

## Chapter 4: Mobility Element

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### I. Introduction

The Mobility Element addresses the General Plan’s Guiding Principles by underscoring the connection between land use planning and mobility. Promoting the creation of an accessible and comprehensive multimodal circulation system is key to implementing the objectives of Smart Growth. The Mobility Element ensures that the County’s circulation systems are safe and accessible, which promotes Healthy, Livable, and Equitable Communities and Sufficient Community Services and Infrastructure. The Mobility Element also provides policy guidance to implement an effective and efficient circulation system, which is critical to ensuring a Strong and Diversified Economy. Furthermore, the Mobility Element encourages sustainable approaches to transportation to address the General Plan’s goals for Environment Resource Management.

The California Complete Streets Act of 2007 requires the General Plan to demonstrate how the County will provide for the routine accommodation of all users of a road or street, including pedestrians, bicyclists, users of public transit, motorists, children, seniors, and the disabled. The Mobility Element addresses this requirement with policies and programs that consider all modes of travel, with the goal of making streets safer, accessible and more convenient to walk, ride a bicycle, or take transit.

The Mobility Element provides an overview of the transportation infrastructure and strategies for developing an efficient and multimodal transportation network. The Element assesses the challenges and constraints of the County’s transportation system, and offers policy guidance to reach the County’s long-term mobility goals. Two sub elements—the Highway Plan and Bicycle Master Plan—supplement the Mobility Element. These plans establish policies for the roadway and bikeway systems in the unincorporated areas, which are coordinated with the networks in the County’s 88 incorporated cities. The General Plan also establishes a program to prepare community pedestrian plans, with guidelines and standards to promote walkability and connectivity throughout the unincorporated areas.

## **II. Background**

The County has one of the largest transportation systems in the world. Despite continuing efforts to increase transportation services and build transportation infrastructure, County transportation systems are heavily burdened by the demands of a growing population and a diversity of activities. Transportation is also one of the biggest contributors of noise, greenhouse gases and other air pollutants.

### **Regulatory Framework**

Local agencies responsible for transportation services in the County coordinate their activities to comply with the goals and policies of Southern California Association of Governments (SCAG) and Los Angeles County Metropolitan Transportation Authority (Metro). SCAG is the federally designated regional transportation planning agency responsible for the Regional Transportation Plan (RTP). Metro is the county-level transportation planning agency responsible for the Long Range Transportation Plan (LRTP). The County, the 88 cities in the County, and other transportation agencies engage in transportation planning activities by participating in the development and implementation of the RTP and LRTP.

The County participates in establishing policies, promoting specific projects, and funding the strategies in the RTP and the LRTP. Each Los Angeles County Supervisor is a member of the Metro Board of Directors, and two members of the Los Angeles County Board of Supervisors serve on SCAG's Regional Council, and on the Southern California Regional Rail Authority (Metrolink) Board of Directors.

### **Transportation Systems in Los Angeles County**

#### **Public Transit**

The County is served by a large public transit system that includes rail systems and various bus service options, such as transitways and bus rapid transit systems. Figure 4.1 depicts the major public transit systems in the County.

#### **Figure 4.1: Major Public Transit Systems**

##### ***Rail***

Metro operates the Metro rail system, which is exclusively within the County. The Metro rail system consists of the following lines: Red, Purple, Blue, Green, Gold and Expo. The hub of the system is in downtown Los Angeles at Union Station. The Metro lines that primarily serve the unincorporated areas include the Metro Blue, Green and Gold Lines. The Metro Blue Line stations in the unincorporated areas include: Slauson, Florence, Firestone, and Willowbrook. The Vermont/Athens and Hawthorne/Lennox stations along the Green Line are also located in the unincorporated areas. The Gold Line has four stations in the unincorporated areas: Indiana, Maravilla, East LA Civic Center, and Atlantic.

Two additional rail service operators that provide services in the County are Metrolink and Amtrak. The Southern California Regional Rail Authority (SCRRA) operates the 416-mile Metrolink commuter rail system, which has its hub in downtown Los Angeles at Union Station and extends to Ventura, San Bernardino, Riverside, Orange, and San Diego counties, and serves some of the unincorporated areas of the County. There is one Metrolink Station located in the unincorporated

community of Acton, on the Antelope Valley Line. Amtrak provides interstate service from points around the country to Union Station, as well as regional service between major cities throughout California.

### ***Bus***

With many regional and municipal operators providing bus services, buses provide the majority of public transit service in the County. Examples of these operators include Torrance Transit, Foothill Transit, Santa Clarita Transit, and the Antelope Valley Transit Authority. According to Metro's 2009 Long Range Transportation Plan, the transit providers in Los Angeles County collectively operate 4,000 buses and serve 1.6 million bus riders daily.

The Metro bus system is the largest in the County. Metro operates the Metro Rapid Bus service, which runs on select surface street corridors with fewer stops and electronic signal switching devices to expedite traffic flow, and the Metro Express Bus service, which are express bus routes for a portion of the route and then local or limited routes in other areas. Metro also operates two bus rapid transitways: the Orange Line and Silver Line. The Orange Line operates on a dedicated bus lane along an east-west corridor in the San Fernando Valley and also includes a separated bike path that runs along part of the route. The Silver Line operates between the El Monte bus station, Union Station and downtown Los Angeles, and the Artesia Transit Center.

Furthermore, the Los Angeles County Department of Public Works (DPW) operates fixed route shuttle services in the following unincorporated areas: Willowbrook and King Medical Center Shuttle services in Willowbrook; Athens Shuttle service in West Athens-Westmont; Lennox Shuttle service in Lennox; Florence-Firestone/Walnut Park Shuttle service in Florence-Firestone and Walnut Park; El Sol Shuttle service in East Los Angeles; Sunshine Shuttle service in South Whittier; Avocado Heights/Bassett/West Valinda Shuttle service in Avocado Heights, Bassett and West Valinda; East Valinda Shuttle service in East Valinda; Edmund D. Edelman's Children's Court Shuttle service in East Los Angeles; Los Nietos Shuttle service in Los Nietos; and Acton/Agua Dulce Shuttle service in Acton and Agua Dulce. For detailed information on these shuttle services and routes in the County, please refer to Appendix D.

### ***Paratransit***

Paratransit is an alternative mode of flexible transportation that does not follow fixed routes or schedules. Demand-responsive paratransit contractors are used to meet the needs of seniors and mobility-impaired individuals living in the unincorporated areas.

### ***Bikeways***

The entirety of surfaced roadways, excluding freeways, in the County may be used by the bicycling public even though they are not all identified as bikeways. The State Vehicle Code allows roadways to be used by bicyclists. However, the lack of public awareness and the safety concerns associated with road sharing create a need for bikeways with a grade separation, lane delineation, or designated trail/path construction for bicycle users throughout the County.

### ***Bicycle Master Plan***

The Los Angeles County Bicycle Master Plan, adopted in March 2012, provides policy guidance for building a comprehensive bicycle network throughout the unincorporated areas. The Bicycle Master Plan identifies bikeways and transportation systems in the County that are available for use by bicyclists, such as roadways with bike lanes or designated bike routes, and dedicated off-road bike

paths, such as bike paths along the flood control channels. The purpose of the Bicycle Master Plan is to: 1) guide the development of infrastructure, policies and programs that improve the bicycling environment in the County; 2) depict the general location of planned bikeway routes throughout the County; and 3) provide for a system of bikeways that is consistent with the General Plan.

The Bicycle Master Plan Maps depict bikeways along roadways in the unincorporated areas and along rivers, creeks, and flood control facilities within the County. These bikeways may be used for both recreational use and commuter travel.

To view the Bicycle Master Plan, including policies, programs, and the mapped bicycle network, please visit DPW's Bicycle Master Plan web site at <http://dpw.lacounty.gov/pdd/bikepath/bikeplan/>.

### **Pedestrian Networks**

The diversity of communities in the County creates distinct conditions, opportunities and challenges for pedestrians. There are a number of trails and paths in the County that are available for use by pedestrians, such as sidewalks, hiking trails, over and under passes, and skywalks. Together, these systems constitute a network for accommodating pedestrian travel throughout the County.

#### ***Community Pedestrian Plans***

The County is committed to improving the environment to allow for increased alternative transportation uses. The General Plan includes a program to prepare a community pedestrian plans for the County that will set standards for sidewalks, street crossings, sidewalk continuity, street connectivity, and topography. The community pedestrian plans will emphasize the connectivity of pedestrian paths to and from public transportation, major employment centers, shopping centers, and government buildings.

For more information on community pedestrian plans, please refer to Part III: General Plan Implementation Programs.

### **Freeway, Highway, and Local Road Networks**

The County highway network is comprised of the State Highway System, which consists of 915 freeway and highway miles, and includes U.S. Interstate freeways and state-maintained freeways and highways, High Occupancy Vehicle (HOV) lanes, and county and city highways. This network spans the County and provides access to much of the mainland area, connecting all 88 cities and most unincorporated areas. The California Department of Transportation (Caltrans) is the state agency responsible for the maintenance of freeways and highways. Caltrans estimates that on average there are more than 100 million vehicle miles traveled per day in the County via the State Highway System. Figure 4.2 is a map of the County's Freeway and Highway System.

#### **Figure 4.2: Highways, Freeways and Airports**

The County is responsible for the design, construction, operation, maintenance, and repair of roads in the unincorporated areas, as well as in a number of local jurisdictions that contract with the County for these services. DPW maintains over 3,100 miles of major roads and local streets in the unincorporated areas and over 1,700 miles in 22 cities.

**Level of Service**

DPW uses level of service (LOS) to assess the congestion of roadways in the transportation system. Based on a roadway’s volume-to-capacity ratio (the number of vehicles currently using the roadway compared to the ideal maximum number of vehicles that can efficiently use the roadway), a letter designation is assigned that represents the traffic flow conditions, or LOS. Letter designations “A” through “F” represent progressively declining traffic flow conditions. LOS designations indicate whether the roadways in the County are operating in excess of their intended capacity. Acceptable LOS is determined on a case by case basis, but generally, Level D is the desired minimum LOS in the County.

Table 4.1 provides the definitions for LOS A-F, which are based on the definitions in the Transportation Research Board’s Highway Capacity Manual.

**Table 4.1: Los Angeles County Department of Public Works Level of Service Definitions**

LOS	Type of Flow	Delay	Maneuverability
A	Free flow	Little or no delay	Users are unaffected by other traffic; freedom of speed and movement, level of comfort, convenience and safety are excellent.
B	Stable flow	Short traffic delays	Users begin to notice other traffic; freedom of speed continues, but freedom to maneuver declines slightly.
C	Stable flow	Average traffic delays	Traffic may back up behind turning vehicles. Most drivers feel somewhat restricted. Traffic signals operate at maximum efficiency.
D	Approaching unstable flow	Long traffic delays	Maneuverability is severely limited during short periods when traffic backs up temporarily. Comfort, convenience, and safety are affected. Users wait one signal cycle to pass through a signalized intersection.
E	Unstable flow	Very long traffic delays	Traffic volumes are at or near capacity; users wait several cycles to pass through a signalized intersection.
F	Forced flow	Excessive delay	Traffic volumes exceed the capacity of the street and traffic queues develop. Stop-and-go traffic conditions predominate.

Source: Los Angeles County Department of Public Works

Although DPW utilizes the above described LOS criteria for assessing the performance of, and determining impacts to, roadways, it is possible that future assessments will incorporate different methodologies. These methodologies will incorporate all potential users of the roadway (Multimodal Level of Service).

**Highway Plan**

The Los Angeles County Highway Plan provides policy guidance for building a comprehensive highway network throughout the unincorporated areas. The Highway Plan provides a highway

system that is consistent with and supportive of the land uses depicted by the General Plan Land Use Policy Map. The purpose of the Highway Plan is to: 1) depict the general location of planned highway routes throughout the County; 2) provide a means for protecting highway right-of-way within the unincorporated areas; 3) establish a plan and process for coordinating highway policies with neighboring cities and counties; and 4) provide for a system of highways that is consistent with the General Plan.

The Los Angeles County Interdepartmental Engineering Committee (IEC), which is comprised of the Director of Planning, the Road Commissioner, and the County Engineer, is charged with maintaining the Highway Plan.

Figure 4.3 shows the Highway Plan, which includes locations of existing and proposed major arterial highways throughout the County. Although the County has virtually no jurisdiction over roads in the 88 cities, or the freeways and other state routes maintained by Caltrans, these roadways are included in the map for reference and visual continuity.

The roadways depicted on the Highway Plan are defined as follows:

Major Highway: This classification includes urban highways that are of countywide significance and are, or are projected to be, the most highly traveled routes. These roads generally require four or more lanes of moving traffic, channelized medians and, to the extent possible, access control and limits on intersecting streets. This width may vary to meet extraordinary circumstances.

Also classified as major highways are key connectors, non-urban access ways and recreational roads. The bulk of these routes are not planned for urban type improvement. However, the full major highway right-of-way width of 100 feet or more is generally required to maintain adequate safety and noise standards. Portions of these rights-of-way are needed for recreational uses, such as equestrian and bike trails, and for other transportation uses, such as turnouts.

Secondary Highway: Secondary highways include urban routes that serve or are planned to serve an areawide or countywide function, but are less heavily traveled than major highways. In a few cases, routes that carry major highway levels of traffic are classified as secondary highways because it is impractical to widen them to major highway standards. In addition to the countywide function, secondary highways frequently act as oversized collector roads that feed the countywide system. In this capacity, the routes serve to remove heavy traffic from local streets, especially in residential areas.

In urban areas, secondary highways normally have 4 moving lanes of traffic on 80 feet of right-of-way. However, configuration and width may vary with traffic demand and conditions on the ground. Access control, especially to residential property and minor streets, is desirable along these roads.

Limited Secondary Highway: Limited secondary highways are located in remote foothill, mountain and canyon areas. Their primary function is to provide access to low-density settlements, ranches and recreational areas. The standard improvement for limited secondary highways is 2 traffic lanes on 64 feet of right-of-way. Typically, such improvements consist of 28-30 feet of pavement with graded shoulders. Left-turn pockets and passing lanes may be provided when required for traffic safety. The right-of-way may be increased to 80 feet for additional improvements where traffic or drainage conditions warrant.

A uniform building setback shall be established 40 feet from the centerline of all limited secondary highways in order to preserve proper sight distances and to help maintain a rural appearance

adjacent to the roadway. This setback shall be in addition to any yard requirement contained in the Zoning Code.

Parkway: The parkway classification is applied to urban and non-urban routes that having park-like features either within or adjacent to the roadway.

Expressway: The expressway classification is primarily for through-traffic with full or partial control of access. Expressways can accommodate 6 to 10 traffic lanes. The width of right-of-way varies as necessary to incorporate these features, but shall not be less than 80 feet. Roadway improvements vary depending upon the composition and volume of traffic carried.

**Figure 4.3: Highway Plan Policy Map**

**Aviation Network**

There are 15 public-use airports located in the County, as shown in Figure 4.2. The majority of passenger air transportation is serviced through Los Angeles International Airport (LAX), Burbank Airport, and the Long Beach Airport. Table 4.2 is a list of the airports and owners in the County.

**Table 4.2: Los Angeles County Public-Use Airports**

Airport	Location	Ownership
Agua Dulce Airport	Agua Dulce	Private
Burbank (Bob Hope) Airport	City of Burbank	Airport Authority
Brackett Field Airport	City of La Verne	Los Angeles County
Catalina Airport	Santa Catalina Island	Private
Compton/Woodley Airport	City of Compton	Los Angeles County
El Monte Airport	City of El Monte	Los Angeles County
General William J. Fox Airfield Airport	City of Lancaster	Los Angeles County
Jack Northrup Field Airport (Hawthorne Municipal Airport)	City of Hawthorne	City of Hawthorne
Long Beach Municipal Airport (Daugherty Field Airport)	City of Long Beach	City of Long Beach
Los Angeles International Airport (LAX)	City of Los Angeles	City of Los Angeles (LAWA)
Santa Monica Municipal Airport	City of Santa Monica	City of Santa Monica
Palmdale Regional Airport	City of Palmdale	City of Los Angeles (LAWA)

Van Nuys Airport	City of Los Angeles, Van Nuys	City of Los Angeles (LAWA)
Whiteman Airport	City of Los Angeles, Pacoima	Los Angeles County
Zamperini Field	City of Torrance	City of Torrance

### **Freight Rail Network**

The County has an extensive rail network that is focused on the efficient and safe movement of goods throughout the region. An effective goods movement system requires the elimination of at-grade crossings, and the creation and operation of rail networks, such as the Alameda Corridor.

The Alameda Corridor is a 20-mile rail cargo corridor, with a 10-mile below-grade trench between the Ports of Los Angeles and Long Beach and the central Los Angeles freight yard transfer stations. The Alameda Corridor has been instrumental in efficiently transporting goods from the Ports to inland transfer stations. The Alameda Corridor East Project, which is an extension of the Alameda Corridor Project, covers the area from central Los Angeles eastward 35 miles through the San Gabriel Valley, past Pomona and onward to the transcontinental rail network. The \$910 million endeavor of mobility and safety improvements includes signalization upgrades, roadway widening, and 20 grade separations.

Figure 4.4 shows the freight and passenger rail lines that run throughout the County.

### **Figure 4.4: Freight and Passenger Rail Lines**

### **Supportive Facilities**

#### ***Harbors***

The Ports of Long Beach and Los Angeles are key links in the global economy and can handle a variety of cargo, including containers, bulk products, and automobiles. Combined, they are one of the largest and most efficient international shipping ports in the country, and the fifth busiest container port in the world. According to SCAG, the Ports handled just under 120 million metric tons of cargo imports and exports, valued at \$336 billion in 2010. The Ports also serve as a significant tourism driver, as the largest cruise ship terminal on the west coast, serving over a million passengers per year.

#### ***Parking***

A limited number of public parking lots are maintained in the unincorporated areas by a variety of agencies, including Metro, the Departments of Beaches and Harbors, and DPW. Metrolink maintains park-and-ride lots adjacent to commuter rail stops. The County owns and operates the following four park-and-ride lots: Studio City (Ventura Boulevard); Pomona (Fairplex); San Dimas (Via Verde); and Acton (Acton/Vincent Grade Metrolink Station).

The County regulates onstreet parking in certain high-traffic areas through restricted parking zones enforced by the Sheriff's Department and California Highway Patrol. In addition, the Los Angeles County Department of Regional Planning regulates parking for new developments by requiring an adequate number of spaces to meet anticipated demand.

### ***Terminals***

Terminal facilities provide multiple uses, from park-and-ride lots for daily commuter vehicles to the heavily used freight terminals that serve the County's ports. Fierce competition among west coast cities for international trade business has led to the planning and construction of an efficient terminal network in the County. The most notable terminal facilities are the intermodal terminal networks located in and around the Ports of Los Angeles and Long Beach, the goods transfer stations located near downtown Los Angeles, and several freight and trucking facilities in the City of Industry.

## **III. Issues**

### **1. Providing Streets That Accommodate All Users**

Historically, transportation planning and street design have focused on the automobile, resulting in hostile environments for pedestrians and bicyclists. In order to create safer places to walk and bicycle, as well as take transit, more emphasis needs to be placed on these other viable modes of transportation. Furthermore, street designs should accommodate all users, including children, seniors, and the disabled. Streets designed to incorporate all potential users, including pedestrians, bicyclists, transit users, and conventional vehicular traffic is known as complete streets.

Aesthetics and function are also important considerations when creating comfortable places to walk, bicycle, and take transit. This can include landscaping, street furniture, and amenities, such as benches and shelters at transit stops.

In a jurisdiction as diverse as the unincorporated areas of the County, the approach to complete streets must be flexible and street designs must be context-sensitive. For example, complete streets in rural areas, such as the Antelope Valley, could look and feel very different from complete streets in urban communities, such as Willowbrook and Florence-Firestone.

### **2. Creating a Multimodal Transportation System**

The most prominent characteristic of transportation in the County is the single occupant driver. On an annual basis, SCAG estimates that approximately 74 percent of all people in Southern California drive alone to and from work in their car. Single occupant vehicle use is associated with the highest level of land consumption among all transportation modes, and generates the highest level of environmental impacts.

To encourage transit use and discourage single occupant vehicle use, the County can facilitate an interconnected, multimodal network of streets, alleys, paths, greenways, and waterways where people can choose to walk, bicycle, take transit or drive. The key to achieving a functional and sustainable multimodal transportation system is to provide efficient connections between different modes. For example, bicyclists can conveniently travel to farther destinations if they have the option to board the transit system with their bicycles. Multimodal options, such as bicycling and walking are cost-effective, energy efficient and healthy alternatives to driving. Additionally, creating bike-friendly and walkable communities is a critical component in meeting the County's greenhouse gas emission and energy reduction goals, while enhancing vibrant, livable communities.

Mobility management is an important component of a multimodal transportation system. Highway congestion results in major social costs to the County, and long travel times and congestion increases energy and oil usage, exacerbates automobile emissions, and diminishes the region's quality of life. In addition, long delays and congestion negatively impact the region's economy

According to SCAG, by failing to address congestion in the region, jobs have been lost – every 10 percent decrease in congestion can bring an employment increase of about 132,000 jobs.

Mobility management is an important strategy for improving congestion and reducing vehicle miles traveled (VMTs). Mobility management strategies are designed to be used alone, or in concert with other policies to have a cumulative effect on the efficiency of the transportation system. These strategies include incentives that change travel behavior, such as offering employer-based transit passes or increasing transit availability; the reduction of parking requirements; car-sharing programs; regional carpooling programs; and telecommuting. Mobility management also refers to Transportation Demand Management (TDM), including the use of technologies in the development of transportation facilities and infrastructure, such as liquid and compressed natural gas, and hydrogen gas stations, Intelligent Transportation Systems (ITS), and electric car plug-in ports.

Achieving a multimodal transportation system will require a greater investment in transit, pedestrian, and bicycle infrastructure. New proposals, such as tolling major freeways, double-decking highways, and/or raising the gas tax, all have varying levels of political and popular support. However, paying for transportation infrastructure will remain a critical planning issue. To plan efficient, functional and cost-effective transportation networks, including public transit, roadways and alternative transportation, the County should leverage investment with the planning, financing and management of other jurisdictions' transportation efforts. The County must work with transportation planning agencies on infrastructure, capital improvements and programming in areas where the General Plan focuses growth.

### **3. Connecting Transportation and Land Use Planning**

For any transportation system to be effective, healthy and sustainable, all aspects—streets, freeways, public transit, highways, sidewalks, bicycle facilities, and freight movement—must be coordinated with land use planning. Land use and mobility are inherently linked: low density sprawl with single use development encourages driving. Alternatively, denser, communities with a mix of land uses that encourages transit use, walking, and bicycling are healthier and sustainable.

Land use planning and urban design are important factors in developing transit use and multimodal transportation options. Historically, streets in the County have been designed to move the maximum amount of automobile traffic. Congested roadways and high on-street parking demand create insufficient space to accommodate bike lanes. In addition, a frequent complaint of bicyclists is the absence of adequate facilities to secure bicycles at public and private buildings or facilities. Many of the commercial corridors in mature urbanized areas are underutilized and in need of redevelopment. Strengthening mixed land uses and promoting compact development in these areas, in concert with design standards for rights-of-way, can help encourage walking and bicycling for shorter trips, as well as make transit more accessible.

Because of the nature and financing of regional transportation networks, transportation planning is fragmented among many jurisdictions, agencies and County departments. Effective inter-jurisdictional collaboration, and public-private partnerships, in transportation and land use planning is essential to creating an efficient and multimodal transportation network across the County.

### **4. Safe and Efficient Movement of Goods**

The safe and efficient movement of goods is an important mobility issue that significantly impacts the economy. Goods movement has been negatively impacted by inefficient transportation networks. The County's ports, airports, rail lines and intermodal transit terminals have existing capacity constraints that undermine the efficiency and productivity of the goods movement system. In

addition, the existing roadway and rail networks are reaching capacity. As a result, the system is susceptible to disruptions, which causes delays that reduce the quality of services and increase costs to consumers. Furthermore, the roadways and rail networks that accommodate the movement of goods are shared by motorists and passengers, which raises additional concerns over efficiency and safety.

## **5. Impacts of Transportation on Natural and Community Resources**

Transportation systems, goods movement activities, and automobile use directly affect quality of life. This includes traffic congestion, truck intrusion into neighborhoods, safety, land use incompatibility, poor air quality and related health impacts, restricted mobility and delay at rail crossings, noise and vibration impacts, and visual impacts. Significant short- and long-term air quality impacts directly result from goods movement activities, such as emissions from ocean ships, diesel trucks, as well as increased auto-emissions, which in turn contributes to climate change.

The Ports of Long Beach and Los Angeles are heavily investing in infrastructure to handle a projected doubling of container volumes. However, the Ports have also been identified as one of the largest sources of air pollution in the region. In addition, terminal operations and supporting infrastructure are consumptive land uses, and are often characterized as having heavily polluting activities. The Ports have created a Clean Air Action Plan in conjunction with the U.S. Environmental Protection Agency, the California Air Resources Board, and the South Coast Air Quality Management District to reduce emissions related to port operations.

Furthermore, airports, as well as freeways, are impactful to sensitive receptors in terms of noise and air quality. Although at a rate much slower than those seen in previous decades, SCAG expects air travel in the region to continue to grow. LAX, for instance, is the sixth busiest airport in the world and third busiest in the United States, offering more than 565 daily flights to 81 domestic cities and more than 1,000 weekly nonstop flights to 66 international destinations on more than 75 air carriers. It ranks 13th in the world in the amount of air cargo tonnage handled. In 2010, LAX served more than 59 million passengers, processed more than 1.9 million tons of air cargo valued at nearly \$84 billion, and handled 575,835 aircraft operations (landings and takeoffs).

A \$4.11-billion capital improvement program is underway at LAX, generating nearly 40,000 local jobs. The program's centerpiece is the \$1.5-billion Bradley West Project with new gates for the latest-generation aircraft; new concourses and seating areas; new retail and food and beverage offerings; and expanded areas for more efficient security screening, immigration and customs processing. There also are several major airfield and facility projects, including a new Central Utility Plant, new taxiways and taxi lanes, and multi-million-dollar renovations – undertaken by both Los Angeles World Airports (LAWA) and the airlines – to other terminals. The expansion and operation of transportation systems, which invariably affect biological resources and water quality, can be mitigated to lessen the negative impacts on the County's resources. One key ecological issue is the effect of increased runoff from paved surfaces, which increases sediment movement, destroys aquatic habitat, and redistributes road-source pollutants. A second crucial ecological issue is potential negative impacts of human transportation systems on biological resources. Human transit is often responsible for transporting non-native species to ecosystems that do not have any natural defenses against the new threats. At the same time, transit infrastructure creates physical barriers across wildlife habitats and corridors that can reduce the mobility of local species and threaten genetic diversity. As discussed in the Public Services and Facilities Element, the majority of stormwater runoff in the County is discharged directly into the Pacific Ocean. The General Plan provides policies that support transportation systems that treat runoff and mitigate its environmental impacts before it reaches the County's water bodies.

## IV. Goals and Policies

<b>Goal M-1: Street designs that incorporate the needs of all users.</b>	
<b>Topic</b>	<b>Policy</b>
Complete Streets	Policy M 1.1: Provide for the accommodation of all users, including pedestrians, motorists, bicyclists, equestrians, users of public transit, seniors, children, and persons with disabilities when requiring or planning for new, or retrofitting existing, roads and streets.
	Policy M 1.2: Ensure that streets are safe for sensitive users, such as seniors and children.
	Policy M 1.3: Realign capital improvement programs and funding streams to ensure the implementation of complete streets.
	Policy M 1.4: Utilize industry standard rating systems, such as the Institute for Sustainable Infrastructure (ISI) Rating System, to assess sustainability and effectiveness of street systems for all users.

<b>Goal M-2: Interconnected and safe bicycle- and pedestrian-friendly streets, sidewalks, paths and trails that promote active transportation and transit use.</b>	
<b>Topic</b>	<b>Policy</b>
Active Transportation Design	Policy M 2.1: Design streets that accommodate pedestrians and bicyclists, and reduce motor vehicle accidents through a context sensitive process that addresses the unique characteristics of urban, suburban, and rural communities.
	<p>Policy M 2.2: Accommodate pedestrians and bicyclists, and reduce motor vehicle accidents by implementing the following street designs, whenever appropriate and feasible:</p> <ul style="list-style-type: none"> <li>• Lane width reductions to 10 or 11 feet in low speed environments with a low volume of heavy vehicles.</li> <li>• Wider lanes may still be required for lanes adjacent to the curb, and where buses and trucks are expected.</li> <li>• Low-speed designs.</li> <li>• Access management practices developed through a community-driven process.</li> <li>• Back in angle parking at locations that have available roadway width and bike lanes, where appropriate.</li> </ul>

	<p>Policy M 2.3: Accommodate pedestrians and bicyclists, and reduce motor vehicle accidents by implementing the following intersection designs, whenever appropriate and feasible:</p> <ul style="list-style-type: none"><li>• Right angle intersections that reduce intersection skew.</li><li>• Smaller corner radii to reduce crossing distances and slow turning vehicles.</li><li>• Traffic calming measures, such as bulb-outs, sharrows, medians, roundabouts, and narrowing or reducing the number of lanes (road diets) on streets.</li><li>• Gutter placement between parking and bikeways.</li><li>• Crossings at all legs of an intersection.</li><li>• Shorter crossing distances for pedestrians.</li><li>• Right-turn channelization islands. Sharper angles of slip lanes may also be utilized.</li><li>• Signal progression at speeds that support the target speed of the corridor.</li><li>• Pedestrian push buttons when pedestrian signals are not automatically recalled.</li><li>• Walk interval on recall for short crossings.</li><li>• Left-turn phasing.</li><li>• Prohibit right turn on red.</li><li>• Signs to remind drivers to yield to pedestrians.</li></ul>
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	<p>Policy M 2.4: Ensure a comfortable walking environment for pedestrians by implementing the following, whenever appropriate and feasible:</p> <ul style="list-style-type: none"><li>• Designs that limit dead-end streets and dead-end sidewalks.</li><li>• Adequate lighting on pedestrian paths, particularly around building entrances and exits, and transit stops.</li><li>• Designs for curb ramps, which are pedestrian friendly and compliant with the American Disability Act (ADA).</li><li>• Perpendicular curb ramps at locations where it is feasible to reduce the curb return radius.</li><li>• Pedestrian walking speed based on the latest standard for signal timing. Slower speeds should be used when appropriate (i.e., near senior housing, rehabilitation centers, etc.)</li><li>• Approved devices to extend the pedestrian clearance times at signalized intersections.</li><li>• Accessible Pedestrian Signals (APS) at signalized intersections.</li><li>• Pedestrian crossings at signalized intersections without double or triple left or right turn lanes.</li><li>• Pedestrian signal heads, countdown pedestrian heads, pedestrian phasing and leading pedestrian intervals at signalized intersections.</li><li>• Exclusive pedestrian phases (pedestrian scrambles) where turning volume conflicts with very high pedestrian volumes.</li><li>• Advance stop lines at signalized intersections.</li><li>• Pedestrian Hybrid Beacons.</li><li>• Medians or crossing islands to divide long crossings.</li><li>• High visibility crosswalks.</li><li>• Pedestrian signage.</li><li>• Advanced yield lines for uncontrolled crosswalks.</li><li>• Rectangular Rapid Flashing Beacon or other similar approved technology at locations of high pedestrian traffic.</li><li>• Safe and convenient crossing locations at transit stations and transit stops located at safe intersections.</li></ul>
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	<p>Policy M 2.5: Ensure a comfortable bicycling environment by implementing the following, whenever appropriate and feasible:</p> <ul style="list-style-type: none"> <li>• Bicycle signal heads at intersections.</li> <li>• Bicycle signal detection at all signalized intersections.</li> <li>• Wayfinding signage.</li> <li>• Road diet techniques, such as lane narrowing, lane removal, and parking removal/restriction.</li> <li>• Appropriate lighting on all bikeways, including those in rural areas.</li> <li>• Designs, or other similar features, such as: shoulder bikeways, cycle tracks, contra flow bike lanes, shared use paths, buffered bike lanes, raised bike lanes, and bicycle boulevards.</li> </ul>
	<p>Policy M. 2.6: Encourage the implementation of future designs concepts that promote active transportation, whenever available and feasible.</p>
	<p>Policy M 2.7: Require sidewalks and bikeways to accommodate the existing and projected volume of pedestrian and bicycle activity, considering both the paved width and the unobstructed width available for walking.</p>
	<p>Policy M 2.8: Connect pedestrian and bicycle paths to schools, public transportation, major employment centers, shopping centers, government buildings, residential neighborhoods, and other destinations.</p>
	<p>Policy M 2.9: Encourage the planting of trees along streets and other forms of landscaping to enliven streetscapes by blending natural features with built features.</p>
	<p>Policy M 2.10: Encourage the provision of amenities, such as benches, shelters, secure bicycle storage, and street furniture, and comfortable, safe waiting areas near transit stops.</p>
	<p>Policy M 2.11: Promote the continuity of streets and sidewalks through design features, such as limiting mid-block curb cuts, encouraging access through side streets or alleys, and promoting shorter block lengths.</p>

<b>Goal M-3: Streets that incorporate innovative designs.</b>	
<b>Topic</b>	<b>Policy</b>
Innovative Street Design	Policy M 3.1: Facilitate safe roadway designs that protect users, preserve state and federal funding, and provide reasonable protection from liability.
	Policy M 3.2: Consider innovative designs when part of an accepted standard, or when properly vetted through an appropriate engineering/design review, in compliance with all state and federal laws.

	<p>Policy M 3.3: Complete the following studies prior to the implementation of innovative design concepts:</p> <ul style="list-style-type: none"> <li>• An analysis of the current and future context of the community and neighborhood in which they are proposed;</li> <li>• A balanced assessment of the needs of all users and travel modes (i.e., pedestrian, bicycle, transit, vehicular, and equestrian, where appropriate);</li> <li>• A technical assessment of the operational and safety characteristics for each mode; and</li> <li>• A consistency check with transportation network plans, including the Highway Plan, Bicycle Master Plan, and Community Pedestrian Plans.</li> </ul>
	<p>Policy M 3.4: Support legislation that minimizes or eliminates liability associated with the implementation of innovative street designs that accommodate all users.</p>

<b>Goal M-4: An efficient multimodal transportation system that serves the needs of all County residents.</b>	
<b>Topic</b>	<b>Policy</b>
Transit Efficiency, Multimodal Transportation	Policy M 4.1: Expand transportation options throughout the County that reduce automobile dependence.
	Policy M 4.2: Expand shuttle services throughout the County to connect major transit centers to community points of interest.
	Policy M 4.3: Maintain transit services within the unincorporated areas that are affordable, timely, cost-effective, and responsive to growth patterns and community input.
	Policy M 4.4: Ensure expanded mobility and increase transit access for underserved transit users, such as seniors, students, low income households, and persons with disabilities.
	Policy M 4.5: Encourage continuous, direct routes through a connected system of streets, with small blocks and minimal dead ends (cul-de-sacs).
	Policy M 4.6: Support alternative LOS standards that account for a multimodal transportation system.
	Policy M 4.7: Provide and maintain appropriate signage for streets, roads and transit.
	Policy M 4.8: Ensure the participation of all potentially affected communities in the transportation planning and decision-making process.
	Policy M 4.9: Support the linkage of regional and community-level transportation systems, including multimodal networks.
	Policy M 4.10: Improve the efficiency of the public transportation system with bus lanes, signal prioritization, and connections to the larger regional transportation network.

	Policy M 4.11: Work with adjacent jurisdictions to ensure connectivity and the creation of an integrated regional network.
Travel Demand Management	Policy M 4.12: Reduce vehicle trips through the use of mobility management practices, such as the reduction of parking requirements, employer/institution based transit passes, regional carpooling programs, and telecommuting.
	Policy M 4.13: Promote mobility management practices, including incentives to change transit behavior and using technologies, to reduce VMTs.

<b>Goal M-5: Land use planning and transportation management that facilitates the use of transit.</b>	
<b>Topic</b>	<b>Policy</b>
Land Use and Transportation	Policy M 5.1: Facilitate transit-oriented land uses and pedestrian-oriented design to encourage transit ridership.
	Policy M 5.2: Implement parking strategies that facilitate transit use and reduce automobile dependence.
	Policy M 5.3: Maintain transportation right-of-way corridors for future transportation uses, including bikeways, or new passenger rail or bus services.
Transportation Funding	Policy M 5.4: Support dedicated funding streams for the construction, maintenance and improvement of roadway, public transit, pedestrian and bicycle transportation systems.
	Policy M 5.5: Encourage financing programs, such as congestion pricing, bonding and increasing parking costs, to implement transportation systems and facilities.

<b>Goal M-6: The safe and efficient movement of goods.</b>	
<b>Topic</b>	<b>Policy</b>
Goods Movement	Policy M 6.1: Maximize aviation and port system efficiencies for the movement of people, goods and services.
	Policy M 6.2: Support the modernization of the County's aviation systems, including its principal airport, LAX.
	Policy M 6.3: Designate official truck routes to minimize the impacts of truck traffic on residential neighborhoods and other sensitive land uses.
	Policy M 6.4: Minimize noise and other impacts of goods movement, truck traffic, deliveries, and staging in residential and mixed-use neighborhoods.

	Policy M 6.5: Support infrastructure improvements and the use of emerging technologies that facilitate the clearance, timely movement, and security of trade.
	Policy M 6.6: Preserve property for planned roadway and railroad rights-of-way, marine and air terminals, and other needed transportation facilities.

<b>Goal M-7: Transportation networks that minimizes negative impacts to the environment and communities.</b>	
<b>Topic</b>	<b>Policy</b>
Environmentally Sensitive Transportation Design	Policy M 7.1: Encourage the use of natural systems to treat stormwater and rainwater runoff.
	Policy M 7.2: Minimize roadway runoff through the use of permeable surface materials, such as porous asphalt and concrete materials, wherever feasible.
	Policy M 7.3: Encourage the creation of wildlife underpasses and overpasses, fencing, signage, and other measures to minimize impacts to wildlife at junctures where transit infrastructure passes through sensitive habitats.
	Policy M 7.4: Encourage the use of sustainable transportation facilities and infrastructure technologies, such as liquid and compressed natural gas, and hydrogen gas stations, ITS, and electric car plug-in ports.
	Policy M 7.5: Where the creation of new roadways or other transportation systems is necessary in areas with sensitive habitats, particularly SEAs, use best practice design to encourage species passage and minimize genetic diversity losses when new transportation infrastructure cannot avoid crossing through undisturbed natural areas.
Rural Streets	Policy M 7.6: In rural areas, require rural highway and street standards that minimize the width of paving and the placement of curbs, gutters, sidewalks, street lighting, and traffic signals, except where necessary for public safety.

**Table 4.3: Mobility Element Implementation Programs**

Living Streets
Parking Ordinance
Community Pedestrian Plans
Safe Routes to School Program

[Text Box]

### **Model Design Manual for Living Streets**

The Model Design Manual for Living Streets is a valuable resource for local jurisdictions looking to create streets that are safe and comfortable for all users and all modes. It outlines various design features that not only accommodate cars, but also pedestrians, bicyclists, and transit riders. Street design features that help to create vibrant and attractive streets are also outlined in the manual.

The manual was funded by the Department of Health and Human Services through the Los Angeles County Department of Public Health and the UCLA Luskin Center for Innovation.

For more information please visit: <http://www.modelstreetdesignmanual.com/>

[Text Box]

### **Green Streets**

Green streets is a sustainable stormwater management and landscaping strategy that utilizes a combination of increased permeable surfaces and planted areas, soil filtration, vegetative bio-retention and underground stormwater retention basins to maximize groundwater recharge. Green streets not only improves water quality and drainage, but also improves mobility and promotes complete streets through traffic calming, and enhances the pedestrian experience through sustainable landscaping, such as bio-swales, street trees, rain gardens and planters.