

*Bold and Vibrant Choices for Tomorrow*

October 2019 | DRAFT

# The City of San Diego MOBILITY ACTION PLAN

# ***City of San Diego Strategic Plan***

## ***Mission:***

***To effectively serve and support our communities***

## ***Vision:***

***A world-class city for all***



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*The City Of San Diego*

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*Mayor*

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# Introduction

## Introduction

The way people want to move about their communities is changing. With environmental considerations and new technologies, and an increased awareness to address a historical lack of prioritization within communities of concern, the City of San Diego needs to foster greater mobility options. Building on the 2015 Climate Action Plan, the City needs a strategic vision to address the changing mobility needs. This Mobility Action Plan (MAP) is a first step towards a new mobility future for San Diegans.

This plan will guide the City to oversee the delivery of mobility and be the champion for mobility innovation and implementation. The plan summarizes mobility policies and programs currently in place and outlines priorities for the future, which are initial steps in making San Diego a region with world class mobility options. The functions of mobility planning, construction, maintenance, and monitoring happen throughout various departments and divisions within the City, all of whom have participated in the development of this plan.

The City has developed this Mobility Action Plan (MAP) to improve access to opportunities for all residents, achieve the goal of the Climate Action Plan (CAP) and help achieve its vision of a world-class city for all.

***In the context of this document, the term “mobility” means how we move around San Diego. This is not limited to the mobility options of today, but leaves room for emerging technologies and patterns of the future.***

### **The Mobility Action Plan provides a vision for San Diego’s transportation network to deliver future mobility options centered around the following values:**

- Maintain and expand efficient, safe and convenient transportation options for all
- Address mobility needs and gaps
- Consider social equity in all mobility decisions
- Support healthy lifestyles with active transportation options
- Minimize transportation network impacts on the environment
- Reduce citywide greenhouse gas (GHG) emissions and achieve GHG targets identified in the Climate Action Plan
- Increase the number of resident commuters using bike, walk and transit as primary mode of transportation
- Utilize existing and future technology to achieve adaptive capacity in the mobility network

## A Snapshot in Time

The City of San Diego has 93 miles of shoreline, wonderful weather, a dynamic economy, and diverse communities. With over 1.4 million residents and 540,000 jobs, it is the eighth largest and one of the most diverse cities in the nation. There are more than 100 languages spoken and 15 resident ethnic groups. This diversity provides many advantages and brings a broad perspective to the community.

### City of San Diego Demographics



**Population**  
1.4 Million



**Jobs**  
540,000



**Languages Spoken**  
>100  
41% Speak a Language Other Than English at Home



**Education**  
High School Diploma: 88%  
Bachelor's Degree: 44%



**Tourism**  
35 Million Visitors  
194,000 Jobs in Visitor Industry  
Spend \$11 Billion Annually

With six universities and eighty research institutions, San Diego is a national leader in higher education and innovation. Fourteen tech-adjacent industries account for 12 percent of the jobs and produce \$42.1 billion annually in San Diego. The tourism industry also contributes substantially to the city's economy. Furthermore, San Diego is home to the nation's largest military community, with more than 100,000 active duty personnel, and an additional 90,000 veterans living in San Diego.

As a large metropolitan city, San Diego's transportation network includes roadway, rail track, bicycle lanes, sidewalks, and recreational trails.

### City of San Diego's Transportation Network



2800 Miles of Streets and Alley's



130 Miles of Track for Freight, Commuter, and Regional Rail Service



170 Miles of Light Rail



2,130 Miles of Bus



750 Miles of Bicycle Lanes



5,000 Miles of Sidewalk



80 Miles of Trails

### Commuting Patterns/Mode Share for City of San Diego Residents



**3%**  
Walk



**8%**  
Transit



**2%**  
Bike



**78%**  
Drive Alone



**9%**  
Carpool/Van

Per Day Commute Distance:  
**20 miles**

Commute Burden:  
**24 minutes**

## Challenges

### Population Growth and Housing

San Diego's population and employment is projected to grow to approximately 1.9 million people and 1 million jobs by 2050. Population and employment growth will increase demand on the City's transportation infrastructure. The impending growth could result in uneven distribution of opportunities and burdens across the City neighborhoods and presents mobility challenges, such as maintaining and building quality infrastructure, completing projects in already congested areas, and maintaining safe travel conditions for all users.

Creative and careful planning is necessary to ensure efficient access to jobs, mobility around the City for residents, improved safety for pedestrians, bicyclists, and drivers, and to promote adaptive capacity to leverage emerging technologies. Continuing to achieve targeted service levels across transportation assets will enable the City to fulfill the needs of all users.

### Climate Change

San Diego adopted a Climate Action Plan (CAP) which set an overall goal of reducing citywide greenhouse gas (GHG) emissions by 6.5 million metric tons by 2035. A key strategy identified to reach this goal is for 50 percent of resident commuters to choose biking, walking and/or transit as their primary mode of transportation.

### Resiliency

The San Diego region is beginning to see the impacts of a changing climate through extreme heat, wildfires, flooding, rising sea levels and changes in rainfall frequency and amounts. Roads and other transportation facilities are vulnerable to rising sea levels, flooding and inundation.

The City is currently in the process of developing the Climate Resilient San Diego plan to reduce vulnerability to projected climate changes and increase the local capacity to adapt.

## Equity

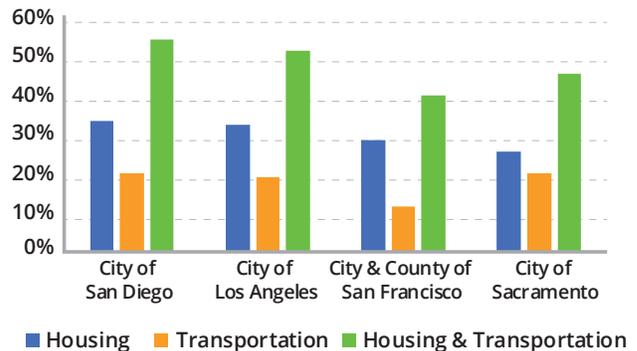
Multimodal mobility options are essential to uplift all communities and connect residents to where they want to go. Historically, some communities have access to fewer mobility choices. The City recognizes the importance of making mobility investments in areas where they have been lacking to provide equitable mobility choices among all communities.

The City is intent on addressing issues regarding transportation equity and access by evaluating the distribution of mobility benefits and prioritizing investments in locations where mobility improvements are needed, particularly within identified communities of concern.

## Affordability

Housing and transportation expenditures together account for over half of San Diego residents' annual incomes, compared to the national average of 40 percent.

**Expenditures as a Share of Household Income**



With transportation expenditures accounting for about 20 percent of resident's annual incomes, it is critical that users have multiple reliable cost and time competitive mobility choices. Careful consideration of transportation investments, land use policies, and urban design elements are necessary to ensure access to jobs, education, food, recreation, and services for the City's residents and visitors, while encouraging active transportation and transit options. Options for active transportation and transit

can improve health and quality of life while offering alternatives to the automobile, which contribute towards greenhouse gas reductions. The introduction and greater use of emerging vehicle technologies and **Mobility as a Service** options also provide opportunities to improve affordability of mobility while simultaneously contributing towards achievement of other City and regional goals.

## Inter-Agency Coordination

The City alone is not responsible for all the mobility options in use today. The State (Caltrans) controls freeway operations, vehicle registration fees, and gas taxes (which have a tremendous influence on the cost of driving); the Metropolitan Transit System (MTS) controls transit operations; the San Diego Association of Governments (SANDAG) develops long-range regional transportation plans. At the Federal level, vehicle design and gas tax policy influence how many transportation options are available, safe, and affordable. While the City can manage the operations of its streets, bikeways and sidewalks, multiple other agencies and regulations drive the make-up of who, what and how much it costs to use the streets, challenging the City's desire for healthy, safe and livable communities.



Ciclos Dias, Barrio Logan

## Principles

Addressing the challenges San Diego faces will require strategic actions expressed through the principles outlined below, which are detailed in the following sections of this MAP:

### Connected Communities and Mobility Equity

Residents live in communities spread all over the City connected by transportation infrastructure. However, some communities have more access and opportunity to mobility than others, while others are overburdened by the effects of transportation infrastructure itself or the lack thereof and the missed opportunities to get to jobs or education. This section details how the City is updating community plans to deal with the changing mobility landscape, while at the same time addressing mobility equity.

### Safety and Education

The safety of residents and visitors as they travel through the City is a top priority. The City has a goal to eliminate traffic related injuries and fatalities. This section highlights the programs and policies in place to help achieve that goal and other considerations to ensure that the City residents and visitors can move around safely.

### Health and Climate Change

The City is a leader on healthy lifestyles and action on climate change initiatives. This section details the many existing plans, policies and actions underway to achieve identified climate change goals and make active transportation options safer and easier to use to help keep residents healthy.

### Innovation and Technology

The world of transportation technology never stops evolving and developing new mobility options or methods of access. The City must stay on top of these emerging technological trends to remain competitive in a global economy and to keep residents and visitors moving through the region. This section highlights City efforts and actions underway with new technology and readiness for future mobility opportunity.





# Connected Communities and Mobility Equity

## Connected Communities and Mobility Equity

Community plans are updated to reflect the community's vision of the future, implement the General Plan, reflect changes that have taken place since the community plan was last updated, and proactively anticipate future needs. The community plan updates reflect changes in state law related to climate change and mobility planning, and expansion of the planned regional transit system.

The City of Villages strategy concurrently emphasizes place-making of each neighborhood while improving connectivity between villages.

## Community Plans

Communities are constantly evolving with different land uses and new mobility options and technologies. Updates to community plans foster positive change and help to position communities to be connected to each other and beyond for a City ready for the future. Within the City General Plan, the City of Villages strategy emphasizes place-making of each neighborhood while improving connectivity within and between villages. The coordination between land use and mobility planning is a fundamental component of the City of Villages growth strategy.

In the last decade, the City has made a commitment to the ongoing update of our community plans to reflect changes that have taken place since the community plan was last updated, implement the General Plan and the Climate Action Plan, and proactively anticipate and plan for the future needs and vision of the community. Changes in state law related to climate change and mobility planning, planned expansion of the regional transit system, and the continuing revolution in mobility-related technology and options are integrated into the design of the community mobility and circulation.

Since the update of the City's General Plan in 2008, the City has completed 11 comprehensive community plan updates identifying complementary land uses and multi-modal improvement projects to support the planned growth, focusing primarily in areas with existing or future transit investments and resources. These community plans include a variety of mobility infrastructure improvements aimed at creating a robust mobility network that is aligned with the achievement of the goals of the City Climate Action Plan to reduce greenhouse gas emission, specifically as they relate to mobile-source emissions. These active transportation and circulation infrastructure improvements include pedestrian, bicycle, transit, and vehicular facilities that provide safe, accessible, and improved connections to all users. Among the mobility options and active transportation improvements are landscaped/buffered sidewalks and paseos, separated bicycle facilities, roundabouts, new and upgraded traffic signals, and transit priority measures for dedicated facilities and vehicular lanes.



Conceptual Design of Roundabout

## Addressing Mobility Equity

Historically, efficient, cost effective and sustainable mobility infrastructure and technology investments have been lacking in communities of concern. Residents of these communities traditionally experience more air pollution from transportation-related emissions and suffer from a lack of access to a mobility infrastructure that promotes health and access to safe, reliable, affordable, efficient, and convenient modes of transportation. The City's efforts to address mobility equity include prioritizing communities of concern for planning studies that identify their specific needs, assess projects that maximize community benefits and reduce burdens, and shift decision-making power to allow for a greater voice by communities of concern.

In the recent years, the City has completed multiple planning studies primarily aimed at identifying mobility improvements for underserved communities, both by studying communities of concern geographically, and by prioritizing and addressing the needs of pedestrians, cyclists, and transit users in every mobility study and community plan the City undertakes. In addition to the community plan updates discussed previously, the City has completed multiple, grant-funded mobility and active transportation plans focusing on ways to connect residents to shopping, recreational amenities, and jobs in and around their neighborhoods.

## Identifying Communities of Concern

The City's Climate Action Plan identifies communities of concern by utilizing the City Council's Capital Improvement Program Prioritization Policy and incorporating The State of California's Office of Environmental Health Hazard Assessment (OEHHA) CalEnviroScreen. The latter source is used by the State to identify disadvantaged communities.

For the purpose of this plan, we will rely on the Climate Action Plan's definition for Communities of Concern and acknowledge that these communities may at times be referenced as Disadvantaged Communities by the State, Priority Populations by community groups and organizations, as well as vulnerable communities.

## What is Mobility Equity

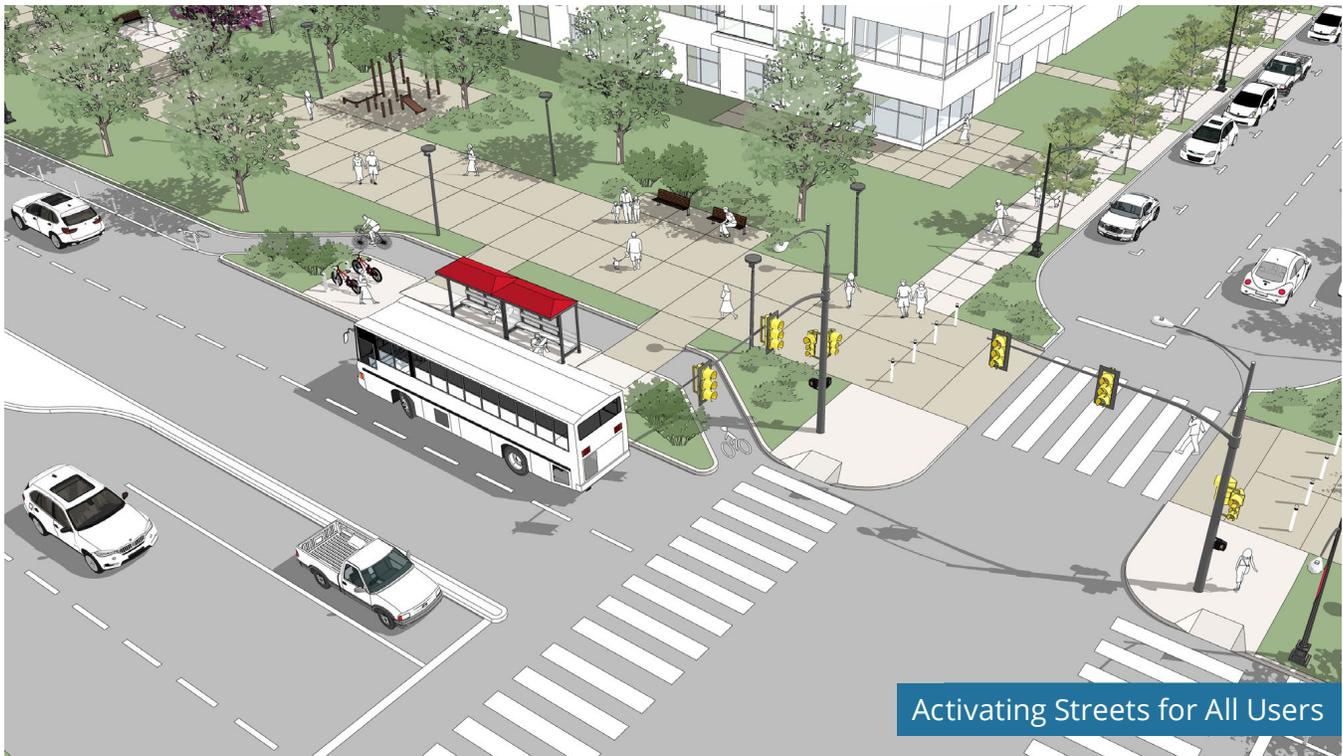
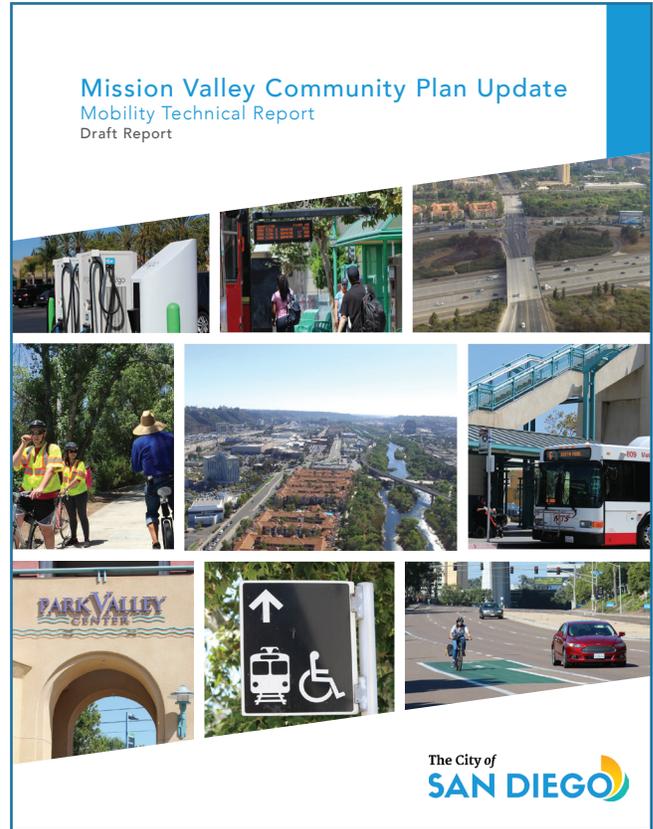
Often times, when the term equity is used, it is mistaken to mean equal treatment. This is not equity. Equity is the fair and just distribution of societal benefits and burdens. Mobility Equity further defines the need to establish a mobility network that increases access to high quality mobility options for communities of concern, and improve the overall mobility network to be safe, reliable, efficient, and affordable for all users and modes of travel.

***Equity is the fair and just distribution of societal benefits and burdens. Mobility Equity refers to a mobility network that increases access to high quality mobility options for communities of concern.***



## Goals

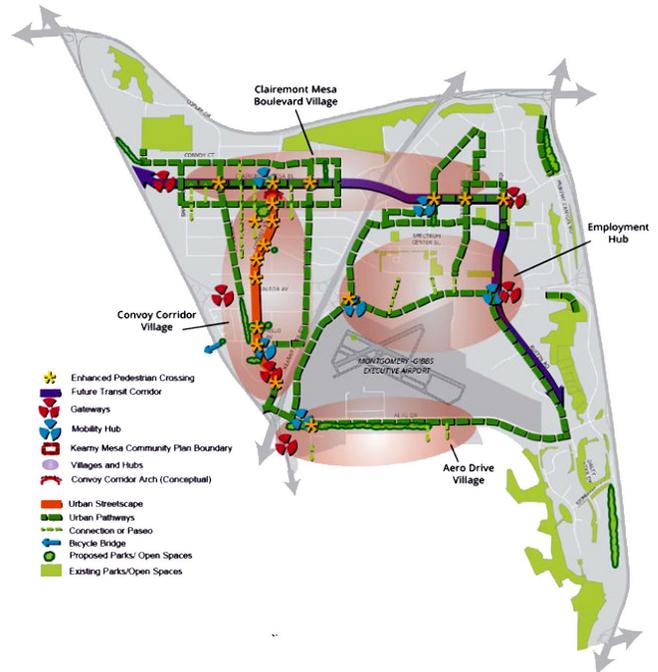
- Reduce the transportation cost burden for communities of concern to be at or below 20% of their income
- Connect workers to jobs traditionally hard to reach by various modes of transportation
- Increase access to various mobility options for communities of concern
- Address barriers in communities of concern that prevent active and transit modes of transportation
- Educate the Community on Mobility Equity
- Involve the community in more decision-making processes
- Advance shared mobility equity programs targeting people of color, low-income, immigrant, refugee, youth, aging populations, women, LGBTQ, and people with disabilities



Activating Streets for All Users

## MAP Actions

- Identify communities where cost burden exceeds 20% utilizing more detailed demographic analysis and target those areas for cost savings transportation projects and/or grants
- Prioritize projects that connect more households to employment centers within a 30-minute transit ride.
- Establish guidelines for outreach to low-income shared mobility users.
- Engage with communities of concern on mobility projects.
- Include mobility equity discussions in community engagement events
- Monitor shared mobility data to ensure shared mobility operators are prioritizing communities of concern.
- Create an equity-driven outreach plan to both share information and engage potential users of transit and active transportation options
- Continue to update Community Plans and the Mobility Elements in those areas with existing and planned Transit Priority Areas
- Seek grant funding for focused active transportation plans and corridor plans to connect affordable, high-density development through safe and effect active transportation networks



Kearny Mesa Draft Community Plan







# Safety and Education

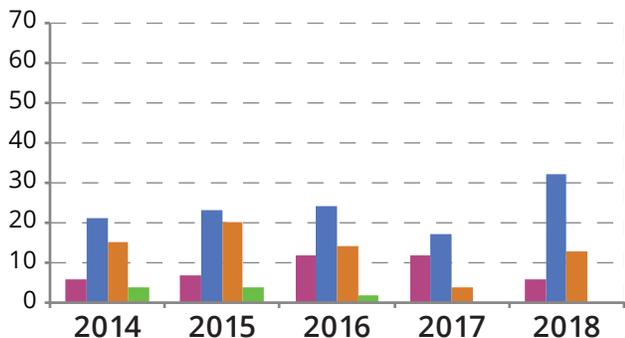
## Safety and Education

Safe travel is a top priority for the City of San Diego. The transportation sector inherently poses physical safety dangers to people that can be mitigated through careful design, implementation of appropriate safety controls, and proper education and enforcement efforts. Prioritization of safety is critical to eliminate traffic related injuries and fatalities, and to help maintain the integrity of the City's complete transportation network.

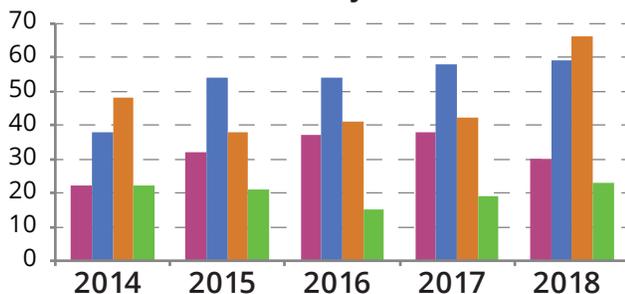
### City of San Diego Fatalities/Injuries

■ Motorcycles ■ Vehicles ■ Pedestrians ■ Bikes

#### Fatalities



#### Severe Injuries



In 2017 and 2018 the City had zero bicycle fatalities. However, in 2018 there was an increase in pedestrian fatalities after years of steady/declining numbers. The City is evaluating these crashes and developing countermeasures to increase pedestrian safety.

## Aligned Plans and Policies

### Vision Zero

Vision Zero aims to eliminate all traffic fatalities and severe injuries in San Diego by 2025. The Vision Zero FY17 Strategic Plan provided the City with direction for the first fiscal year of implementing Vision Zero.

### The Strategic Plan Encompasses 3 Elements:



#### Education

Raise awareness of traffic safety



#### Enforcement

Actions to ensure changes to dangerous behavior



#### Engineering

Safety and Traffic-reducing improvements on streets where most fatalities and severe injuries take place

The Vision Zero program implemented 300 pedestrian safety counter measures, including countdown timers, high visibility crosswalks, and audible pedestrian signals for at least 30 traffic signals. The Vision Zero Long Range Plan is in development and builds off actions currently underway and highlighted in the MAP.

### Safety Initiatives Undertaken



- Analyzing traffic collision data
- Focusing efforts at frequent crash locations
- Highlighting needed improvements on streets and sidewalks
- Improving the design and installation of crosswalks
- Developing pedestrian plans and promoting active transportation options, and
- Implementing safety audits and incorporating stakeholder input

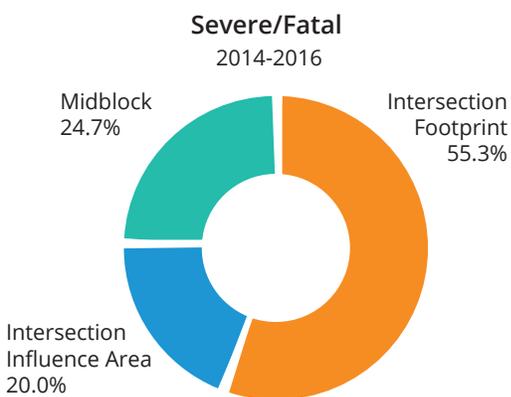


## Systemic Safety Analysis Report Program

The Systemic Safety Analysis Report Program (SSARP) has provided the City with an analysis of collisions to determine the sources of threats to safety for each travel mode, including engineering and behavioral factors. A method for conducting future collision analyses and identifying future issues will be reported in a manual to allow for reproduction. The SSARP identifies countermeasures that can mitigate the identified safety concerns and reduce the likelihood of collisions. For each countermeasure, the potential crash reduction factors, anticipated cost categories and potential implementation issues will be reported.



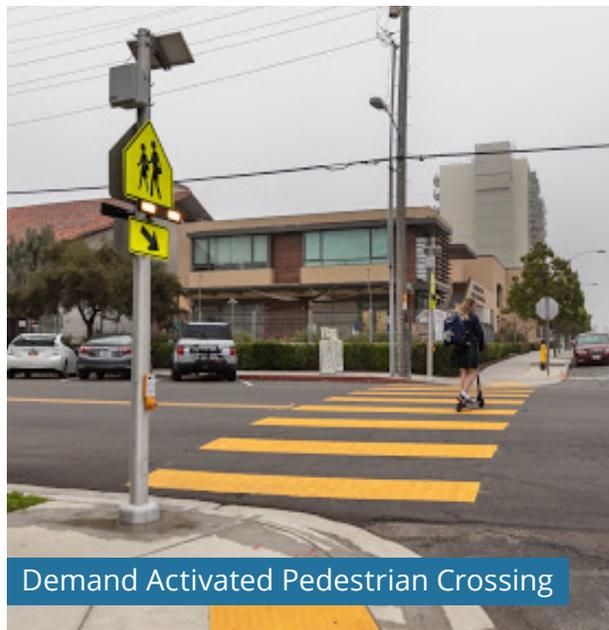
75% Of Severe/Fatal Crashes in San Diego Occur at or Near Intersections



## Safe Routes to Schools

Safe Routes to Schools (SRTS) aims to increase the number of children who walk or bike to school safely by resolving barriers to walking and biking and providing safe routes for travel. By decreasing school-related vehicle trips, SRTS can

support improved air quality and reduced traffic congestion while promoting healthy and active lifestyles.



Demand Activated Pedestrian Crossing

The City of San Diego works with individual schools and districts to review and respond to safe routes to school requests. The City SRTS program includes a strong engineering aspect to perform needs assessment and implement safety improvements and modifications within the public right of way. The program also strives for continuous evaluation of the infrastructure improvements that are implemented. Other common aspects of the SRTS programs include education, encouragement, and enforcement.

## Goals

- Eliminate transportation related fatalities and severe injuries by 2025
- Identify and implement priority safety improvements, ensuring improvements are implemented equitably across neighborhoods and communities
- Design for evolving transportation modes such as rideshare vehicles and micromobility devices/scooters
- Educate the public on keys to safe mobility

# Accomplishments

## Intersection Improvements

In 2017, the City of San Diego announced its commitment to implement safety elements at 15 intersections with high crash histories. Pedestrian enhancements such as improvements to striping, signals, and visibility, such as light fixtures and sound at crosswalks, were incorporated. Other enhancements included leading pedestrian signals ahead of traffic lights and countdown audible signals. Work at these 15 intersections was completed in late 2018. New information from the previously identified SSARP has now led to an expanded list of intersections to be proactively treated with safety countermeasures.

## Street Design Manual

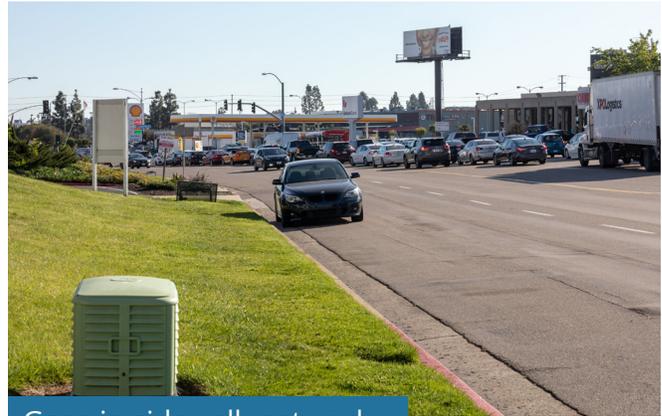
The City of San Diego Street Design Manual was updated in March 2017. The manual provides guidance for the design of the public right-of-way, and incorporates safety elements to reduce accidents and incidents for users of all transportation modes. In FY 2018, 88.8 miles of streets were paved, 239.3 miles were slurry sealed and 1.8 miles of concrete streets were repaired.

### Feature Project: University Avenue

The City is working on a project along University Avenue between Fairmount Avenue and Euclid Avenue, which has one of the highest densities of pedestrian crashes in the City. Specific features of the project include:

- Roundabouts
- New Bike Lanes
- Wider Sidewalks

All of the improvements would provide greater safety on University Avenue. At roundabouts, vehicles would move at slower speeds and flow more steadily, providing a safe intersection option for all roadway users.



Gaps in sidewalk network



Network with good sidewalk features



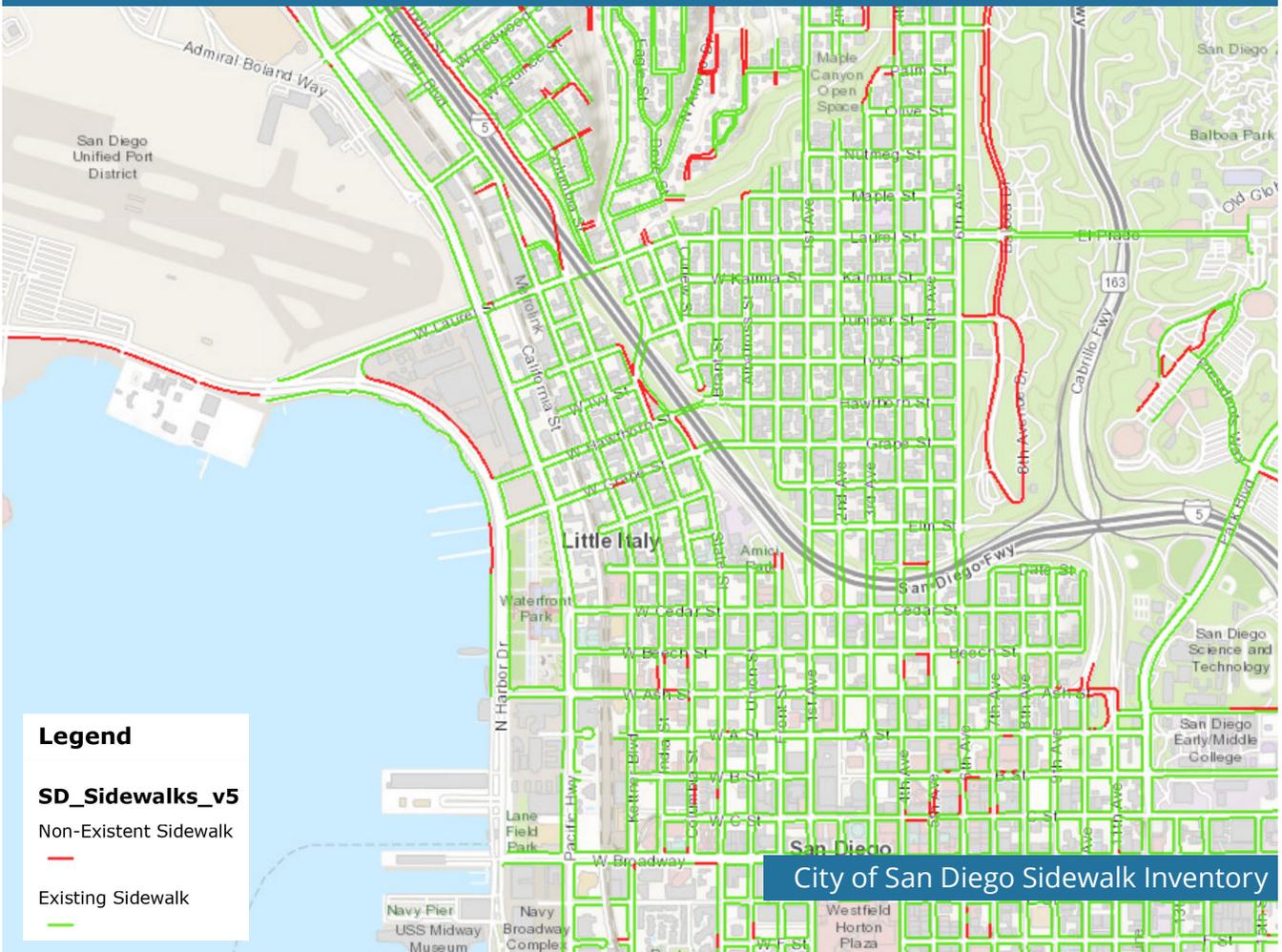
## Sidewalk Inventory

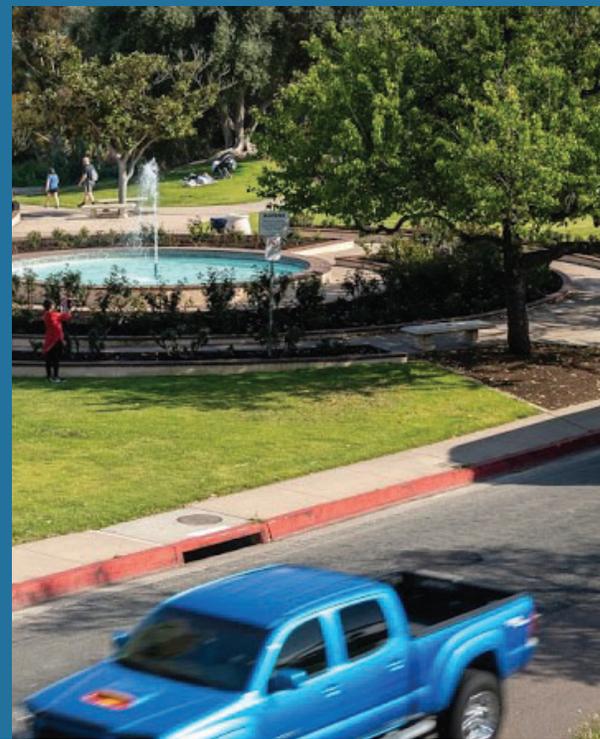
The City of San Diego took an inventory of its sidewalks from 2014 -2015, which was used to develop an interactive sidewalk map. The map displays the location, composition, gaps in the sidewalk network, curb ramps, and trees within 10 feet of the street. The City's sidewalk inventory can be coupled with the needs assessment performed as part of the SRTS program to identify suitable safety improvements for school environments across the City. It can also be used to identify other heavily trafficked pedestrian areas, as well as specific areas of concern that lack equitable access to the City's complete transportation network.



## MAP Actions

- **Identify City's high crash intersections and corridors every year and implement appropriate safety improvements**
- **Integrate community and equity evaluation into safety project development framework**
- **Provide mobility safety education across the City, prioritizing areas of high risk, communities of concern, and Transit Priority Areas**
- **Incorporate data from the City's sidewalk inventory and street lights inventory in assessing needs and improvements for establishing safe routes to school, target areas identified for equity considerations as priority locations**
- **Utilize the City's Asset Management Planning (AMP) tool to assist in efficient, responsive identification of maintenance or other safety needs for San Diego's transportation infrastructure and optimize activities pertaining to asset planning and project implementation**





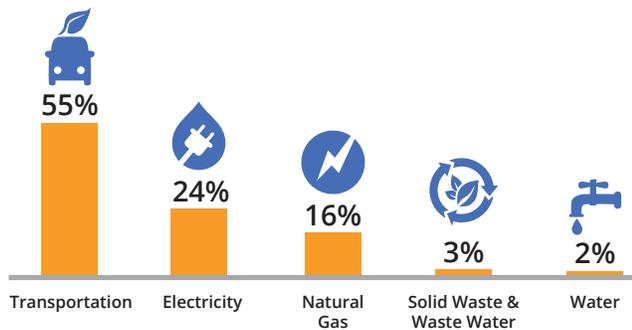


# Health and Climate Change

## Health and Climate Change

There is an observable relationship between land use, transportation demand, and public health. The 2010 Community-wide Emissions Inventory cites 55 percent of City-wide greenhouse gas (GHG) emissions to be originating from the transportation sector. This is largely due to the high frequency of single-occupancy vehicle trips.

**City of San Diego 2010  
GHG Emissions Inventory**



### Transportation, Public Health and Land Use

San Diego area ranks eleventh nationally among metro areas in ozone pollution and 23rd in short-term particulates.

A transportation network that supports active modes, such as bicycling, walking and transit, has the dual benefit of reducing environmental impact, while simultaneously providing opportunities for more physical activity among residents. Land use patterns can be shifted, over time, to provide a better foundation for such a network.

## Aligned Plans and Policies

### Climate Action Plan

Adopted in 2015, the City's Climate Action Plan (CAP) established a target to reduce citywide GHG emissions 50% by the year 2035. The CAP serves as a roadmap for the City to move towards this target through five key strategies designed around water and energy, renewable energy, transportation, waste and resiliency. Within each strategy, specific goals have been listed and progress towards these goals is measured each year through the CAP Annual Report. Those goals specifically relating to mobility are within Strategy 3: Bicycling, Walking, Transit & Land Use in the CAP and are listed below.

### Climate Action Plan Mobility Goals

- Increase use of mass transit by implementing the General Plan's Mobility Element and City of Villages Strategy
- Increase commuter walking opportunities by implementing pedestrian improvement in transit priority areas
- Increase commuter biking opportunities by implementing the City of San Diego's Bicycle Master Plan
- Reduce vehicle fuel consumption by implementing a Traffic Signal Master Plan to retime traffic signals
- Develop a Roundabout Master Plan
- Promote effective land use to reduce vehicle miles traveled

Reducing automobile vehicle miles traveled (VMT) and vehicle fuel consumption by improving efficiency result in the co-benefit of reducing GHG emissions resulting in improvements to air quality. Reducing the amount of carbon monoxide, particulate matter, nitrogen oxide and sulfur dioxides in the atmosphere results in healthier communities.

### Bicycle Master Plan

The City's Bicycle Master Plan is a vision for San Diego's future bicycle network. It identifies projects, policies, and programs that improve bicycle transportation, and recreational opportunities. The Bicycle Master Plan establishes a comprehensive bikeway network, locally and regionally, ensuring bicycling as a viable travel choice, particularly for trips less than five miles. The City has established an action through the CAP to increase commuter bicycle mode share through the implementation of the Bicycle Master Plan, resulting in a reduction of GHG emissions and more transportation options for residents and visitors.

On July 27, 2018, the City Council adopted the Bicycle Advisory Committee's Strategic Implementation Plan, which provided recommendations for implementing bikeways and bike program elements described in the Bicycle Master Plan.

### City of Villages Strategy

One of the elements of The City's 2008 General Plan, The City of Villages strategy prioritizes development into mixed-use activity centers that are welcoming to pedestrians. A village is defined as the mixed-use center of a community, where residential, commercial, employment, and civic uses are integrated together. Characterized with accessible, complete streets and public spaces, villages are to be connected to each other over time through an expanded regional transit system, improving access and mobility.

Implementation of the City of Villages strategy promotes walkability as well as transit ridership, which advances the City towards the goal in the CAP of increasing the use of mass transit.

### Pedestrian Master Plan

The City of San Diego Pedestrian Master Plan provides guidance for planning and enhancing neighborhood quality and mobility options with pedestrian improvements. Pedestrian safety, accessibility, connectivity and walkability are the guiding principles of the Pedestrian Master Plan.

Pedestrian mobility is largely an outcome of urban design, land use and connectivity. Diverting trips from cars to foot will result in impacts to local traffic volumes, improving overall mobility in the region.

The City annually budgets for new sidewalks to fill in existing gaps, repair and replace existing sidewalk.

### San Diego Parks Master Plan

As a result of changing development patterns, demographics, and lifestyles, the City of San Diego is actively developing a Parks Master Plan, which will explore needed strategies for delivering a diverse and meaningful array of parks, recreation facilities, and programs. The parks and recreation system strives to be relevant, accessible, iconic, sustainable, and equitable. This improved park system will both provide active transportation destinations and act as thoroughfares in and of themselves, providing greenspace paths that connect major pedestrian destinations.

## San Diego Forward:

SANDAG is responsible for development of the Regional Plan which serves as a roadmap to the growth and evolution of the San Diego region as a whole. The Plan creates a framework for the region's long-term transportation infrastructure needs, with the ultimate aim to provide and promote more transportation choices, healthy environment and strong economy.

The City of San Diego encompasses 55% of the region's jobs and 67% of the region's mass transit. Many regional planning efforts develop around the jobs, housing and transportation that lie within the City. Thus, efforts made to enhance regional mobility and connections are greatly influenced by City decisions, plans, policies, and goals. The City works closely with SANDAG and partner jurisdictions in developing the Regional Plan and creating solutions that align with City priorities. The next Regional Plan is anticipated to be adopted in late 2021.

SANDAG is developing a bold new vision for the 2021 Regional Plan with the goal of transforming the way people and goods move throughout the San Diego region. Built significantly on public input, the new vision would consider innovative technologies, social equity, sustainability, land use and housing and economic opportunities, which are aspects directly in line with the MAP.

**Key SANDAG strategies include:** complete corridors accommodating all users; high-capacity, high-speed and high-frequency transit services; mobility hubs; flexible fleets; and an overall operating system to connect users, transportation service providers and infrastructure.

- Incorporate resiliency measures into the maintenance and construction of mobility infrastructure throughout the City
- Increase access to neighborhood amenities including parks, recreation and sources of healthy food

## Accomplishments

### FreeTreeSD

The FreeTree SD program allows residents to get involved with increasing the urban canopy. Through Free Tree SD, San Diegan(s) can get a new tree, free of charges by identifying a space in the public right of way that could benefit from a new tree. The City horticulturist evaluates the space and determines appropriate tree selection. City asks that residents help to water the tree.

In FY18, 307 trees were added to the City's urban canopy, adding to the existing 17,212 trees that the City maintains annually.

### Pedestrian Priority Model

The Pedestrian Priority Model was developed to determine areas within the City of San Diego most in need of evaluation for pedestrian improvements. Utilizing existing data from a GIS database, the model is composed of the following three basic components: pedestrian attractors, pedestrian generators, and pedestrian detractors. The model is being used to develop and prioritize pedestrian improvements.

## Goals

- Achieve the City's overall GHG emissions reduction goal stated in the CAP
- Reduce transportation related emissions to improve air quality for all San Diegans
- Expand access to recreational opportunities and amenities for all ages through improved active transportation networks

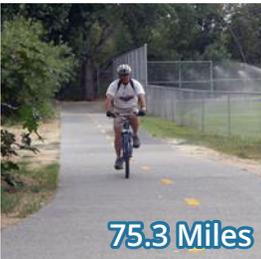
### Improvements to Bicycle and Pedestrian Infrastructure

INFRASTRUCTURE	2016	2017	2018	2019
 Sidewalk (Linear Feet)	10,000	14,000	20,000	10,000
 Bike Lanes (Miles)	57	35	41	20

## Top 10 City for Bicycling

The City of San Diego was recognized by PlacesForBikes as a top 10 city for bicycling. The PlacesForBikes City Rating Score is based on factors, which include a community survey, city snapshot, bike network analysis, American Community Survey data, fatality analysis reporting system, and sports marketing surveys bicycle participation. Through implementation of this MAP, and related plans, the City will hold or improve this ranking.

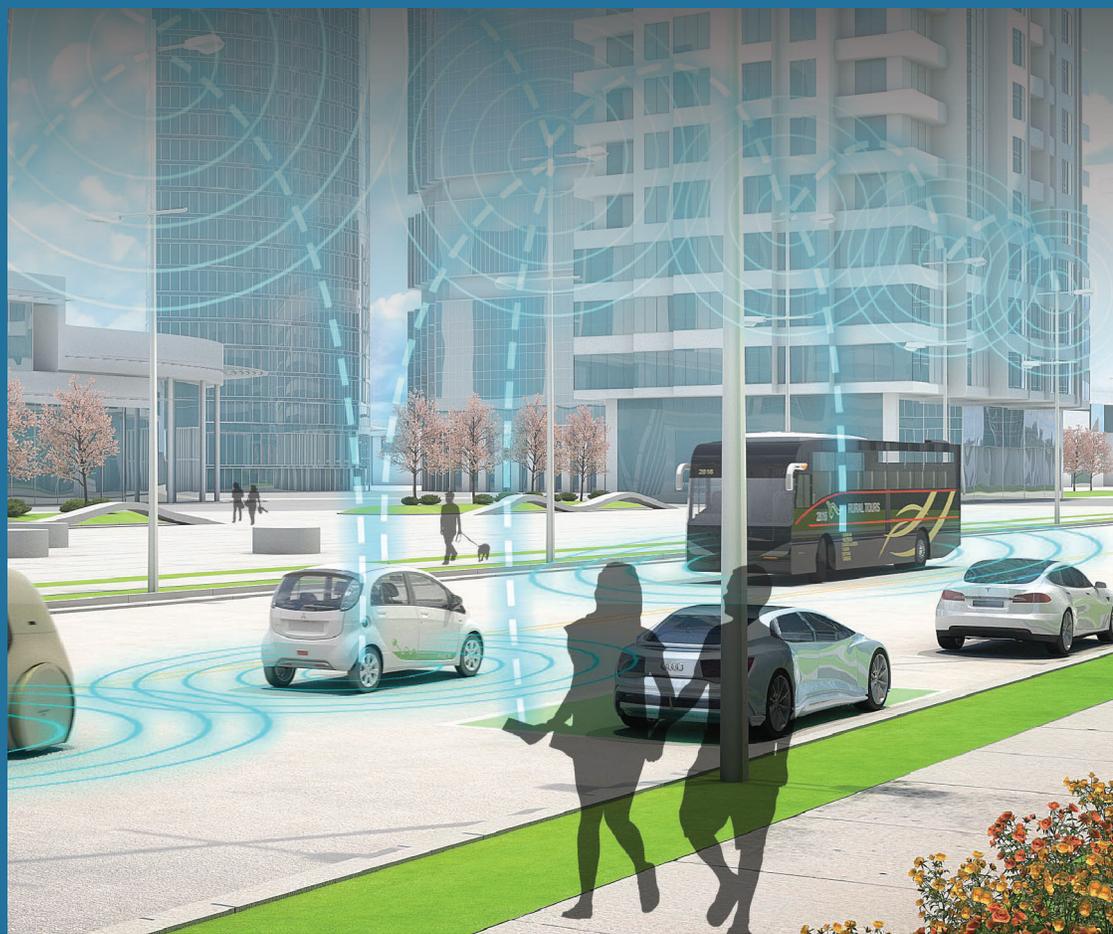
### City of San Diego Bike Network Inventory

CLASS	SAN DIEGO
<b>Class I</b> <b>– Bike Paths:</b> Physically separated from vehicular traffic	 <p>75.3 Miles</p>
<b>Class II</b> <b>– Bike Lanes:</b> Defined by pavement markings and signage	 <p>694.7 Miles</p>
<b>Class III</b> <b>– Bike Routes:</b> Shared bikeway, vehicles and bicycles in the same travel lane	 <p>278.6 Miles</p>
<b>Class IV</b> <b>– Cycle Tracks:</b> Exclusive bike facilities; physically separated from motor traffic and distinct from the sidewalk	 <p>5.9 Miles</p>

## MAP Actions

- Implement separated bikeways (Class I or IV), improve bike lanes (Class II or III), and implement planned facilities or new networks not previously contemplated
- Increase opportunities for safe active transportation in all neighborhoods, setting priority within communities of concern
- Work with SANDAG to complete GHG compliant Regional Transportation Plan (RTP)
- Work with Caltrans to identify opportunities to reconnect communities, add additional park or recreational land and improve air quality
- Coordinate with SANDAG and MTS to identify, plan and prioritize transit access to and from areas with limited service
- Coordinate with SANDAG and MTS to identify opportunities to support first mile/last mile and microtransit opportunities to better connect transit underserved areas throughout the City
- Increase connections between residential units, work places and commercial districts to promote effective land use and encourage active modes of transportation for commuters
- Continue traffic signal retiming to improve efficiency, reduce congestion, and safety of road network
- Continue to develop and implement roundabouts including existing list of potential sites and new locations identified through community plan updates





# Innovation and Technology

## Innovation and Technology

Shared, electric, connected and automated mobility technologies and services hold the potential to improve safety, increase efficiency and reduce the environmental impacts caused by our transportation system. With appropriate planning and policies, embracing these emerging mobility technologies will advance citywide goals and quality of life. Considerations will need to be made for how these technologies will impact the region's transportation network and how the City will ensure personal privacy and equitable access to emerging mobility services as the market evolves.

Technology demonstrations and pilot projects can increase awareness and understanding of technology use cases, potential benefits and implementation challenges for the public, policy-makers and City staff. Additionally, pilot projects are designed to prove out industry claims in a real-world setting while providing near-term mobility benefits. The City will implement programs leveraging proven technologies that provide improvements to City-wide mobility. Demonstrations, pilot projects and programs may include transit right-of-way priority, **congestion pricing, curbside management, first-mile/last-mile connections**, and traffic safety improvements for vulnerable road users.

As with other mobility services, emerging mobility has region-wide impacts and, in some cases, requires a region-wide approach and perspective. The City is working closely with SANDAG as the region prepares San Diego Forward: The Regional Plan (Regional Plan), which will provide a blueprint for a future sustainable transportation system. As envisioned, the Regional Plan centers innovation and technology in each of the strategies that inform the broader framework.

SANDAG and the region have a strong track record of embracing emerging technology. Part of a nationwide U.S. Department of Transportation (USDOT) effort, SANDAG is leading the testing of highly automated and

self-driving vehicles in the San Diego region. The proximity provides opportunity for the City of San Diego to understand the challenges and advances in autonomous vehicle technology and deployment and craft policies accordingly in anticipation of this emerging market.

Autonomous and connected vehicles depend on the application of digital infrastructure, which is expected to accelerate as the City of San Diego expands the use of technologies that incorporate real time data into its infrastructure network. The use of smart city digital infrastructure has a wealth of future applications to enhance mobility across the city and region, including improved parking, improved traffic flow, targeted investments in bike lanes, and improved public safety. By expanding its digital infrastructure network, the City of San Diego will expand its capacity to improve mobility and provide equitable access to transportation as the market evolves.

Some of the technological innovation that the City is currently integrating in its mobility portfolio is highlighted below.

## Aligned Plans and Policies

### San Diego Region Intelligent Transportation Systems Strategic Plan

The San Diego Region Intelligent Transportation Systems (ITS) Strategic Plan is a guidance document to support the implementation of Transportation Systems Management Strategies. The Plan provides policy guidance and articulates a common vision of what ITS applications should be employed in the region to improve mobility, safety, efficiency, and reliability. Goals of the Plan include multimodal integration and performance-based management, traveler information, arterial management, freeway management, transit management, and electronic payment systems.



CONNECTED/  
AUTOMATED



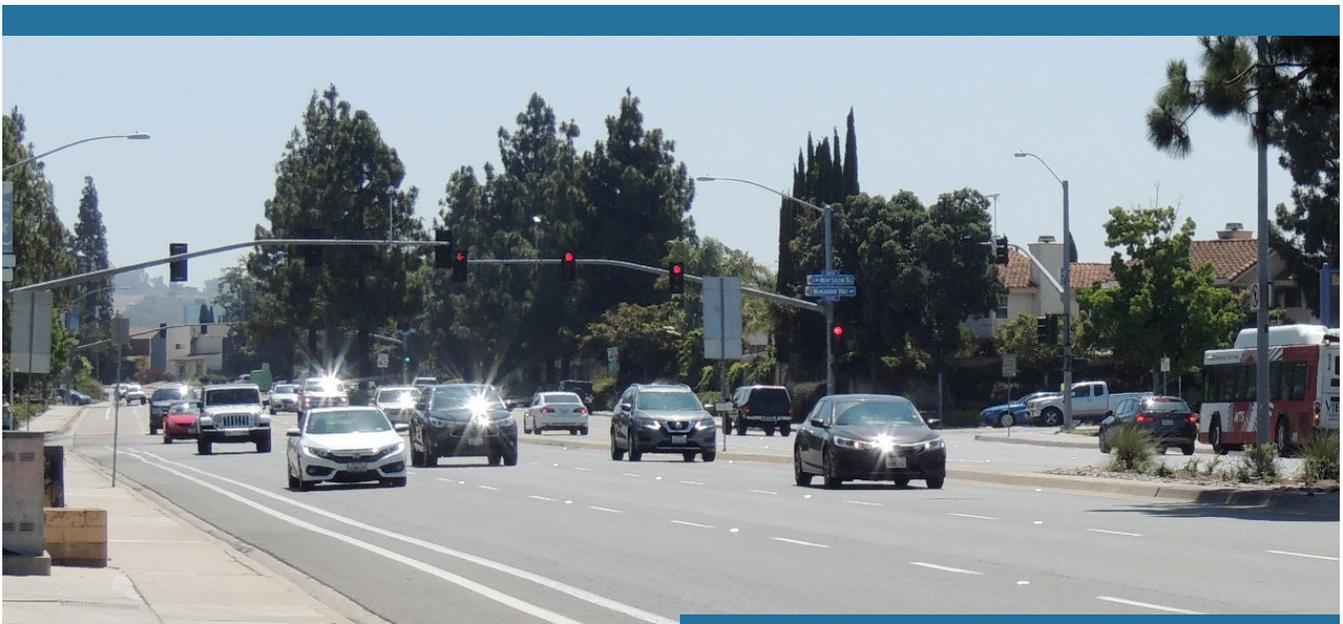
ELECTRIC



MICRO-  
MOBILITY



SHARED



Mira Mesa Boulevard Adaptive Signal Corridor



## 2014 Traffic Signals Master Plan

The Traffic Signals Master Plan guides the City on implementing traffic signal communications and Intelligent Transportation Systems (ITS) technology improvements through the City's roughly 1,500 traffic signals. While policies are not included in the document, system wide deficiencies are identified along with recommendations related to future road network communications equipment and ITS devices intended to optimize the efficiency of the proposed communications network.

## Goals

- **Ensure that emerging mobility technologies and services are equitably available and accessible to all residents in the City**
- **Leverage mobility data for policy development and investment allocation**
- **Create industry engagement and partnership opportunities to enhance emerging mobility technologies and services**
- **Foster innovative thinking and technologies in City and regional transportation planning and policy development**
- **Support electric vehicle adoption for City residents and businesses to meet in line with state zero emission vehicle (ZEV) targets**
- **Plan and design for connected vehicle and autonomous vehicle technology**
- **Be a national leader in the deployment of new technology and smart cities initiatives**

## Accomplishments

### Top 10 "Future Proof" City

San Diego was ranked as a top 10 "future-proofed" city in Jones Lang LaSalle's (JLL) City Momentum Index (CMI). The CMI ranks cities by their potential for future, continued growth considering factors such as capability for innovation, quality of the urban environment, and public transportation infrastructure. The Index covers the 131 major established and emerging markets to track a broad range of factors. World class university systems, employment opportunities in advanced science and mathematics occupations boost the innovation potential in San Diego.

### Electric Vehicle Infrastructure

The City has 356 electric vehicle (EV) charging stations for a total of 1,570 chargers. In 2012, Smart City San Diego unveiled a 90-kilowatt solar photovoltaic canopy that directly charges electric vehicles in the San Diego Zoo parking lot, the nation's first of its kind Solar-to-EV Project .



EV Charging Infrastructure

## Circuit San Diego (Formally Free Ride Everywhere Downtown or FRED)

To solve the first-mile/last-mile connection to public transportation, the City of San Diego launched Free Ride Everywhere Downtown (FRED) in 2016. Rebranded as Circuit San Diego in 2019, the free service currently operates 22 all-electric vehicles, that pick-up and drop-off passengers in the downtown area using a mobile application. The electric shuttle can seat up to five passengers and operates at a speed of 35 mph. The service transported around 132,000 riders in 2017 and 194,600 riders in 2018 .

Circuit San Diego is partly funded by the City of San Diego, using downtown parking meter revenues. The remaining costs are raised through advertisements placed on the shuttle(s). The service operates from 7 a.m. to 9 p.m. daily, with hours extended through midnight on Friday and Saturday. The fleet size is anticipated to grow to a total of 25 vehicles before the end of 2019.



Circuit San Diego Shuttle

## Intelligent Sensors on Streetlights

The City has deployed the largest city-based Internet of Things (IoT) in the world and was recognized in the Smart City North America Awards for its sustainable infrastructure. Approximately 4,200 intelligent sensors have



Intelligent Streetlight

been installed on the City's streetlights to capture data that will help optimize traffic and parking, enhance public safety, add to the City's environmental awareness, and increase overall livability for San Diego residents. The nodes connect city officials and citizens to real-time data, allowing for endless applications.

## MetroLab Network

The City of San Diego is a participating city of the MetroLab Network, a national network focused on the research, development, and deployment of new technologies and approaches to urban challenges such as income inequality, health, and opportunity; environmental sustainability and resilience; and aging infrastructure. Forecast and Control of Transportation Network is a MetroLab Network project with the City of San Diego and aims to leverage data from GPS-enabled cellphones for traffic management.

## Shared Dockless Mobility Device Regulation

In April 2019, the San Diego City Council approved a shared mobility device regulation. The regulations are intended to increase safety of riders and bystanders, and will provide the City with data to inform future mobility planning and investment. The regulation requires bike and scooter companies to obtain six-month permits to operate in the City. Permit requirements include device operational safety parameters, data sharing, customer education and offers an equity program incentive from permit fees. The City has also begun stenciling parking corrals to stage scooters and bikes in areas of high device use, which will expand throughout the City. Since June 2019, 510 scooter corrals have been installed.



Staging Area for Scooters and Bikes

### Adaptive Traffic Signal Systems Activated: 4

- Mira Mesa Boulevard
- Rosecrans Street
- Friars Road
- La Jolla Parkway

### Non-Adaptive Traffic Signal Coordination Systems Activated: 14

- Convoy Street (south end)
- College Avenue
- Carmel Mountain Road (east)
- Black Mountain Road (south)
- Taylor Street
- Rancho Penasquitos Boulevard
- 25th Street
- Bernardo Center Drive (west)
- Mesa College Drive
- Mission Gorge Road (south)
- El Cajon Boulevard
- Balboa Avenue (east)
- Carmel Valley Road (east)
- Washington Street (east)

## MAP Actions

- Support consideration of road pricing in Regional Plan options as means to reduce congestion and reliance on single occupant trips with technology supporting seamless payment options
- Create a comprehensive ZEV strategy that identifies goals, timelines and funding to support electric vehicle infrastructure installation, community awareness initiatives, partnerships and other activities to support the increased adoption of ZEVs

- Develop new and/or leverage existing software platforms for regional mobility data integration and visualization
- Collaborate with SANDAG, MTS, and other transit and planning agencies to provide connections between transportation modes and support development of a seamless network via the unified payment system/mobile app that is currently under development by MTS and NCTD
- Continue to develop opportunities for curbside management aligned with emerging technologies and services
- Evaluate operational and revenue impacts of shifting curb uses (e.g., from car parking to ride-hailing pick-up/drop-off) and assess policies for pricing of curb usage
- Support pilot projects and demonstrations for innovative transportation including electric vehicle charging solutions (e.g., right-of-way charging installations, inductive charging), autonomous vehicles and dynamic curb pricing
- Identify factors to guide safe integration of autonomous vehicles into street system
- Ensure access to emerging technologies for residents in communities of concern that lack the resources to access new and existing mobility technologies



Integrated Mobility

## Conclusion - Improving Mobility

The City of San Diego aims to have a comprehensive and complete transportation network that connects the entire community and its residents, regardless of location, physical ability, age, or income. Affordable and reliable mobility is necessary to provide all residents access to jobs, healthcare, social services, recreation, and all the unique features that make San Diego a world-class city for all. An equitable system considers that vulnerable populations may have greater difficulty accessing mobility options. This includes access and functional needs and low-income populations, senior citizens, and children.

**The vision for the City of San Diego's transportation network and the future delivery of mobility focuses on specific features including:**

- Safety
- Sustainability
- Equity
- Affordability
- Innovation

**The Mobility Action Plan establishes a framework for the delivery of these features through a highly connected transportation system that embraces future technology and expands a wide range of mobility services to all San Diegans for access to their desired destinations.**

No department, plan, or program alone can attain mobility for all; it requires an interdisciplinary coalition to advance mobility, to improve how all San Diegans move around the city. The City's departments will work together to advance mobility across the City in a way that is consistent with its values and fosters achievement of mobility goals.

## Next Steps

This MAP is a first step towards a new mobility future for the City of San Diego. The City is considering the establishment of a Mobility Division that will work across all other departments and divisions in the City to oversee the delivery of mobility and be the champion for mobility innovation and implementation. The Mobility Division will also be the keeper of the MAP and will review progress on identified goals, actions and policies that support the MAP periodically.

A key priority for the Mobility Division will be to coordinate across all City departments and divisions to incorporate elements of other City initiatives related to mobility, such as addressing the need for mobility equity, planning for smart city infrastructure improvements, future connected technologies, and elements of the infrastructure asset management program related to mobility and transportation level of service. Having a City Division responsible for the delivery of mobility will allow the necessary focus to deliver mobility improvements, establish the organizational framework for coordination amongst City departments and divisions and set the City on course for a new mobility future.

The City anticipates that new technologies and innovative programs developed in the future will enhance, or even replace, the strategies and actions currently proposed.

Consideration of emerging technologies and adaptive planning, will allow the City to be flexible, yet diligent, in its efforts to improve mobility and access for all.

