SUSTAINABLE STREETS
CITY OF SAN MATEO
Final Plan
February 2015
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The Sustainable Streets Plan provides a transformational vision for the future of San Mateo’s transportation network. We would like to acknowledge the dedication and collaborative efforts of the community, City staff and the consultant team in the development of this plan.

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The Sustainable Streets Plan articulates the future vision for San Mateo’s streets and transportation network. Its contents cover both policies and processes that help lead the City towards its community, environmental, and economic goals. Chapter 1 provides the foundation for this effort and describes the plan’s approach, process of its development, and overview of its contents.
CHAPTER 1: INTRODUCTION

Most Americans are so used to living in a transportation system that is organized around the automobile that they do not even notice the many ways in which prioritizing auto mobility affects their lives. Streets take up 22% of San Mateo’s land area (see Figure 1-1). In San Mateo and in cities across the country, most of this valuable public real estate is simply given over to automobiles. The most widely used measures of our transportation system’s performance focus on how efficiently it operates for automobiles, prizing projects that minimize congestion and travel time for drivers over those that might move more people more efficiently or increase quality of life by bringing more residences, shops, and restaurants within walking distance. Meanwhile, collisions kill tens of thousands of people on America’s roadways every year. The victims include users of all modes, but those traveling on foot or by bicycle are disproportionately represented among those sustaining severe or fatal injuries.

The picture is no different in the City of San Mateo, where everything from administrative details like the way the City classifies its streets to the way most of its streets are designed focuses on what is best for automobiles.

A city that came of age in the era of the automobile, San Mateo has its share of wide roads and high speed interchanges, and local road safety statistics reflect the trends seen nationwide.

In the face of these conditions, Americans are changing the way they live and the way they travel, led by cohorts at opposite ends of the age spectrum. Millennials are choosing to live in vibrant urban places connected to transit, and as a result, they are driving less. Seniors are aging in place in the suburbs, and as they do so, cities are considering cost-effective strategies to address their mobility needs for the years after they are no longer able to drive.

Meanwhile, technology is changing our transportation options, and it promises to further do so in the coming years. Connected devices are allowing people to meet, share, and shop without travelling across town. Carsharing, ridesharing, and online delivery services are allowing people to accomplish daily tasks without using their own vehicles. Over the coming decades, technologies have the potential to change how we get around in ways that are unimaginable today. Driverless technology and, potentially, civilian uses of drones may be just the beginning.

More immediately, change is also coming to the Peninsula’s transportation ecosystem. As increasing congestion on the region’s freeways and a lack of room or political will to expand them make it unlikely that auto travel will get any more efficient in the coming years. High Speed Rail and Caltrain Electrification will make the Peninsula rail corridor an even more integral part of the area’s mobility network.

Through this Plan, the City of San Mateo is choosing to change its 20th Century transportation system over time to create more vibrant, sustainable, comfortable, safe, and economically productive streets. San Mateo is a great place to live today, but making our transportation system work as well for pedestrians, bicyclists, and transit users as it does for automobiles will help make it an even more complete community, that is healthier, happier, and more ready to meet the challenges and opportunities of the coming decades.
PURPOSE OF THE PLAN

The Sustainable Streets Plan lays out a vision for how our streets might look in the future. They will incorporate the needs of all modes while including environmental features that help manage stormwater, clean the air, and encourage people to linger and connect. It considers the economic impact of streets and their ability to attract both residents and businesses. This plan outlines a vision for using public rights-of-way to serve all users, present and future, and lays out guidelines and policies that will help implement Sustainable Streets over time, and sets a clear implementation plan, identifying funding sources that might be able to support Sustainable Streets projects.

This plan is rooted in the concepts of Complete Streets and Green Streets. It starts with an overview of the benefits of those concepts.

A chapter outlining the Vision, Policies, and Objectives forms the core of the plan. These elements will guide the actions of all relevant City agencies and will lay the groundwork for the City’s General Plan Circulation Element. The Design Guidelines chapter helps make the concepts included in the plan operational, laying out clear guidance to planners, engineers, and developers. Finally, the Implementation Plan chapter lays out concrete steps for achieving the City’s new vision for streets over time.

Through the planning process, the project team reviewed existing conditions and policies and generated a series of concepts to support implementation of the plan. This work is included in detailed memoranda in the appendix. The most important of these supporting efforts address the following:

» Street Classification System: The way streets are classified is an important part of City policy, forming the lens through which relevant departments and agencies see streets and the basis for plans to adjust them over time. The project team examined the way the City currently classifies its streets, reviewed best practices from across the country, and created a new street classification framework that acknowledges the established connection between transportation and land use.

» Detailed Design Guidelines (Appendix H): San Mateo’s streets will not all change at once. Streets are adjusted over time, as parts of the system reach the end of their lifecycles and as development projects place new demands on parts of the network. The detailed design guidelines ensure that no matter what drives changes in the city’s street systems, adjustments will be driven by this new vision.

» Transportation System Performance Measures: Like many cities, San Mateo currently judges the transportation implications of changes in the built environment and the impact of transportation projects based on automobile level of service (LOS), which measures vehicle travel time and delay. A proposed new performance measure, vehicle miles traveled per capita, more accurately captures the scale of project effects on the transportation system as a whole. Other supporting metrics are also included.

» Transportation Demand Management (Appendix J): Cities and companies have found ways to reduce congestion and reliance on automobile

WHAT ARE COMPLETE STREETS AND GREEN STREETS?

This plan includes elements of established Complete Streets and Green Streets concepts.

Complete Streets are routinely planned, designed, operated, and maintained with the consideration of the needs and safety of all travelers along and across the entire public right-of-way, including people of all ages and abilities who are walking, driving, bicycling, using transit, traveling with mobility aids, or hauling freight.

Green Streets incorporate environmental features like trees, rain gardens, and infiltration planters to slow the course of runoff and filter it naturally before it reaches major waterways and sensitive plant and animal life.
travel through a combination of incentives and low-cost programs that help make traveling by non-auto modes cheaper, more convenient, and/or more comfortable. The project team made recommendations on the incentives and programs that might work best in San Mateo, given its proximity to many of the Bay Area’s job centers and its direct connections to high capacity transit.

**SUSTAINABLE STREETS PLAN PROCESS**

The San Mateo Sustainable Streets Plan was developed over two years through a host of meetings and working sessions with City staff, a variety of stakeholders, and the general public, in addition to many hours of technical analysis and design work.

The technical work began reviewing the current context of San Mateo streets. The project team conducted a detailed examination of existing City policies, including all elements of the City code that are in any way relevant to streets. The team looked at the City’s existing street design guidelines, its street classification system, and the performance metrics it uses to measure transportation outcomes and made recommendations related to all of these items. The team also looked at existing conditions in San Mateo, examining the city’s demographic and land use context, its existing transportation system, street widths, and roadway safety statistics.

To guide the formation of the plan and set up efforts to share its underlying concepts, the project team reviewed national Sustainable Streets best practices. In addition, the team did an exhaustive literature review of the potential benefits of the interventions that are part of both concepts.

Public engagement and education were at the heart of the Sustainable Streets planning process. The project team held four community workshops. The first, facilitated in partnership with the National Complete Streets Coalition, kicked off the planning process by sharing the basic tenets of Sustainable Streets concepts and soliciting initial public input. The next three workshops further built community understanding of the ideas driving the plan and gathered input on reports and technical products as they were being developed. The community workshops were accompanied by regular meetings with community stakeholders, including a walking audit of key locations in San Mateo.

The project team gathered broader public feedback through a community survey, distributed via email to several city-administered lists. More than 600 respondents shared their thoughts on San Mateo’s existing transportation system and their attitudes toward potential transportation system changes.

Community education was a cornerstone of the planning process. To support this core element, the project team facilitated a series of monthly expert-led discussions at civic and community facilities throughout the city. The so-called Taste and Talk events covered topics including innovative ways to use streets to create vibrant public spaces, transportation and environmental planning fundamentals, the impact of parking policies, links between transportation and public health, and the economic benefits of Sustainable Streets.

Finally, the project team maintained a public website for the duration of the project. The website, www.sustainablestreetssanmateo.com, also included summaries and videos from all Taste and Talk events and a variety of other project materials and links.
BENEFITS OF SUSTAINABLE STREETS

Sustainable Streets offer wide-ranging benefits over streets designed in conventional ways. By simply making room for non-auto modes, they encourage walking, biking, and transit use, leading to a host of beneficial secondary impacts that range from better air quality to lower rates of obesity. Complete and Green Streets are also more affordable and, in some ways, easier to implement than traditional streets, and they carry economic benefits. This section offers a brief overview of the evidence of these benefits.

WALKING, BIKING AND TRANSIT

About 92% of all trips in the United States are made by automobile, and the average person spends 443 hours in a vehicle each year. To accommodate these trips, street design has traditionally prioritized vehicular traffic over other modes, which has often created an environment that is inhospitable, unattractive, and dangerous to pedestrians and bicyclists.

Complete Streets generally include a number of features that make streets safer and more inviting for walking and bicycling, and by reincorporating the needs of all road users into street design and infrastructure, they have been shown to increase rates of walking and bicycling, ensure accessibility for disabled users, and support connections to transit. Many Complete Streets projects involve enhancing sidewalks and bicycle facilities, and the National Conference of State Legislators found that installing or improving such infrastructure is the most effective policy approach for increasing active transportation. Research has shown that residents are as much as 65% more likely to walk in neighborhoods that have sidewalks, and many recent studies show significant increases in bicycling following the construction of new bicycling infrastructure.

Such improvements can also lead to increases in transit use. For example, King County Metro (Seattle, WA) found that improvements in bicycle infrastructure at and around stations led to substantial increases in bicycle ridership, and other efforts have shown similar results. Of course, linking Complete Streets to transit is not sufficient to ensure high levels of ridership. Such outcomes are also dependent on the quality of the transit service available at newly accessible stations.

While Complete Streets benefit all users, they are an especially critical lifeline for populations that are more dependent on transit, including people who are young, elderly, disabled, or in poverty. It is estimated that more than 500,000 individuals with disabilities almost never leave their homes because they do not have access to reliable public transportation options, and researchers have found that 60% of elderly and disabled residents lack sidewalks between their homes and the nearest bus stop.
Another study found that 89% of high-income neighborhoods have adequate sidewalk coverage, compared to 59% of middle-income neighborhoods and only 49% of low-income neighborhoods. Low-income communities are also one-third as likely to have grocery stores or other places to buy healthy food, which leads to residents disproportionately relying on low quality, unhealthy food at local convenience stores and restaurants. In terms of access to jobs and services, only about 25% of low- and middle-skilled jobs are accessible via public transit within 90 minutes for commuters in metropolitan areas, meaning that low-income job seekers may have to spend significant amounts of time and money to reach their jobs. Complete Streets interventions can help ameliorate the conditions that lead to these unjust outcomes.

**CONGESTION AND EMISSIONS**

Traditional street design has dictated that when vehicle congestion rises, road capacity should expand to accommodate it. However, studies have shown that capacity expansion generates demand—increasing capacity entices people to take additional or longer vehicle trips, which ultimately leads to facilities that are just as congested as they were before expansion. Figure 1-2 illustrates this dynamic, with volumes steadily increasing and leveling off near capacity over time. For example, it takes fewer than five years for additional local roadway capacity to be 90% occupied by new traffic. State highway expansions in California have also shown that new capacity will be about 70% occupied in fewer than five years. In contrast, capacity reductions,
When implemented in a context sensitive manner, can help automobiles better use latent street capacity in the surrounding area and disproportionately reduce automobile trips, encouraging people to switch to more sustainable modes. Figure 1-3 shows the former effect. Whereas high capacity streets tend to draw most traffic in an area, resulting in congestion on main routes but mostly empty nearby streets, road diets on arterials can help spread reasonable volumes across the network, reducing congestion and making more efficient use of the entire street system.

A significant share of daily trips in the United States are quite short: On urban roads, nearly 30% of trips are shorter than one mile and 50% are shorter than three miles. Distances under a mile are easily traveled by foot or bicycle, and yet 72% of these trips are taken by motor vehicles, which occupy significantly more right-of-way space than pedestrians or bikes. By making streets more inviting to bicyclists and pedestrians, especially for short trips, Complete Streets can help make more efficient use of limited available space.

Reducing vehicle trips is a primary strategy for reducing greenhouse gas (GHG) emissions because transportation accounts for 27% of national GHG emissions and 38% of California’s GHG emissions. For national GHG emissions between 1990 and 2010, transportation was responsible for 45% of the net increase, making it the single largest contributor.
Complete Streets are a valuable part of the climate change mitigation toolbox, as they enable the safer and more widespread use of nearly zero-emission modes like walking and biking and lower emission modes like transit. As an example of this potential impact, biking instead of driving for shorter trips effectively reduces emissions of carbon dioxide by over 90%, creating an overall savings of nearly one pound of CO2 for every mile. Encouraging a shift to walking or bicycling for trips shorter than a mile can effectively reduce national CO2 emissions by 12 to 22 million tons per year.

**PUBLIC HEALTH IMPACTS**

Sustainable Streets can reduce air pollution and encourage people to be more physically active. Each of these direct results can, in turn, lead to positive secondary outcomes, including lower rates of obesity, reduced rates of chronic disease infections, and increased life expectancy.

Health leaders recognize Sustainable Streets efforts as contributing to increasing physical activity by improving the built environment. When people have safe places to walk near their homes, they are more likely to meet recommended levels of physical activity. In part because their sedentary lifestyles, more than two-thirds of American adults and almost one-third of children and teens are overweight or obese and are thus at increased risk for a range of health conditions, including diabetes, heart disease, stroke, high blood pressure, high cholesterol, certain cancers, asthma, low self-esteem, reduced academic performance, and depression. Increased physical activity reduces obesity and, thus, the risk of such chronic diseases. According to Get Healthy San Mateo County, the extra walking related to using transit is estimated to save $5,500 per person in a lifetime of health-related costs.

Sustainable Streets policies promote walking, biking, and connections to transit. They can also reduce local vehicle trips and vehicle miles traveled, reducing air pollution and, with it, a host of other poor health outcomes. People who experience chronic exposure to pollution from heavy truck traffic, freeways, and other high traffic arterials face an increased risk of premature death, respiratory diseases, and chronic illnesses. Traffic-related air pollution is linked to asthma, especially among children. This is of particular concern because of the disease’s prevalence and debilitating nature. Asthma rates have reached epidemic levels: In the United States, it is now the third leading cause of hospitalization for children younger than 18. Overall, the Environmental Protection Agency estimates that illnesses related to traffic-related air pollution are responsible for more than 40,000 premature deaths annually.

Sustainable Streets policies can help reduce all of these risks. Studies show that bicycle, pedestrian, and transit infrastructure projects that result in fewer people driving and lower vehicle miles travelled (VMT) see an accompanying reduction in traffic-related air pollution.

Sustainable Streets can also improve traffic safety by reducing speeds and making drivers more aware of other roadway users. Urban arterials with Sustainable Street elements—landscaping, enhanced crosswalks, a mix of land uses, narrow lanes, multimodal facilities, posted speeds of 30 miles per hour or less—communicate to drivers that they are expected to

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**PUBLIC HEALTH AND TRANSPORTATION**

Almost 1/3 of children and adolescents, and 2/3 of adults, are overweight. Just 1/5 of American adults get the recommended amount of daily exercise.

Air pollution causes 40,000 premature deaths every year.

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**VISION ZERO**

“Vision Zero” is the simple idea that any fatalities on our roadways are unacceptable. “Human error” is a fact of life, but if we can design our streets to slow cars down and, in the process, reduce the dangers associated with vehicle travel, we can achieve this vision.
reduce their speed. These streets are associated with lower rates of vehicle collisions and pedestrian/bicyclist injuries than streets without those characteristics. By slowing traffic and improving visibility for pedestrians and bicyclists, Sustainable Streets can also decrease the severity of injuries sustained by bicyclists and pedestrians. A pedestrian hit by a vehicle traveling 20 miles per hour has a 95% chance of surviving, while a pedestrian hit by a vehicle traveling 40 miles per hour has only a 20% chance of surviving (see Figure 1-4). As a result, cities around the country are looking to reduce speeds where pedestrian and bicycles are present. Portland has reduced speeds to 20 miles per hour on many of its neighborhood streets and San Francisco has reduced it to 15 miles per hour in all school zones.

Slowing vehicle speeds is the main prerequisite for achieving one of this Plan’s central objectives, eliminating traffic-related fatalities in San Mateo. This concept, called “Vision Zero,” is only achievable if the city’s roadway network is reconfigured with Sustainable Streets principles in mind. While enforcing speed limits and other traffic laws is important, it will take physical changes that reverse years of efforts to speed up vehicle travel to truly bend the curve in the right direction. Narrowing travel-ways to make room for other modes, increasing pedestrian visibility at intersections, and adding street trees and other vegetation are all ways to remind drivers that they are operating in shared space and should slow down.

SUSTAINABILITY
Green Streets are designed to capture, slow, and treat stormwater runoff. This approach stands in contrast to the traditional approach to stormwater management that uses “grey” infrastructure, designed to expediently collect stormwater runoff from streets through a system of storm drains, pipes, culverts, and storage facilities that eventually dispose of the collected runoff in waterways or treatment facilities. Properly designed Green Streets not only manage stormwater flows and reduce pollutant levels in the water, they also provide an array of additional environmental and economic benefits. Landscaped green infrastructure elements increase biodiversity and create an opportunity for connecting urban open spaces and wildlife habitats through a Green Streets network. In addition, managing stormwater in a manner that citizens can observe — rather than a disposal process that occurs in buried pipes — provides educational benefits and connects people in urban environments with the natural environment. In this process, the perception of stormwater is transformed from a waste product into one of an important resource that sustains tree and other plant life that enrich the everyday environment.

CAPITAL AND OPERATING COSTS
Traditional storm sewer systems are costly to build, expand, upgrade, or retrofit, as well as to operate and maintain. While Green Streets infrastructure improvements on public streets do not completely eliminate the need for grey infrastructure, they are
more cost-effective, especially in areas where flooding is known to occur due to an undersized storm sewer system and in opportunity areas where future upgrades or retrofits of grey infrastructure are needed. Green Streets are also a viable solution for areas with new development, where the overall capacity of a new storm sewer system can be reduced by combining grey and green infrastructure improvements. Therefore, the amount or proportion of grey to green infrastructure that composes a city’s stormwater management system can affect the costs associated with the construction, operations and maintenance, and replacement of that system.

Rather than constructing new, full-scale underground utilities to manage stormwater, green infrastructure can help achieve the same stormwater management goals for less capital investment. While some green infrastructure projects may be more expensive to construct than conventional storm sewers, they often provide valuable economic benefits for a municipality in the long run, by reducing damage from flooding and water and air pollution, increasing land values, and making streets more attractive and safe, which can increase property values. Grey infrastructure projects do not provide the same range of benefits.

Although green infrastructure may need more frequent maintenance, provided by a broader coalition of project partners, the aggregate costs can be less than that required for grey infrastructure, for which repairs and maintenance may be less frequent but much more disruptive and likely more costly.

Green infrastructure also starts to provide immediate incremental benefits from the first rain garden or stormwater planter installed. As a result, this infrastructure lends itself to expansion over time as space and funds become available. Large-scale grey infrastructure projects, on the other hand, are often upgraded or newly constructed in larger increments. This requires major outlays at one time and a process for design and implementation that is time consuming and based on a long time horizon.

**ECONOMIC IMPACTS**

Sustainable Streets improvements can produce a range of local economic benefits, from higher property value to increases in consumer spending. The aesthetic improvements and reduced flooding that Green Streets yield has been proven to increase nearby property values. Studies show that views and access to trees and vegetation result in improved worker productivity and a $15,000 to $25,000 increase in value for nearby homes and businesses. Investments in bicycle, pedestrian, and transit infrastructure as well as urban design and landscape improvements also correlate with increased property values for nearby residential, office, and commercial uses. This effect has been documented in San Mateo itself.
Studies have shown that neighborhoods with bicycle-, pedestrian-, and transit-friendly environments are much more likely to have high business occupancy rates. Numerous other studies have also documented a correlation between Sustainable Streets investments and increases in consumer spending. Finally, Complete Streets give people more transportation choices, which can allow them to save significantly on transportation expenses. San Mateo can reasonably expect to reduce vehicle miles driven per weekday by 29,615 trips (or 7.7 million per year) if the Bicycle Master Plan is built out. ¹ This would significantly reduce costs to individuals through travel time savings, lower fuel costs, and other auto ownership-related costs.

OVERVIEW OF THE PLAN

The San Mateo Sustainable Streets Plan is organized around a vision for Sustainable Streets and a set of goals, objectives, and policies, detailed in Chapter 2. Chapter 3 gives an overview of the principles that underpin the detailed Design Guidelines included as Appendix H. Chapter 4 provides a detailed plan for implementing the Sustainable Streets Plan vision over the next 20 years. Chapter 5 concludes the plan and looks ahead, noting what it will take to ensure that San Mateo's streets equitably serve all users.

The appendices include more detailed guidance related to aspects of the Plan, as well as the underlying technical work and findings from community engagement activities. They were developed as a series of interim memos throughout the two-year life of the planning process. The appendices are:

» Appendix A – National Best Practices: Gives an overview of basic Sustainable Streets concepts and includes detailed case studies that exemplify different aspects of the two concepts and their effective implementation.

» Appendix B – Local Conditions: Includes a detailed overview of San Mateo’s existing transportation system, an analysis of roadway safety data, a summary of relevant past plans and municipal code sections, a discussion of findings from a walking audit of key streets and intersections, and a brief needs analysis. This appendix also discusses existing and potential future transportation system evaluation processes and metrics.

» Appendix C – Benefits Analysis: Provides a detailed literature review sharing the potential benefits of Sustainable Streets strategies.

» Appendix D – Street Classifications: Describes San Mateo’s current street classification system and shares a potential new classification system.

» Appendix E – Street Widths: Analyzes the widths of San Mateo’s streets and compares widths and functional characteristics to the existing street classification system.

» Appendix F – Level of Service Analysis: Gives a concise overview of the City’s main transportation system performance metric, automobile level of service (LOS), and notes the metric’s shortcomings. Also provides an overview of a few peer of a few peer cities’ alternative approaches, exploring new metrics, and analyzing five parts of San Mateo’s street network with the existing and potential new metrics in mind.

» Appendix G – Community Survey Results: Details the results of a community survey conducted to understand resident and worker attitudes toward and experiences with San Mateo’s street network and potential improvements.

» Appendix H – Design Guidelines: Shares detailed street design guidance for City agencies, private developers, and contractors working on San Mateo streets. The guidelines are designed to ensure that Sustainable Streets strategies are implemented incrementally over the course of the next several decades in a context-sensitive way.

» Appendix I – Recommended Projects: Provides plan view drawings of the four focus areas as well as a photo simulation of the El Camino Real vision at 3rd Avenue.

» Appendix J – Transportation Demand Management Plan: Gives an overview of relevant current TDM efforts in San Mateo and describes how they might be expanded to cover the whole city, to reduce single-occupant vehicle travel over time.

» Appendix K – Funding Opportunities: Shares detailed descriptions of local, state, and federal programs that might be able to fund Sustainable Streets projects.

¹ As referenced from the San Mateo Bicycle Master Plan (2011)
CHAPTER 2
VISION, GOALS, OBJECTIVES & POLICIES
To ensure a solid foundation for the technical guidance within this plan, Chapter 2 clearly defines the City’s aspirations for a safe, sustainable, and healthy transportation network. These visions, goals, objectives and policies establish the direction for the remaining guidance in the plan.
CHAPTER 2: **VISION, GOALS, OBJECTIVES & POLICIES**

**VISION**

The City of San Mateo envisions a transportation system that is sustainable, safe, and healthy and supports a sense of community and active living, where walking, bicycling, and transit are integral parts of daily life. Furthermore, the City envisions integrating Complete Streets and Green Streets into street designs that are comfortable and convenient for the breadth of travel choices and that improve water quality and reduce other environmental impacts, while creating more vital places that fit with desired community character.

Complete Streets are routinely planned, designed, operated, and maintained with the consideration of the needs and safety of all travelers along and across the entire public right of way. This includes people of all ages and abilities who are walking, bicycling, using transit, traveling with mobility aids, driving vehicles, and driving commercial freight. Green Streets are designed to take further advantage of landscape and urban design elements that enhance the pedestrian experience and also capture, slow, treat, and potentially infiltrate stormwater runoff, while providing an array of additional environmental and economic benefits.

**GOALS, OBJECTIVES AND POLICIES**

**GOAL 1: SAFETY AND VISION ZERO**

To ensure that human life and health are paramount and take priority over mobility and other road traffic system objectives, improve safety through the design and maintenance of sidewalks, streets, intersections, and other roadway improvements such as signage, lighting, and landscaping, as well as best practice programs to enhance and improve the overall safety.

**Objective 1.A**

Eliminate pedestrian- and bicycle-related fatalities and reduce the number of non-fatal pedestrian- and bicycle-related collisions by 50% from 2010 levels by 2020.

**Policy 1.A.1**

Annually review collision data, including causes, to implement ongoing improvements at intersections and throughout the transportation network.

**Policy 1.A.2**

Identify opportunities to reduce pedestrian and bicyclist risk by reducing crossing distances and providing protected facilities.

**Policy 1.A.3**

Develop and implement an enforcement program to encourage safe travel behavior and to reduce aggressive and/or negligent behavior among drivers, bicyclists, and pedestrians.

**Objective 1.B**

Work to improve walking and bicycling conditions at intersections with the highest rates of collisions.

**Policy 1.B.1**

Coordinate with Caltrans to provide median refuge islands on El Camino Real.
GOAL 2: MOBILITY
Increase and improve multimodal access to employment centers, residential neighborhoods, community destinations, and recreation opportunities across the City of San Mateo for people of all ages and abilities.

Objective 2.A
Increase the combined bicycle and pedestrian mode share to 30% for trips one mile or shorter by 2020.2

Policy 2.A.1
Accommodate the need for multimodal mobility, accessibility, and safety when planning, designing, and developing transportation improvements. Such accommodations could include:

1. Review capital improvement projects to make sure that the needs of non-motorized travelers are considered in planning, programming, design, reconstruction, retrofit, maintenance, construction, operations, and project development activities and products.

2. Accommodate the needs of all travelers through a Complete Streets approach. Complete Streets are roadways designed to facilitate safe, comfortable, and efficient travel for all roadway users.

3. Create and implement an ADA Transition Plan that includes actions such as retrofitting street corners, crossings, and transit stops that do not meet state and federal accessibility standards.

Policy 2.B
Define streetscape guidelines and standards that will increase pedestrian and bicycle safety and comfort while achieving green infrastructure goals and objectives.

Objective 2.B
Work to eliminate barriers to pedestrian and bicycle travel.

Policy 2.B.1
Identify opportunities to remove barriers and improve or add pedestrian and bicycle crossings of US Highway 101, State Route 82 (El Camino Real), State Route 92, the Caltrain railroad tracks, and major arterials.

Policy 2.B.2
Identify gaps in the pedestrian and bicycle facilities networks and needed improvements to and within key pedestrian activity centers and community areas, and define priorities for eliminating these gaps by making needed improvements.

Policy 2.B.3
Develop and implement a clear and informative pedestrian and bicycle wayfinding signage program.

Policy 2.B.4
Define streetscape guidelines and standards that will increase pedestrian and bicycle safety and comfort while achieving green infrastructure goals and objectives.

Objective 2.C
Work with transit providers to develop high quality pedestrian and bicycle access to transit stops and stations.

Policy 2.C.1
Work with Caltrain and SamTrans to establish appropriate designs for transit stops and station accessways.

Objective 2.D
Regularly evaluate pedestrian, bicycle, and transit activity levels, facilities, and programs.

Policy 2.D.1
Develop and implement an annual evaluation program to count and survey the community on pedestrian, bicycle, and transit facilities and programs.

2. Originally referenced from the City of San Mateo Sustainable Initiatives Plan (2007)
Objective 2.E
T 4: Reduce single occupant vehicle commuting by 20% by 2020.

Policy 2.E.1
Develop and implement transportation demand management (TDM) requirements for new development.

Policy 2.E.2
Encourage the formation of transportation management associations (TMAs) for additional districts in the city.

Policy 2.E.3
Encourage existing larger employers and residential developments to provide information about transportation options and other trip reduction measures.

Objective 3.A
Allocate street space, including that at the curbside, equitably among all modes.

Policy 3.A.1
Ensure that pedestrians, bicyclists, transit vehicles, and automobiles each have space in the travelway that is appropriate to the street’s designated mobility function and land use context, per street typologies and overlays defined in the Sustainable Streets Design Guidelines.

Policy 3.A.2

Policy 3.A.3
Allocate curbside space based on the needs of all modes, prioritizing movement and/or space for loading/unloading over vehicle storage where appropriate.

Objective 3.B
Incorporate pedestrian and bicycle facilities and amenities into private and public projects.

Policy 3.B.1
Support and encourage local efforts to require the construction of pedestrian and bicycle facilities and amenities, where warranted, as a condition of approval of new development and major redevelopment projects.

Policy 3.B.2
Facilitate safe pedestrian and bicycle travel through public and private construction zones.

Policy 3.B.3
Establish and maintain Sustainable Streets Design Guidelines that address topics such as sidewalk zones, street corners and street crossings, and green infrastructure landscape and streetscape approaches that support walking and bicycling.

Objective 3.C
Provide well maintained pedestrian and bicycle facilities that are clean, safe, and inviting.
Policy 3.C.1
Provide routine maintenance of pedestrian and bicycle facilities, as funding and priorities allow. Programs to support these maintenance efforts could include:

1. Sidewalk and bicycle facility repair programs, including incentives to property owners to improve adjoining sidewalks beyond any required maintenance.
2. Develop and administer a Pedestrian and Bicycle Service Request Form Program.
3. Create “Adopt a Trail/Streetscape” programs that involve volunteers for trail and streetscape cleanup and other maintenance.

Policy 3.C.2
Work with owners of vacant land adjacent to public walkways to identify beautification opportunities on the vacant property and implement projects, such as landscaping, fencing, and/or art installations.

Objective 3.D
Develop a green infrastructure plan that addresses the design, implementation, and maintenance of landscape and streetscape improvements as an integral part of San Mateo’s Sustainable Streets to manage storm water runoff, create a better pedestrian environment, and improve community character.

Policy 3.D.1
Manage stormwater runoff using green infrastructure from 10% of roadway segments citywide and from 20% of roadway segments within the Downtown and PDAs within the city by the year 2050.

Policy 3.D.2
Manage stormwater runoff using green infrastructure along new private development with a street frontage longer than 100 feet.

Policy 3.D.3
Increase the tree canopy along streets in San Mateo by 10% by the year 2050.

Policy 3.D.4
Create design guidance, standards, and best practices for the design of green infrastructure elements in public rights-of-way. Guidance, standards, and best practices should:

1. Be consistent with federal and regional requirements, including those related to water quality, and be integral to city policies that support Sustainable Streets.
2. Be coordinated with the city’s:
   • Land use planning and development guidelines and standards and,
   • Other applicable City guidelines and standards.

Policy 3.D.5
Establish a strategy and work plan for developing a comprehensive interdepartmental Operations and Maintenance Plan that integrates street, landscape, stormwater, and utility operations and maintenance.

Policy 3.D.6
Establish a monitoring program that can inform future changes and modifications to established green infrastructure design guidance, standards, and operations and maintenance practices.

Policy 3.D.7
Maximize the potential to implement green infrastructure by:

1. Reducing or removing administrative, physical, and funding barriers;
2. Setting implementation priorities based on stormwater management and Sustainable Streets needs, as well as the effectiveness of improvements and the ability to identify funding.
3. Taking advantage of opportunities such as grant funding, routine repaving or similar maintenance projects, funding associates with Priority Development Areas, public private partnerships, and other funding opportunities.

Policy 3.D.8
Identify and develop an education program that informs City of San Mateo residents, employers, and employees of the environmental, economic, and place-making benefits of integrating green infrastructure into public rights-of-way.
GOAL 4: PROGRAMS
Increase awareness of the value of pedestrian, bicycle, and transit travel for commute and non-commute trips through encouragement, education, enforcement, and evaluation programs.

Objective 4.A
Establish and enhance a Safe Routes to Schools program that will enable and encourage more students to walk and bicycle to school.

Policy 4.A.1
Work with the school community to identify and develop education and encouragement projects through the Safe Routes to School program. This program could include:
1. Identify Capital Improvement Programs (CIPs), working with the school community.
2. Apply for Safe Routes to School state funding and other grants to construct and implement educational and encouragement programs and capital improvements.
3. Develop and distribute maps that identify suggested routes for children to walk to school.

Objective 4.B
Establish and enhance a Safe Routes for Seniors program that will enable more seniors to walk to services, access transit, and complete other multimodal trips safely and conveniently.

Policy 4.B.1
Work with the senior community to identify and address barriers to increased walking, bicycling, and transit use.

Policy 4.B.2
Identify and develop education and encouragement programs working with seniors through the safe routes for seniors program. This program could include:
1. Identify Capital Improvement Programs (CIPs) working with the senior community, prioritizing access to key senior origin and destination points.
2. Develop senior pedestrian mobility and safety training working through senior centers and senior organizations.

Objective 4.C
Introduce and promote education, encouragement, and outreach for pedestrian, bicycle, and transit programs.

Policy 4.C.1
Support programs that encourage and promote pedestrian, bicycle, and transit travel. These programs could include:
1. A social marketing campaign to promote the benefits of active lifestyles and active transportation, focusing on the role of walking and bicycling in promoting health and lowering obesity.
2. Effective safety programs for adults and youths to educate all road users as to their rights and responsibilities.
3. Information for interested agencies and organizations about education materials and assistance available for encouraging active transportation, such as programs administered by the National Safe Routes to School Partnership.

Objective 4.D
Establish a Safe Routes to Transit program that will facilitate walking and biking to transit.

Policy 4.D.1
Identify and implement Safe Routes to Transit projects.

Objective 4.E
Explore the potential for a Green Infrastructure Steward program that builds interest in street trees, environmental quality, and open space to facilitate the maintenance of green infrastructure in San Mateo.

Policy 4.E.1
As part of Policy 3.C.2’s establishment of a strategy and work plan for green infrastructure operations and maintenance, assess the viability of implementing community-based maintenance programs based on case studies from other programs in the U.S.
GOAL 5: EQUITY
Improve pedestrian and bicycle accessibility for all residents through equitable public engagement, service delivery, and capital investments.

**Objective 5.A**
Assist community members who desire to improve pedestrian and bicycle access to, from, and within their neighborhoods.

**Policy 5.A.1**
Develop a residential partnership program that enables neighborhoods to identify, prioritize, and implement non-motorized access improvements and green infrastructure.

**Objective 5.B**
Identify low-income and transit-dependent communities that require pedestrian and bicycle access to, from, and within their neighborhoods.

**Policy 5.B.1**
Implement non-motorized projects providing access to local services, schools, and transit facilities identified in the North San Mateo Community Based Transportation Plan.

**Policy 5.B.2**
Improve non-motorized access to facilities that serve low-income and transit-dependent community members.
GOAL 6: IMPLEMENTATION
Implement the Sustainable Streets Plan over the next 20 years.

**Objective 6.A**
Determine funding needs for expanding and improving Sustainable Streets facilities and programs, and seek funding for those needs.

Policy 6.A.1
Develop a 20-year financial plan and update it every five years.

Policy 6.A.2
Apply for local, state, and federal grants for major Sustainable Streets projects and programs, including Safe Routes to School and Safe Routes to Transit.

Policy 6.A.3
Develop requirements and incentives for private property owners to incorporate pedestrian and bicycle features into new projects.

Policy 6.A.4
Explore partnerships with private and public organizations (e.g., the County of San Mateo Health Department) to fund incentive programs and events that encourage multimodal transportation.

Policy 6.A.5
Identify funding opportunities for stormwater management that can be used to support implementation of multimodal improvements to San Mateo’s streets.

**Objective 6.B**
Incorporate Sustainable Streets projects into the City’s Capital Improvement Program (CIP) that will improve the Complete Streets and Green Streets environment in San Mateo and support the City’s Sustainable Initiatives Plan.

Policy 6.B.1
Prioritize the top 10 Sustainable Streets Plan projects for inclusion in the CIP.

Policy 6.B.2
Identify dedicated Sustainable Streets project funding by 2020.

**Objective 6.C**
Ensure Complete Streets and Green Streets efforts are coordinated within the City and with external partners.

Policy 6.C.1
Designate a City Sustainable Streets Coordinator responsible for coordinating multimodal transportation improvement efforts within the City and with external partners, as well as green infrastructure improvements within the public right-of-way. This coordinator will be a regular participant at the City’s Development Review Board and will have the authority to comment on private and public development projects as they relate to the implementation of the Sustainable Street Plan’s visions, goals, objectives, and policies.

**Objective 6.D**
Review Sustainable Streets Plan, Pedestrian Master Plan, and Bicycle Master Plan recommendations at regular intervals to ensure they reflect the most current priorities, needs, and opportunities.

Policy 6.D.1
Update the Sustainable Streets Plan, the Pedestrian Master Plan, and the Bicycle Master Plan every five years to identify new facility improvements and programmatic opportunities as the multimodal network develops, assess their feasibility, gauge public support, identify funding sources, and develop implementation strategies.
“I did then what I knew how to do. Now that I know better, I do better.”
Maya Angelou

Street design guidelines across the country have evolved in recent years to ensure a more balanced transportation network that includes pedestrians, cyclists, and transit riders. The Design Guidelines takes these national best practices and distills them into the San Mateo context. This guidance enables streets, existing and new, to be designed to better support the community’s goals.
The San Mateo Sustainable Streets Design Guidelines serve as the starting point for the geometric design of streets and related elements in San Mateo. The full Design Guidelines can be found in Appendix H; this chapter highlights the key tenets and overall approach of the Design Guidelines, incorporating City of San Mateo goals and combining them with locally accepted design practices and national best practices. As previously mentioned, streets in San Mateo make up nearly 22% of all city land, and as such, it is critical to use this vital public resource to achieve numerous City goals.

As a proportion of public land, streets are the largest public capital asset and are used by every city resident, visitor, and worker. All streets should be designed to achieve multiple goals.

The Design Guidelines reflect a comprehensive approach to street design and consider streets’ transportation function, their role in addressing flows and stormwater runoff water quality, and their potential for creating public places that people desire and enjoy. The Guidelines are intended to be used by municipal and private sector street designers who may be building, reconstructing, and repaving streets within the City of San Mateo. They are intended to provide information, tools, and best practices. The guidance has also been developed to ensure flexibility so a street designer can create plans that reflect local needs and context.

The Design Guidelines have four primary purposes:
1. Establish a framework for the classification of streets (typologies)
2. Establish the framework for special districts or modal priority (overlays)
3. Provide specific geometric design guidance and suggested design elements to correspond with those typologies and overlays
4. Integrate green infrastructure (see below) into the street design process

**DESIGN GUIDELINES APPROACH**

Previously, street design guidance was largely based on the idea of functional street classification. Functional classification traditionally defined a street as a highway (limited access), arterial, collector, or local road. While this approach provided some differentiation in the design of streets, it did not provide sufficient specificity in the context of a city. The simplistic framework was not sensitive to the variety of urban land use contexts or the different modes that might need to use a street. The San Mateo Sustainable Street Design Guidelines take a different approach and seeks to provide a greater level of guidance to ensure that streets match their intended purposes within the context of the community through a local, city, and regional lens.
The Sustainable Streets Design Guidelines introduce new concepts of Typologies and Overlays to the street design process.

- **Typologies:** Typologies are a way to classify streets using a combination of a street’s transportation and mobility function and its role in serving and being influenced by adjacent land uses.

- **Overlays:** Overlays include special use networks and exceptions that may require special design treatments due to a specific use (i.e., bicycle priority network) or need (i.e., transit station area).

Using this approach, there are now more than 15 different street classifications, as compared to the four in the previous framework. While this may appear to add unnecessary complexity, its primary function is to ensure that different types of streets can be designed and built to meet the numerous types of settings within San Mateo. More information about typologies, overlays, and how they are defined can be found in a later section of this chapter.

In addition, the Design Guidelines integrate green infrastructure into the street delivery process. This approach uses landscape and urban design to capture, slow, treat, and filter stormwater runoff, an approach that can support placemaking and enhance the pedestrian experience. At the same time, green infrastructure also creates economic, community, and environmental benefits by helping create interesting and valued places in which to live and by regenerating and protecting aquatic and other habitats which are critical in the San Francisco Bay Region.

### RELATIONSHIP WITH OTHER LOCAL PLANS

The Design Guidelines incorporate information from numerous other existing San Mateo documents including the Bicycle Master Plan and Pedestrian

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3. The El Camino Master Plan (2001) was also consulted as part of this plan design process.
Master Plan. The Guidelines used the San Mateo County Green Streets and Parking Lots Design Guidebook to guide language and processes incorporating green infrastructure in designs. Figure 3-1 provides a background of the various local plan elements that were used to develop these guidelines and how they informed overlays and design guidance.

Some plan guidance is nearly a decade old, justifying the need for updated design guidelines to meet current best practices. However, some elements of past documents still remain valid today. In situations where there is duplicative information in the Design Guidelines and other existing local documents, the Design Guidelines should take precedence unless specified otherwise in other adopted plans or in City Code.

The Design Guidelines are not the City of San Mateo’s first set of design guidance. The City has undertaken numerous related initiatives, including plans that provide design guidance by mode, specific overlay areas, or both. In reality, all of these components fit within the same right-of-way and should be considered holistically. The intent of this document is not to duplicate past efforts. Instead, the Design Guidelines provide overarching guidance on the design of streets from property line to property line and include details from other plans as necessary and provides new guidance when important information gaps exist.

Figure 3-2 provides a reference on how the Design Guidelines should be used in relation to other plans still relevant to street design. These supplementary plans contribute different information to the street design process. Some of them are specific to mode (e.g., bicycles and pedestrians) while others provide specific guidance on green infrastructure elements.

### RELATIONSHIP WITH STATE AND FEDERAL GUIDANCE

The Design Guidelines reflect the adopted guidance for streets within the City of San Mateo, including some streets that fall under Caltrans jurisdiction. Even so, streets such as El Camino Real require collaborative effort in the development of final designs. In addition, to ensure consistency with state and federal guidance, design guidelines and policies included within this document are consistent with the 2012 California...
Manual for Uniform Traffic Control Devices (CA MUTCD 2012), as required by the California Vehicle Code.

Furthermore, design guidelines and policies are drawn from state and nationally recognized design guidance from the Caltrans, American Association of State Highway and Transportation Officials (AASHTO), and the National Association of City Transportation Officials (NACTO). Streets such as El Camino Real may also consider state guidance such as the Caltrans Main Street Guide which incorporates numerous green infrastructure elements and other design modifications that can better suit the needs of this community thoroughfare.

**STREET DELIVERY PROCESS**

The process by which streets are “delivered” in the City of San Mateo starts long before one arrives at this Plan or the Design Guidelines. Street design is an iterative process and does not end when construction ends. The City of San Mateo has few opportunities for new streets, with the rare exception of larger developments such as Bay Meadows and streets associated with private developments. Instead, most streets are subject to change when it is time for routine repaving (which provides opportunities for striping changes or reconfiguration) or complete reconstruction (moving curbs).

These design guidelines fit into a small, yet important step in the overall street delivery process, as Figure 3-3 shows. The Guidelines take direction from the City’s Visions, Goals, Objectives, and Policies regarding
streets and the Guidelines are invoked during repaving, reconstruction, and projects that involve new streets. After streets are designed and constructed, it is incumbent upon the City to ensure that they are evaluated with the correct metrics (see Performance Metrics, Chapter 4).

KEY PARTNERS
These process tasks are primarily implemented by the San Mateo Department of Public Works. However, certain elements of the street engage other local partners (Figure 3-4). Here, coordination is critical to ensure that opportunities are not missed to make street improvements in conjunction with other efforts. Similarly, coordination will prevent redundant work and saving public funds. For example, most utilities (electricity, cable and internet, non-drainage specific water lines) are located within the street (beyond the gutter pan of the curb). Because most utility maintenance requires traffic disruptions and some level of street construction, it is best to consider other street reconfiguration or reconstruction needs at the time of such work. Currently, the City of San Mateo has ongoing quarterly coordination with various utility providers whereas other coordination meetings should continue to occur on an as needed basis.

USING THE DESIGN GUIDELINES
The Design Guidelines should be used at the point when a street designer knows the specific location within the city that will be subject to redesign, reconstruction, or construction of a new street. The first step is to reference the Street Typologies map (Figure 3-8) to determine the specific typology of the street in question. The second step is to determine if any overlays exist for that street. This may involve referencing previous plans as denoted in Figure 3-2.

Based on the street’s typology and any specific overlays, one can then use the Design Guidelines to build the street from the “outside-in” based on guidance for different realms of the street (Figure 3-10). For this final step, use the specific guidance for this street’s typology and site overlays and evaluate the potential for including green infrastructure.

The Design Guidelines also provide overall design principles and design elements associated with intersections and traffic control devices. Intersections

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### Figure 3-4  San Mateo Street Design Partners

<table>
<thead>
<tr>
<th>STREET ELEMENT</th>
<th>PARTNER</th>
<th>COORDINATION PROTOCOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>Pacific Gas and Electric</td>
<td>Quarterly Utility Coordination Meeting</td>
</tr>
<tr>
<td>Cable and Internet</td>
<td>Comcast, Astound, U-verse, Others</td>
<td>Quarterly Utility Coordination Meeting</td>
</tr>
<tr>
<td>Water Meters and Lines</td>
<td>CalWater</td>
<td>Quarterly Utility Coordination Meeting</td>
</tr>
<tr>
<td>City-Maintained Landscaping</td>
<td>San Mateo Parks and Recreation</td>
<td>Internal San Mateo Service/Work Orders</td>
</tr>
<tr>
<td>Throughways for Emergency Vehicles</td>
<td>San Mateo Fire Department</td>
<td>As-needed Meetings</td>
</tr>
<tr>
<td>State-Owned Streets</td>
<td>Caltrans</td>
<td>As-needed Meetings</td>
</tr>
</tbody>
</table>

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### Figure 3-5  Street Design Guidance Process

1. **Typologies Maps** → **Overlays**
2. **Design of Streets** (evaluating for green infrastructure opportunities) → Design of Intersections
3. **Evaluate Design Alternatives** (based on citywide or site-specific performance measures)
themselves are not necessarily associated with a specific typology. However, overlays should influence design elements associated with intersections and traffic control devices.

These steps are outlined in a simplified format in Figure 3-5.

**DESIGN GUIDELINES FRAMEWORK**

This section provides additional detail on the street typologies and overlays that are foundational elements of the Design Guidelines.

**TYPOLOGIES**

A typology is the study of types and the characterization of a set of similar items in order to classify them and differentiate between them. Applied to streets, typologies can help one understand the form, utility, and use. Street typologies are helpful in categorizing the policy implementation while reflecting local context. An essential tension on every street is where it fits as a link in a larger network and within the place that surrounds it. Both of these elements are part of a street’s typology.

Most streets have a travel component – they link to the larger transportation network. This might be in the form of a six-lane arterial or a narrow alley. Most streets also have a local, context-based place component – they are important parts of the places in which we live, work, and play, be it in the form of a residential cul-de-sac or a regional connector like El Camino Real. Street typologies in the Sustainable Streets Plan are based on the street types and context. Figure 3-6 provides a description of all of the proposed street typologies based on a set of contexts (rows) and street types (columns).

<table>
<thead>
<tr>
<th>CONTEXT</th>
<th>STREET TYPE</th>
<th>EL CAMINO REAL</th>
<th>MAJOR CONNECTOR</th>
<th>MINOR CONNECTOR</th>
<th>ACCESS</th>
<th>ALLEY</th>
<th>PATH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downtown</td>
<td>Downtown El Camino Real</td>
<td>Downtown Connector</td>
<td>--</td>
<td>Downtown Alley</td>
<td>Walkway</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial/Mixed-Use</td>
<td>Mixed-Use El Camino Real</td>
<td>Mixed-Use Connector</td>
<td>Mixed-Use Access</td>
<td>Mixed-Use Alley</td>
<td>Walkway</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neighborhood</td>
<td>Neighborhood El Camino Real</td>
<td>Neighborhood Major Connector</td>
<td>Neighborhood Minor Connector</td>
<td>Neighborhood Access</td>
<td>Neighborhood Alley</td>
<td>Walkway</td>
<td></td>
</tr>
<tr>
<td>Industrial</td>
<td>--</td>
<td>Industrial Connector</td>
<td>Industrial Access</td>
<td>--</td>
<td>Walkway</td>
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</tr>
<tr>
<td>Park</td>
<td>--</td>
<td>Parkway Connector</td>
<td>Park Access</td>
<td>--</td>
<td>Shared-Use Path</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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5. This document considers El Camino Real its own street type, giving it unique characteristics as compared to other streets in San Mateo. Guidance for El Camino Real shall also reference the design guidance and elements as described in the Grand Boulevard Multimodal Transportation Corridor Plan.

6. Commercial/Mixed-Use context may include a gradient between land uses that are strictly commercial and others where both residential and commercial buildings exist together. There is minimal difference in terms of street design between these categories. However, strictly commercial uses are likely to generate larger volumes of pedestrian traffic. Thus, street geometries and amenities for pedestrians should be expanded for pedestrians in these scenarios.
Street Typologies and Federal Guidance on Functional Classification

Functional classification is required by the Federal Highway Administration for projects receiving federal funds. This system is primarily auto-centric and does not take into consideration local context, land use, or built form. The street types presented in this document are an alternative to traditional functional classification. To ensure that San Mateo is still eligible for federal transportation funds, Figure 3-7 converts street types into FHWA functional classification terminology. Alleys and paths do not have FHWA functional classification equivalents.

Figure 3-7  Relationship between Street Types and Existing FHWA Classifications

<table>
<thead>
<tr>
<th>ARTERIAL</th>
<th>COLLECTOR</th>
<th>LOCAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL CAMINO</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>REAL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAJOR CONNECTOR</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>MINOR CONNECTOR</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>ACCESS</td>
<td>●</td>
<td></td>
</tr>
</tbody>
</table>

Figure 3-8 shows the City of San Mateo street network and its street typologies. Use this map with the Design Guidelines as street width guidance is provided with respect to a street’s typology.

OVERLAYS

Some uses are independent of a street’s normal form and function, like routes for emergency vehicles and freight trucks, streets adjacent to major transit stations, and bicycle priority streets. These uses are not necessarily types, so they are classified as overlays. Overlays also describe a street’s multi-modality. For example, a street with high-frequency transit would be a connector street for transit, but the roadway might serve more of an access function. The same holds true for a multi-way boulevard, which serves as a bicycle priority street and a truck route while fulfilling both connector and access functions for autos.

Overlays do not dictate the specific design of a street but encourage design flexibility to better serve the purpose of the overlay. Overlays are also a means for providing modal priority. As an example, access streets that fall under a bicycle priority overlay should prioritize bicycle treatments along the street’s length and at intersections to support the overall bicycle priority network. Similarity, freight routes may require additional width and design exceptions at intersections to accommodate large volumes of trucks and wide turning movements.

Transportation Overlays

Figure 3-9 presents a summary of the overlays that should be considered in the development and design of streets in San Mateo. The figure describes the purpose of the overlay, potential associated design modifications, alternative performance metrics, and associated documentation that spatially defines the overlay network. In addition, alternative performance metrics are provided as mechanisms to evaluate the street-level performance of the street under that overlay. Metrics evaluating a transit priority street should consider its ability to reduce delays for transit riders and increase ridership as measures of success. Additional overlay-specific guidance on design modifications can be found in the full version of the Design Guidelines (Appendix H).

Additional detail about this work can be found in the full Design Guidelines. While some of the above information or data is readily available, other information is not yet available. However, the San Francisco Estuary Institute recently developed an initial framework and method for using data to assist in the process of identifying locations where green infrastructure is appropriate and feasible. Please note that the results of this work, presented in Appendix H.2, do not reflect the potential future conditions created by implementation of the Sustainable Streets Plan. Additional analysis and data layers similar to the ones discussed above will be needed to more fully assess the feasibility of green infrastructure in the City of San Mateo.

Green Infrastructure Overlays

While some of the overlays discussed above inform the selection, design, and implementation prioritization of green infrastructure elements, additional context is needed to determine the best use of these tools. Figure 3-9 provides evaluation steps to determine the criteria and factors in selecting green infrastructure.
Figure 3-8  San Mateo Street Typologies

Data Source: City of San Mateo
<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1    | **IDENTIFY APPLICABLE STREET TYPE, OVERLAYS AND OTHER CATEGORIES**  
   » Street type  
   » Overlay  
   » Safe Routes to School, Specific or Area Plans, Priority Development Area |
| 2    | **IDENTIFY ENVIRONMENTAL CONTEXT**  
   » Underlying soil and hydrology conditions (feasibility of infiltration, groundwater recharge)  
   » Pollutant Management (surface and subsurface)  
   » Tree Canopy  
   » Localized Flooding  
   » Others Conditions (use Environmental Context Check List - see Appendix H.2)  
   » Location within a watershed or proximity to Bay |
| 3    | **IDENTIFY BUILT CONTEXT AND CONSTRAINTS**  
   » Adjacent land use and built context  
   » On-street parking  
   » Drainage patterns (including tributary areas that may concentrate flows within the right-of-way)  
   » Location and capacity of existing stormwater utilities (lines and inlets)  
   » Longitudinal and cross-slopes  
   » Potential conflicts with underground utilities, drain inlets, fire hydrants, driveways |
| 4    | **SELECT COMPLETE AND GREEN STREETS ELEMENTS**  
   » Set Complete Streets and Green Streets goals for the project in question  
   » Select appropriate Complete Streets and Green Streets Elements (including green infrastructure and general landscape elements)  
   » Strive for close integration of Complete Streets and Green Street Elements |
| 5    | **DETAIL DESIGN OF GREEN INFRASTRUCTURE ELEMENTS**  
   » Minimize project’s impervious surfaces  
   » Maximize and design landscape based components as appropriate to site context  
   » Size and design green infrastructure features for site context following provided design guidance*  
   » Return to Step 4 to evaluate other Green Street elements if unforeseen issues arise |
### Figure 3-10  Street Design Guideline Overlays

<table>
<thead>
<tr>
<th>OVERLAY</th>
<th>PURPOSE</th>
<th>EXAMPLE DESIGN MODIFICATIONS</th>
<th>ALTERNATIVE PERFORMANCE METRICS</th>
<th>DOCUMENTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedestrian Greenway Streets</td>
<td>Prioritize pedestrian safety and comfort</td>
<td>Reduced crossing distances and emphasis on pedestrian crossing enhancements&lt;br&gt;Street trees and plantings&lt;br&gt;Maximum sidewalk widths</td>
<td>Minimizing pedestrian delay at intersections</td>
<td>San Mateo Pedestrian Master Plan&lt;br&gt;(see Greenways Map)</td>
</tr>
<tr>
<td>Suggested Routes to Schools</td>
<td>Prioritize pedestrian and bicycle safety along designated pedestrian and bicycle routes</td>
<td>Reduced crossing distances and emphasis on pedestrian crossing enhancements&lt;br&gt;Bicycle lanes&lt;br&gt;Cycletracks</td>
<td>Walking and biking mode share to selected San Mateo schools</td>
<td>San Mateo – Foster City Suggested Routes to Schools Maps</td>
</tr>
<tr>
<td>Transit Streets</td>
<td>Prioritize transit speed and schedule reliability</td>
<td>Lane width guidance&lt;br&gt;Reduced crossing distances&lt;br&gt;Transit speed improvement projects (transit lanes and intersection treatments)&lt;br&gt;Bus stop placement priority</td>
<td>Persons per Lane Hour (maximize)&lt;br&gt;Transit Vehicle Delay (minimize)</td>
<td>Most recent SamTrans Service Plan</td>
</tr>
<tr>
<td>Bicycle Priority Streets</td>
<td>Prioritize bicycle safety and comfort</td>
<td>On-street bicycle treatments&lt;br&gt;Intersection bicycle treatments (See Flexible Zone, Intersections)</td>
<td>Bicycle facility expansion (sustained increase)&lt;br&gt;Bicycle compliance to traffic controls (increase)</td>
<td>San Mateo Bicycle Master Plan – Recommended Bikeway Network&lt;br&gt;(Chapter 5, page 5-2)</td>
</tr>
<tr>
<td>Downtown San Mateo</td>
<td>Specific designs for additional pedestrians, density, etc. around station areas</td>
<td>Reduced crossing distances&lt;br&gt;Pedestrian lighting&lt;br&gt;Traffic calming and other safety countermeasures&lt;br&gt;Accommodate additional pedestrian amenities and street furniture</td>
<td>Minimizing pedestrian delay at intersections</td>
<td>Downtown Area Plan</td>
</tr>
<tr>
<td>Freight Routes</td>
<td>Design routes suitable for goods movement</td>
<td>Corner radii that accommodate trucks&lt;br&gt;Lane width of 11 or 12 feet</td>
<td>N/A</td>
<td>Adopted Truck Route Policy&lt;br&gt;(Recommended Truck Routes, Page 28) with exception of 5th Avenue between Humboldt and Amphlett</td>
</tr>
<tr>
<td>Caltrain Station Areas</td>
<td>Specific designs for additional pedestrians, density, etc. around station areas</td>
<td>Reduced crossing distances&lt;br&gt;Traffic calming and other safety countermeasures&lt;br&gt;Maximize access pathways to station</td>
<td>Matching All Pedestrian Desire Lines&lt;br&gt;Pedestrian compliance to traffic controls (increase)</td>
<td>Rail Corridor Transit-Oriented Development Plan&lt;br&gt;Hillsdale Station Area Plan</td>
</tr>
<tr>
<td>Emergency Primary Response Routes</td>
<td>Ensure emergency vehicles have access to a network to minimize response times.</td>
<td>Signal priority for emergency vehicles&lt;br&gt;Rollable medians</td>
<td>N/A</td>
<td>Neighborhood Traffic Management Program</td>
</tr>
</tbody>
</table>
DESIGN GUIDANCE PRINCIPLES

The full Design Guidelines provide additional detail on how to design streets in San Mateo. However, all of it is guided by key principles related to streets, intersections, signals, and green infrastructure. These principles are summarized below.

Street Principles

Streets in San Mateo shall be designed with the following principles in mind.

» Pedestrians are the top priority: Every trip in San Mateo begins and ends with walking. Thus, all street designs should prioritize pedestrian movement first. This must include designing for a range of pedestrians, from healthy young adults to elderly residents using a mobility device. Other modes should receive relative priority based on cost effectiveness, space efficiency, level of vulnerability, and environmental impact. Bicyclists should be given second priority, followed by transit vehicles, high-occupancy vehicles, and single-occupancy vehicles.

» Local priorities above regional needs: Unless specifically stated otherwise, all streets in San Mateo shall place local access needs above regional mobility needs. Examples include streets that support local commerce, placemaking, and pedestrian and bicycle safety.

» Accommodation for all users: Excluding freeways, all streets shall accommodate all types of users, including pedestrians and cyclists. In some cases, overlays will specify streets that should maintain special priority for one type of user over others.

» Safety through design (reducing injuries and fatalities): Streets shall be designed to reduce all types of transportation-related injuries and fatalities. Street designs shall consider past injury data and appropriate countermeasures to prevent collisions in the future.

» Action, observation, improvement: Street improvements do not need to be permanent. A pilot project approach that allows for the temporary testing of street improvements should be considered to help develop street improvements that produce measureable benefits and achieve desired outcomes.

» Sustainable Streets include Green Streets: Green Streets infrastructure shall be included as an integral part of San Mateo’s street design process and management of stormwater.

» Design proactively, not reactively: Street designs should be approached from a standpoint of “how should this street function?” as compared to “how will this street function given existing conditions?” As an example, streets should be designed with a preferred speed or volume, rather than of simply accepting existing conditions.

Figure 3-10 illustrates the various "realms" or portions of the street and their respective potential elements. These guidelines provide geometries for the maximum, target, and constrained widths of each of these realms. Various elements of each of these realms are described in further detail in the full Design Guidelines.

In the street design process, several portions of the street must compete for limited right-of-way. In San Mateo, streets should be designed with an "outside-in" strategy that places priority on non-motorized users in the pedestrian realm, unless within a special overlay that prioritizes other modes of travel. All realms should place focus on green infrastructure when possible.

7. Additional green infrastructure design principles can be found in the San Mateo County Sustainable Green Streets and Parking Lots Design Guidebook.
as opportunities for ecological performance exist in all parts of a street’s cross section.

**Intersection Principles**

Intersections are the decision points for all modes of travel, and they are also the locations at which the vast majority of collisions occur. The Design Guidelines are not able to provide specific guidance on every intersection, given the vast complexities and variables at play. However, they provide overarching principles that should be followed to generally improve overall safety for all users and reduce intersection complexity and opportunity for error. Intersections in San Mateo shall be designed with the following principles in mind.

» Make Intersections Compact and Simple: Compact intersections reduce pedestrian crossing distances and minimize opportunities for errant traffic movements, which increase opportunities for collisions. Skewed or multi-leg intersections introduce high turning speeds and unusual conflicts. Such intersections should be realigned whenever possible. Intersections that cater to high volumes of freight traffic should be designed to safely accommodate those vehicles. Consider strategies such as relocating stop bars before expanding the size of an intersection.

» Analyze Intersections as a Network: San Mateo’s street grid provides a robust and redundant traffic network. Thus, intersections and intersection improvements should be analyzed in the context of the street network, not in isolation.

» Design Intersections Using Space and Time: Geometrics (space) and signalization (time) should be used in tandem to create intersections that support safe operations for all users. Whenever
possible, increases in roadway capacity at intersections should be accomplished by operational techniques first and geometric expansion only if necessary.

» Build for the Present, Accommodate the Future: Building excess capacity induces additional travel demand; thus, intersection capacity should be based on tolerable congestion levels versus assumed growth in congestion.

» Manage Speed Through Intersections: Intersections are shared spaces and are the location of most collisions. As a result, speeds (especially turning speeds) should be managed through design and signal timing.

» Minimize Delay for All Modes: Signal phasing should minimize delay for all modes, rather than favoring one mode over all others.

» Integrate Green Infrastructure: Stormwater management is key at intersections as this is usually where existing storm drainage infrastructure, such as inlets, are located and that curb extensions installed to narrow crossing distances can cost-effectively double as green infrastructure features.8

Traffic Signal Principles

The operation and performance of the street is a close marriage between the physical design and the use of traffic control devices (e.g. signs, markings, and signals).

This section outlines several general principles for traffic signals in San Mateo.

» Signal timings will be different during off-peak hours than they are during peak hours, to manage automobile speeds when congestion does not mediate traffic flow.

» Fixed-time signals are preferred over actuated signals.

» Both signal phases and cycle lengths should be kept to as short as possible.

» Pedestrian countdown signals shall be installed at all new or upgraded signals.

» All signals shall use a pedestrian walking speed of 3.5 feet per second for calculating the pedestrian clearance interval (for additional information, please see Signal Timing A.25 (Signal Timing). Areas near schools and senior living facilities should use a slower speed of 2.8 feet/second.

» Signals on a corridor should be timed and synchronized based on their modal priority (e.g., signals in bicycle priority networks should be timed to a travel speed of 12 to 16 mph).

» The inclusion of green infrastructure evaluation in the street delivery process is relatively new. As such, it warrants additional guidance on when a Green Streets assessment should occur and tools such an assessment should use.

8. Additional green infrastructure design principles can be found in the San Mateo County Sustainable Green Streets and Parking Lots Design Guidebook.
CONCLUSIONS

This chapter shared the principles that guide the full Sustainable Streets Design Guidelines (Appendix H), which aim to provide best practices and share detailed guidance on the design of streets in San Mateo. The guidelines are not, however, intended to prescribe the optimal design solution for every possible street permutation. It is up to the designer to extract relevant elements from this and other approved documents to design streets that include the right mix of geometries and street elements that meet the unique needs of a given street and context.
“Great things are done by a series of small things brought together.”

Vincent Van Gogh

Many goals within this plan are audacious and will take years to realize. However, some projects have the possibility for earlier implementation and can begin the momentum of change within the city’s streets. This chapter highlights some of those projects and provides visual imagery of potential outcomes.
CHAPTER 4: IMPLEMENTATION PLAN

This chapter shares a roadmap for implementing for the Sustainable Streets Plan, including projects recommended for implementation within the next few years (such as North San Mateo Drive and South Grant Street), projects that are part of a longer-term vision (such as El Camino Real improvements), and programmatic recommendations. It concludes with a review of performance metrics to gauge implementation success and potential sources of funding for Plan implementation.

RECOMMENDED PROJECTS

Recommended projects include:

- North San Mateo Drive between Peninsula Avenue and Tilton Avenue, for immediate implementation once construction documents and associated reviews are completed.
- South Grant Street between 5th Avenue and 10th Avenue, for immediate implementation once construction documents and associated reviews are completed.
- El Camino Real, as a future vision for further study.

More detail on each recommended project is included below.

NORTH SAN MATEO DRIVE

North San Mateo Drive between Peninsula Avenue and Tilton Avenue is currently a three- to four-lane street connecting downtown San Mateo and Burlingame. On-street parking is provided on both sides of the street throughout the corridor. As part of the Bicycle Master Plan and the Countywide Bicycle and Pedestrian Master Plan, North San Mateo Drive is identified as the North-South County route and, as such, selected for Class II bicycle lanes.

This Plan recommends that the segment receive a road diet, bringing it from four lanes to two lanes plus a mixture of two-way left turn lanes and left turn pockets between Peninsula Avenue and Poplar Avenue. Between Poplar Avenue and Tilton Avenue, the current configuration would drop from two lanes and a turn lane to two lanes. Given that there are both retail uses and (medical) offices along the corridor, on-street parking would be maintained on both sides of the street. Isolated Green Streets opportunities would be provided throughout the corridor through the addition of landscaped curb extensions, islands, and mid-block bulb outs. Six-foot bicycle lanes would be provided between the parking lane and the travel lane to encourage use of the corridor as a north-south bikeway, connecting downtown with developing and existing residential areas in northern San Mateo as well as Burlingame. Curb extensions would be installed at several intersections to reduce pedestrian crossing distances and vehicular speeds. At intersections, high visibility crosswalks would be installed (also referred to as Continental Crosswalks) to further improve pedestrian safety and driver awareness. While the number of vehicular lanes would decrease, capacity is sufficient for current and anticipated traffic volumes.

See Figure 4-1 for a partial view of the North San Mateo Drive project and Appendix I for a full view of the improvements and Green Streets opportunities.
SOUTH GRANT STREET

South Grant Street is a north-south residential street, connecting San Mateo Village and SR 92 with US 101 and the northern parts of San Mateo. It currently has very wide travel lanes and narrow sidewalks between 5th and 9th Avenues, though lanes narrow and sidewalks expand between 9th Avenue and 10th Avenue. Parking is provided on both sides of the street throughout the area. South of 10th Avenue, a landscaped median separating the two travel lanes significantly changes the street’s character. The blocks between 5th Avenue and 10th Avenue are proposed to receive similar treatment, with several Green Streets opportunities, such as mid-block bulb outs, curb extensions at intersections, and linked tree wells on both sides of the street. In addition, a wide landscaped median would be constructed between 5th and 9th Avenues. On-street parking would be maintained, and permeable paving, another Green Streets opportunity, would be used in the parking lanes throughout the corridor.

Shared lane marking stencils (also called bike “sharrows”) would be placed in the travel lanes to acknowledge that Grant Street is a proposed Class III bike route. Other traffic calming elements would help increase safety for all modes. Specifically, curb extensions would be installed at intersections to reduce pedestrian crossing distances and in mid-block locations to help slow vehicular traffic. The travel lanes in both directions would be shared with vehicles and bicycles, and stop signs would be removed along Grant Street at intersections to promote slow flow of bicyclists and vehicles alike. All intersections will receive high visibility pedestrian crossing treatments.

See Figure 4-2 for a partial view of the South Grant Street project and Appendix I for a full view of the proposed improvements and Green Streets opportunities.

EL CAMINO REAL

While the Sustainable Streets recommendations for North San Mateo Drive and South Grant Street represent immediately implementable projects, recommendations for El Camino Real represent a longer-term vision for further review and study. This plan, while rooted in Sustainable Streets best practices, is at a conceptual stage and still needs to be vetted with various local, regional, and state agencies and the community. At the moment, Caltrans and the City of San Mateo are engaged in a design project to improve El Camino Real’s interchange with SR 92 (the Interchange Improvement Project). The most recent design iterations include options for Class II bike lanes or cycle tracks under SR 92. This redesign project and the Sustainable Streets Plan process informed the below described visions, which focus on two segments of El Camino Real, between 2nd Avenue and 9th Avenue and between 20th Avenue and 25th Avenue.

The overall vision proposed for El Camino Real is a more balanced and Complete Street, improving bicyclist and pedestrian safety and accessibility while still accommodating current and anticipated levels of vehicular travel, transit, and parking.
2nd Avenue to 9th Avenue

A road diet would transform El Camino Real between 2nd Avenue and 9th Avenue by reducing the number of travel lanes from six to four, with left-turn lanes at key intersections. The new configuration would include two travel lanes in each direction and a new landscaped median. This would extend the configuration that is currently present north of 2nd Avenue all the way to 9th Avenue. It would transform El Camino Real from a perceived and real barrier to an inviting downtown gateway that connects Central Park with the public library and other destinations in the area. This project could also become a catalyst for the successful redevelopment of the three vacant parcels at 3rd Avenue. As such, it should be considered a vision that could quickly lead to a final and preferred design and be ready for implementation.

» In the proposed design, sidewalks would be expanded to 15 feet between 2nd Avenue and 5th Avenue to provide space for street trees and Green Street treatments. Raised one-way cycle tracks on both sides of the street would enhance the bicycling experience between these streets. Along Central Park, between 5th Avenue and 9th Avenue, the sidewalks would be 10 feet wide and separated from traffic by a parking-buffered street-level cycle track on each side of the road. A wider tree-lined median would be added to enhance the connection to the park.

» All intersections would receive high visibility crosswalks, pedestrian refuge islands, and managed conflict points (intersections and driveways) between cars and bicycles, including green transverse pavement markings, stop-control devices, and high-visibility signage. Intersection treatments would also include no right turns on red, a separate or leading bicycle/pedestrian signal phase, and two-stage left turn bike boxes, where applicable. Where sidewalks cross alleys, such as at Arroyo Court and Mission Drive, the roadbed would be raised to ensure that entering and exiting vehicles crossing those sidewalks move at a slow speed. The intersection at El Camino Real and 9th Avenue is adjacent to St Matthews Catholic School and would therefore have yellow high-visibility continental crosswalks. A mid-block pedestrian crossing is proposed at Mission Drive and one of the well-used park entrances. In order to ensure safe crossings, drivers would be notified far in advance when the crosswalk is in use through rectangular rapid flashing beacons or hawk signal treatment along with advance yield lines.

» Consolidated transit boarding islands would be installed with improved and expanded shelters in the 4th to 9th Avenue segment. Where cycle tracks exist, new cycle track curb cuts would be installed, with the cycle tracks running behind the transit boarding islands. This provides a safe and separated operation between transit vehicle loading, bicycles, and pedestrians at the transit stop.

Incorporating future development with the Sustainable Streets vision for El Camino Real in downtown, new mixed use buildings would meet the street, activating sidewalks and increasing pedestrian activity. The result would be a multimodal, sustainable, and vibrant El Camino Real that safely accommodates all modes of travel and encourages residents and visitors alike to linger and enjoy the street and its attractions in downtown. See Figures 4-4 and 4-5 for conceptual representations of the future El Camino Real at 3rd Avenue. Please note that the future buildings in these figures are representative and not the actual proposed buildings. Appendix I includes additional images of the simulation.
Figure 4-4  View of El Camino Real Looking South Toward 3rd Avenue (Left: Current, Right: Vision)

Source: Urban Advantage

Figure 4-5  View of El Camino Real Looking North Toward 3rd Avenue (Left: Current, Right: Vision)

Source: Urban Advantage
20th Avenue to 25th Avenue

Caltrans’ proposed modification to the SR 92 and El Camino Real interchange would reduce traffic congestion, weaving, and queuing spillback at the interchange on and off ramps. Current designs of the project also include bicycle facilities along El Camino Real under SR 92. As such, the design proposed below as part of the Sustainable Streets Plan process includes bicycle facilities connecting under SR 92 with 25th Avenue, an important east-west bicycle route. In the long term, bicycle facilities could be implemented all the way from downtown to 25th Avenue, using a similar configuration as this project or the design along Central Park, depending on the width of each block.

Figure 4-6 illustrates that the vision for the segment between 20th Avenue and 25th Avenue would see its six travel lanes reduced to four, with left-turn lanes at key intersections. The new configuration would include two travel lanes in each direction and a new landscaped median, plus buffered bicycle lanes. All intersections would receive high visibility crosswalks, pedestrian refuge islands, and managed conflict points (intersections and driveways) between cars and bicycles, including green pavement markings, stop-control devices, and high-visibility signage. Intersection treatments would also include no right turns on red, a separate or leading bicycle/pedestrian signal phase, and two-stage left turn bike boxes, where applicable.

A new midblock crossing would be installed at 22nd Avenue, complete with rectangular rapid flash beacons or a HAWK signal as well advance yield lines, which encourage drivers to yield to pedestrians in the crosswalk and promote visibility between pedestrians and motorists. This crosswalk completes a connection for pedestrians where there are long segments between signalized intersections without recommended locations to cross El Camino Real. At alleys such as Lodato Avenue (between 20th and 22nd Avenues), raised crosswalks would prioritize pedestrian travel.

A wider median would provide landscaping opportunities and safety benefits. Consolidating the left turns and U-turns at the 20th and 25th Avenue intersections would eliminate conflicts with left-turning vehicles. At 22nd Avenue, this would also improve the crossing conditions for pedestrians. Since there are no signals between 20th Avenue and 25th Avenue and the distance is only three-tenths of a mile, vehicles desiring to make a left turn or u-turn between those blocks would not see their travel times increase significantly.

RECOMMENDED PROGRAMS

Sustainable Streets programs recommended by this Plan include:

» Adoption of a Vision Zero policy, seeking to end traffic deaths and injuries on San Mateo’s streets

» A new development review process and fee based around transportation performance metrics that are more in line with Plan goals

» A new citywide Transportation Demand Management Plan, requiring new development to include trip reduction programs and incentives

» Efforts to institutionalize Sustainable Streets in City agencies

» A Sustainable Streets education program

» Existing Program Revisions: Residential Parking Permit Program and Neighborhood Traffic Management Program
More detail on each recommended project is included below.

**VISION ZERO**
Vision Zero is the simple idea that “no loss of life is acceptable” on a community’s roadways, and it is organized around the suggestion that humans are, by nature, fallible creatures that are not made to travel at high speeds.

Since the advent of the automobile, our transportation system has been designed to allow automobiles to travel as fast, and with as few obstructions, as possible. Even with efforts to make high speed vehicle travel safe, fatalities and injuries have steadily increased over time, and roadway collisions now kill or injure millions of people around the world every year. Vision Zero recognizes that no matter how many physical barriers we put up, high speed automobile travel is inherently unsafe. Instead of pinning most of the responsibility for this fact on roadway users, it places the responsibility on designers, who must calm traffic and return other modes to prominence in our street network to reduce traffic and slow auto speeds. This will, in turn, reduce injuries and eradicate fatalities.


Vision Zero is ambitious, but it represents the apotheosis of the Complete Streets concept. Designing streets for all users and making streets as safe as possible for people of all ambulatory abilities are fundamental concepts of both Complete Streets and Vision Zero. As such, the San Mateo Sustainable Streets Plan includes the Vision Zero concept among its policy goals (see Goal 1 in Chapter 2).

**TRANSPORTATION AND PRIVATE DEVELOPMENT**
Like most cities across the country, San Mateo’s efforts to understand the transportation-related impacts of development have exclusively focused on automobiles. San Mateo uses automobile level of service (LOS) to understand how automobile trips associated with new developments will affect congestion in the surrounding area. This metric is flawed for a variety...
of reasons, and at a fundamental level, its use runs
contrary to the goals and objectives of the Sustainable
Street Plan. As such, the Plan recommends that the City
adopt vehicle miles traveled (VMT) per capita as its main
transportation impact metric and use it to determine
developers’ fair share contributions to a new Sustainable
Streets Fee.

Automobile LOS measures vehicle travel time and delay
in a particular corridor or at a particular intersection,
rating the results on an A (abundant capacity) to F
(volumes exceed capacity) scale. Most cities in the
United States use LOS to measure the transportation
impacts of development, and in California, LOS analysis
is currently embedded in the state’s environmental
review law, the California Environmental Quality Act,
though legislation recently directed the state’s Office of
Planning and Research (OPR) to replace it with a better
metric. Because of the way LOS has been incorporated
in the law, it often makes the developments that are
most environmentally friendly from a transportation
perspective – dense developments in the middle of
cities – harder to build than those built on greenfields.

LOS analysis is also typically quite costly, and because it
only looks at the conditions faced by one mode, efforts
to mitigate development impacts generally revolve
around strategies thought to improve conditions for
vehicles, often at the expense of other modes. These
strategies generally include widening roads or adding
dedicated turn lanes to increase auto capacity or
restricting the movements of other modes to reduce
barriers to higher speed vehicle travel. They also
generally fail to mitigate congestion, instead inducing
new auto trips until roadway conditions once again
reach a congested equilibrium.

Recognizing these and other shortcomings, the State
of California is in the process of replacing LOS with
another transportation impact metric in the state’s
environmental review process. State Senate Bill 743
instructed the state’s Office of Planning and Research
to recommend a different transportation impact metric
for infill areas that will be phased into statewide use by
2016. As of the time of this writing, OPR had released a
set of draft recommendations that would advise cities to
replace LOS with VMT per capita in their CEQA analyses.
While OPR makes clear that cities will still be allowed
to use LOS in other analyses, its recommendation
that cities use a different metric in environmental
review speaks volumes about its value in helping cities
comprehensively measure transportation conditions.

Following the state’s lead, this plan recommends that
the City of San Mateo use VMT per capita, rather than
LOS, in its development and environmental review
processes. VMT per capita measures the amount of
vehicle travel generated by a given development
while controlling for the size of the development.
The more per capita auto trips a development
generates, and the longer those trips are, the more
the development contributes to a host of vehicle
travel related byproducts, including air pollution,
area-wide congestion, delay for other modes, wear
and tear on roadways, and safety hazards for non-

motorized travelers. Furthermore, projects located on
the fringe of a city, far from transit services, are likely
to generate more VMT per capita than those in places
like downtown San Mateo, and in turn, require more
significant transportation-related mitigations.

Given the City’s stated goals, it makes more sense
for developers to focus on mitigating VMT that their
projects generate broadly than on problems with
congestion at intersections in the immediate vicinity.
Whereas efforts to reduce congestion at nearby
intersections usually involve removing barriers to
faster automobile travel or widening roadways, efforts
to mitigate high levels of VMT per capita might more
logically mean funding better facilities for non-auto
modes, implementing TDM programs to encourage a
project’s residents and workers to take longer trips by
other modes than driving, or other similar multimodal
strategies. The latter set of projects is much more in line
with the City’s broad goals and with the vision, goals,
and objectives laid out in the San Mateo Sustainable
Streets Plan.

Sustainable Streets Fee
San Mateo currently collects a Transportation
Improvement Fee from developers as one way to ensure
that they pay their fair share for development-related
impacts on the transportation system. The size of a
given project’s fee is based exclusively on its impact on
congestion, measured using LOS, and the vast majority
of the proceeds go toward roadway-related projects.
The San Mateo Sustainable Streets Plan recommends
that the City replace the program with a Sustainable Streets Fee that would fund a wider array of projects, with a focus on those that support the goals of the Plan by improving conditions for all modes.

Per San Mateo’s 2010 General Plan, the City periodically engages in a mathematical modeling exercise to project the amount of traffic anticipated citywide and LOS projected at key intersections based on anticipated development over an approximately two-decade period. In its Traffic Mitigation Report, last updated in 2008, the City also lists projects that it believes would mitigate the traffic generated by projected new developments and calculates a total capital cost for these projects, a portion of which is to be divided among developments as they come online over the course of the report’s time horizon. In the development review process, congestion-related impacts of specific developments are calculated and individual projects’ improvement fees are determined based on the result.

In the 2008 report, projects included improvements to the interchange at SR 92 and El Camino Real, roadway widening projects for 3rd and 4th Avenue, Caltrain grade separations, signal and intersection modifications, and other projects. More than two-thirds of the projected $35 million in fee proceeds would go toward projects whose benefits accrue almost exclusively to automobiles, and in addition, private vehicles would also reap most of the benefits of $12 million set aside for Caltrain grade separation projects. Meanwhile, the update dedicates just $250,000—less than 1%—to bike and pedestrian projects.
The proposed Sustainable Streets Fee would be calculated based on a project’s broader impacts on the transportation system. The metric used to quantify a given project’s share of the fee will need detailed study, but it could be based on projections of the development’s automobile trips generated, total trips generated, total vehicle miles traveled, or another metric. The portfolio of projects the fee funds would be more evenly divided among modes. The Sustainable Streets Plan has identified a variety of project types that might be good candidates for Sustainable Streets Fee funding, including Complete Streets and Green Streets improvements, transit infrastructure enhancements, and other projects that facilitate the development of a more balanced and safer transportation system.

To work out the details, the Sustainable Streets Fee will need a detailed study, but its goals should be guided by those laid out in this Plan.

CITYWIDE TRANSPORTATION DEMAND MANAGEMENT PLAN
Transportation demand management (TDM) programs are intended to reduce vehicle trips and parking demand by promoting the use of a variety of transportation options, shifting travel by mode and time of day to take advantage of available capacity, reducing crowding and congestion. By implementing TDM programs, municipalities and private entities can use available transportation resources more efficiently. These programs can include a wide variety of
measures such as shuttle services, transit pass subsidies, improved access to transit, park and ride facilities, and improved bicycle and pedestrian amenities, among others. TDM strategies carefully manage transportation resources through incentives, employer regulation, communication, marketing, and other techniques.

The proposed Citywide TDM Plan would extend TDM requirements of varying degrees and for certain development types and densities across all parcels within city limits. More stringent requirements are proposed for certain focus areas, including:

» Tier I:
  - Parcels within the Downtown Area Plan boundaries
  - Parcels within the Rail Corridor Plan boundaries

» Tier II:
  - Parcels within a half mile of a Caltrain station (Burlingame, San Mateo Downtown, Hayward Park, and Hillsdale)
  - Parcels within a half mile of El Camino Real, which is defined as the El Camino Real Priority Development Area (PDA)
  - Parcels within the Hillsdale Station Area Plan boundaries

These areas are mapped in Figure 4-8. The portions of the city that are outside of the Tier I and II area boundaries would be subject to citywide requirements, as detailed below:

» Tier I: Projects within the Tier I boundary would be required to, at a minimum, meet the TDM requirements of the Rail Corridor Plan. These include:
  - A 25% trip reduction target
  - TMA participation
  - Submission of a trip reduction and parking management plan with new development applications
  - An annual monitoring plan

» Tier II: Projects within the Tier II boundary would be subject to the following requirements:
  - A 15% trip reduction target
  - Submission of a trip reduction and parking management plan with new development applications
  - An annual monitoring plan

» Tier III: Citywide requirements would apply to all new development within City limits and outside of Tier I and II boundaries that include either more than six residential units or more than 10,000 square feet of commercial space. A trip reduction target of 10% is recommended for the citywide requirement. A monitoring plan should also be recommended, but not required. While Tier I and II requirements include both programmatic and physical TDM measures, citywide requirements would only include physical measures, as listed in Appendix J.

It is recommended that the zoning code provide a list of potential TDM strategies that new developments can employ to achieve trip reduction targets. Developers would be free to choose from this menu of potential TDM programs in their effort to achieve the trip reduction target. Tier I and Tier II projects (both residential and commercial), however, would be required to include the following TDM programs:

» Carshare parking in the development’s parking facility

» Reduced parking ratios tailored to the development’s location

» All parking spaces provided to residents beyond the first space per unit should be offered at a cost (market rate) and included as a separate line item from the unit price or monthly rent

Appendix J of this document contains more information of the proposed citywide TDM Program, including a recommended TDM program and strategy options and potential citywide zoning code language.

10. If the development falls within a plan area with more stringent trip reduction targets (such as the Station Park Green Specific Plan), the more stringent requirements would supersede the Tier II requirements.
Figure 4-7  TDM Plan Focus Area Boundaries

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
PARKING REQUIREMENTS
Cities have been using minimum parking requirements for decades as a means to try to ensure that adequate parking is available for a given land use's projected parking demand. Minimum parking requirements, however, have emerged as one of the biggest obstacles to many cities’ efforts to encourage new residential and commercial development in downtown areas, and they ultimately undermine many cities’ efforts to create attractive, vibrant, and walkable communities and corridors. More specifically, minimum parking requirements have been shown to:

» Create an “oversupply” of parking in almost all mixed-use and walkable districts
» Devalue the true “costs” of parking to drivers, thereby creating an incentive to drive, which results in more local congestion and vehicle emissions
» Require tremendous amounts of land, thereby degrading the physical environment and affecting a community’s urban form, design, and aesthetics
» Limit cities’ ability to do urban “infill” projects or adaptively reuse historic structures
» Make projects more expensive and reduce overall profitability

Therefore, the ultimate goal of eliminating minimum parking requirements is to remove barriers to new development and renovation of existing buildings, while creating a healthy market for parking where parking spaces are bought, sold, rented, and leased like any other commodity.

The City should consider either reducing or eliminating minimum parking requirements in the Tier I and Tier II TDM focus areas. Supplementing this with maximum parking limits in these two tiers, where developable land is most at a premium, could help further ensure that parking is not oversupplied in the areas in which the City most wants to cultivate walkable urbanism. In general, requirements should be flexible and tailored to specific project contexts. Additionally, for projects that do not charge for parking, all parking spaces provided to residents beyond the first space per unit should be at market rate and included as a separate line item from the unit price or monthly rent.

INSTITUTIONALIZATION OF SUSTAINABLE STREETS
Various strategies are needed to institutionalize Sustainable Streets practices. These strategies include revisions to specific items in the Municipal Code and the passage of a Complete Streets Ordinance. They also include the adoption of a new street classification system, street design guidelines, methodologies for traffic modeling, and project evaluation metrics and practices.

City staff training on all of these issues, in addition to Sustainable Streets planning, design, and implementation, is needed to institutionalize Sustainable Streets practices. Staff training could also include new multimodal data collection techniques as well as better reporting of collisions and the factors contributing to crashes.
In addition, street improvements do not need to be permanent. A pilot project approach that allows for the temporary testing of street improvements should be considered to help develop street improvements that produce measureable benefits and achieve desired outcomes while educating involved stakeholders.

**SUSTAINABLE STREETS EDUCATION PROGRAM**

San Mateo could benefit from both staff and public educational programs. Public education, specifically around urban bicycling, would help reduce on-street conflicts and encourage more biking and walking. This approach would be strengthened by educating the personnel involved in implementing Sustainable Streets strategies, including police and emergency responders, traffic engineers, and public works staff. Staff education will empower individuals and agencies to sustain the efforts described in this Plan.

**EXISTING PROGRAM REVISIONS**

Two existing programs that would require updates as a result of this Plan include the Neighborhood Traffic Management Program and the Residential Parking Permit Program. It is recommended that both of these plans be reviewed and updated to reflect the goals and framework outlined as part of this document.

The Neighborhood Traffic Management Plan requires update language to specify where and when traffic calming strategies may be applicable. In addition, these strategies may need to be updated based on the tools outlined in the Design Guidelines section of this Plan. The Residential Parking Permit Program should be updated to ensure that new parking policies as defined in this Plan can be implemented effectively and do not result in unintended outcomes such as spillover parking impacts within San Mateo’s neighborhoods.

**PERFORMANCE METRICS**

A critical function of this Plan is to establish the City’s strategy for monitoring and measuring how well it carries out Plan projects, goals, and policies, based on a set of indicators or targets.

As noted above, San Mateo has traditionally relied on peak hour vehicle LOS at intersections as the measure of transportation system performance. This Plan presents a strategy to measure multimodal system performance to consider new mobility priorities, and to more effectively balance the needs of all travel modes. New indicators include shifts from drive-alone trips to other travel modes and per capita measurements of greenhouse gas emissions and vehicle miles traveled. Performance could also be measured by carrying out programmatic recommendations identified in this Plan, such as the Vision Zero policy and new Citywide TDM Plan.
### Figure 4-8   Citywide Performance Metrics and Associated Targets

<table>
<thead>
<tr>
<th>PERFORMANCE METRIC</th>
<th>TARGET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citywide combined bicycle and pedestrian mode share for trips of one mile or shorter</td>
<td>30% by 2020</td>
</tr>
<tr>
<td>Single occupant commuting</td>
<td>20% reduction by 2020</td>
</tr>
<tr>
<td>Number of pedestrian and bicycle related collisions</td>
<td>50% reduction by 2020</td>
</tr>
<tr>
<td>Number of pedestrian and bicycle fatalities</td>
<td>Downward trend</td>
</tr>
<tr>
<td>Total roadway crashes and injuries from all roadway crashes</td>
<td>Downward trend</td>
</tr>
<tr>
<td>Ratio of bicycle facility miles to road miles</td>
<td>Upward trend</td>
</tr>
<tr>
<td>Linear feet of sidewalks</td>
<td>Upward trend</td>
</tr>
<tr>
<td>VMT per capita</td>
<td>Downward trend</td>
</tr>
<tr>
<td>Total transportation-related GHG emissions per capita</td>
<td>Downward trend</td>
</tr>
<tr>
<td>Travel time for the following corridors and modes:</td>
<td>Maintained travel time for auto, reduced travel time for transit and bicycle</td>
</tr>
<tr>
<td>» El Camino Real from Peninsula Avenue to 42nd Avenue (auto, transit, bicycle)</td>
<td></td>
</tr>
<tr>
<td>» Alameda de las Pulgas from Crystal Springs Road to 42nd Avenue (auto, transit, bicycle)</td>
<td></td>
</tr>
<tr>
<td>» 3rd Avenue from Norfolk Street to El Camino Real (auto, transit, bicycle)</td>
<td></td>
</tr>
<tr>
<td>» 4th Avenue from El Camino Real to Norfolk Street (auto, transit, bicycle)</td>
<td></td>
</tr>
<tr>
<td>» Hillsdale Boulevard from Alameda de las Pulgas to Norfolk Street (auto, transit, bicycle)</td>
<td></td>
</tr>
<tr>
<td>» Norfolk Boulevard from 3rd Avenue to Hillsdale Boulevard (auto, transit, bicycle)</td>
<td></td>
</tr>
<tr>
<td>Average vehicle occupancy</td>
<td>Upward trend</td>
</tr>
<tr>
<td>Roadway segments using green infrastructure to manage storm water runoff (as a percent of the total network in the city)</td>
<td>Upward trend</td>
</tr>
<tr>
<td>Roadway segments using green infrastructure to manage storm water runoff (as a percent of the total network) in Downtown and PDAs</td>
<td>Upward trend</td>
</tr>
<tr>
<td>Tree canopy along streets in San Mateo</td>
<td>Upward trend</td>
</tr>
<tr>
<td>Sales revenue per square foot in Downtown</td>
<td>Upward trend</td>
</tr>
</tbody>
</table>
Performance metrics included in this Plan are of three types:

» Citywide performance metrics, measuring citywide trends related to sustainable transportation

» Development performance metrics, measuring the multimodal success and impacts of new development projects

» Corridor performance metrics, measuring multimodal performance of new Sustainable Streets projects on a corridor level

Taken together, these performance measures consider a balanced range of solutions to unfavorable conditions, instead of focusing solely on vehicular carrying capacity, yielding a better understanding of the quality of the city’s multimodal transportation facilities and the ways to improve overall system performance.

CITYWIDE PERFORMANCE METRICS

On a citywide scale, the Sustainable Streets Plan envisions a transportation system that supports the City’s goals for sustainability, safe and healthy transportation, active living, and a sense of community where walking, bicycling, and transit are integral parts of daily life. As such, citywide performance metrics include rates of walking and biking, the number of collisions involving bicyclists and pedestrians, and per capita VMT and Greenhouse Gas (GHG) emissions. A complete list of performance metrics measuring citywide trends related to sustainable transportation, as well as potential targets, are included in Figure 4-8.

Corridor Performance Metrics

Certain before-and-after comparisons of complete/sustainable/Green Streets projects are also important metrics to use when measuring success. Potential metrics for street performance before and after project implementation are included in Figure 4-9.

Figure 4-9 Corridor Performance Metrics

<table>
<thead>
<tr>
<th>MODE</th>
<th>POTENTIAL PERFORMANCE METRICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automobile</td>
<td>Average travel time</td>
</tr>
<tr>
<td>Transit</td>
<td>Peak travel time</td>
</tr>
<tr>
<td></td>
<td>Average peak period speed compared to free-flow speed</td>
</tr>
<tr>
<td></td>
<td>Average person delay</td>
</tr>
<tr>
<td>Bicycle</td>
<td>Provision of dedicated facilities</td>
</tr>
<tr>
<td></td>
<td>Peak travel time</td>
</tr>
<tr>
<td></td>
<td>Bicycle LOS based upon level of dedicated facility in comparison to automobile speeds</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>ADA compliance (pass/fail)</td>
</tr>
<tr>
<td></td>
<td>Available sidewalk width (minimum standard TBD)</td>
</tr>
<tr>
<td></td>
<td>Percentage of sidewalk width compared to overall street width (minimum standard TBD)</td>
</tr>
<tr>
<td></td>
<td>Prescribed sidewalk width according to number of travel lanes (minimum standard TBD)</td>
</tr>
<tr>
<td></td>
<td>Average pedestrian crossing delay</td>
</tr>
<tr>
<td></td>
<td>Block lengths</td>
</tr>
<tr>
<td></td>
<td>Availability of safety infrastructure (flashing beacons, median refuges, advance yield lines, etc.)</td>
</tr>
<tr>
<td>Green Streets</td>
<td>Provision of Green Streets and general landscape features</td>
</tr>
<tr>
<td>Other</td>
<td>Retail sales along corridor</td>
</tr>
<tr>
<td></td>
<td>Speed limit compliance</td>
</tr>
</tbody>
</table>
**Development Performance Metrics**

For new development, performance metrics seek to evaluate the multimodal impacts of new development, including car use and development-specific VMT and GHG emissions per capita. A complete list of performance metrics measuring development performance trends related to sustainable transportation are included in Figure 4-10.

**FUNDING SOURCES**

The City of San Mateo could draw on a variety of programs at the local, state, and federal levels to help support this plan. Appendix K provides detailed descriptions of all manner of potential funding sources, but several have particular potential.

- The City of San Mateo Capital Improvement Program: The City’s plan for funding capital improvements of all kinds often prominently features roads, bridges, and related infrastructure.
- Active Transportation Program: A new state-level program that combines state and federal funding for bicycle and pedestrian infrastructure and programs.
- Sustainable Streets Fee: The replacement for San Mateo’s existing Transportation Improvement Fee program recommended by this plan. The fee could channel significant money from development projects toward Sustainable Streets improvements.
- County Measure M Vehicle Registration Fee and County Measure A Sales Tax: County-level programs that provide funding exclusively for transportation-related projects and operations costs. Both voter-approved programs will be in place into the 2030s.
- One Bay Area Grant Program: A competitive grant program administered by the Bay Area’s regional transportation planning agency, the Metropolitan Transportation Commission, to support regional goals of concentrating development in areas that are transit-accessible, walkable, and bikeable.

The appendix includes detailed descriptions of all of these programs and a variety of other potential funding sources.
CHAPTER 5
MOVING FORWARD
“If everyone is moving forward together, then success takes care of itself.”

Henry Ford
The San Mateo Sustainable Streets Plan provides a variety of strategies for ensuring that the backbone of the city’s transportation system – its streets – serves more than just automobiles. The Plan has laid out a 21st Century vision for San Mateo’s roadways that incorporates the needs of all users and all modes and maximizes their social and environmental benefits. It is the result of two years of community discussions, research, technical analysis, and concept development, and it ushers in a new era in the way the City plans, funds, builds, and maintains a public asset that takes up 22% of the city’s land area.

The work to make San Mateo’s streets more sustainable is just beginning. Making the vision outlined in this document come to life will require cooperative efforts of people throughout City departments and other local and regional agencies, help from private developers and companies, and ongoing participation from the city’s residents and workers. Discussions, started through this effort, about what residents and other stakeholders want their transportation system to look like must continue, and everyone who had a hand in this Plan must work hard to ensure that, over time, San Mateo’s streets become safer and more comfortable for everyone and environmentally and fiscally more sustainable.

City agencies will begin implementing this vision immediately, but the Plan is designed to gradually transform San Mateo’s transportation system over the next several decades. The City will maximize all manner of street-related infrastructure projects—from road repaving to utility replacement projects—to make changes. Coupled with the project impact fees related to development, these efforts will make the vision come to life.