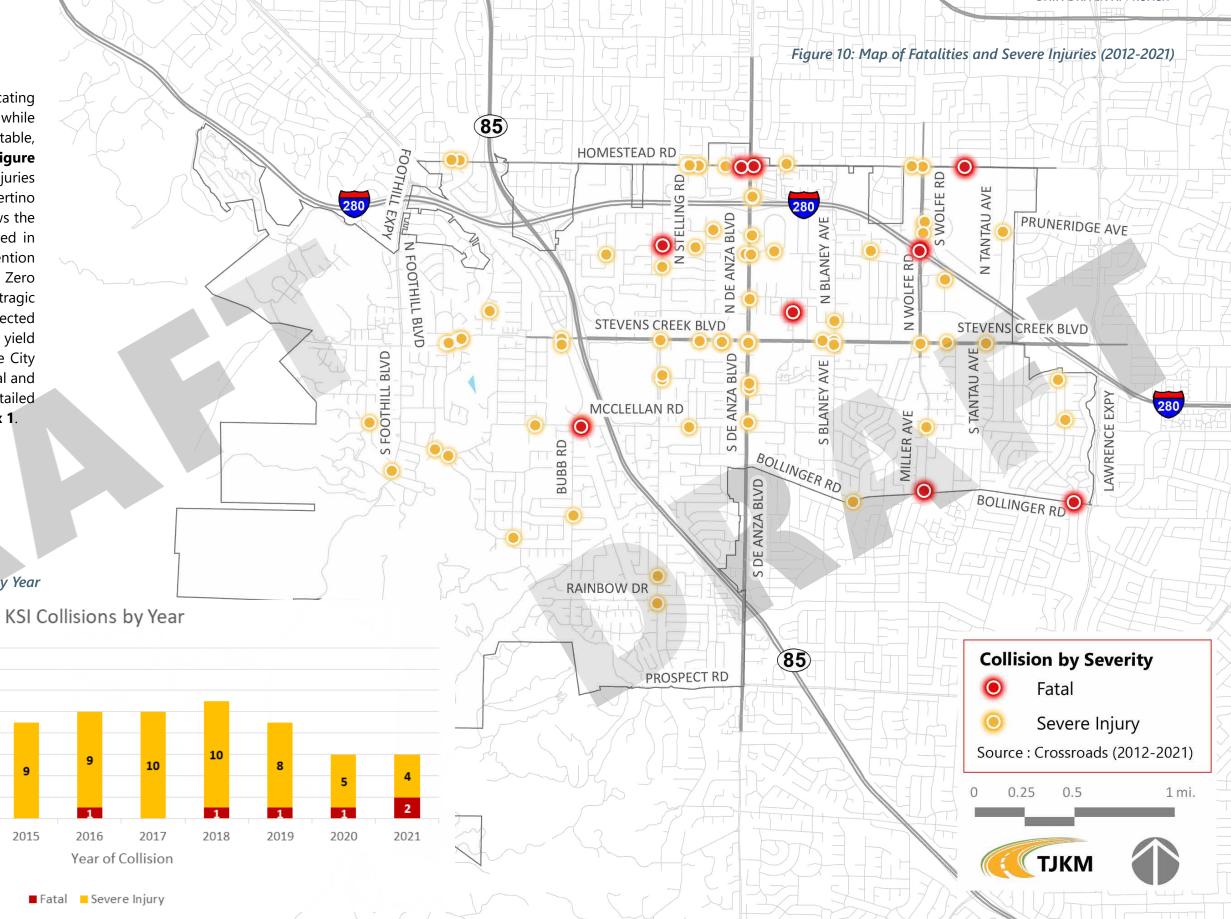
14

12 10

0

2012

Number of KSI Collisions



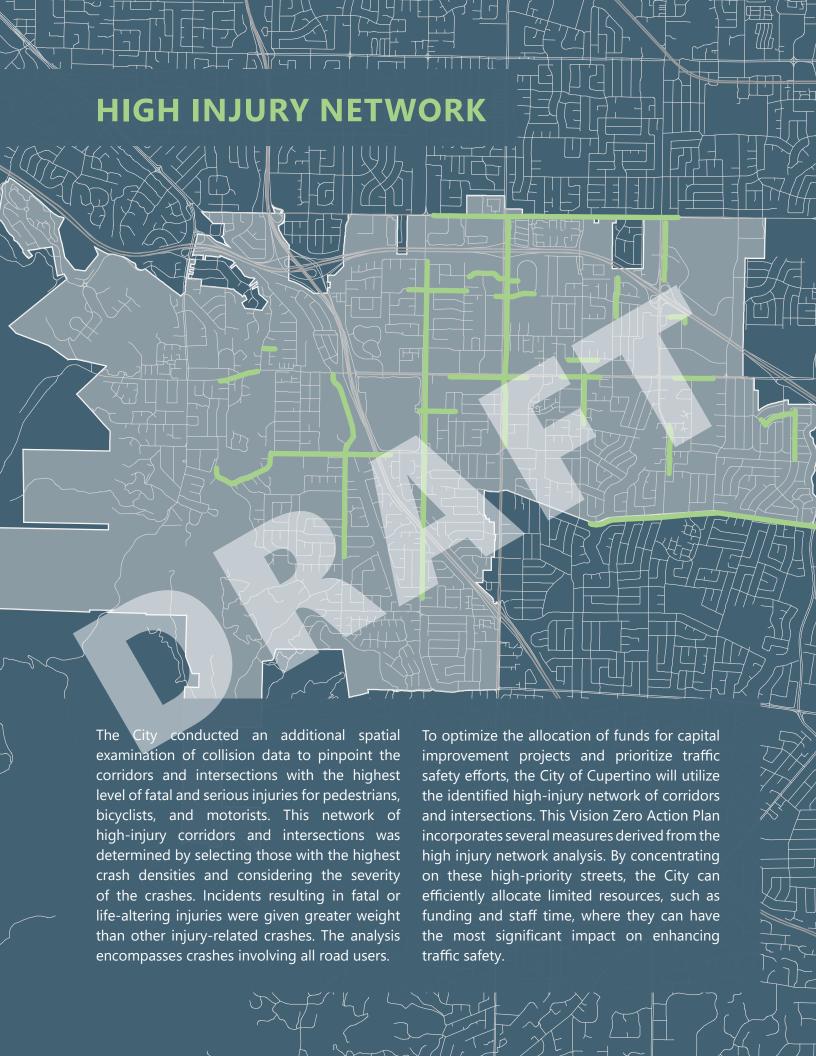
CUPERTINO VISION ZERO PLAN

2015

2016

2014

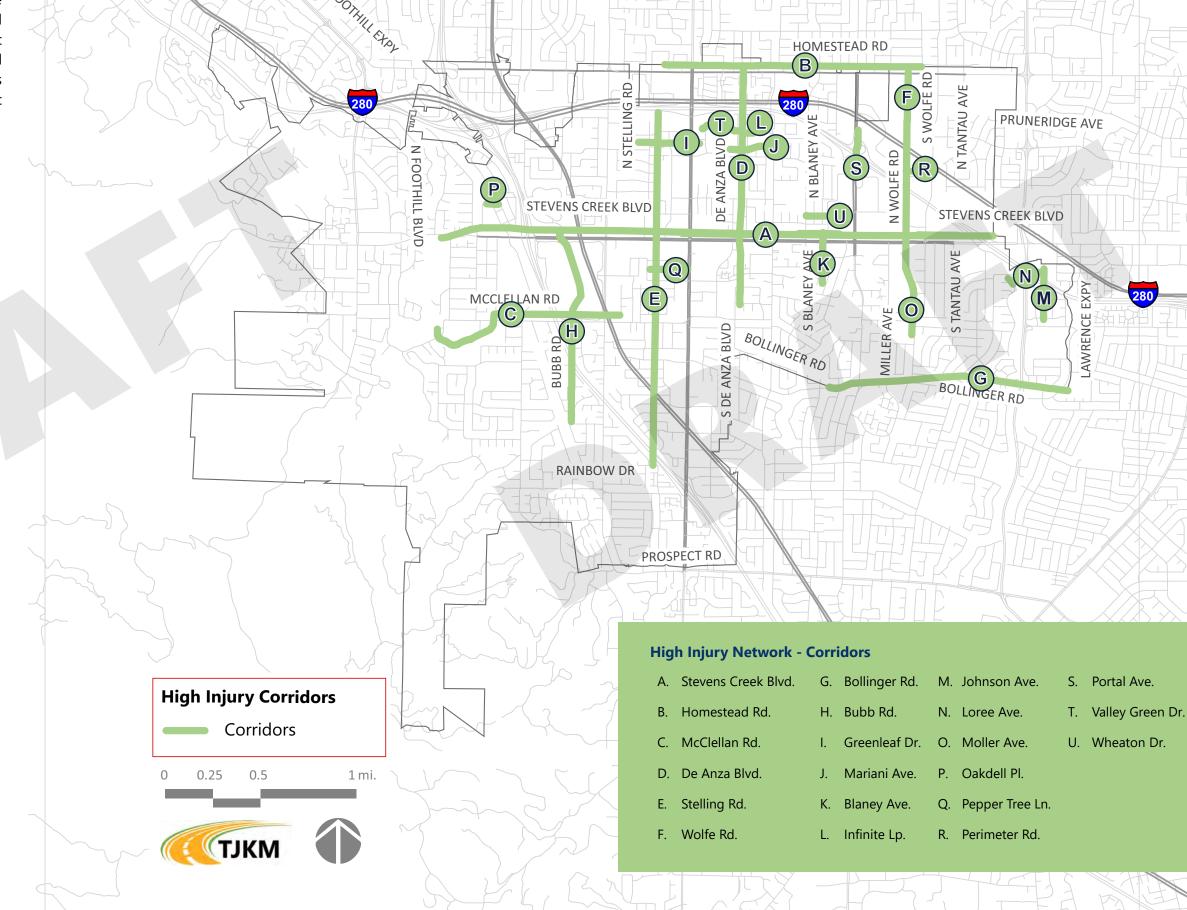
CUPERTINO VISION ZERO PLAN



CORRIDORS OF CONCERN

Between 2012 and 2021, seven specific roadways in Cupertino accounted for the majority (72%) of severe injuries and fatal crashes. These particular corridors witnessed at least three crashes per block between 2012 and 2021. **Figure 12** lists the high-injury corridors of concern. The roadways that had the highest number of accidents include:

- 1. Stevens Creek Boulevard
- 2. Homestead Road
- 3. McClellan Road
- 4. De Anza Boulevard
- 5. Stelling Road
- 6. Wolfe Road
- 7. Bollinger Road



City of Cupertino - High Injury Network - Corridors (2012 - 2021)

85)

Figure 12: City of Cupertino -High Injury Network - Corridors (2012-2021)

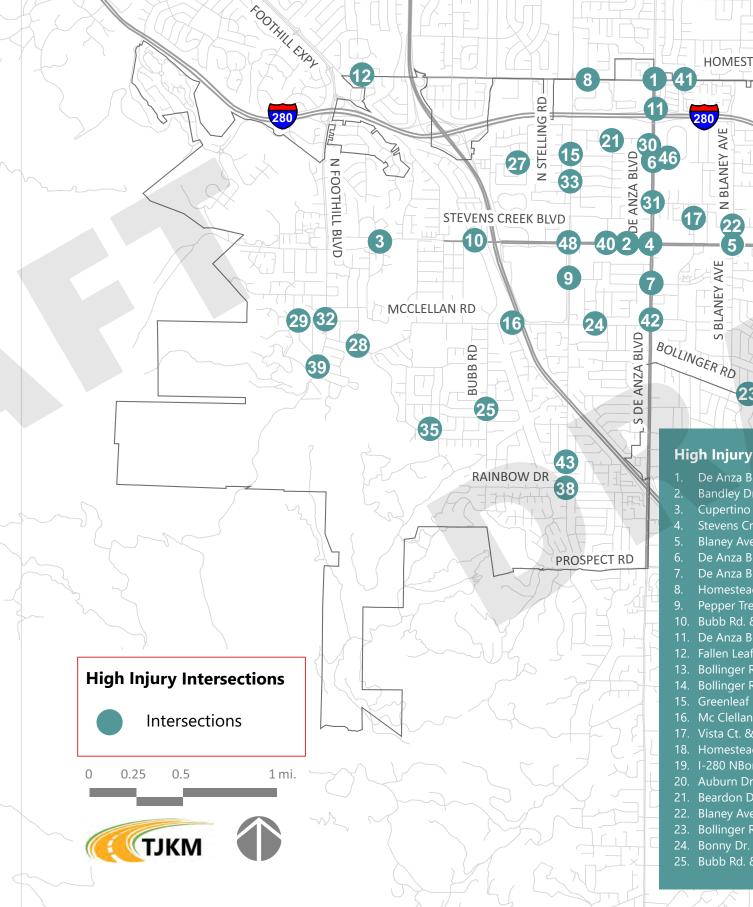
INTERSECTIONS OF CONCERN

Out of the 48 intersections in Cupertino where fatal or injury crashes occurred between 2012 and 2021, seven of them witnessed two or more crashes resulting in someone being killed or seriously injured. Figure 13 shows the highinjury intersections. The intersections that had multiple KSI crashes are:

- 1. De Anza Boulevard & Homestead Road.
- 2. Bandley Drive & Stevens Creek Boulevard
- 3. Cupertino Road & Stevens Creek Boulevard
- 4. Stevens Creek Boulevard & De Anza **Boulevard**
- 5. Blaney Avenue & Stevens Creek Boulevard
- 6. De Anza Boulevard & Mariani Avenue
- 7. De Anza Boulevard & Rodrigues Avenue

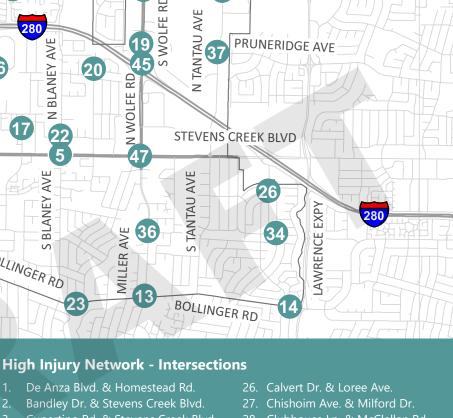
Figure 13: City of Cupertino -

High Injury Network - Intersections (2012-2021)



City of Cupertino - High Injury Network - Intersections (2012 - 2021)

(85)

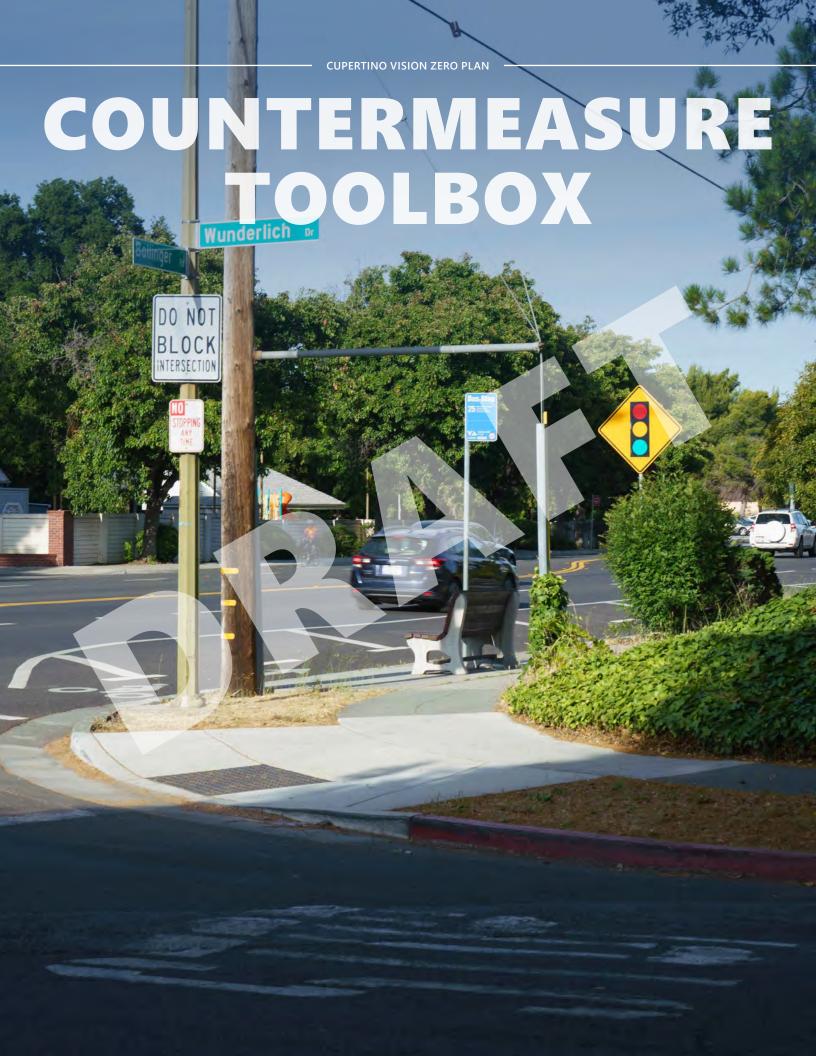


- De Anza Blvd. & Homestead Rd.
- Bandley Dr. & Stevens Creek Blvd.

HOMESTEAD RD

- Cupertino Rd. & Stevens Creek Blvd.
- Stevens Creek Blvd. & De Anza Blvd.
- Blaney Ave. & Stevens Creek Blvd.
- De Anza Blvd. & Mariani Ave.
- De Anza Blvd. & Rodrigues Ave.
- Homestead Rd. & Ontario Dr.
- Pepper Tree Ln. & Stelling Rd.
- 10. Bubb Rd. & Peninsula Ave.
- 11. De Anza Blvd. & I-280 NBoff/R.
- 12. Fallen Leaf Ln. & Homestead Ct.
- 13. Bollinger Rd. & Miller Ave.
- 14. Bollinger Rd. & Wunderlich Dr.
- 15. Greenleaf Dr. & Stelling Rd.
- 16. Mc Clellan Rd. & September Dr.
- 17. Vista Ct. & Vista Dr.
- 18. Homestead Rd. & Quail Ave.
- 19. I-280 NBon/R. & Wolfe Rd.
- 20. Auburn Dr. & Portal Ave.
- 21. Beardon Dr. & Valley Green Dr.
- 22. Blaney Ave. & Wheaton Dr.
- 23. Bollinger Rd. & Estates Dr.
- 24. Bonny Dr. & McClellan Rd.
- 25. Bubb Rd. & Columbus Ave.

- 28. Clubhouse Ln. & McClellan Rd.
- 29. Cordova Rd. & Santa Lucia Rd.
- 30. De Anza Blvd. & Infinite Loop.
- 31. De Anza Blvd. & Lazaneo Dr.
- 32. Foothill Blvd. & Santa Paula Ave.
- 33. Hazelbrook Dr. & Stelling Rd.
- 34. Johnson Ave. & Tilson Ave.
- 35. Linda Vista Dr. & Santa Teresa
- 36. Miller Ave. & Phil Ln.
- 37. Pruneridge Ave. & Tantau Ave.
- 38. Rainbow Dr. & Stelling Rd.
- 39. Biyerside Dr. & Stevens Canyon
- 40. Saich Way. & Stevens Creek Blvd.
- 41. Blue Jay Dr. & Bluejay Dr.
- 42. De Anza Blvd. & McClellan Rd.
- 43. Echo Hill Ct. & Robindell Way.
- 44. Homestead Rd. & Wolfe Rd. 45. North Wolfe Rd. & I-280 NBoff/R.
- 46. Infinite Lp. & Mariani Ave.
- 47. Stevens Creek Blvd. & Wolfe Rd.
- 48. Stevens Creek Blvd. & Stelling



COUNTERMEASURE TOOLBOX

The City has developed a comprehensive set of countermeasures for the implementation of safety projects. These countermeasures encompass strategies in the fields of engineering, education, and enforcement. The toolbox consists of over 50 countermeasures, covering aspects of roadway design, pedestrian safety, bicyclist safety, operations and signal timing, speed management, signage and marking, and even includes elements of education, public awareness, and enforcement. This toolbox is intended to assist the City in identifying the most suitable countermeasure for specific safety measures, recognizing that not all treatments are appropriate for all roadway types. This toolbox can be considered a roster of countermeasures the City has at its disposal to address safety-related concerns along the roadway network. Detailed definition of each of the countermeasure is given in **Appendix 2**.

The countermeasures have been evaluated using three criteria: Efficacy, Cost, and Complexity, and assigned each criterion a score:



- **Efficacy:** This refers to the expected safety benefit, determined through academic research and industry standards.
- Cost: The overall expense involved in designing and implementing the countermeasure.
- **Complexity:** The anticipated level of difficulty the City may encounter when implementing the countermeasure.



ROADWAY DESIGN



ROAD DIETS AND LANE REDUCTION

COST: COMPLEXITY:



CURB EXTENSIONS & BULB OUTS

EFFICACY: COST: COMPLEXITY:



ROADWAY AND INTERSECTION SAFETY LIGHTING

EFFICACY: COST: COMPLEXITY:



RAISED INTERSECTIONS

EFFICACY: COST: COMPLEXITY:



SLIP LANE CLOSURES

EFFICACY: COST: COMPLEXITY:



CLOSING SIDEWALK GAPS

EFFICACY: COST: COMPLEXITY:



LANE RECONFIGURATION

EFFICACY: COST: COMPLEXITY: CO



CONSOLIDATING DRIVEWAYS

EFFICACY: COST: COMPLEXITY:



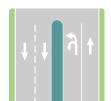
INTERSECTION TIGHTENING

EFFICACY: COST: COMPLEXITY:



RAISED CROSSWALK

COMPLEXITY:



36

RAISED MEDIANS

COST: COMPLEXITY:



PEDESTRIAN SAFETY



MARKED CROSSWALKS

EFFICACY: COST: COMPLEXITY:



HIGH-VISIBILITY CROSSWALKS WITH ADVANCED STOP OR YIELD

EFFICACY:

COST:

COMPLEXITY:



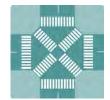
PEDESTRIAN REFUGE ISLANDS AND MEDIAN

EFFICACY:
COST:
COMPLEXITY:



RECTANGULAR RAPID FLASHING BEACON (RRFB)

EFFICACY: COST: COMPLEXITY:



PEDESTRIAN SCRAMBLE

EFFICACY: COST: COMPLEXITY:



ACCESSIBLE PEDESTRIAN SIGNAL (APS)

EFFICACY: COST: COMPLEXITY:



MIDBLOCK CROSSWALKS

EFFICACY: COST: COMPLEXITY:



37

PEDESTRIAN HYBRID

BEACON

EFFICACY:
COST:
COMPLEXITY:

COMP



BICYCLIST SAFETY



OPERATIONS AND SIGNAL TIMING



BIKE INTERSECTION MARKING

EFFICACY: COST: COMPLEXITY: CO



SIGNAL DETECTION AND ACTUATION

EFFICACY: COST: COMPLEXITY:



BICYCLE SIGNAL

EFFICACY: COST: COMPLEXITY:



BIKE BOX

EFFICACY: COST: COMPLEXITY:



TWO-STAGE BICYCLE TURN BOX

COST: COMPLEXITY:



GREEN PAVEMENT

EFFICACY: COST: COMPLEXITY:



PROTECTED BIKEWAYS

EFFICACY: COST: COMPLEXITY:



BUFFERED BIKE LANES

EFFICACY: COST: COMPLEXITY:



SHARED USE TRAIL & BICYCLE PATH

EFFICACY: COST: COMPLEXITY:



PRIORITIZE BIKE LANES
OVER ON-STREET PARKING

EFFICACY: COST: COMPLEXITY: CO



ADAPTIVE PEDESTRIAN SIGNAL TIMING

EFFICACY: COST: COMPLEXITY:



SIGNAL DETECTION &
ACTUATION PEDESTRIAN
COUNTDOWN SIGNAL

EFFICACY: COST: COMPLEXITY:

MODIFIED INTERSECTION

HEAD



LEADING PEDESTRIAN INTERVALS

PROTECTED LEFT TURN

EFFICACY: COST: COMPLEXITY:

SIGNAL



ADVANCED DILEMMA ZONE DETECTION

STOP-CONTROL

EFFICACY:

COMPLEXITY:

COST:

EFFICACY: COST: COMPLEXITY:



SIGNAL SYNC SLOW
GREEN WAVE

EFFICACY:

COMPLEXITY:

COST:

EFFICACY: COST: COMPLEXITY:

FLASHING YELLOW

EFFICACY:

COMPLEXITY:

COST:

RIGHT TURN SIGNAL



SIGNAL TIMING AND PHASING IMPROVEMENTS

EFFICACY: COST: COMPLEXITY:



HYBRID LEFT TURN SIGNAL

COMPLEXITY:



NO RIGHT ON RED

EFFICACY: COST: COMPLEXITY:

38



SPEED MANAGEMENT



SIGNAGE AND MARKING



VEHICLE SPEED FEEDBACK SIGN

EFFICACY: COST: COMPLEXITY: CO



REDUCED SPEED SCHOOL ZONE

EFFICACY: COST: COMPLEXITY: CO



BACK-PLATES WITH RETROREFLECTIVE BORDERS

EFFICACY: COST: COMPLEXITY:



PEDESTRIAN PADDLE SIGNS

EFFICACY: COST: COMPLEXITY:



AUTOMATED SPEED ENFORCEMENT

EFFICACY: COST: COMPLEXITY:



SPEED CUSHIONS, SPEED HUMPS AND SPEED TABLES

EFFICACY: COST: COMPLEXITY:



EDGE LINE

EFFICACY: COST: COMPLEXITY:



PARKING RESTRICTION AT INTERSECTION

EFFICACY:

COST:

COMPLEXITY:



CHOKERS, CHICANES, BULB OUTS, SPLITTER ISLANDS, AND ROUNDABOUTS

COMPLEXITY:



TURN CALMING PROGRAM

EFFICACY: COST: COMPLEXITY:



IMPPROVE HIGH FRICTION SURFACE TREATMENT

COST: COMPLEXITY:



CONVERT SIGNAL TO MAST ARM

EFFICACY: COST: COMPLEXITY:



ENFORCEMENT





EDUCATIONAL INITIATIVES OVER CITATIONS

EFFICACY: COST: COMPLEXITY: CO





RED LIGHT VIOLATION CAMERAS

EFFICACY: COST: COMPLEXITY:

CUPERTINO VISION ZERO PLAN

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CUPERTINO VISION ZERO PLAN
41



EDUCATION AND PUBLIC AWARENESS



EDUCATIONAL CAMPAIGN

EFFICACY: COST: COMPLEXITY:



RAPID RESPONSE SAFETY COMMUNICATION PROTOCOL

EFFICACY: COST: COMPLEXITY: COMPLEXITY:



SAFE ROUTES TO SCHOOL PROGRAM

EFFICACY: COST: COMPLEXITY:



SAFE ROUTES PROGRAMS

EFFICACY: COST: COMPLEXITY:



COMMUNITY PARTNERSHIP

EFFICACY: COST: COMPLEXITY:



SHARE THE ROAD AWARENESS PROGRAM

EFFICACY: COST: COMPLEXITY:



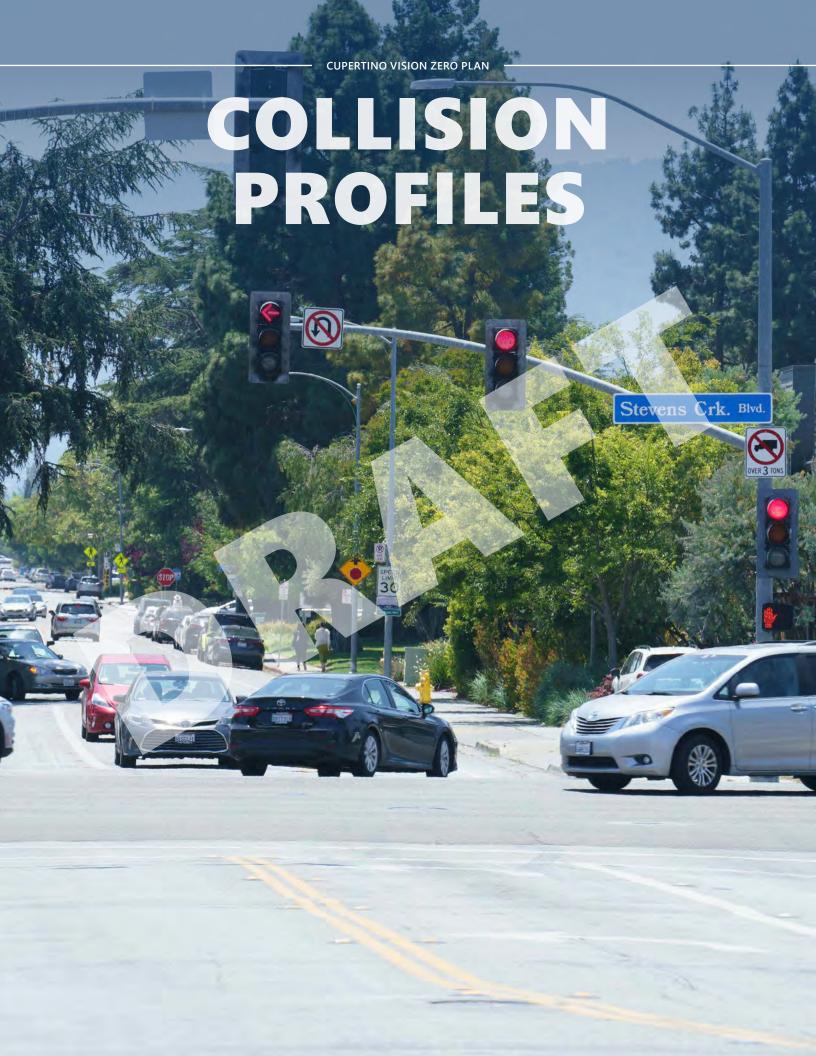
VISION ZERO TRAINING MANUAL

EFFICACY: COST: COMPLEXITY:



ALCOHOL USE DISORDER (AUD) ASSESSMENT & TREATMENT PROGRAMS

EFFICACY: COST: COMPLEXITY:



COLLISION PROFILES

The City of Cupertino has identified the top nine collision profiles that emphasize the trends observed in crashes resulting in people being killed or seriously injured (KSI). These profiles are developed through the analysis of collision data and relevant environmental factors. Each profile identifies a collision type that is considered a priority concern. Accompanying each profile are safety countermeasures drawn from the previous section that is most applicable to the specific crash and location context.

Summarized in **Figure 14** and **Figure 15**, the subsequent pages identify the nine collision profiles and their respective countermeasures.

The collision profiles encompass diverse collision attributes, such as speeding vehicles or red light violations (as documented in the collision reports), alongside contextual factors like the collision's location on a corridor, at an intersection, or in proximity to a school, park, or transit stop. Notably, individual collisions could align with multiple profiles. To illustrate, a collision might simultaneously fall under both a speed-related incident and involve a driver under the influence of drugs or alcohol.

Figure 14: Top Nine Collision Profiles

TOP COLLISION PROFILES



PROFILE 1: Pedestrian & bicyclist are most vulnerable



PROFILE 2: Unsafe speeds



PROFILE 3: Improve interse safety for all



PROFILE 4: Pedestrian code violation



PROFILE 5: Majority of bicycle collisions are broadside collisions



PROFILE 6: Teenagers bikir near schools ar parks



PROFILE 7: Driving under influence



PROFILE 8: Bicycle collisions and automobile right-of-way violation



PROFILE 9: Collisions near transit stops

Figure 15: Collision Profile Stats

COLLISION PROFILE	% OF ALL KSI (# OF ALL KSI)	% OF AUTO TO AUTO KSI (# OF AUTO KSI)	% OF BICYCLE KSI (# OF BICYCLE KSI)	% OF ALL PEDESTRIAN (# OF PEDESTRIAN KSI)
1. Pedestrian & bicyclist are most vulnerable	60% (50)		100% (27)	100% (24)
2. Unsafe Speeds	10% (8)	19% (6)	7% (2)	
3. Improve Intersection Safety for All	88% (73)	47% (15)	85% (22)	100% (24)
4. Pedestrian Code Violation	10% (8)			33% (8)
5. Majority of bicycle collisions are broadside collisions	11% (9)		33% (9)	
6. Teenagers biking and walking near schools and parks	10% (8)		19% (5)	13% (3)
7. Driving under influence	5% (4)			
8. Bicycle Collisions and Automobile ROW Violation	7% (6)		22% (6)	
9. Collisions near transit stops	13% (12)	9% (3)	15% (4)	

Please Note: Due to the possibility of a single collision being classified under multiple profiles, the figures in the table do not total up to 100%. In cases where a cell lacks a KSI percentage, it signifies that there were zero KSI collisions recorded for the indicated mode within that particular profile.

PEDESTRIAN & BICYCLIST ARE MOST VULNERABLE



MARKED CROSSWALKS

Effectively decrease the occurrence of collisions along high risk corridors

EFFICACY:
COST:
COMPLEXITY:
COMPLEXITY:



PEDESTRIAN REFUGE ISLANDS

Provide a safe space for pedestrians to pause between traffic

EFFICACY:
COST:
COMPLEXITY:
COMPLEXITY:



PROTECTED BIKEWAYS

Segregated lanes shielded by flexible posts, parked cars, and planters for safe bicycle travel separate from vehicle traffic.

EFFICACY:
COST:
COMPLEXITY:
COMPLEXITY:



RECTANGULAR RAPID FLASHING BEACON

Offers pedestrians and bicyclists a clear path to cross the street more safely.

COMPLEXITY:



SHARE THE ROAD AWARENESS PROGRAM

Create a Share the Road Awareness Program for motorist, bicyclist and pedestrians that is easily accessible.

EFFICACY:
COST:
COMPLEXITY:
COMPLEXITY:



TRAFFIC SAFETY DIVERSION PROGRAM

For bicycle and pedestrian traffic violations providing access to safety courses and programs centered on biking and walking

EFFICACY: ■■□
COST: ■□□
COMPLEXITY: ■■□

Pedestrians and bicyclists do not have the protection of a "steel box" as they travel along our roadways. Weather conditions, pavement deficiencies, and lack of safe and useable facilities adds to the risks pedestrians and bicyclists face every day.



FACTORS

- 22% of the Pedestrian collisions occurred due to Pedestrian Violation (crossing outside the crosswalk)
- 5 Pedestrian KSI collisions occurred as a result of crossing outside designated crosswalk areas
- 50% of pedestrian and bicyclist KSI collisions occurred on Stevens Canyon Road, Homestead Road and De Anza Boulevard, which are corridors of concern

MODES



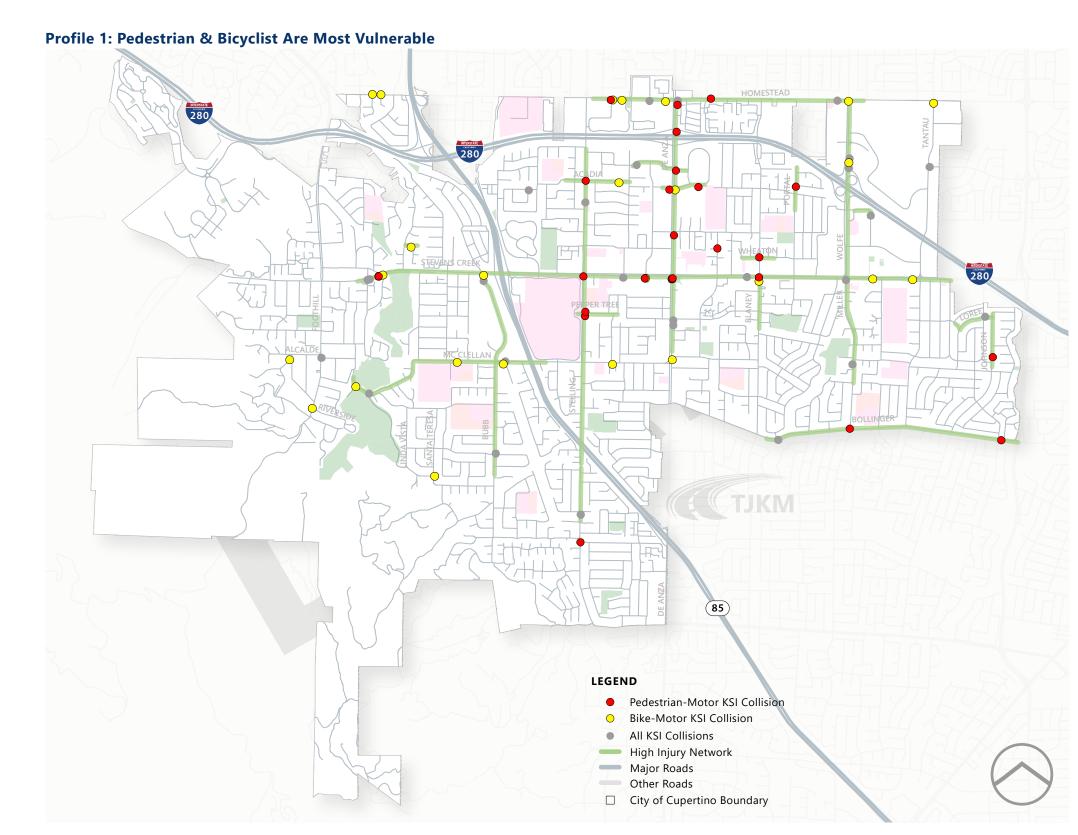


STATS

50

KSI CRASHES

- Accounts for **62%** (50 collisions)
- 33% (27 collisions) of KSI collisions involving bicyclists
- 29% (24 collisions) of KSI



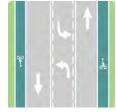
PROFILE 2 **UNSAFE SPEEDS**



PROTECTED BIKEWAYS

Segregated lanes shielded by flexible posts, parked cars, and planters for safe bicycle travel separate from vehicle traffic.

EFFICACY: COST: COMPLEXITY:



LANE RECONFIGURATION

Reapportion the street to reduce excessive speeding and better serve all road users.

EFFICACY: COST: COMPLEXITY:



VEHICLE SPEED FEEDBACK SIGN

Radar-based vehicle speed feedback signs promote safer streets by improving drivers' speed compliance through LED displays.

EFFICACY: COST: COMPLEXITY:



SPEED CUSHIONS, HUMP AND TABLE

Traffic calming devices that reduce vehicle speeds

EFFICACY: COST: COMPLEXITY:



REDUCED SPEED SCHOOL ZONE

Reduction in speed limits in school zones reduces vehicular speeds and fatal and injury collisions

EFFICACY: COST: ■□□ COMPLEXITY:



AUTOMATED SPEED ENFORCEMENT

Automated sensors linked to cameras detect red-light running and speeding, resulting in mailed citations to violators.

EFFICACY: COST: COMPLEXITY:

The primary collision factor of "unsafe speed" indicates that one of the parties involved was driving at a speed greater than was reasonable or prudent. Reducing vehicle speed can give drivers additional time to respond to potentially dangerous situations. Lower speeds decrease the severity of injuries by lessening the impact of the crash. The subsequent countermeasures suggest potential strategies for reducing travel speeds on our roads, discourage unsafe driving, and encouraging better compliance with posted speed limits.



- **UNSAFE SPEED**





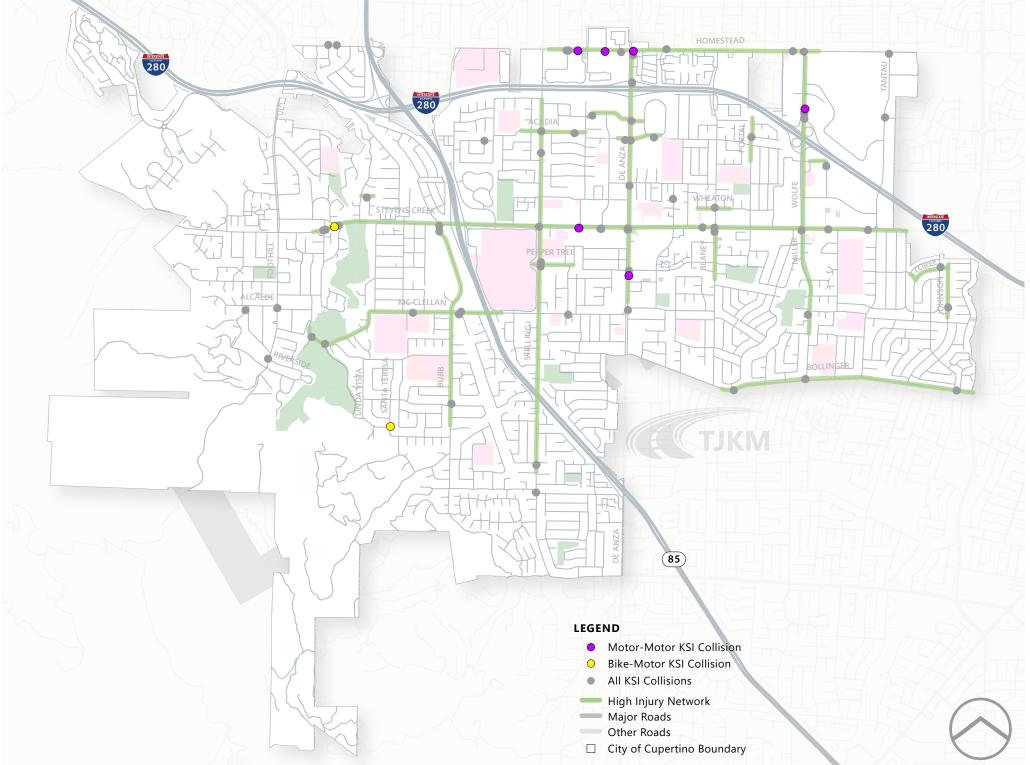


STATS



KSI CRASHES

Profile 2: Unsafe Speeds



IMPROVE INTERSECTION SAFETY FOR ALL



BIKE INTERSECTION MARKING

Emphasizes the priority of cyclists over turning vehicles and enhancing visibility.

EFFICACY: ■■□
COST: ■□□
COMPLEXITY: ■□□



MARKED CROSSWALKS

Effectively decrease the occurrence of collisions along high risk corridors

EFFICACY: ■■□
COST: ■■□
COMPLEXITY: ■□□



ADAPTIVE PEDESTRIAN SIGNAL TIMING

Sensor detects when pedestrian are present in a crossing and automatically increases crossing time when necessary

EFFICACY: COST: COMPLEXITY: CO



RAISED CROSSWALK

Reduce vehicle speeds and enhance the pedestrian crossing environment.

EFFICACY: COST: COMPLEXITY: CO



LANE RECONFIGURATION

Reapportion the street to reduce excessive speeding and better serve all road users.

EFFICACY:
COST:
COMPLEXITY:
COMPLEXITY:



ROUNDABOUTS

Proven safety countermeasure that reduces speeds and crash potential while better serving all roadway users

EFFICACY: ■■□
COST: ■■■
COMPLEXITY: ■■■

Intersections represent the greatest threat to safety due to the number of conflict points and opportunities for travelers to misjudge speeds and gaps to safely turn or cross another person's travel path. Also, the design and operation of intersections does not always align with the needs of all persons, particularly vulnerable roadway users.



FACTORS

- 88% of KSI collisions occurred within the functional area (250 ft.) of an intersection
- 9 Fatalities occurred within the functional area of intersections
- Majority of collisions occurred due to unsafe speeding, pedestrian violation and automobile right of way violation

MODES



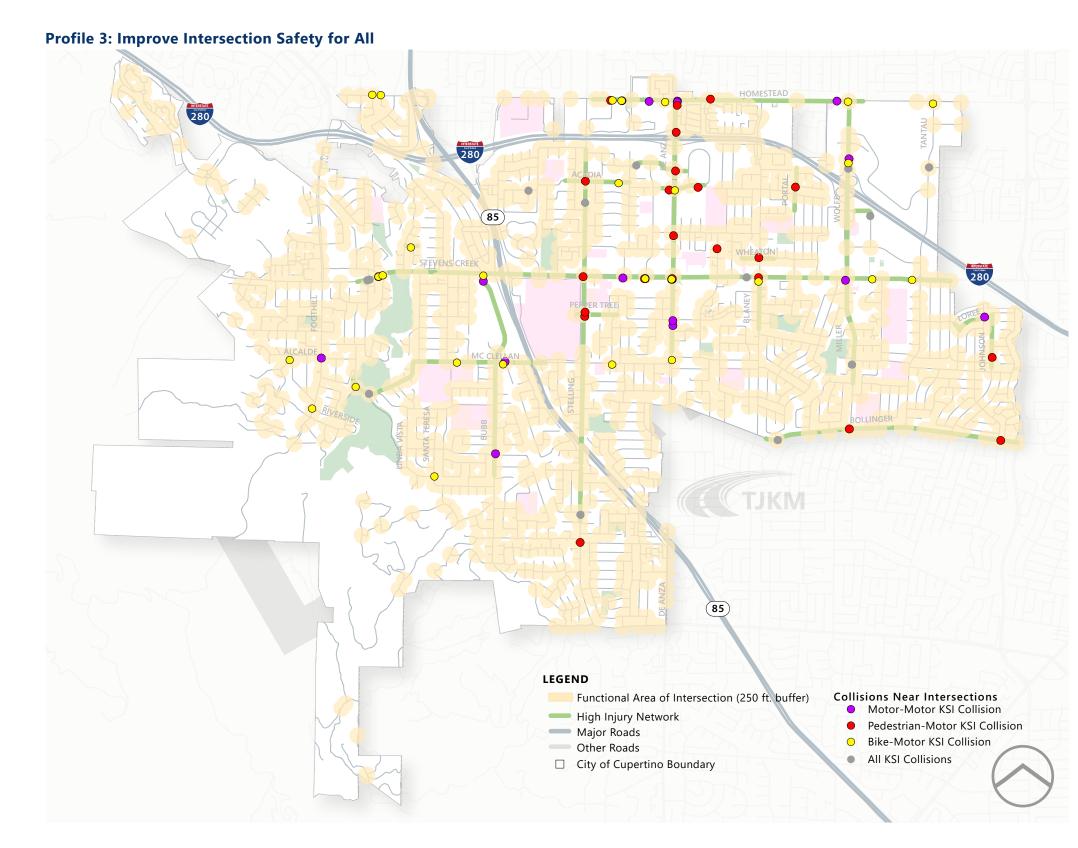




STATS

73

- ounts for **88%** (73 collision
- 100% (24 collisions) of KSI collisions involving pedestrian and 85% (22 collisions) of collisions involving bicyclists



CUPERTINO VISION ZERO PLAN

PEDESTRIAN CODE VIOLATION



MARKED CROSSWALKS

Effectively decrease the occurrence of collisions along high risk corridors

EFFICACY: COST: COMPLEXITY: ■□□



INTERSECTION SAFETY LIGHTING

Decreases accidents involving them during nighttime and increases awareness and response time.

EFFICACY: COST: COMPLEXITY:



ADAPTIVE PEDESTRIAN SIGNAL TIMING

Sensor detects when pedestrian are present in a crossing and automatically increases crossing time when necessary

EFFICACY: COST:



SHARE THE ROAD AWARENESS PROGRAM

Create a Share the Road Awareness Program for motorist, bicyclist and pedestrians that is easily accessible.

EFFICACY: COST: COMPLEXITY:



FLASHING YELLOW RIGHT TURN

Indicate that drivers may turn after yielding to oncoming traffic. These turns are considered "permissive."

EFFICACY: ■□□ COST: COMPLEXITY:



MIDBLOCK CROSSWALKS

Increases safety by decreasing random and unexpected pedestrian crossings

EFFICACY: COMPLEXITY:

Pedestrians can become impatient when their ability to travel safely is impeded by a lack of safe crossings or traffic signals timed for the convenience of motorists and not for all roadway users. Distracted travel while using a hand-held device also increases the risk of mistakes.



- 2 Pedestrian Fatalities occurred
- At least half of these collisions occurred as a result of **crossing outside designated crosswalk areas.**

MODES



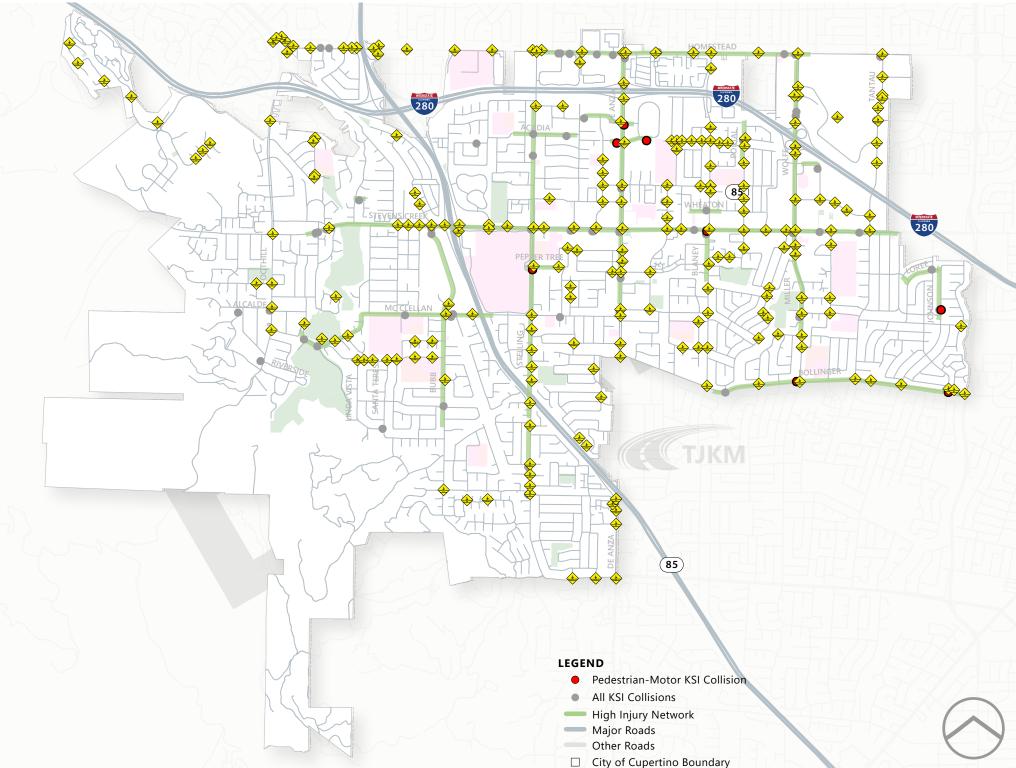


STATS



(SI CRASHES

Profile 4: Pedestrian Code Violation



MAJORITY OF BIKE COLLISIONS ARE BROADSIDE COLLISIONS



PROTECTED BIKEWAYS

Segregated lanes shielded by flexible posts, parked cars, and planters for safe bicycle travel separate from vehicle traffic.

EFFICACY: COST: COMPLEXITY:



TWO-STAGE BICYCLE TURN BOX

Offers bicyclists a multi-stage process to safely and more visibly make a left turn

EFFICACY: COST: ■■□ COMPLEXITY:



BICYCLE SIGNAL

Prioritizes bicycle movements at intersections, separating them from conflicting motor vehicles

EFFICACY: COST: COMPLEXITY:



TURN CALMING PROGRAM

Basic or complete hardened centerlines for left turns and Slow Turn Wedges enforces safe turning practices

EFFICACY: ■□□ COST: COMPLEXITY:



BIKE BOX

Safe and visible way to get ahead of queuing traffic during the red signal phase.

EFFICACY: ■□□ COST: ■■□ COMPLEXITY: ■□□



FLASHING YELLOW RIGHT TURN

Indicate that drivers may turn after yielding to oncoming traffic. These turns are considered "permissive."

EFFICACY: ■□□ COST: COMPLEXITY:

Right turning vehicles cutting off the travel of bicyclists traveling parallel to them results in "right hook" crashes, one of the most common and most dangerous bicyclist crash types.



- 2 out of 9 KSI broadside bicycle

MODES

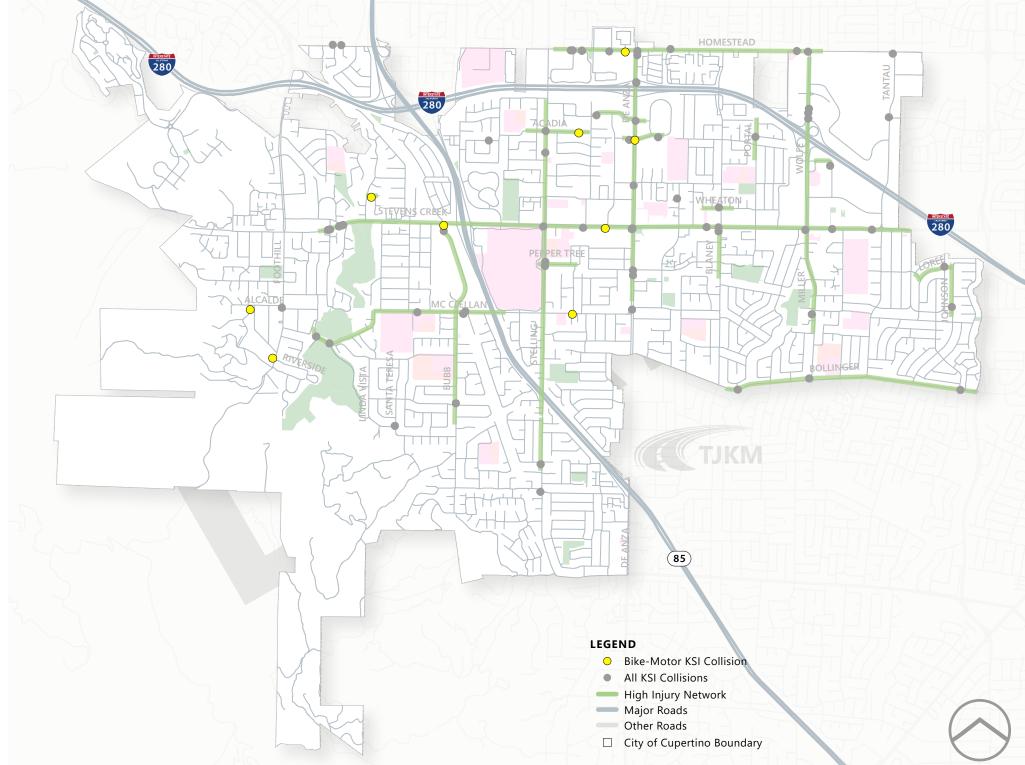




STATS



Profile 5: Majority of Bike Collisions Are Broadside Collisions



PEDESTRIAN & BICYCLIST ARE MOST VULNERABLE



MARKED CROSSWALKS

Effectively decrease the occurrence of collisions along high risk corridors

EFFICACY: ■■□
COST: ■■□
COMPLEXITY: ■□□



PEDESTRIAN REFUGE ISLANDS

Provide a safe space for pedestrians to pause between traffic

EFFICACY: COST: COMPLEXITY: CO



PROTECTED BIKEWAYS

Segregated lanes shielded by flexible posts, parked cars, and planters for safe bicycle travel separate from vehicle traffic.

EFFICACY: COST: COMPLEXITY: CO



RECTANGULAR RAPID FLASHING BEACON

Offers pedestrians and bicyclists a clear path to cross the street more safely.

COST: COMPLEXITY:



SHARE THE ROAD AWARENESS PROGRAM

Create a Share the Road Awareness Program for motorist, bicyclist and pedestrians that is easily accessible.

EFFICACY:
COST:
COMPLEXITY:
COMPLEXITY:



TRAFFIC SAFETY DIVERSION PROGRAM

For bicycle and pedestrian traffic violations providing access to safety courses and programs centered on biking and walking

EFFICACY: ■■□
COST: ■□□
COMPLEXITY: ■■□

Pedestrians and bicyclists do not have the protection of a "steel box" as they travel along our roadways. Weather conditions, pavement deficiencies, and lack of safe and useable facilities adds to the risks pedestrians and bicyclists face every day.



FACTORS

- 22% of the Pedestrian collision occurred due to Pedestrian Violation (crossing outside the crosswalk)
- 5 Pedestrian KSI collisions occurred as a result of crossing outside designated crosswalk areas
- 50% of pedestrian and bicyclist KSI collisions occurred on Stevens Canyon Road, Homestead Road and De Anza Boulevard, which are corridors of concern

MODES



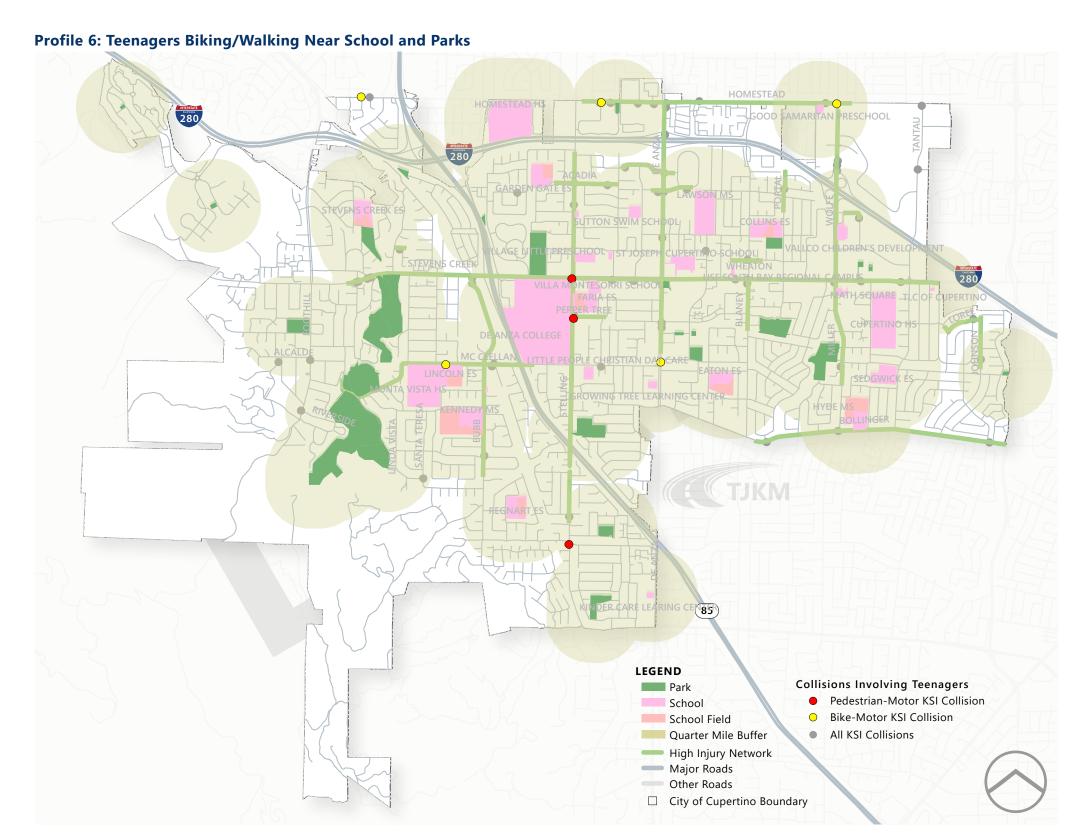


STATS

50

KSI CRASHES

- Accounts for **62%** (50 collisions) of all KSI collision
- 33% (27 collisions) of KSI collisions involving bicyclist
- 29% (24 collisions) of KSI collisions involving pedestrian



PROFILE 7 DRIVING UNDER INFLUENCE



ALCOHOL USE DISORDER (AUD) ASSESSMENT & TREATMENT PROGRAMS

Long-term, tailored, and specialized treatment programs can serve as an intervention

EFFICACY: ■□□

COST: ■■■

COMPLEXITY: ■■■



HIGH VISIBILITY ENFORCEMENT

Concentrate enforcement activities in areas of Cupertino where engineering and educational initiatives have already been implemented.

EFFICACY: ■■□
COST: ■■□
COMPLEXITY: ■■■



EDUCATIONAL CAMPAIGN

Work together with community organizations to distribute materials to promote

EFFICACY: ■□□
COST: ■□□
COMPLEXITY: ■■□



VEHICLE SPEED FEEDBACK SIGN

Radar-based vehicle speed feedback signs promote safer streets by improving drivers' speed compliance through LED displays.

EFFICACY: COST: COMPLEXITY: CO



EDUCATIONAL INITIATIVES OVER CITATIONS

Prioritize educational initiatives while issuing citations during traffic enforcement

EFFICACY: ■□□
COST: ■□□
COMPLEXITY: ■■□

Drinking alcohol or using drugs while driving is a dangerous epidemic. The ability to safely operate a motor vehicle is impaired by alcohol and drugs. Unfortunately, the decision making process to not drive after drinking alcohol or using drugs is also impaired.



FACTORS

- 3% of all collisions in the City of Cupertino
- Alcohol and drug related KSI collisions occurred due to hitting fixed objects or were head on collisions.
- All of the collisions occurred along the roadway
- Primary collision factor was either vehicle code violation or falling asleep while driving

MODES

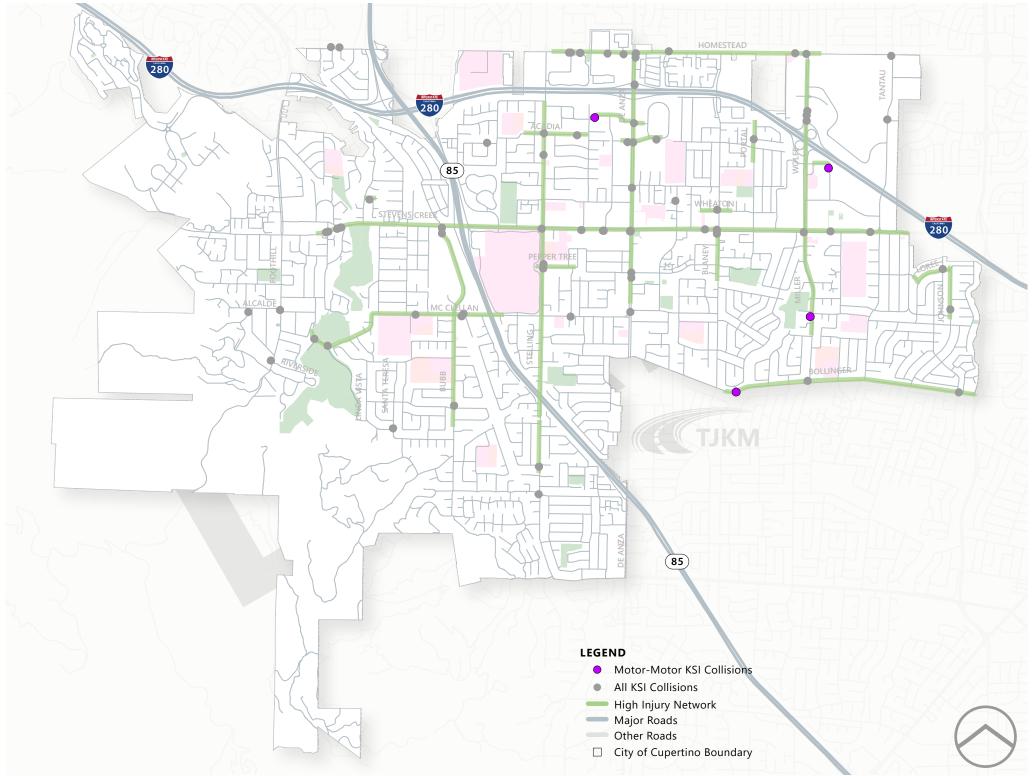


STATS



- Accounts for 5% (4 collisions) o
 all KSI collisions
- All individuals responsible for the incident fell within the age range of 20 to 29 years

Profile 7: Driving Under Influence



BICYCLE COLLISION & AUTOMOBILE ROW VIOLATION



PROTECTED BIKEWAYS

Segregated lanes shielded by flexible posts, parked cars, and planters for safe bicycle travel separate from vehicle traffic.

EFFICACY:
COST:
COMPLEXITY:
COMPLEXITY:



TWO-STAGE BICYCLE TURN BOX

Offers bicyclists a multi-stage process to safely and more visibly make a left turn

EFFICACY:
COST:
COMPLEXITY:
COMPLEXITY:



ROUNDABOUTS

Proven safety countermeasure that reduces speeds and crash potential while better serving all roadway users

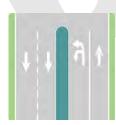
EFFICACY: COST: COMPLEXITY: CO



RED LIGHT VIOLATION CAMERAS

Used to automate enforcement efforts in locations where traffic stops violations occur

EFFICACY: COST: COMPLEXITY: CO



RAISED MEDIANS

Provides a physical barrier between opposing traffic lanes and restricts illegal turns and helps reduce collisions

EFFICACY: COST: COMPLEXITY: CO

Motorists do not always see bicyclists, even when the bicyclists is "doing all the right things". Reducing vehicular speeds, minimizing conflict points, and providing physical changes to the roadway to promote safer choices can reduce right of way violations.



FACTORS

- Half of the collisions occurred due to vehicle intending to turn left or complete a U-turn on a roadway
- Another half of the collisions occurred due to running a red light or failing to stop at the limit line

MODES



STATS



KSI CRASHES

- Accounts for **7%** (6 collisions) of all KSI collisions
- 22% (6 collisions) of KSI collisions involving bicyclists

LEGEND

Bike-Motor KSI Collisions
 All KSI Collisions
 High Injury Network
 Major Roads
 Other Roads

☐ City of Cupertino Boundary

Profile 8: Bicycle Collision & Automobile Row Violation

COLLISIONS NEAR TRANSIT STOPS



PROTECTED BIKEWAYS

Segregated lanes shielded by flexible posts, parked cars, and planters for safe bicycle travel separate from vehicle traffic.

EFFICACY: ■■■
COST: ■■■
COMPLEXITY: ■■■



MARKED CROSSWALKS

Effectively decrease the occurrence of collisions along high risk corridors

EFFICACY: ■■□
COST: ■■□
COMPLEXITY: ■□□



PEDESTRIAN HYBRID BEACON

Warn and control traffic at unsignalized intersections while providing instantaneous service with less delay

EFFICACY: ■■□
COST: ■■■
COMPLEXITY: ■■□



RECTANGULAR RAPID FLASHING BEACON

Offers pedestrians and bicyclists a clear path to cross the street more safely.

EFFICACY: COST: COMPLEXITY: CO

The layout of sidewalks, and transit stops impacts how passengers and pedestrians perceive safety while accessing transit. Well-connected sidewalks should be a standard feature in areas with regular transit service, preventing travelers from needing to walk on roads to reach stops. Transit stops should be designed to make boarding and alighting easy and safe for passengers of all abilities. Transit agencies could consider transitioning to far-side bus stops to improve safety at street crossings for pedestrians accessing transit at each stop.



- 65% of all KSI collisions
 occurred within a quarter mile of
 a bus stop
- 35% of all KSI collisions within the quarter mile buffer were vehicle-pedestrian collisions
- 67% of fatalities occurred within a quarter mile buffer of a bus stop
- 2 Collisions involving buses lead to serious injuries
- 9% of the collisions occurred due to pedestrian crossing not in crosswalk
- 15% of the collisions occurred due to speeding

MODES

T of

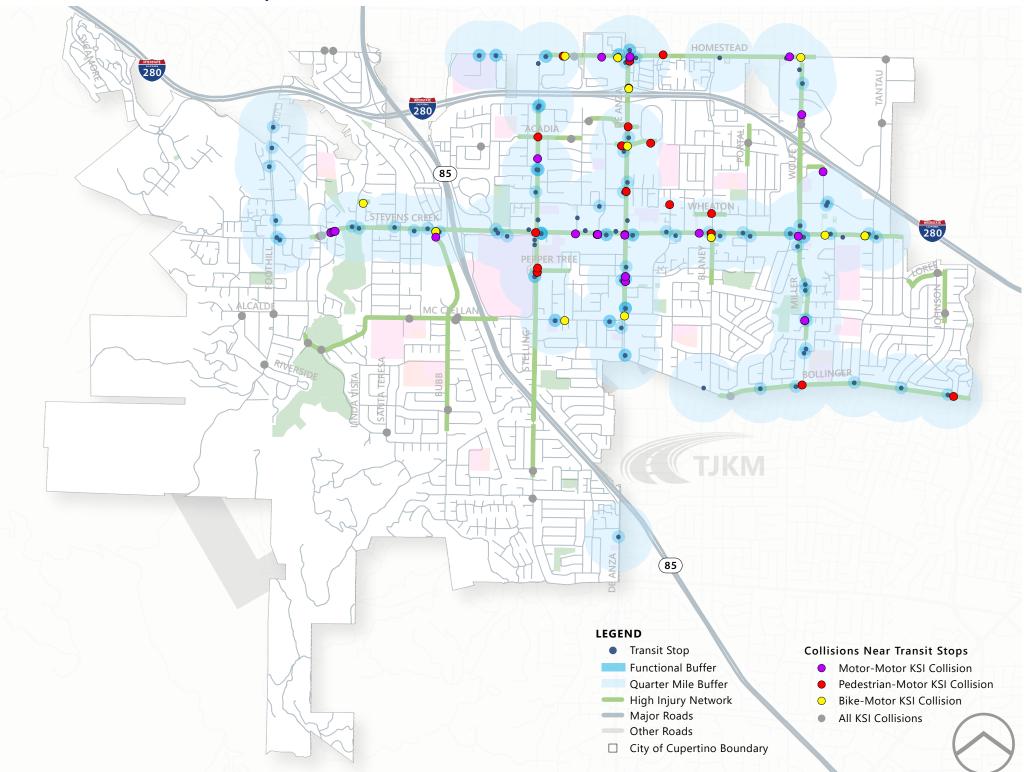
STATS

12

KSI CRASHES

within 250 ft. of transit stop:

Profile 9: Collisions Near Transit Stops



RECOMMENDED PROJECTS

Recommended Project STEVENS CREEK BOULEVARD

CHARACTERISTICS

Stevens Creek Boulevard is a major corridor for health, education, the tech industry, shopping, and housing that is experiencing significant growth in commercial and residential land uses. The boulevard itself is primarily a six-lane divided arterial roadway with auxiliary turn lanes at major intersections, complemented by a Class IV bikeway between Wolfe Road and Tantau Road. The speed limit is 35 mph. From 2012 and 2021, the corridor reported a total of 260 injury collisions, including 16 severe injuries. Unsafe speeding was a common factor leading to these severe injuries, followed by traffic signals and sign violations.

HIGH INJURY INTERSECTIONS

- 1. Bandley Drive
- 2. Cupertino Road
- 3. De Anza Boulevard
- 4. Blaney Avenue
- 5. Saich Way
- 6. Wolfe Road
- 7. Stelling Road

CITY OF CUPERTINO - PLANNED PROJECTS

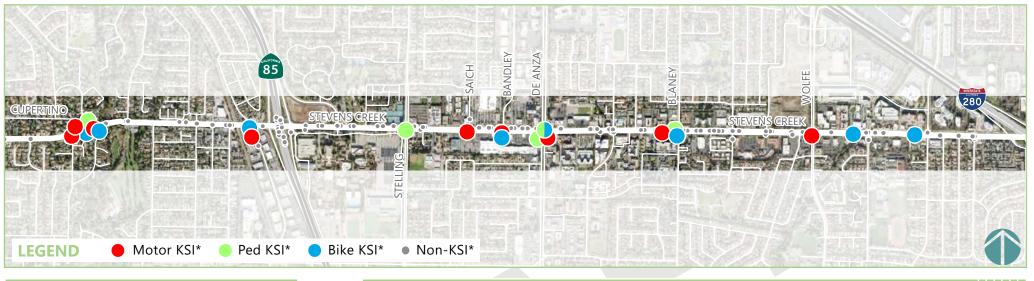
The City of Cupertino has proactively taken measures to prioritize this corridor and has begun several improvements along this high-injury corridor.

The 2016 Bicycle Transportation Plan of the City of Cupertino recognizes and prioritizes enhancements required to improve and advocate for safer bicycle transportation within the city. One of the priorities is the need for a separated Class IV bicycle lane along Stevens Creek Boulevard. Phase 1, completed in January 2021 between Wolfe Road and Tantau Avenue, marked a crucial milestone. Moving forward, Phase 2 completed design in winter 2023, covering the segment from Wolfe Road to Mary Avenue. Due to the corridor's length, the project is divided into two phases: Phase 2A, focused on creating a Class IV separated bikeway on both sides of Stevens Creek Boulevard from Wolfe Road to De Anza Boulevard, and Phase 2B, extending the bikeway from De Anza Boulevard to Mary Avenue. Notably, the Stevens Creek Boulevard Class IV Bikeway stands out as a key priority in the overall bicycle transportation plan.

The City of Cupertino is also in the design phase for intersection improvements at the northbound State Route 85 on-ramp, which includes elimination of the high speed free right turn lane and providing a protected pedestrian and bicycle crossing on the on-ramp.

The City of Cupertino secured funding from the Highway Safety Improvement Program (HSIP) Cycle 11 to enhance safety on Stevens Creek Boulevard, from Janice Avenue to Judy Avenue, for the installation of dynamic/variable speed warning signs and pavement friction improvement using High Friction Surface Treatment (HFST).

STEVENS CREEK BOULEVARD



COLLISION STATISTICS (2012 - 2021)



COLLISION TRENDS



RECOMMENDATIONS



- Leading Pedestrian Intervals (LPI)
- Signal Head and Equipment Upgrades
- Improve Signal Timing
- Pedestrian Refuge Island
- No Right on Red
- Advanced Dilemma Zone for High Speed Approaches
- Convert Pedestal Mounted Signal to Mast Arm
- Install Raised Pavement Markers and Striping



 Dynamic/Variable Speed Warning Signs
 Pavement Friction Improvement using High Friction Surface Treatment (HFST)



BICYCLE SAFETY IMPROVEMENTS

- Class IV Separated Bicycle Facility
- ✓ Bike Boxes
- Bicycle Signal
- Bike Detection Systems
- Green Pavement Marking in Conflict Zone



- Increase Size and Reflectivity of Signs
- Back-Plates With Retroreflective Borders

OTHER

Median Fencing

Transit Islands

☑ City of Cupertino - Projects in Concept, Planning, Design or Construction Phase

Recommended Project HOMESTEAD ROAD

CHARACTERISTICS

Homestead Road is an east-west arterial at the northernmost border of the city. The roadway itself is a four-lane divided and undivided roadway with auxiliary turn lanes at major intersections, complemented by a Class II bikeway on both side. The speed limit is 35 mph. From 2012 to 2021, the corridor documented a total of 107 injury collisions, including 12 KSI collisions, with two of them resulting in fatalities. Prominent factors contributing to these KSI collisions were violations of automobile right-of-way and improper turning, with unsafe speed closely following as another significant contributor.

HIGH INJURY INTERSECTIONS

- 1. De Anza Boulevard
- 2. Ontario Dr
- 3. Quail Ave
- 4. Blue Jay Dr
- 5. Wolfe Avenue

CITY OF CUPERTINO - PLANNED PROJECTS

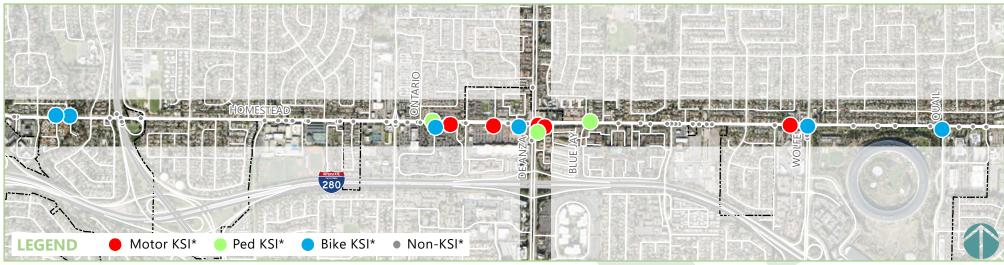
Homestead Road functions as a crucial east-west corridor, with jurisdiction shared with the cities of Sunnyvale and Los Altos. The segment between N. Stelling Road/Hollenbeck Avenue and Grant Road not only serves as a vital regional connection but also functions as a local link for three public schools: West Valley Elementary School, Cupertino Middle School, and Homestead High School. In 2019, the County of Santa Clara, in collaboration with the Cities of Los Altos, Sunnyvale, and Cupertino, along with the Santa Clara Valley Transportation Authority (VTA) and Caltrans, initiated the Homestead Road Safe Routes to School project. The goal was to identify and implement long-term enhancements within the study area to ensure secure access to schools along the corridor. These improvements primarily focus on developing infrastructure that supports multimodal access for individuals of all ages and abilities. The scope included ten intersections along the corridor. The improvements include:

- 1. Pedestrian Enhancements: Widening sidewalks, closing gaps, modifying on-ramp alignments, installing ADA-compliant ramps, high-visibility crosswalks, and reconfiguring intersections.
- 2. Bicycle Improvements: Upgrading lanes to separated bikeways, widening and extending shared-use paths, adding bike turns/waiting spaces, and modifying signals for better bicycle detection.
- 3. Intersection Signalization: Homestead Road and Fallen Leaf Drive intersection will be signalized for improved pedestrian and cyclist crossings.

The project is currently in the preliminary design and environmental clearance phases with field design and construction pending the identification of funding sources.

The City has also received HSIP funding to install dynamic/variable speed warning signs and High Friction Surface Treatment (HFST) on Homestead Road between Fallen Leaf Lane to Wolfe Road.

HOMESTEAD ROAD



COLLISION STATISTICS (2012 - 2021)





RECOMMENDATIONS



- Leading Pedestrian Intervals (LPI)
- Signal Head and Equipment Upgrades
- Improve Signal Timing
- No Right on Red
- Reconfiguring Intersections
- High Visibility Crosswalk
- Signalization of Intersections (Fallen Leaf Dr.)
 Advanced Dilemma Zone for High Speed
- Approaches
- Convert Pedestal Mounted Signal to Mast Arm
- Install Raised Pavement Markers and Striping



- ✓ Dynamic/Variable Speed Warning Signs
- Pavement Friction Improvement using High Friction Surface Treatment (HFST)



BICYCLE SAFETY IMPROVEMENTS

- Class IV Separated Bicycle Facility
- ✓ Bike Boxes
- Bicycle Signal
- Bike Detection Systems
- Green Pavement Marking in Conflict Zone



SIGNAGE IMPROVEMENTS

- Increase Size and Reflectivity of Signs
- Back-Plates With Retroreflective Borders

OTHER

- ✓ Widening Sidewalks and Closing Gaps✓ Installing ADA Compliant Ramps
 - ☑ City of Cupertino Projects in Concept, Planning, Design or Construction Phase
 - * Killed or Severely Injured

CUPERTINO VISION ZERO PLAN

Recommended Project MCCLELLAN ROAD

CHARACTERISTICS

McClellan Road, an east-west minor collector in central Cupertino, provides access to numerous educational institutions Lincoln Elementary School, Monta Vista High School, Kennedy Elementary School and De Anza College. The two-lane road features a center turn lane and a Class IV bike lane, providing a physical separation between motor vehicles and bicyclists through curbs and mountable strips. The speed limit is 30 mph. Between 2012 and 2021, the corridor experienced a total of 53 reported injury collisions, including six KSI collisions, with four involving bicyclists. Primary contributors to these KSI collisions were automobile right-of-way violations, improper turning, and unsafe speeding. The City has been actively implementing safety measures, with recent improvements including Class IV bike lanes and a pedestrian scramble at the Bubb Road intersection.



HIGH INJURY INTERSECTIONS

- 1. September Drive
- 2. Bonny Drive
- 3. Clubhouse Lane
- 4. De Anza Boulevard

CITY OF CUPERTINO - PLANNED PROJECTS

The McClellan Road Separated Bike Lanes Project aims to enhance safety for students, families, and residents who commute by bike to school and work. The project, implemented in multiple phases, focuses on installing separated/Class IV bike lanes along McClellan Road and Pacifica Drive from Byrne to Torre Avenues. Phase 1, completed in February 2020, established separated bike lanes on McClellan Road from Imperial Avenue to Stelling Road. Phase 2, finished in April 2021, extended separated bike lanes on McClellan Road from Stelling Road to De Aza Boulevard, and on Pacifica Drive from De Anza Boulevard to Torre Avenue. Phase 3 of the McClellan Road Separated Bikeways Project began construction in January 2024.

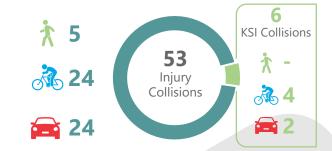
The City also introduced a pedestrian scramble at McClellan Road and Bubb Road in early 2023 to improve safety and reduce congestion. Pedestrians can cross two legs during the WALK phase, while cars cannot turn right on red. During the vehicle green phases, cars can turn right, and pedestrians cannot cross.

The City received a HSIP Cycle 11 grant for the implementation of dynamic/variable speed warning signs and High Friction Surface Treatment (HFST) on McClellan Road between Imperial Avenue to Stelling Road.

MCCLELLAN ROAD



COLLISION STATISTICS (2012 - 2021)



COLLISION TRENDS



RECOMMENDATIONS



- Leading Pedestrian Intervals (LPI)
- Signal Head and Equipment Upgrades
- Pedestrian Refuge Island
- ✓ No Right on Red



- ✓ Class IV Separated Bicycle Facility
- ✓ Bike Boxes
- Bicycle Signal
- ✓ Bike Detection Systems
- Green Pavement Marking in Conflict Zone



SPEED SAFETY IMPROVEMENTS

- ✓ Dynamic/Variable Speed Warning Signs
- Pavement Friction Improvement using High Friction Surface Treatment (HFST)



SIGNAGE IMPROVEMENTS

- Increase Size and Reflectivity of Signs
- Back-Plates With Retroreflective Borders

OTHER

Consistently monitor the effectiveness of the implemented safety measures, serving as a model for other comparable streets within the city.

✓ City of Cupertino - Projects in Concept, Planning, Design or Construction Phase

Recommended Project DE ANZA BOULEVARD

CHARACTERISTICS

De Anza Boulevard, the primary north-south arterial in Cupertino, is a six-lane divided roadway featuring Class II bicycle facilities on both sides. Lined with commercial and retail land use, the speed limit is 40 mph. From 2012 to 2021, a total of 211 injury collisions were reported, including 11 KSI collisions. Contributing factors to these 11 incidents included violations such as traffic signal violations, pedestrian violations, and pedestrian right-of-way violation.

HIGH INJURY INTERSECTIONS

- 1. Homestead Road
- 2. Stevens Creek Boulevard
- 3. Mariani Avenue
- 4. Rodrigues Avenue
- 5. 1-280 North Bound Off Ramp
- 6. Infinite Loop
- 7. Lazaneo Drive
- 8. McClellan Road

CITY OF CUPERTINO - PLANNED PROJECTS

The intersection of De Anza at McClellan and Pacifica is being upgraded as part of Phase 3 of the McClellan Road Separated Bike Lanes Project. Identified as one of the high-injury intersections, the planned changes include:

- 1. New pedestrian crosswalk across the south leg of the intersection
- 2. Signal upgrade
- 3. Adding signal time to facilitate bicycle crossing
- 4. Improving signage and striping
- 5. Upgrading bicycle lanes to Class IV

Construction began in January 2024 and is expected to be completed by summer 2024.

In the spring and summer of 2024, the city will be adding a striped buffer to provide separation between the Class II bike lanes and the vehicle lanes between Bollinger Road and Homestead Road.

The City received a HSIP Cycle 11 grant to implement dynamic/variable speed warning signs and High Friction Surface Treatment (HFST) on De Anza Boulevard between Pacifica Road to Homestead Road.



DE ANZA BOULEVARD

COLLISION STATISTICS (2012 - 2021)



COLLISION TRENDS





Automobile ROW Violation

RECOMMENDATIONS



- Leading Pedestrian Intervals (LPI)
- Signal Head and Equipment Upgrades
- Improve Signal Timing
- Reconfiguring Intersections
- High Visibility Crosswalk
- Advanced Dilemma Zone for High Speed Approaches
- Convert Pedestal Mounted Signal to Mast Arm
- Install Raised Pavement Markers and Striping



- Class IV Separated Bicycle Facility
- Bike Boxes
- Bicycle Signal
- Bike Detection Systems
- Green Pavement Marking in Conflict Zone



Collisions



Pavement Friction Improvement using High Friction Surface Treatment (HFST)



- Increase Size and Reflectivity of Signs
- Back-Plates With Retroreflective Borders

OTHER

- Transit Islands
- Study Potential Lane Narrowing or Reduction

✓ City of Cupertino - Projects in Concept, Planning, Design or Construction Phase



CHARACTERISTICS

Stelling Road functions as a north-south collector, with the segment between Homestead Road and Stevens Creek Boulevard serving as a two-lane and a four-lane major collector with buffered Class II bike lanes with a speed limit of 30 mph. The southern part transforms into a minor collector, characterized by a two-lane undivided roadway with center turn lanes at major intersections and buffer-separated Class II bike lanes on both sides, maintaining a speed limit of 30 mph. Between 2012 and 2021, a total of 76 injury collisions were reported, including 7 KSI collisions. Key contributors to these KSI incidents were improper turning, pedestrian right-of-way violations, and pedestrian code violations.

HIGH INJURY INTERSECTIONS

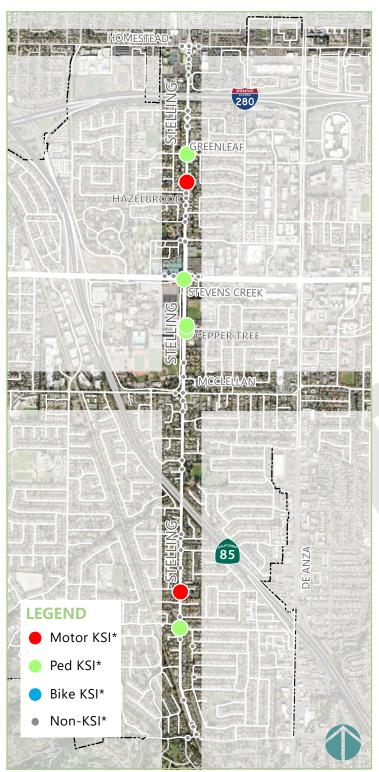
- 1. Pepper Tree Lane
- 2. Greenleaf Drive
- 3. Hazelbrook Drive
- 4. Stevens Creek Boulevard



CITY OF CUPERTINO - PLANNED PROJECTS

Recognized as among the top three corridors with the most collisions based on the Cupertino Bicycle Transportation Plan (2016), the recommendation suggests transforming the existing bike lanes on Stelling Road into a Class IV separated bikeway. This would involve the reconfiguration of lanes, and, in certain areas, the elimination of medians.

The Stelling Road corridor also received HSIP (Cycle 11) funding for the installation of dynamic/variable speed warning signs and High Friction Surface Treatment (HFST) between McClellan Road to Prospect Road.



STELLING ROAD

COLLISION STATISTICS (2012 - 2021)



COLLISION TRENDS



Rear End Broadside Collisions Collisions Collisions Improper Turning

RECOMMENDATIONS



- Leading Pedestrian Intervals (LPI)
- Signal Head and Equipment Upgrades
- Improve Signal Timing
- Free-Right Turn Removal
- Reconfiguring Intersections
- High Visibility Crosswalk

BICYCLE SAFETY IMPROVEMENTS

- Class IV Separated Bicycle Facility
- Bike Boxes
- Bicycle Signal
- Bike Detection Systems
- Green Pavement Marking in Conflict Zone



19

Speed

Related

Collisions

IMPROVEMENTS

✓ Dynamic/Variable Speed Warning Signs Pavement Friction Improvement using High Friction Surface Treatment (HFST)



- Increase Size and Reflectivity of Signs
- Back-Plates With Retroreflective Borders

✓ City of Cupertino - Projects in Concept, Planning, Design or Construction Phase



CHARACTERISTICS

Wolfe Road serves as a crucial north-south arterial. This four-lane and six-lane divided roadway, incorporates various safety measures, including green-painted bike lanes and high-visibility crosswalks at significant intersections. The speed limit on this roadway is 35 mph. From 2012 to 2021, a total of 86 collisions were reported on this corridor. Among these, 5 collisions were classified as KSI collisions. The leading causes of these fatal and severe injuries were identified as unsafe speeding, driving/riding on the wrong side of the road, improper turning, and automobile right-of-way violation.

HIGH INJURY INTERSECTIONS

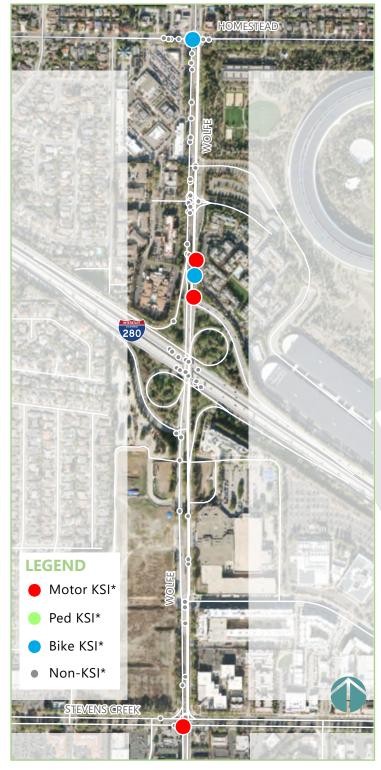
- 1. I-280 North Bound Ramp
- 2. Homestead Road
- 3. I-280 North Bound Off Ramp
- 4. Stevens Creek Boulevard

CITY OF CUPERTINO - PLANNED PROJECTS

The 2016 Cupertino Bicycle Transportation Plan suggests conducting a study on implementing a buffered bike lane along the Wolfe Road corridor from Homestead Road to Stevens Creek Boulevard. Proposed enhancements involve incorporating green paint on freeway on-ramps and off-ramps, as well as striping bike lanes across intersections in collaboration with Caltrans. The study advocates for reconfiguring and removing medians to facilitate buffered bike lanes while minimizing lane reduction.

The I-280/Wolfe Road Interchange Improvement Project, a collaborative efforts between the Santa Clara Valley Transportation Authority (VTA), the City of Cupertino, and Caltrans, will enhance traffic operations and establish facilities that support various modes of transportation, such as bicycles, pedestrians, and high-occupancy vehicles. This undertaking aims to incorporate off-street bike lanes, on-street painted bike lanes and sidewalks, perpendicular crossings for cyclists and pedestrians at on-ramp and off-ramps, signal improvements, bike sensors, and other safety measures. Additionally, the project entails the installation of new lighting and landscaping, significantly enhancing safety for both bicyclists and pedestrians along the corridor. Construction is anticipated to begin in 2024.

The Wolfe Road corridor was awarded HSIP (Cycle 11) funding for the installation of dynamic/variable speed warning signs and High Friction Surface Treatment (HFST) between Homestead Road to Bollinger Road.



NOLFE ROAD

COLLISION STATISTICS (2012 - 2021)



COLLISION TRENDS





RECOMMENDATIONS



- Leading Pedestrian Intervals (LPI)
- Signal Head and Equipment Upgrades
- Improve Signal Timing
- ✓ Free-Right Turn Removal
- High Visibility Crosswalk

BICYCLE SAFETY IMPROVEMENTS

- Class IV Separated Bicycle Facility
- Bike Boxes
- Bicycle Signal
- ✓ Bike Detection Systems
- Green Pavement Marking in Conflict Zone



44%

Collisions

Speed

Related

Collisions

SPEED SAFETY IMPROVEMENTS

- ✓ Dynamic/Variable Speed Warning Signs Pavement Friction Improvement using
- High Friction Surface Treatment (HFST)



- Increase Size and Reflectivity of Signs
- Back-Plates With Retroreflective Borders
- Upgrading and Installing Additional Signage for Trap Lanes
- Consider Deliniators for Trap Lanes

OTHER

 Consider overhead mast arm with signs to inform drivers of what lanes they should be in ahead of approaches

> ✓ City of Cupertino - Projects in Concept, Planning, Design or Construction Phase

Recommended Project BOLLINGER ROAD

CHARACTERISTICS

Bollinger Road is a 2.0-mile long east-west major collector that connects Lawrence Expressway and De Anza Boulevard, two major north-south arterials. The road lies along the border of Cupertino and San Jose, with Cupertino to the north and San Jose to the south. The road frontage is primarily residential and is home to four nearby elementary schools, Hyde Middle School, and Cupertino High School. Bollinger Road is a four-lane roadway with two lanes in both the eastbound and westbound directions. The corridor has Class II bike lanes on both sides. On-street parking is available along most of the corridor in both directions. The speed limit on the roadway is 35 mph. There are a total of 42 collisions reported between 2012 and 2021 with 3 KSI collisions reported with 2 fatalities. The primary collision factor being pedestrian code violation and driving under the influence.



HIGH INJURY INTERSECTIONS

- 1. Miller Avenue
- 2. Wunderlich Drive
- 3. Estates Drive

CITY OF CUPERTINO - PLANNED PROJECTS

The Cities of Cupertino and San Jose conducted a safety and operational study of the Bollinger Road Corridor in 2021. This project focused on examining Bollinger Road to identify improvements that will enhance pedestrian, bicycle, motor vehicle, and transit operations and safety. The study proposed two alternatives that reflect different priorities and strategies for improving the corridor. Alternative A involves a road diet, where the road would be reduced to one travel lane in each direction, along with the provision of a center two-way left turn lane. Alternative B maintains the existing lane configuration while implementing spot improvements, primarily at intersections. Some of the proposed improvements include:

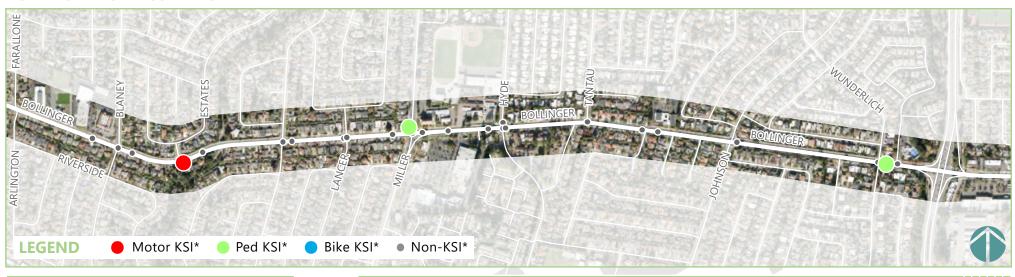
- 1. Class IV Separated Bike Lanes
- 2. Speed Feedback Signage
- 3. High-Visibility Pedestrian Crossings
- 4. Bike Boxes
- 5. Two-Stage Turn Queue Boxes

- 6. Curb Radii and Free-Right Turn Removals
- 7. Leading Pedestrian Intervals (LPI)
- 8. Rectangular Rapid Flashing Beacons (RRFB)
- 9. Pedestrian Hybrid Beacon (PHB)
- 10. Transit Islands

In 2023 Cupertino was successfully awarded a Safe Streets 4 All grant from the US Department of Transportation, for the purpose of performing a detailed traffic analysis of the corridor and develop engineering plans to construct these improvements.

The City received HSIP (Cycle 11) grant funding for the installation of dynamic/variable speed warning signs and High Friction Surface Treatment (HFST) on Bollinger Road between Lawrence Expressway to De Anza Boulevard.

BOLLINGER ROAD CORRIDOR



COLLISION STATISTICS (2012 - 2021)



COLLISION TRENDS



RECOMMENDATIONS



- Leading Pedestrian Intervals (LPI)
- Signal Head and Equipment Upgrades
- Improve Signal Timing
- ✓ Curb Radii and Free-Right Turn Removal
- Reconfiguring Intersections
- ✓ High Visibility Crosswalk
- Rectangular Rapid Flashing Beacons (RRFB)
- Signalization



- Class IV Separated Bicycle Facility
- Bike Boxes
- Bicycle Signal
- **✓** Bike Detection Systems
- ✓ Two-Stage Turn Queue Boxes



SPEED SAFETY IMPROVEMENTS

 Dynamic/Variable Speed Warning Signs
 Pavement Friction Improvement using High Friction Surface Treatment (HFST)

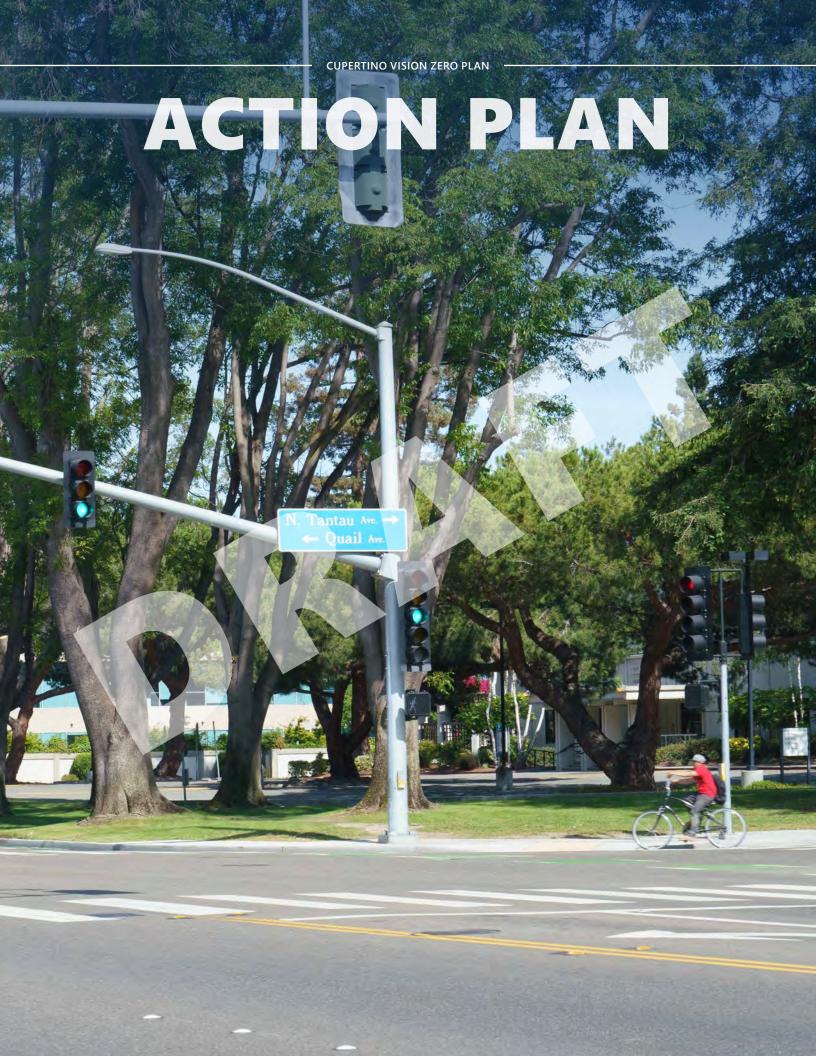


- Increase Size and Reflectivity of Signs
- Back-Plates With Retroreflective Borders

OTHER

✓ Transit Islands

✓ City of Cupertino - Projects in Concept, Planning, Design or Construction Phase



ACTION PLAN

Leveraging the solid groundwork of its Vision Zero framework and collision data analysis, the City of Cupertino is well-prepared to advance its efforts in reducing fatalities and severe injuries. The City aims to achieve this objective by making focused investments in seven key project sites and implementing a series of actions promptly over the next several years.

RECOMMENDED PROJECTS BASED ON HIGH INJURY NETWORK

The City of Cupertino is focused on the following seven recommended project locations along the High Injury Network (HIN), historically known for frequent collisions and heavily influenced by public feedback regarding safety concerns.

Project locations:

- Stevens Creek Boulevard
- Homestead Road
- McClellan Road
- De Anza Boulevard
- Stelling Road
- · Wolfe Road
- Bollinger Road

IMPLEMENTABLE ACTIONS

The implementation of Vision Zero necessitates a dedicated collaboration between City departments, the local community, and partner organizations. The project team has outlined a set of crucial steps to act as a strategic pathway towards achieving Vision Zero. Each step is assigned a specific timeline and a performance metric to gauge progress.

Short-term actions can be executed within a two-year timeframe, while medium-term actions can be completed within a span of two to five years. The more extensive, long-term actions can be realized within a period of five to ten years. Achieving the City's Vision Zero goal demands immediate action while allowing for a practical approach with incremental improvements over time. The actions outlined in this plan should undergo ongoing evaluation and refinement, with their successful execution contingent upon the availability of funding.

The implementable actions are organized into the following four action areas:

- 1. Vision Zero Program: Strategies and Assessment
- 2. Enhancing Street Layout and Management
- 3. Cultivating a Positive Road User Behavior
- 4. Vulnerable Road Users

FUNDING AND IMPLEMENTATION

The City has numerous avenues through which it can finance and carry out the actions listed below. As an example, the integration of safety improvements into pavement management programs, other transportation capital projects, and new development initiatives is a viable approach. To secure dedicated funding for safety projects, the City may consider seeking support from state or regional sources such as Caltrans and MTC Active Transportation Programs, the Caltrans Highway Safety Improvement Program, the One Bay Area Grant Program, and the Transportation Development Act Article 3 (TDA3) Local Transportation Fund. Additional funding sources include Caltrans Sustainable Transportation Planning Grants, Safe Routes to School (SRTS) Funding, Transformative Climate Communities (TCC) Program and California Office of Traffic Safety (OTS) Grant Program.

ACTION AREAS

VISION ZERO PROGRAM: STRATEGIES AND ASSESSMENT

The City of Cupertino Vision Zero Program will begin by establishing a framework for the City's approach to achieve its Vision Zero goal. Program initiatives include Vision Zero promotion, integration of Vision Zero into other planning efforts, and improved Vision Zero data collection and program evaluation.

No	Safety Strategy	Description	Timeline	Progress Measure	Key Partners	City Resources			
Visior	Vision Zero Program Initiative								
A.1	Vision Zero Task Force	Establish an interdisciplinary Vision Zero Task Force responsible for supervising the execution of the plan and facilitating collaboration among various City departments for project and program coordination.	Short-Term	Task Force established and regular meetings held	Department of Public Works, Community Development Department, School Districts, County and Sheriff and Fire Department, Bicycle Pedestrian Commission	Low			
A.2	Dedicated and Permanent Funding	Identify a sustainable and dedicated funding stream for the execution and management of Vision Zero.	Short-Term	Amount of funding available for Vision Zero	City Council, City Manager's Office, Department of Public Works	Medium to High			
A.3	Media Workshop	Develop a workshop aimed at the Communications Department to improve their proficiency in communicating traffic collision and roadway safety concepts.	Short-Term	Number of Media Professionals Participating	City Manager's Office	Low			

No	Safety Strategy	Description	Timeline	Progress Measure	Key Partners	City Resources
Promo	otion and Integra	tion				
A.4	Public Meetings	Include Vision Zero as a topic in the agendas of public, community group, stakeholder meetings and city sponsored meetings throughout 2023.	Short-Term	Number of meetings with Vision Zero on agenda	City Council, Neighborhood Associations, Department of Public Works, City Manager's Office - Communications	Low
A.5	Online Collision Map	Introduce an interactive online collision data map and website.	Medium- Term	Number of website visitors	Information Technology Department, City Manager's Office - Communications, Department of Public Works,	Medium
A.6	Future Plans	Integrate Vision Zero safety principles into forthcoming City plans and design documents.	Continuous	Number of plans and policies incorporating Vision Zero	Community Development Department, Department of Public Works	Low
Data (Collection & Prog	ram Evaluation				
A.7	Program Monitoring	Issue a biannual report to assess advancements in alignment with the objectives of the Vision Zero Plan.	Medium- Term	Biannual report focusing on plan metrics and performance indicators.	Department of Public Works,	Medium
A.8	Collision Report Training	Offer training to the Sheriff's Office with the goal of enhancing collision data reporting, and ensuring the preservation of collision details and site evidence.	Long-Term	Number of Sheriffs trained	Sheriff's Office	Low
A.9	Data Completeness	Enhance data collection pertaining to speed, impairment, cell phone use, and distraction in KSI	Medium- Term	Proportion of Collision records including this information	Sheriff's Office	Low
A.10	Bicycle and Pedestrian Count Data	Set up periodic pedestrian and cyclist counts at standardized locations.	Medium- Term	Number of counts conducted	Department of Public Works	Medium

ENHANCING STREET LAYOUT AND MANAGEMENT

Cupertino's Vision Zero initiative places a strong emphasis on prioritizing top-notch enhancements for the High-Injury Network (HIN) as the primary approach to achieve the goal of eliminating traffic fatalities and severe injuries. Alongside these improvements, the city will also focus on optimizing signal operations and implementing more rigorous design review processes to enhance street layouts. All street improvements will adhere to the compatible General Plan Design Guidelines.

No	Safety Strategy	Description	Timeline	Progress Measure	Key Partners	City Resources				
High	High Injury Network Infrastructure									
B.1	Priority Location	Create and obtain grant funding for the seven key project sites identified in the plan, with an emphasis on enhancing roadway designs to enhance safety.	Medium- Term	Number of funded projects	Department of Public Works	High				
B.2	List Prioritized Project	Create a carefully ranked roster of extra safety projects	Medium- Term	List of safety projects in order of priority.	Department of Public Works	Medium				
B.3	Low-Cost Improvements	Implement cost- effective safety enhancements, encompassing the installation of new road markings, signage, and minor adjustments to signals.	Medium- Term	Number of locations where enhancements have been applied.	Department of Public Works	Medium				
B.4	Stakeholder Engagement	Convene local stakeholders residing near high-collision corridors to gather their input on project design.	Medium- Term	Number of Stakeholder meetings that have been held	Department of Public Works, Sheriff's Office and School Districts	Low				

No	Safety Strategy	Description	Timeline	Progress Measure	Key Partners	City Resources			
Opera	Operations and Technology								
B.5	Signal Timing Updates	Updated signal timing plans to enhance safety for all modes of transportation, which may include adjustments to all-red intervals and pedestrian crossing times.	Short-Term	Percentage of signals in updated.	Department of Public Works	Medium			
B.6	Intelligent Transportation Systems (ITS)	Integrate Vision Zero safety principles into forthcoming City plans and design documents.	Long-Term	Incorporation of Intelligent Transportation Systems (ITS) technologies to enhance traffic safety.	Department of Public Works	High			
Polici	es and Design								
B.7	Design Review	Create an internal procedure for evaluating and, where possible, implementing Vision Zero countermeasures on projects located within HIN	Long-Term	Percentage of public and private projects that integrate Vision Zero components.	Community Development Department, Department of Public Works	Low			
B.8	Complete Streets	When identifying safety enhancements, take into account all individuals using the road and ensure that countermeasures align with the City's Complete Streets Policy.	Medium- Term	Reduction in collisions	Department of Public Works	Low			

CULTIVATING A POSITIVE ROAD USER BEHAVIOR

The City of Cupertino's Vision Zero initiative promotes safe travel behaviors through a combination of outreach and education efforts, enforcement measures, and the provision of alternatives to driving, especially during holidays, special events, and late evenings. This approach recognizes the collective responsibility for making safe choices and fostering a culture of safety.

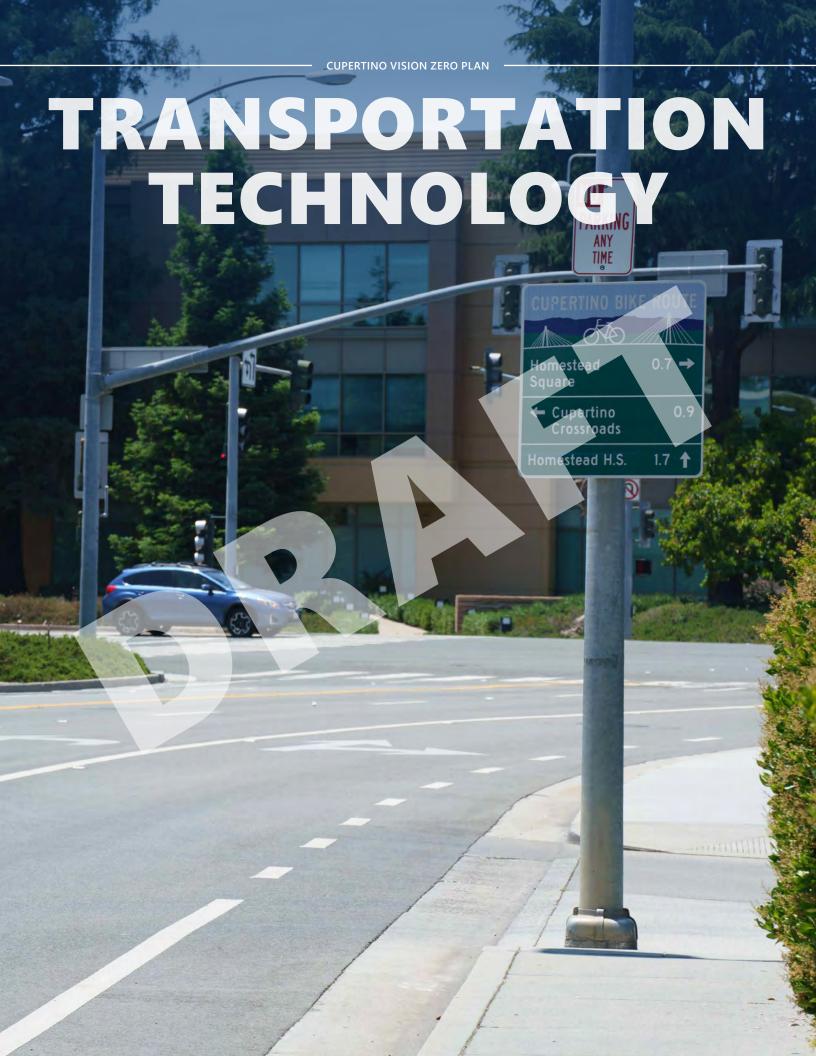
No	Safety Strategy	Description	Timeline	Progress Measure	Key Partners	City Resources				
Educ	Education and Outreach									
C.1	Education Campaign	Initiate high- impact educational campaigns targeting issues like speeding, distracted driving, impaired driving, and other high- risk behaviors. These campaigns will specifically concentrate on HIN corridors to maximize their effectiveness.	Medium- Term	Number of people reached and educated	City Manager's Office, Sheriff's Office, and School District	High				
C.2	Speed Feedback Signs	Promote the utilization of speed feedback signs to deter speeding.	Medium- Term	Number of signs installed	Department of Public Works, and Sheriff's Office	Medium				
C.3	Targeted Outreach	Discourage impaired driving by directing education and outreach efforts towards locations in proximity to alcohol-serving establishments.	Medium- Term	Number of establishments that have been engaged or reached through the outreach efforts.	Sheriff's Office	Medium				
Enfo	rcement									
C.4	Police Academy	Incorporate Vision Zero policies into the curriculum of the Police Academy and ongoing training for Public Safety Officers.	Long- Term	Number of officers who have received training on Vision Zero.	Sheriff's Office	Low				

No	Safety Strategy	Description	Timeline	Progress Measure	Key Partners	City Resources				
Prov	Providing Alternatives to Driving									
C.5	Subsidized Transit	Investigate possibilities for extending no-cost or reduced-rate transit fares on holidays and during special events.	Medium- Term	Number of individuals utilizing free or subsidized fares.	VTA, Department of Public Works	Medium				
C.6	Late-Night Options	Create a public awareness campaign to promote latenight transportation options, such as transit, taxis, rideshare services, and more, as alternatives to impaired driving.	Long- Term	Number of promotional initiatives or activities organized	City Manager's Office, VTA, Rideshare providers	Medium				
C.7	Curbside Management	Establish curbside management policies aimed at promoting and facilitating passenger loading.	Medium- Term	Adoption of City policy	Community Development Department, Department of Public Works	Medium				

VULNERABLE ROAD USERS

The strategies of Cupertino Vision Zero acknowledge that individuals at both ends of the age spectrum, as well as those who are biking or walking, are more susceptible to severe traffic injuries and fatalities due to variations in their reaction time and agility.

No	Safety Strategy	Description	Timeline	Progress Measure	Key Partners	City Resources				
Bicyc	Bicyclist and Pedestrian									
D.1	Bicycle Network	Continue the development and enhancement of the bicycle network in line with the City of Cupertino's 2016 Bicycle Transportation Plan.	Ongoing	Lane miles of low-stress bicycle facilities installed	Department of Public Works	High				
D.2	Pedestrian Crossing	Install or enhance pedestrian crossing features along the High-Injury Network (HIN).	Medium- Term	Number of upgraded crossings	Department of Public Works	High				
D.3	Turning Vehicles	Complete projects that enhance bicycle and pedestrian safety with regard to turning vehicles at intersections.	Long- Term	Number of projects that have been implemented	Department of Public Works	High				
Chilo	Iren and Seniors									
D.4	High- Visibility Crosswalk	Install high-visibility crosswalks in proximity to schools.	Medium- Term	Number of crosswalks near schools that have been designated as "high visibility."	Department of Public Works	Medium				
D.5	Senior Awareness	Create an educational campaign targeting drivers to enhance safety for pedestrians aged 60 and above.	Medium- Term	Monitor collision data	City Manager's Office, AARP, Library and Community Services, Senior Center	Medium				
D.6	Traffic Education for Safe Routes to School	Organize traffic safety classes for both students and parents.	Medium- Term	Number of individuals reached or impacted.	School Districts, Department of Public Works	Medium				



TRANSPORTATION TECHNOLOGY

The technology related to transportation is evolving rapidly. From smart phone apps to regional infrastructure, the trend of creating "smart cities" extends strongly through this spectrum and into the realm of transportation. Some broad areas are offered:

Intersections represent the greatest challenge for vulnerable roadway users. Technology assistance can include:

- Bicycle Detection, Pedestrian Detection
- Wayfinding and Orientation assistance devices for blind and visually impaired persons
- Accessible Pedestrian Signals with custom speech messages (not tones, chirps, percussive sounds, etc.) for walk and flashing don't walk; countdown displays; leading pedestrian intervals (LPIs)

In the event of a crash, law enforcement personnel are exposed to the risks of active traffic while investigating the crash scene. A fatal crash results in crime scene protocols, which require longer and more detailed investigation, resulting itn even greater exposure to moving vehicular traffic hazards.

- Deploy next generation emergency vehicle preemption to reduce response times and increase safety.
- Provide technology and training for officers to better record and preserve crash details and site evidence.
- Employ dynamic traffic rerouting strategies to minimize exposure to moving traffic.

Analysis should not be just reactive to documented crashes. Technology can provide a proactive view.

- Deploy automated speed data collection technology to assess speeding patterns and conduct frequent road safety audits based on findings.
- Enhance signal system software and equipment to detect red light running and use data for enforcement and engineering.
- Implement Near-Miss Traffic Incident Identification Systems that monitor for patterns and frequency of near-miss collisions within signalized intersections.

The City of Cupertino should take a leadership role in changing the characteristics of the vehicles traveling along our streets.

 Require that all new vehicles added to the City fleet beginning in 2040 have the latest crash reduction technology such as lane departure warning, forward crash avoidance sensors, school zone approach warnings, and other built-in safety equipment.

The City of Cupertino should take a leadership role in changing the characteristics of the vehicles traveling along our streets.

- Require that all new vehicles added to the City fleet beginning in 2040 have the latest crash reduction technology such as lane departure warning, forward crash avoidance sensors, school zone approach warnings, and other built-in safety equipment.
- Right-size city-owned vehicles by updating vehicle purchasing standards to ensure City phases smaller vehicles with the latest crash reduction and safety technology into its fleet where possible.
- Equip all City fleet vehicles with safety related devices, designs, and technology that record and report dangerous driving behaviors.

Actively partner with VTA to improve safety for transit patrons:

- Evaluate opportunities to expand existing and/or implement new transit priority treatments.
- Implement new transit vehicle engineering principles (such as rear-of-vehicle chevrons, right-side illumination during turns, and lane departure technology) to reduce collisions.
- Provide protected crossings for transit patron to cross streets to reach transit stops. Partner for the funding of design, installation, and maintenance of such devices as RRFBs and PHBs.

Getting people and goods and services to their ultimate destination requires a fine-grained approach in the urban landscape. Where these modes and services can be automated to minimize the risk of mistakes results in a safer environment. This can be accomplished through:

- Autonomous Vehicles, Micro mobility, Drones
- Vehicle-to-Vehicle (V2V) and Vehicle-to Infrastructure (V2I) interconnection and interaction
- Continue to work with tech companies and organizations to pioneer autonomous vehicle testing and adoption to improve safety.
- Enact ordinances and enabling legislation that balance the needs of technology service providers and societal expectations.

EDUCATIONAL PROGRAMS

The establishment of a Vision Zero policy should not be the end of the discussion. Continued community focus requires ongoing education and encouragement. For some, the answer to the question of what Vision Zero means to them personally or collectively requires an ongoing discussion. These suggested events and programs can help to continue the discussion and empower people to put voice to what they may feel or are perceiving as they travel Cupertino's streets.

SAFE ROUTES TO SCHOOL

Safe Routes to School is a movement that aims to make it safer and easier for students to walk and bike to school. The first federally funded Safe Routes to School program was created in 2005. Safe Routes to School programs have benefited more than 14,000 schools in all 50 states. And the demand continues to grow, especially low-income communities, communities of color, and rural communities, where it is hard for anyone to safely and conveniently walk, bicycle, or get physical activity. The most successful Safe Routes to School programs incorporate the Six E's: evaluation, education, encouragement, engineering, engagement, and equity. At the regional and state level, Safe Routes to School practitioners work to find new funding and ensure proper spending of existing funding for Safe Routes to School. And at the federal level, the Safe Routes Partnership and its allies maintain a steady voice for policy and funding support in Washington and provide a source of expert help, ideas, and resources for leaders at all levels.

The City of Cupertino currently has a Safe Routes to School partnership between City staff and community partners, including: Cupertino Union School District, Fremont Union High School District, Walk-Bike Cupertino, and Silicon Valley Bicycle Coalition. More information can be found at https://www.cupertino.org/our-city/departments/public-works/transportation-mobility/safe-routes-2-school

AMERICANS WITH DISABILITIES ACT ENGAGEMENT

In Cupertino, accessibility for people with disabilities remains a significant challenge. Traveling independently is hindered by various factors like missing sidewalks, damaged routes, and confusing traffic signals. These issues often compel individuals to forgo independent travel entirely. Collaborations with national organizations like AARP, Lighthouse for the Blind, ADAPT, and others present opportunities to partner with communities, share expertise, and enhance awareness.

Events that simulate disabilities, such as blindfolded experiences or wheelchair navigation along busy streets, offer invaluable perspectives. These initiatives foster understanding and inclusivity by allowing participants to grasp the daily obstacles faced by those with disabilities. Similarly, walking with gait restraints provides insight into the needs of individuals with ambulatory disabilities.

Proactively involving marginalized groups in planning and engineering processes is crucial. Understanding the needs and perceptions of people with disabilities leads to better planning, programming, and design for ADA (Americans with Disabilities Act) improvements.

The introduction of the Public Right of Way Accessibility Guidelines (PROWAG) Final Rule in September 2023 marks a significant step. It aims to ensure that pedestrian facilities within the public right-of-way are accessible and usable for people with disabilities. Despite ongoing efforts, pedestrians with disabilities across the United States still encounter substantial challenges due to inaccessible sidewalks, crosswalks, and other pedestrian facilities.

PROWAG introduces two empowering aspects for ADA planning and design practitioners:

It allows the use of alternative designs, products, or technologies that offer equal or better accessibility than the guidelines' requirements (R102.1 ADA-Covered Facilities and Equivalent Facilitation).

It mandates compliance with requirements to the maximum extent feasible in cases where existing physical constraints make full compliance technically infeasible (R202.3 Existing Physical Constraints).

Constructive partnerships with ADA advocates and interest groups foster consensus and proactive improvements. This collaborative approach ensures that efforts align with the context and are implemented with mutual trust and belief in their effectiveness. For further information, refer to https://www.access-board.gov/prowag/.

WALKING/CYCLING/TRANSIT FIELD DAYS

These events take the form of activities like "Ride Your Bike to Work Day", "Walk Your Child to School Day", or "Take the Bus to Work Day". They encourage people to consider traveling by other modes than driving. What also happens is that the challenges of these other modes become apparent, especially where such travel feels uncomfortable or unsafe. Other events can include community walking or cycling assessments. Led by a knowledgeable and seasoned practitioner, groups walk or cycle around their community and identify and document deficiencies and challenges of the built environment. These events can result in written reports and presentations to owning jurisdictions and elected officials.

COMMUNITY WALKING AUDITS

A walk audit is an assessment of the pedestrian safety, accessibility, and comfort of a particular area. In addition to documenting specific issues and engaging the community in advocating for improvements, walk audits can be most effective when public officials and community members of varying backgrounds, ages and abilities are intentionally invited and welcomed along so they can experience and react to the conditions directly.

The Walk2Connect program of America Walks helps to build a more human and connected world by empowering individuals, community groups, and businesses to experience the benefits of person-to-person, shoulder-to-shoulder connection – what is called "life at 3 mph." Rooted in the simple act of walking, Walk2Connect grows the walking movement by inviting communities down pathways toward sustained communal health and stronger community relationships.

Some suggestions for success include:

- SET SOME GOALS Decide what you want to accomplish
- PICK YOUR PLACE Choose the route carefully, scout it ahead of time, and make sure everyone will be safe
- GRAB A GEAR Bring along clipboards, printed guides, and pens, as well as a tape measure and a camera
- BE UNIVERSAL Before starting, remind everyone to prioritize safety and to imagine a small child or a person with a disability on this walk (a great tool is to bring a stroller to Identify mobility)
- TAKE PAUSE Stop every few blocks to analyze the conditions, make notes, and take photos
- KEEP IT SHORT Don't make it too long; a one mile walk audit can easily last an hour with stops for discussion
- CURATE YOUR CREW Identify participants from the neighborhood and others whom you
 want to recruit as advocates
- BRING IN LOCAL LEADERS Invite one or two public officials such as planners, engineers or City Council members
- USE TOOLS Choose a specific guide such as the AARP Walk Audit Tool Kit and send it to participants in advance
- CHAT AND ASSESS At the end, ask everyone to share their "take-aways"

More information can be discovered at https://americawalks.org/.

MEDICAL SERVICES PROVIDERS

Communities aiming for Vision Zero policies should partner with local healthcare and emergency services. These entities witness firsthand the impact of traffic incidents and hold valuable data, such as anonymized emergency room visit records. These records reveal unreported crash locations and details that can guide community engagement and educational initiatives to enhance traffic safety.

For instance, the collaboration between Austin, Texas, and Dell Children's Hospital showcased the power of such partnerships. Dell Children's provided GIS-based crash data, including heat maps of motor vehicle, bike, and pedestrian incidents seen in their emergency room. This data uncovered unreported crashes, especially in lower socioeconomic areas and communities of color. It highlighted incidents involving intoxicated individuals and revealed details like bike helmet usage in cyclist crashes and child seat information in motor vehicle incidents involving children.

This partnership enabled targeted educational efforts, distribution of free safety gear, and improvements in traffic signal operations, sidewalks, and pedestrian facilities based on crash data. Additionally, it aided in directing traffic enforcement actions, investigating overserving in drinking establishments, and identifying areas needing better safety measures.

IMPROVING ACCESS TO TRANSIT

The Federal Transit Administration (FTA) offers programs and funding opportunities to enhance the understanding and need for effective public transit. For example, their Enhanced Mobility of Seniors & Individuals with Disabilities - Section 5310 program provides formula funding to states and designated recipients to meet the transportation needs of older adults and people with disabilities when the transportation service provided is unavailable, insufficient, or inappropriate to meeting these needs. The program aims to improve mobility for older adults and people with disabilities by removing barriers to transportation service and expanding transportation mobility options. More information is available at https://www.transit.dot.gov/.

Another resource is National Alliance of Public Transportation Advocates (NAPTA), a national organization representing grassroots transit coalitions, grassroots transit rider organizations and advocates that support increasing investment in public transportation. Their objectives are:

- To create a diverse, committed, and visible national alliance of local public transit coalitions.
- To generate a heightened level of advocacy through constituent visits, calls, e-mails, and letters
 at necessary and appropriate times in the congressional decision-making process.
- To link local transit coalitions with new advocacy tools and resources.

NAPTA supports the Transit-Walkability Collaborative, which consists of national, state-level, and local leaders in the walkability and public transit advocacy movements who recognize the synergies between these two transportation modes and the benefits of collaboration.

Learn about NAPTA at https://www.publictransportation.org/napta/.



TRAFFIC ENFORCEMENT PROGRAMS

Traffic regulations are in place to establish a sense of order and guarantee the safety of all individuals navigating Cupertino. Promoting compliance with these road rules will enable law enforcement to foster secure and inviting streets within the City. These suggested traffic enforcement strategies and programs will help keep the City of Cupertino's streets safe.

HIGH VISIBILITY ENFORCEMENT

High-visibility enforcement is a multifaceted approach to law enforcement that captures the public's attention by employing highly visible patrols, such as checkpoints, saturation patrols, or message boards. The California Office of Traffic Safety (OTS) offers three grant funding sources to support the California Highway Patrol (CHP) in their efforts to enhance high-visibility enforcement. The primary objective of the Get Education and Ride Safe III (GEARS III) grant is to decrease the number of motorcycle-related collisions resulting in killed or seriously injured (KSI) individuals. The Safer Highways Statewide grant aims to reduce the number of KSI collisions involving alcohol. Lastly, the Regulate Aggressive Driving and Reduce Speed V (RADARS V) grant is targeted at lowering the number of victims killed or injured in crashes caused by factors like speeding, improper turning, driving on the wrong side of the road, or reckless driving.

The fundamental purpose of high-visibility enforcement is to encourage voluntary adherence to traffic laws, and according to research conducted by the National Highway Traffic Safety Administration (NHTSA), it stands out as one of the most effective strategies for improving safety outcomes.⁶

Important to note that traditional traffic law enforcement methods have led to concerns of racial profiling, police violence, and negative impacts on communities of color. According to the US Department of Justice, Black and Hispanic individuals face a higher likelihood of experiencing police force during stops compared to white individuals. In response, cities are transitioning to equity-focused approaches that prioritize safety for all, targeting the most dangerous reckless behaviors while addressing enforcement disparities. This shift involves various strategies, including implementing fairer fine structures and analyzing demographic data in traffic citations.

Richard, C. M., Magee, K., Bacon-Abdelmoteleb, P., & Brown, J. L. (2018). Countermeasures That Work: A Highway Safety Countermeasure Guide For State Highway Safety Offices, 2017 (No. DOT HS 812 478). United States. Department of Transportation. National Highway Traffic Safety Administration. https://www.nhtsa.gov/sites/nhtsa.gov/files/documents/812478_countermeasures-that-work-a-highway-safety-countermeasures-guide-.pdf. Accessed February 14, 2022.

TRAFFIC VIOLATORS SCHOOL

In numerous jurisdictions, drivers who have accumulated a specific number of demerit points on their driver's licenses may be offered the opportunity to enroll in Traffic Violator School as a means to reduce their punishment. Typically, upon successful completion of Traffic Violator School, their traffic offenses are dismissed or expunged from their driving records.

Negotiated plea agreements are an indispensable component of a well-functioning and efficient court system. Nevertheless, these agreements can lead to the reduction or elimination of penalties for offenders, such as in cases where a driver is permitted to avoid a suspension of their driver's license by attending Traffic Violator School.

RED LIGHT VIOLATION CAMERAS

Cities employ red light cameras as a means of upholding traffic light regulations by identifying and penalizing drivers who disregard them. These cameras operate by capturing multiple images of motorists who disobey red signals at intersections. In coordination with the traffic signals, these cameras detect and photograph drivers who fail to come to a halt when the light turns red, subsequently issuing a ticket to the vehicle's owner through the mail. To gain a comprehensive understanding of red light cameras, it is essential to explore their purpose, the regulations governing their use, and differentiate them from other types of traffic cameras.

Red light cameras, which function as automated enforcement systems, are deployed by law enforcement to oversee intersections equipped with traffic signals. These cameras are positioned to monitor vehicles as they traverse these intersections, particularly when the traffic signal indicates a red light. According to the National Conference of State Legislatures (NCSL), nearly 350 municipalities across the United States employ red light cameras, though as of June 2023, eight states have prohibited their use.

The significance of red light cameras in enhancing road safety becomes evident when considering the statistics provided by the Insurance Institute for Highway Safety (IIHS). In 2021, there were 1,109 fatalities and 127,000 injuries resulting from crashes involving red light violations. However, the IIHS also highlights a positive impact, reporting a 21% reduction in fatal red light running crash rates in large cities where red light camera enforcement has been implemented. These cameras play a vital role in curbing dangerous driving behaviors and contributing to the overall safety of road users.

TRAFFIC SAFETY DIVERSION PROGRAM

Design a traffic safety diversion program specifically for bicycle and pedestrian traffic violations, with the primary goal of facilitating access to safety courses and programs centered on biking and walking. The program would provide a way for people who bike and walk to remove or reduce a traffic violation fine while also learning pedestrian and bicycle laws and safe walking and riding skills.

PUBLICIZED SOBRIETY CHECKPOINTS

Sobriety checkpoints are established by law enforcement officers to inspect vehicles for signs of driver impairment. These checkpoints can involve either stopping every vehicle passing through or stopping vehicles at predefined intervals, such as every third or tenth vehicle. The fundamental goal of these checkpoints is to discourage individuals from driving under the influence by heightening the perceived likelihood of encountering law enforcement and facing arrest. To achieve this objective, it is essential for sobriety checkpoints to be conspicuously positioned, widely advertised, and consistently carried out as an integral component of an ongoing sobriety checkpoint initiative.

HIGH VISIBILITY SATURATION PATROLS

A saturation patrol, which can also be referred to as a blanket patrol or a dedicated DWI patrol, involves a substantial contingent of law enforcement officers (LEOs) conducting surveillance within a designated region with the aim of identifying impaired drivers. Typically, these patrols are scheduled for periods and locations where incidents of impaired driving-related crashes frequently transpire. Similar to well-publicized sobriety checkpoint initiatives, the primary objective of widely announced saturation patrol programs is to discourage individuals from driving under the influence by elevating the perceived likelihood of being apprehended. Therefore, it is crucial to extensively promote and regularly carry out saturation patrols as part of an ongoing program dedicated to this purpose.



PARTNERSHIP

The City of Cupertino will require partnerships to increase the efficacy of the Vision Zero Action Plan. Several strategies have been identified below. As conditions and strategies evolve, the strategies and supporting elements will evolve as well.

COLLABORATION WITH NEARBY CITIES

Partner with neighboring cities to advocate and engage with the State Legislature and the Governor to pass legislation enabling the use of speed cameras throughout the State of California. This legislative change will allow Cupertino to enhance the enforcement of traffic safety laws through the use of cameras.

PUBLIC HEALTH AND MEDICAL INSTITUTION

Establish partnerships with local public health organizations, hospitals, and trauma centers to integrate crash data with health outcome information. This data linkage will provide a more comprehensive understanding of the impact of crashes and will support evidence-based solutions in Cupertino's Vision Zero initiatives.

PRIVATE SECTOR ENGAGEMENT

Collaborate with private sector entities, including businesses heavily reliant on Cupertino's streets, such as delivery companies and transportation network companies (TNCs). This partnership will ensure that private companies actively contribute to Vision Zero efforts and prioritize street safety in their operations.

ADVOCACY FOR SAFER DELIVERY VEHICLES

Collaboratively pursue local and state regulations that mandate the use of smaller, safer delivery vehicles in urban environments. Cupertino can work with partner cities and organizations to promote the adoption of these regulations where appropriate.

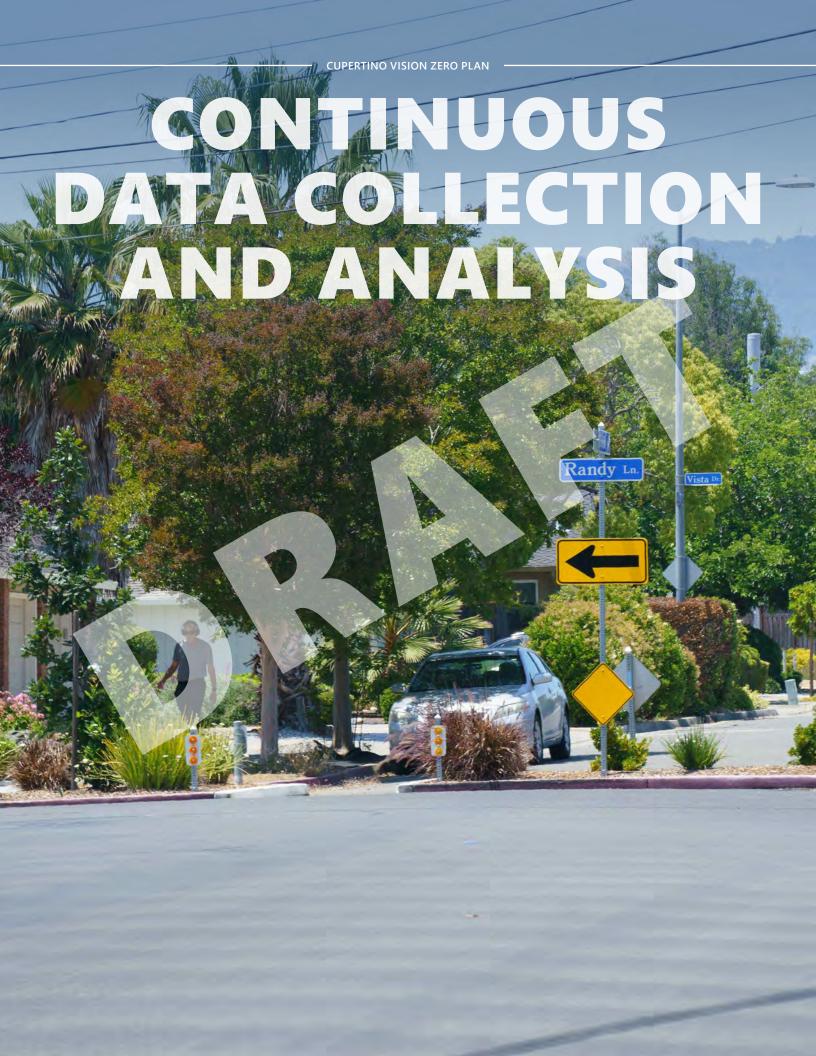
TRAFFIC SAFETY EDUCATION IN SCHOOLS

Work with the State Department of Education to integrate traffic safety education into school curriculums across Cupertino. This initiative aims to educate and raise awareness among students about the importance of safe road behaviors.

COMMUNITY AND SCHOOL AMBASSADOR PROGRAMS

Launch community and school-based outreach programs in Cupertino. Utilize resources available on Cupertino's Vision Zero website to create materials and activities that increase awareness and engagement in preventing future injury crashes. These programs will involve local communities and schools in promoting road safety within the city.

By adapting these strategies, the City of Cupertino can enhance the efficacy of its Vision Zero plan, fostering a safer and more secure environment for its residents.



CONTINUOUS DATA COLLECTION AND ANALYSIS

Achieving the goal of eradicating traffic fatalities requires a deep understanding of the locations, timing, and causes of collisions and injuries leading to deaths, along with a proactive response to the latest incidents and emerging patterns. The city will introduce tools to enhance its comprehension of road safety and embed responsiveness within the system.

1. Annual Collision Analysis and Reporting

Perform and compile an annual collision assessment report, which involves creating collision profiles and comparison of various time periods to enhance the identification of trends and progress toward Vision Zero. This analysis should incorporate accessible demographic and environmental justice data as well. Periodic updates to the High-Injury Network (HIN) and Action Plan are necessary to align with the progress achieved and to formulate new strategies and countermeasures if the existing actions fail to yield the intended outcomes.

2. Online Dashboard Platform

An online dashboard and analytical tool should be developed to collect and analyze collision data, leveraging technology to better understand core collision factors and surrogate safety measures, including collecting automated speed data and conducting near-miss analysis, identifying hard braking hotspots, and pinpointing hazard/community feedback clusters.

3. High Injury Network Map

In the City of Cupertino, more than 72% of the severe injuries and fatal crashes occur on just seven city streets. The Cupertino Vision Zero Action Plan leverages a decade's worth of collision data to pinpoint the areas where the most substantial investments in engineering, education, and enforcement can yield the most significant reductions in fatalities and severe injuries. By mapping these high-risk corridors using the most current data, the City can identify critical areas of concern and use up-to-date information to plan and prioritize projects effectively.

4. Complete Injury and Fatality Reporting

A considerable portion of pedestrian and cyclist injuries go unrecorded in police statistics, leading to an inadequate depiction of street safety. Collaborating with city partners, the local hospitals and trauma centers can establish a holistic system for the precise, well-coordinated, and prompt surveillance of injuries and fatalities. This comprehensive approach is essential for prioritizing safety projects, conducting assessments, and delivering accurate reports.



VISION ZERO & GENERAL PLAN UPDATE

Cupertino's Community Vision 2040, which is also their state-mandated General Plan, broaches the concept of safer streets in two primary sections: Chapter 1 – Introduction and Chapter 5 – Mobility. Yet the language used is not as empowering as that of the tenants of Vision Zero. Additionally, other chapters which generally would not weigh in on the discussion of Vision Zero should be revised to add their voices to the adoption and integration of Vision Zero into all aspects of the General Plan.

CHAPTER 1 – INTRODUCTION

This chapter presents the now-dated notion that safety and mobility are exclusive and not inclusive topics. The Purpose of Community Vision 2040 states, "Due to the breadth of topics covered in Community Vision 2040, conflicts between mutually-desirable goals are inevitable. For instance, increased automobile mobility may conflict with a safe, walkable community." The last sentence is written with the premise that crashes are inevitable and thus acceptable. It also lends to the notion that mobility is defined as moving motor vehicles at speed with little or no delay and that the needs of motorists have priority over all other roadway users. It is suggested the sentence be removed from future versions of the General Plan.

The fourth guiding principle, Enhance Mobility, says, "Ensure the efficient and safe movement of cars, trucks, transit, pedestrians, bicyclists and disabled persons throughout Cupertino in order to fully accommodate Cupertino's residents, workers, visitors and students of all ages and abilities." Again, efficiency is placed ahead of safety, and the listing of the modes of travel has vulnerable roadway users at the end. If written with Vision Zero as an overarching tenant, it might instead read, "Ensure the safe and efficient movement of people and goods with the specific goal of eliminating all fatal and serious injury crashes by 2040 regardless of age, ability, identity, or mode choice. Special attention should be given to the needs of vulnerable roadway users such as pedestrians, cyclists, children and the elderly, and people with disabilities to travel safely and efficiently along and across Cupertino's streets." The term "efficiently" is used deliberately as non-motorists are susceptible to adverse impacts from weather, lack of shade and shelter, presence of barriers and obstacles, lack of accommodating travel facilities, lack of protected street crossings, presence of moderate to high volumes of vehicular traffic traveling at speed, and excessive travel distances relative to mode and ability.

On the other hand, the seventh guiding principle, Ensure Attractive Community Design, and the eighth guiding principle, Embrace Diversity, both lend themselves to supporting Vision Zero. Communities are places where people live, work, play, learn, and heal. Community planning and design follows from societal values of environment, economy, equity, and livability. Livability includes making places that fit the needs and aspirations of residents. The design of communities is influenced by the design of its streets. Streets that are planned and designed so that they feel safe and comfortable, so that they are interesting, and so that they are attractive, will be places where people want to be.

Such streets, which can be termed as "livable" or "walkable" or "people-centric", become desirable, which translates into economic benefits for the community. There is economic value in quality place making that feels safe and is safe as the design of streets directly impacts the character of the surrounding community. Vision Zero enables this to occur.

CHAPTER 3 – LAND USE AND COMMUNITY DESIGN

The introduction to this chapter identifies itself as the keystone of Community Vision 2040. It provides "an overall policy context for future physical change. It deals with the issues of future growth and helps define the desired balance among social, environmental and economic considerations, while enhancing quality of life in the community." Further, this chapter "aspires to ... create a vibrant community with inviting streets and public spaces [and] preserved, connected and walkable neighborhoods...." To achieve this requires that streets are perceived to feel safe and be safe. Thus Vision Zero should be included and referenced throughout this chapter.



Figure 16: Midblock Crossing

For example, in the Looking Forward section, the third guiding principle is Integrating Community Health into Land Use Planning. The principle directs the integration of "land use and transportation networks to reduce reliance on auto usage and improving alternative choices for transportation by focusing growth and change in corridors that support all modes of transit, providing neighborhoods with easy access to schools, parks and neighborhood centers." The citywide goal LU-1 states, "Create a balanced community with a mix of land uses that supports thriving businesses, all modes of

transportation, complete neighborhoods and a healthy community." This goal lends itself well to support Vision Zero and text to that effect should be included, particularly in Policy LU-1.1: Land Use and Transportation.

The nexus between public health and street safety is well documented. If a street is perceived as being unsafe, then it would not lend itself to travel by modes other than motor vehicles, which reduces physical activity, increases instances of obesity, diabetes, and cardiovascular disease. Air quality is also reduced, resulting in more respiratory illnesses particularly for children and those who have underlying medical conditions. An inability to walk or cycle to a store that offers healthy choices of foods is also curtailed, further exacerbating obesity and poor dietary habits that lead to long-term health impacts.

CHAPTER 5 – MOBILITY ELEMENT

The purpose for this chapter is to implement strategies that make alternative modes of transportation attractive choices. This will help reduce strain on the automobile network and improve health and quality of life for Cupertino residents and businesses.

Mobility is defined as the safe and efficient movement of people and goods through a transportation system; it is not simply moving cars at speed. Yet, many of our transportation decisions are made with the intent of reducing travel time for motorists, sometimes at the expense

of other roadway users. Our streets are designed to a "design speed" that in practice produces vehicular speeds that are above the posted speed limit. A better approach for Vision Zero is to adopt a methodology where a "desired operating speed" is determined given the context and the expectations of the public. Then, designers can choose geometric design parameters to achieve this speed. As a result, the desired operating speed is the design speed and is also equal to the speed limit. Speed studies conducted following completion of the project would then confirm that the vast majority of motorists are in reasonable conformance with these values. This chapter should speak to adopting designs that result in lower speeds; simply lowering the speed limit and conducting targeted enforcement does not result in a sustained change in driver behavior.

Another strategy to consider is to design our communities and their streets to be to more of a people-centric scale instead of an auto-centric scale. Typical walkable "blocks" are in the range of 250 to 300 feet in length. Superblocks, where the distance between intersections is far greater than this, curtail walking and cycling and reinforce the need to travel by motor vehicle. As opposed to following a prescriptive numerical based decision process, protected crossings should be installed based on context and the application of engineering judgement geared towards the Vision Zero tenants. It is recommended that future text strongly encourages and supports this approach.

CHAPTER 6 – ENVIRONMENTAL RESOURCES AND SUSTAINABILITY

The topic of environmental resources and sustainability may initially not seem to have a nexus to Vision Zero. However, the introduction states, "... cities need to identify ways to protect and restore natural ecosystems through land use decisions, building designs and resource conservation. This entails that community guardians and planners apply the principals of sustainability, only achieved by embedding social equity, economic and the environmental considerations throughout the development process, including mobility, infrastructure, water and energy use, buildings, streetscape and landscape, and land use planning."

Sustainability is planning and designing communities such that present needs are met without compromising the ability to meet future needs. Previously stated was the fact that community planning and design based on a desire to be sustainable follows from societal values of environment, economy, equity and livability. Thus, to plan, design, and construct streets and intersections to be people-centric places contributes to sustainability which can enhance community resiliency. A strategy for "softening" our streets is to incorporate landscaping, streetscaping, rain gardens, and bioswales. Reducing impervious cover, creating microclimates via shade, and capturing previously untreated storm water runoff and exposing it to bioremediation all can be included in geometric street features that promote Vision Zero. Language that speaks to this aspect should be included in future versions of this chapter.

CHAPTER 7 – HEALTH AND SAFETY

The introduction to this chapter states that Cupertino "is committed to maintaining a high level of preparedness to protect the community from risks to life, property and the environment associated with both natural and human-caused disasters and hazards." Yet, it is written with police, fire and EMS as the target audience. Here, the material should be expanded to include traffic crashes and the tenants of Vision Zero. As an example, in 1996 the City of Carmel, Indiana adopted the policy to replace all of its traffic signals with modern roundabouts.

Today, Carmel has over 140 roundabouts. Their crash rate is far lower than neighboring Indianapolis. As a result of not having to respond to vehicle crashes, Carmel made the business decision several years ago to eliminate the fire department's heavy rescue vehicle from the fleet. The firefighters assigned to that piece of equipment were reassigned to other areas of need. Carmel still has interjurisdictional agreements with neighboring fire and life safety agencies for heavy rescue support, but the savings to the fire department's operating budget was significant and a testament to the commitment to Vision Zero.

This chapter states, "In the future, more emphasis will be placed on sustainable approaches to community health and safety, including crime and fire prevention through design, improved use of technology, management of hazardous materials and improved disaster planning." Vision Zero and the proven safety countermeasures as listed by FHWA should be added to this list.



HOW TO GET INVOLVED

Promoting traffic safety and reducing fatalities and serious injuries is a vital goal for any community, and it requires a collective effort from both city officials and the residents. Here are some ways in which the community can contribute to achieving the stated goal of reducing traffic fatalities and injuries in the City of Cupertino:

TASK A DRIVING EDUCATION CLASS

Attending a driving education class is crucial for acquiring the knowledge and skills needed to be a responsible and safe driver.

PLEDGE TO NOT TEXT

Take a pledge to not text while driving to eliminate distractions and enhance road safety.

INSTALL ANTI-TEXTING SOFTWARE ON PHONE

Installing anti-texting software on cell phones can help ensure focus remains on the road, preventing dangerous texting and driving.

OBSERVE RULES OF ROAD WHEN DRIVING

Always observe the rules of the road when driving to promote a safer and more organized traffic environment.

BICYCLING ETIQUETTE

When cycling, practice proper bicycling etiquette by signaling turns, obeying traffic signals, and sharing the road courteously with other users.

BE AN ALERT PEDESTRIAN

Be an alert pedestrian by paying attention to surroundings, using designated crosswalks, and making eye contact with drivers before crossing streets.

SAFE ROUTES FOR ALL

Support the development of safe routes for all modes of transportation to encourage alternative means of travel and enhance overall road safety.







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4305 HACIENDA DR, SUITE 550 PLEASANTON, CA 94588

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