Infrastructure Element Vision

nfrastructure forms the backbone of our community. Our streets connect our neighborhoods, schools, business districts, and parks. The water storage and delivery system and wastewater collection lines are critical to urban living. Storm drains protect our properties from flooding. Electric power, natural gas, and telecommunications facilities help us live in comfort. These systems all support the quality of life in Manhattan Beach.

How will our infrastructure continue to contribute to and enhance the livability of our community? As a community, we envision local streets as truly neighborhood streets, with cutthrough automobile traffic and its associated noise in our neighborhoods reduced. We look to increased parking opportunities in Downtown and the beach areas to minimize parking impacts in residential neighborhoods. We see water used efficiently so that demands today do not compromise the needs of tomorrow. We expect our storm drain system to collect rainwater in a manner that reduces pollutant loads entering the ocean and that addresses localized flooding concerns. We look for telecommunications infrastructure to continue to be state-ofthe-art, connecting us to the world around us. As a community conscientious about the sustainability of our environment, we envision Manhattan Beach continuing to function effectively and efficiently, providing all infrastructure necessary to improve our lives and grow our economy.

The Block 35 Reservoir located at Rowell Avenue and 6th Street can hold two million gallons of water.

The Infrastructure Element discusses circulation, neighborhood traffic intrusion, parking, pedestrian and bicycle networks, water, sewer, storm drains, energy, communications facilities, and solid waste and recycling.



Circulation



Circulation refers to all travel modes and routes people use to move within and beyond Manhattan Beach: the local street system, via biking or walking, or using of public transit. Moving people and goods within the City efficiently and effectively allows the community to function well economically and socially. People should be able to circulate from home to school, work, or shopping with ease and safety. Alternatives to the private car – transit, biking, and walking – can offer choice and convenience. Goods must also be easily transported locally and regionally to foster a viable economy. Truck routes are essential to direct trucks off local streets to regional roadways to lessen the impacts of noise and vibrations in residential neighborhoods.

When considering circulation, we think of both the physical infrastructure systems – the roadways, rails, and trails – as well as the method of getting around, by car, bus, or bike, or on foot. In Manhattan Beach, the physical system includes the local street network, the wonderfully unique walkstreets, Veterans Parkway, and several streets of regional significance: Sepulveda Boulevard, Manhattan Beach Boulevard, Rosecrans Avenue, Aviation Boulevard, and Artesia Boulevard. While these roadways afford residents with ready access to surrounding destinations, providing distant connections and linkages, these roads also bring significant regional traffic volumes to and through the City. Much of the traffic traveling along Sepulveda Boulevard during peak periods simply passes through Manhattan Beach to other Los Angeles County areas.

The most pressing mobility concern in Manhattan Beach is traffic congestion. In a year 2002 community survey, when asked to define the most significant issue in Manhattan Beach other than traffic and parking, residents overwhelming responded "traffic and parking." Congestion can cost businesses money, and people lose time and gain frustration due to traffic. Manhattan Beach's arterial and collector streets carry significant traffic loads that overflow onto adjoining neighborhood streets, causing noise, traffic, and safety impacts during peak periods of the day. Demand for parking adjacent to the beach and commercial districts can also create undesirable traffic and parking impacts within adjoining residential neighborhoods.

This Circulation section guides the continued development and enhancement of the circulation system to meet local mobility and neighborhood protection objectives, and to respond to anticipated regional traffic growth. The South Bay area will continue to grow even if Manhattan Beach experiences little or no population increase. Regional growth will increase use of local and regional roadways, and the plan and policies here identify strategies the City will pursue to maintain good operating conditions to the maximum extent possible. Because local circulation is linked with the regional system, policies in this Element highlight Manhattan Beach's continued need to participate in regional programs to alleviate traffic congestion through capacity enhancements and trip reduction. Reduced dependency on the automobile also works toward these goals and improves environmental quality.

Transportation History in Manhattan Beach

The first railroad tracks were laid down in 1888 through the undeveloped, sandy landscape of Manhattan Beach with the introduction of the Santa Fe Railroad connecting Los Angeles to Redondo Beach Wharf. This line included both freight and passenger services. Santa Fe eventually terminated passenger service in 1918 because it could not compete with the Pacific Electric Red Car passenger rates. The tracks were removed 98 years later in 1986 and replaced by Veterans Parkway.

The Electric Trolley, built by Los Angeles Pacific in 1903, had five stops in Manhattan Beach and connected Hill Street Station in Downtown Los Angeles to Redondo Beach. The tracks were laid just west of The Strand where the bicycle path is today. Los Angeles Pacific later merged with Pacific Electric Red Car in 1910. A Red Car depot was built in 1914 on Marine Avenue. The main selling point of this line was the view of the ocean from the passenger train cars. The Red Cars would run on this line until May 12, 1940.

Starting in the 1920s, the Santa Fe railroad tracks were used to carry clay and other supplies to the Metlox Manufacturing Plant at Center Street (Manhattan Beach Boulevard) and Railroad Drive (Valley Drive).

With a transportation system in place, development and new roadway system soon followed. Most of the early buildings were beach cottages built along the beach west of the Santa Fe Railroad tracks. Manhattan Beach was advertised as a summer vacation resort.

Manhattan Beach's current street system was then taking shape as land was subdivided into smaller lots that eventually were sold. The streets of Manhattan Beach evolved from paths to



Rosecrans Avenue, looking west from Pacific Avenue, circa 1940. The Eucalyptus trees were removed in 1969 when Standard Oil Company (Chevron) agreed to widen the roadway.

wooden planks, to dirt roads, to oil or macadam coating, to asphalt, and to concrete paving. Street paving directly followed land development. Eucalyptus-lined roadways were developed in the City, including Center Street (Manhattan Beach Boulevard), Rosecrans Avenue, and other minor roadways.

The period from 1914 to 1916 saw much activity with transportation projects. The Strand project (from 1st Street to 37th Street), including lighting and other citywide sidewalk projects, was completed in 1914. Marine Avenue and Highview Avenue were paved, Manhattan Avenue widened, and Highland Avenue paved from the southern boundary of the City to its terminus just north of Marine Avenue. Ocean Boulevard was a coastal "country road" connecting Manhattan Beach to Venice and other coastal cities to the north.

Since Railroad Drive (Valley Drive/Ardmore Avenue) lacked connections between Marine Avenue and Palm Avenue, and 15th Street and 10th Street, until 1967 the east-west connections from Manhattan Beach to the region were Manhattan Beach Boulevard and Marine Avenue.

A map of the City from 1923 shows that west of Sepulveda Boulevard, the development and street patterns were well established and similar to what we see today. About half of the land east of Sepulveda Boulevard had been subdivided for residential development, with the major streets laid out.

The paving of Sepulveda Boulevard (formerly Camino Real) was completed in April of 1931, marking a milestone in Manhattan Beach's roadway system. In 1934, Sepulveda Boulevard connected into the City of El Segundo, replacing a previous detour used during construction.

In the 1950s post-war era, as new home construction boomed, major road construction projects (widening, grading, curbs, and resurfacing) occurred throughout the City. In 1957, Interstate 405 (San Diego Freeway) was completed, providing regional freeway access for the South Bay. The I-105 was completed in 1993, with access via Highland Avenue. MTA's Metro Green Line opened in 1995, with a station located at Douglas Street (Douglas/Rosecrans Station) in El Segundo, making available rail transit to Manhattan Beach residents once again 55 years later.

Master Plan of Roadways

Manhattan Beach's roadway system is based on a conventional hierarchy of streets. The top of the hierarchy consists of arterial streets that carry large volumes of traffic, with the bottom consisting of low-volume local streets that provide access to abutting properties. Definitions of the roadway classifications are presented below, and Figure I-1 identifies roadways utilizing these classifications. Although a street may be classified in a certain way, it does not necessary mean that it must be improved accordingly. The classification is more about how a street functions rather than the physical dimensions.

The California Department of Transportation (Caltrans) has authority over the State highway system and must be involved in and approve the planning and design of improvements for State highway facilities. The only State highway facility in Manhattan Beach is Sepulveda Boulevard (State Route 1). Artesia Boulevard, previously State Route 91, was relinquished to the City in 2002.

Regional Arterial – Sepulveda Boulevard (State Route 1) is the only Regional Arterial in Manhattan Beach. Regional Arterials are State-designated facilities that are relatively high-speed, highcapacity routes serving intercity and interregional circulation needs.

Regional Arterials also connect major City streets with other regional routes. Local access is intended to be limited to major streets via signal-controlled intersections, although given that Sepulveda Boulevard functions as a major business district, access has been granted to retail business and shopping centers along Sepulveda Boulevard. Left turns should be prohibited or restricted to signalized intersections where feasible. Curbside parking is either prohibited all day or during the peak hours to facilitate the movement of traffic.

Major Arterial - Major Arterials provide for through movement between areas of Manhattan Beach and across the City, and to provide access to Minor Arterials and limited access to Collector streets. Access to abutting land uses should be limited where possible, or consolidated to minimize curb cuts to avoid interference with the through-traffic function of these routes. Major Arterials generally provide four to six lanes for through travel within a 60- to 100-foot right-of-way, depending on local land use conditions. Major Arterials have single or double leftturn lanes at intersections, left-turn signal phases where necessary, and other enhancements to help the efficient movement of larger volumes of traffic. Curbside parking may be prohibited all day or during the peak hours to facilitate the most efficient movement of through traffic. Major Arterials include Artesia Boulevard, Aviation Boulevard, Rosecrans Avenue, and Manhattan Beach Boulevard, east of Sepulveda Boulevard.

Minor Arterial – Minor Arterials are similar to Major Arterials in function, providing some through movements and movements across the City. In contrast to Major Arterials, Minor Arterials allow additional access to abutting land uses. While they function similarly to Major Arterials and have similar right-of-way width (generally 70 to 90 feet), they generally have lower capacities and may have lower speeds. Curbside parking is generally allowed, although it may be prohibited in selected locations to facilitate traffic movement. Minor Arterials typically provide four lanes for through traffic. Intersections generally have left-turn lanes (or dual left-turn lanes in selected locations). Minor Arterials include Marine Avenue east of Sepulveda Boulevard and Manhattan Beach Boulevard west of Sepulveda Boulevard to Ardmore Avenue.

Collector Street – Collector Streets serve an area or neighborhood, and they function as collectors or distributors of traffic from the local and major local streets to the Minor or Major Arterial or Regional Arterial streets. Collector Streets are lower speed streets with lower capacity than Arterials, but carry more traffic than either Local or Major Local streets. Collector streets have a mixture of single-family residential, multi-family residential, and some commercial land uses. Some of the adjacent land uses may have direct driveway access, while some may have side yards on the collector street. Collector streets often have curbside parking and one or two through lanes in each direction.

Residential Collector – Residential Collector Streets are similar to Collector streets in function; however, they primarily have residential land uses adjacent to them, with very limited commercial traffic (usually near selected intersections). Residential Collectors are intended to serve an area or neighborhood by collecting or distributing traffic from the Local and Major Local streets to the Collector, Minor Arterial, Major Arterial, or Regional Arterial system. Although similar in character to Collector Streets, Residential Collectors should carry a lower volume of traffic than Collectors, reflecting their residential character. Curbside parking is generally allowed, and adjacent land uses often have direct driveway access. Residential Collectors generally have one lane in each direction.

Major Local – Major Local streets provide for circulation within and between residential neighborhoods. Major Local streets are designed to discourage longer distance through trips and higher



speeds (posted speed limit of 25 miles per hour or slower). Major Local streets generally have a maximum of one lane in each direction, and curbside parking is generally allowed where the street width is sufficient to support both moving traffic and parking lanes.

Local – Local streets are the lowest functional classification and are intended solely for access to adjacent residential land uses. They provide for circulation within a residential neighborhood, including bicycle and pedestrian access. Any through traffic, including through traffic from one residential neighborhood to another, is discouraged. Local streets have one lane in each direction and have posted speed limits of 25 miles per hour or slower. Curbside parking is generally allowed where the street width is sufficient to support both moving traffic and parking lanes.

Walkstreets – Walkstreets are intended and designed to provide local access solely for pedestrians and cyclists. Motorized vehicles of all kinds are prohibited. Walkstreet right-of-way width ranges from 25 to 60 feet. The Land Use Element establishes policies for the use of Walkstreets beyond their basic mobility function.

Addressing Traffic Congestion

As residents have expressed, traffic congestion continues to be the leading issue affecting the quality of life in Manhattan Beach. Not only is local congestion a concern, but regional traffic that passes through the City compounds the issue, especially for businesses located along Sepulveda Boulevard, Manhattan Beach Boulevard, and Highland Avenue. The beach draws many visitors, bringing in additional traffic and parking demands. Figure I-2 shows volumes in year 2002. Although Manhattan



Motorists heading northbound on Sepulveda Boulevard can experience lengthy delays and traffic during the morning peak traffic hours of the day. This page left blank intentionally.



Note: Volumes represent average of traffic counts which were taken on two weekdays.



Beach will experience only very limited growth, regional influences and the popularity of the beach will continue to contribute to traffic congestion.

Over time, the City will pursue two primary courses of action to improve congestion: (1) focused physical improvements for enhanced function of intersections, which function as the control points in the circulation network; and (2) creative, technological solutions to improve mobility. Examples of the proposed physical improvements include:

- Widening the bridge on Sepulveda Boulevard between Rosecrans Avenue and Marine Avenue
- Widening of Rosecrans Avenue between Douglas Street and Aviation Boulevard
- Widening of Aviation Boulevard between Rosecrans Avenue and Marine Avenue
- Intersection improvements at Manhattan Beach Boulevard/Sepulveda Boulevard and Marine Avenue/Sepulveda Boulevard
- Intersection improvements at Manhattan Beach Boulevard/Redondo Avenue

The location of these improvements is shown on Figure I-3. The City's Capital Improvement Program (CIP) will continue to be the tool for identifying needed circulation improvements and for prioritizing funding. As properties are redeveloped and the opportunity arises for other traffic or roadway improvements not identified in this Plan, the City should pursue them. The widening of the north side of 33rd Street west of Sepulveda Boulevard is one example of the type of improvement that should be considered.

Creative solutions can be used primarily to address regional concerns. While no freeway passes through Manhattan Beach, nearby I-405, I-105, and SR-91 routes provide regional access for residents and businesses. Sepulveda Boulevard and Aviation Boulevard serve as commuter routes north and south, paralleling the function of I-405. Both arterials experience heavy congestion during the morning and evening peak hours. As part of a large metropolitan area and of necessity, Manhattan Beach has integrated its street system – and these routes in particular – with existing and planned regional systems.

Transportation planning and management require cooperation and coordination among local cities with the South Bay Cities Council of Governments (SBCCOG) and the Los Angeles County Metropolitan Transportation Authority (MTA). Working together, these agencies are determined to address the Intelligent This page left blank intentionally.



Transportation Systems approaches, for example, to move traffic flow. The SBCCOG Rosecrans Corridor and Coastal Corridor studies are examples of projects that the South Bay is working on together to address regional traffic issues. Regional, cooperative efforts are also critical to ensuring that convenient alternative transportation modes allow for an integrated approach to addressing traffic problems.

Traffic Volumes and Intersection Level of Service

Traffic flow is measured and analyzed both on a daily basis and during peak hours (commute peak hours). On a daily basis, traffic flow is measured on roadways at mid-block locations to determine the overall level of travel demand and level of service. Traffic volume values have been developed that represent the typical daily traffic flow, within a 24-hour period, on key roadways in the City, as shown on Figure I-2. This figure shows streets carrying significant traffic volumes, particularly Sepulveda Boulevard, with traffic volumes ranging from 54,000 to 62,000 vehicles trips. Signalized intersections were analyzed using the Intersection Capacity Utilization (ICU) method. This methodology produces an intersection volume-to-capacity (V/C)ratio that is then related to a "Level of Service" (LOS) estimate. LOS describes the ability of an intersection or road segment to meet its intended design capacity. Each LOS rating describes how people perceive the amount of congestion or difficulty in getting where they want to go. LOS is ranked from A, representing no limitation on movement (best), to F, representing very high levels of congestion (worst).

The traffic analysis for the General Plan evaluated baseline and projected conditions on intersections within the City. Figure I-3 summarizes baseline and projected conditions for the identified intersections.

Congestion Management Plan

The MTA oversees preparation of the County's Congestion Management Program (CMP). The CMP includes а "credit/deficit" program, with debits incurred as a result of new development activity and credits issued for specific traffic mitigation strategies. The mitigation strategies are divided into the following categories: (1) Land Use Strategies, (2) Capital Improvement Strategies, and (3) Transportation Demand Management and Transit Services. Manhattan Beach incurs debits with new development construction and offsets these debits through implementation of mitigation strategies. Compliance with the program is defined as maintaining a credit balance. The City works with MTA to address debits incurred by new construction and develops action plans to receive credits. Manhattan Beach is required to meet the major program requirements identified in the CMP to continue receiving State gas tax funding.

The City continues to have difficulty incurring credits, as the opportunities for transportation improvements that meet MTA's CMP criteria are limited. The City has a contract with another jurisdiction that has excess "credits" and has allowed developers to purchase these credits as required project mitigation. Similarly, creative strategies will be approved as necessary to ensure the City continues to receive transportation tax funds.

Expanding Mobility Options

To achieve a balanced transportation system, City policies focus not only on strategies to improve traffic flow but also on ways to encourage use of alternative mobility options such as transit, walking, and bicycling. A balanced transportation system also includes transportation strategies and programs aimed at reducing congestion, in turn allowing for the safe and efficient movement of people, goods, and services throughout the City.

Enhancing Transit Services

MTA provides transit service in Manhattan Beach and throughout Los Angeles County. Bus routes are established on several streets in Manhattan Beach, including Rosecrans Avenue, Manhattan Beach Boulevard, Highland Avenue, Aviation Boulevard, and Sepulveda Boulevard, as shown on Figure I-4.



MTA also operates the Metro Green Line, a twenty-mile light rail system with fourteen stations throughout the South Bay region.



The Metro Green Line extends from Los Angeles International Airport east along the I-105 to the City of Norwalk and links to the Blue Line, providing connections to Downtown Los Angeles and Long Beach. MTA has no plans to extend the Green Line or other rail service within the South Bay. The closest Green Line stations are the Douglas/Rosecrans Station and the Marine/Redondo Station located in the cities of El Segundo and Hawthorne, respectively, as shown on Figure I-4. Thus. Manhattan Beach's challenge lies in enhancing local connectivity to Green Line stations via bus or similar service. To address localized transit needs, Manhattan Beach operates a Dial-A-Ride, a shared ride, curb-to-curb bus service for Manhattan Beach residents, with ridership restrictions based on age, disability, or similar factors.

One demographic group continually challenged to find public transit is school children. When the State budget is unable to assist with school bus funding, the Manhattan Beach Unified School District cannot bear the cost of providing bus service to its schools. Traffic congestion around schools, particularly in the morning, creates not only delays but safety risks to Manhattan Beach's younger residents. Working cooperatively with the District, the City may be able to find new ways to provide safe routes to school.

Incorporating Transportation Demand Management

Transportation Demand Management (TDM) is a general term for strategies that promote the efficient use of transportation systems without adding carrying capacity (e.g., additional lanes or widening) on the roadway or freeway system. TDM strategies can help address a variety of traffic problems and provide secondary economic, social, and environmental benefits. When all are considered, TDM strategies are often the most costeffective way to improve transportation. Examples of TDM include:

- Bike/Transit Integration
- Carpooling
- Improvements to Pedestrian Ways
- Transit Improvements
- Walking and Cycling Encouragement
- Parking Pricing
- Bicycle Parking
- Parking Management
- Alternative Work Schedules

Maintaining Truck Routes

Truck routes have been designated for use by heavy trucks to access most commercial areas in the City, including Downtown and El Porto. These roadways are primarily Arterial Roadways, except for Highland Avenue in El Porto/North End, which is designated as a Collector street and Manhattan Beach Boulevard from Highland Avenue to Manhattan Avenue (Figure 1-5). No trucks are allowed on other streets unless they are on a direct route for the purpose of making special pick-ups or deliveries. The intent of truck routes is to protect residential areas from impacts of heavy truck traffic, noise, and vibration.

Figure I-5: Truck Routes

See Noise Element for a

noise.

further discussion of truck



Goals and Policies: Ensuring a Balanced Transportation System

Goal I-1:	Provide a balanced transportation system that allows the safe and efficient movement of people, goods and services throughout the City.					
Policy I-1.1:	Review the functioning of the street system on a regular basis to identify problems and develop solutions.					
Policy I-1.2:	Improve street signage citywide, and ensure that street signs are not obscured or obstructed by vegetation or structures.					
Unique stree improve pede	t signage, such as walkstreet obelisks, can help estrian orientation.	C Policy Discussion				

Policy I-1.3: Encourage the development of Transportation Demand Management (TDM) plans for all major developments or facility expansions to encourage ride-sharing and other improvements, thereby reducing vehicle trips.

The Manhattan Beach City Council adopted a Transportation Demand Management Ordinance (No. 1873) that includes TDM measures and trip reduction standards depending on the size of proposed projects. Such measures may include informative bulletin boards, preferential parking for vanpools/carpools, bicycle parking, bus stop improvements, and a pedestrian circulation system.

Policy I-1.4: Work with neighboring communities and other South Bay cities, as well as state and other agencies, to develop regional solutions to traffic problems that are regional in nature, and to mitigate impacts of development in neighboring communities that impact the City of Manhattan Beach.

The South Bay Cities Council of Governments represents all South Bay cities, including Manhattan Beach. This organization can be used as a resource in communicating with other

C Policy Discussion agencies and cities that make up the regional area around Manhattan Beach, as well as a starting point for regional cooperation. Other transportation agencies of importance include MTA and Caltrans.

Policy I-1.5:	Investigate	and	encourage	the	use	of	alternative
	transportation systems such as intra/inter-city shut						city shuttle
	or trolley sy	stems	S.				

Policy I-1.6: Support dial-a-ride or other para-transit systems for the senior and disabled members of the community.

Policy The para-transit system offered by the City represents an important transportation option for the seniors and disabled. Continuation of this program with adequate resources to meet riders' needs is critical.

- Policy I- 1.7: Consider emergency vehicle access needs when developing on-street parking and other public right-of-way development standards.
- Policy I- 1.8: Require property owners, at the time new construction is proposed, to either improve abutting public right-of-way to its full required width or to pay in-lieu fees for improvements, as appropriate.
- Policy I-1.9: Require property owners, at the time of new construction or substantial remodeling, dedicate land for roadway or other public improvements, as appropriate and warranted by the project.

Policy I-1.10: Adopt and implement standards for public street right-of-way use for private purposes.

Policy On February 18, 2003, the City Council adopted Encroachment and Right-of-way Ordinances (No. 2039 and 2042) that establish new standards for development on vehicular and walkstreets, such as patios/decks, landscaping, walkways, stairs, parking pads, and drainage.

Policy I-1.11:	Monitor	the	use	of	public	walkstreets	for	private
	purposes	s con	sister	nt w	ith City	standards.		

Policy I-1.12: Monitor and minimize traffic issues associated with construction activities.

Policy I-1.13: Consider implementing a development impact fee program to collect funds from developers constructing new projects. Such fees would fund "fair-share" costs of circulation improvement projects required to mitigate project impacts.