
INTRODUCTION

Lake Forest is well served by a diverse circulation system. While the San Diego Freeway has served the area for many years, the Foothill Transportation Corridor is now in operation and provides additional highway access. A railroad extends through the City and John Wayne/Orange County Airport is located approximately ten miles to the west. Established transit service provides alternative transportation opportunities and many of the Planned Communities were developed with pedestrian, bicycle and equestrian trails.

The Circulation Element guides continued development of the circulation system to support planned growth. The anticipated development pattern, as identified in the Land Use Element, will increase the demand for local and regional roadways. This element establishes acceptable roadway service levels and identifies improvements required to maintain the service levels. The use of other transportation modes such as transit, walking, bicycling, and riding is promoted to reduce the demand for transportation system improvements and improve air quality.

PURPOSE OF THE CIRCULATION ELEMENT

The purpose of the Circulation Element is to provide a safe, efficient, and adequate circulation system for the City. State planning laws requires:

...a circulation element consisting of the general location for proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the land use element plan.

To meet these objectives, the Circulation Element addresses the circulation improvements needed to provide adequate

capacity for future land uses. The Element establishes a hierarchy of transportation routes with specific development standards described for each roadway category.

The state General Plan Guidelines (Section 65302) recommend that the circulation policies and plans should:

1. Coordinate the transportation and circulation system with planned land uses
2. Promote the efficient transport of goods and the safe and effective movement of all segments of the population
3. Make efficient use of existing transportation facilities
4. Protect environmental quality and promote the wise and equitable use of economic and natural resources

The guidelines indicate that the Circulation Element should address all facets of circulation including streets and highways, transportation corridors, public transit, railroads, bicycle and pedestrian facilities and commercial, general, and military airports. The Lake Forest Circulation Element fulfills state requirements with a strategy to provide effective circulation facilities supporting desired community development. State law also requires the Circulation Element to address public utilities. The Lake Forest General Plan contains a Public Facilities/Growth Management Element that discusses the provision of utilities.

SCOPE AND CONTENT OF THE ELEMENT

This element contains goals and policies to improve overall circulation in Lake Forest. For vehicle transportation, a hierarchical roadway network is established with designated roadway types and design standards. The roadway type is linked to anticipated traffic levels and acceptable levels of service are

established to determine when capacity improvements are necessary. Because local circulation is linked with the regional system, the element particularly focuses on participation in regional programs to alleviate traffic congestion and construct capacity improvements. Alternative transportation modes are also emphasized in the element to reduce dependency on the automobile and thereby improve environmental quality.

The Circulation Element is comprised of three sections: (1) Introduction; (2) Issues, Goals, and Policies; and (3) the Circulation Plan. In the Issues, Goals, and Policies section, major issues pertaining to the transportation system are identified, and related goals and policies are established. The goals are overall statements of the City desires and are comprised of broad statements of purpose and direction. The policies serve as guides for planning circulation improvements to accommodate anticipated population growth, maintaining acceptable service levels while development occurs, promoting alternative transportation modes, and coordinating with local and regional jurisdictions to phase regional transportation facilities. The Circulation Plan explains how the goals and policies will be achieved and implemented. The Arterial Highway Plan and service levels are located in the Plan. Specific implementation programs are contained in the General Plan Implementation Program.

RELATED PLANS AND PROGRAMS

Several transportation plans prepared by the County focus on the regional transportation system. Strategies to handle anticipated traffic levels from future regional development are discussed. Other plans have also been prepared to locate future routes for mass transit including light rail and conventional buses. Plans and programs related to the Circulation Element include the following:

County of Orange Master Plan of Arterial Highways (MPAH)

The MPAH forms part of the Orange County General Plan and designates the arterial system in the circulation element of the General Plan. Defined according to specific arterial functional classifications, the MPAH serves to define the intended future road system for the County. Cities within the County are expected to achieve consistency with the MPAH in individual General Plan circulation elements. The Lake Forest Circulation Plan is consistent with the MPAH.

Foothill and Eastern Transportation Corridor

The Foothill Transportation Corridor (FTC) and the Eastern Transportation Corridor (ETC) are two of three major transportation corridors within Orange County. The Corridors are operated as toll facilities until the construction costs are paid. The FTC serves Lake Forest and crosses the central portion of the City. The 30-mile FTC is located inland of, and parallel to the Santa Ana (I-5) Freeway. The FTC begins at the east leg of the Eastern Transportation Corridor approximately three miles northwest of Lake Forest, continues south past Lake Forest Drive, and El Toro Road/Portola Parkway, to Oso Parkway, and is planned to connect to Interstate 5 south of San Clemente when completed. The east leg of the ETC extends from the San Diego Freeway at the current termination of the Laguna Freeway to an intersection with the west leg of the ETC in the City of Orange.

South Coast Air Quality Management District Air Quality Plan

South Coast Air Quality Management District (AQMD) is a regulatory body responsible for improving air quality in the South Coast Air Basin. AQMD identifies Transportation Demand Management (TDM) strategies and programs aimed at increasing the average

number of persons per vehicle arriving during the morning peak period. The Circulation Element identifies TDM strategies and other AQMD circulation programs to be implemented in Lake Forest.

County of Orange Congestion Management Plan

With the passage of the gas tax increase (Proposition 111) in June 1990, it became a requirement that urbanized areas such as Orange County adopt a Congestion Management Program (CMP). The goals of the CMP are to reduce traffic congestion and to provide a mechanism for coordinating land use development and transportation improvement decisions. For the most part, the Orange County CMP is a composite of local agencies' submittals in which each local jurisdiction develops the required data in accordance with the guidelines established by the Orange County Transportation Authority (OCTA). The OCTA compiles the data and submits the results to the Southern California Association of Governments (SCAG) for a finding of regional consistency. Two Lake Forest arterials, El Toro Road and Trabuco Road west of El Toro Road, are components of the Congestion Management Plan system.

County of Orange Growth Management Plan (Measure M)

In November 1990 voters approved Measure M, the Revised Traffic Improvement and Growth Management Ordinance, which authorized the imposition of a one-half percent sales tax to fund needed transportation improvements. To be eligible to receive funds, local jurisdictions must satisfy a variety of requirements as set out in the Orange County Local Transportation Authority (LTA) Ordinance No. 2. Included in these requirements the need to adopt a traffic circulation plan consistent with the MPAH, adopt and adequately fund a local transportation fee program, satisfy

maintenance requirements, adopt a Growth Management Element, and adopt a seven year capital improvement program that includes all transportation projects funded partially or fully by Measure M funds. The Lake Forest Public Facilities/Growth Management Element fulfills the Measure M requirements for the Growth Management Element while the Circulation Element provides roadway service and improvement standards.

The original Measure M was a 20 year program set to expire in 2011. In November 2006, Measure M renewal was approved by voters. The renewed Measure M is a 30 year program that will provide funding for transportation until 2041.

County of Orange Master Plan of Scenic Highways

The County General Plan includes a Scenic Highway Master Plan which designates certain highways as scenic routes. With this designation, specific guidelines are given for enhancing the scenic amenities of these facilities. Arterials subject to the plan in the City include Santiago Canyon Road and El Toro Road between Santa Margarita Parkway and Live Oak Canyon Road.

County of Orange Master Plan of Countywide Bikeways

Also part of the Countywide General Plan, the Master Plan of Countywide Bikeways designates various classes of bike routes throughout the County. One of the primary considerations is to provide continuity throughout the County and to provide a consistency between Countywide and local jurisdiction bikeway plans. The Circulation Element contains a bikeway plan that utilizes the County classification system and links to County routes.

Metrolink

Metrolink is a commuter rail service operated by the Southern California Regional Rail Authority (SCRRA), a joint powers authority comprised of five county agencies. SCRRA currently operates round trips on the Orange County line, which utilizes the right-of-way that is owned by OCTA and traverses the City of Lake Forest. Multiple stops during the morning and evening commuting period are provided at stations located in Irvine, Laguna Niguel and San Juan Capistrano, the three stations nearest Lake Forest.

This corridor is also referred to as the LOSSAN (Los Angeles to San Diego) Corridor. Other operators along this corridor include Amtrak, providing intercity passenger service from San Diego to Los Angeles and Santa Barbara; and the Atchison, Topeka and Santa Fe Railway Co. (Santa Fe), who, as the previous owner of the right-of-way, maintains a permanent use easement for the operation of freight service along this corridor.

The LOSSAN Corridor has been federally designated as a high speed rail corridor, and the California High Speed Rail Commission will consider the implementation of high speed rail services along this corridor.

Foothill Circulation Phasing Plan (FCPP)

The purpose of the Foothill Circulation Phasing Plan adopted by the County of Orange in 1987, is to ensure that new development in the Foothill Area is balanced with improvements to the regional road network. The FCPP provides a quantitative link between the phasing of future development and road improvements. The FCPP consists of a financing plan for a phased construction program, which is tied to an approved schedule of development. Lake Forest is located in the Foothill Area and is subject to the FCPP. The

City collects FCPP fees at the time building permits are issued.

Lake Forest Transportation Mitigation Program (LFTM)

A citywide traffic model was developed as part of the Opportunities Study which allows for detailed review of citywide traffic impacts. Based on a citywide traffic model, the Lake Forest Traffic Mitigation Fee Program (LFTM) provides the Development Mitigation Program, Comprehensive Phasing Program, and Performance Monitoring Program described in the Public Facilities and Growth Management Element.

RELATIONSHIP TO OTHER GENERAL PLAN ELEMENTS

According to state planning law, the Circulation Element must be independent but consistent with the other General Plan Elements. All elements of the General Plan are interrelated to a degree, and certain goals and policies of each element may also address issues that are the primary subjects of other elements. The integration of overlapping issues throughout the General Plan elements provides a strong basis for implementation of plans and programs, and achievement of community goals. The Circulation Element relates most closely to the Land Use, Recreation and Resources, and Public Facilities/Growth Management Elements.

The Land Use and Circulation Elements are inextricably linked: The planned development identified in the Land Use Element is the basis for determining future road improvements. The circulation policies and plans ensure that existing transportation facilities will be improved and new facilities will be constructed to adequately serve traffic generated by planned development. An efficient circulation system is a critical factor

for diversifying and expanding local economic activities. In addition, the Circulation Element promotes alternative transportation modes to minimize the regional impacts of planned local development.

The Circulation Element provides for a trail system that accommodates bicycles, pedestrians and equestrian riders. Trails for these uses will connect with recreational areas and support the City recreational goals identified in the Recreation and Resources Element. In addition to promoting bicycle and pedestrian transportation, the Circulation Element promotes the use of public transit. Alternative transportation modes will help achieve the air quality goals identified in the Recreation and Resource Element. The policies and plans in the Circulation Element also support the local and regional transportation goals established in the Public Facilities/ Growth Management Element.

ISSUES, GOALS, AND POLICIES

Six major issues are addressed by the goals, policies, and implementation actions of the Circulation Element. These major issues include (1) supporting the development of regional transportation facilities; (2) providing a suitable system of City roadways; (3) increasing the use of public transit and non vehicular modes of travel; (4) ensuring the existence of convenient and suitable parking for vehicles; (5) improving the efficiency of the transportation system and controlling demands on the system; and (6) identifying and utilizing sources of funding for transportation system improvements. Each issue and the related goals, policies and implementing actions are identified and discussed in the following section.

INTERCITY AND REGIONAL TRANSPORTATION

Transportation in Lake Forest is directly related to an overall transportation network for the region. Planning for the needs of the community necessarily includes recognition of the related transportation needs and planning efforts of the surrounding county, region, and state. With that recognition is the need for the City to actively monitor transportation planning and development in the surrounding area.

GOAL 1.0: Support for the development of an efficient network of regional transportation facilities.

Policy 1.1: Support the completion of the Orange County Master Plan of Arterial Highways.

Policy 1.2: Work closely with adjacent jurisdictions and transportation agencies to ensure that development projects outside Lake Forest do not adversely impact the City or

other providers of public facilities and services in Lake Forest.

Policy 1.3: Monitor rail travel programs including the Urban Rail System and the Commuter Rail (Metrolink) System.

LOCAL TRANSPORTATION ROUTES

Safe and convenient access to activities in the community is provided by a well designed local roadway system. That system serves the community's primary need for mobility and includes a planned hierarchy of roadways to meet that need.

GOAL 2.0: A system of roadways in the community that meets local needs.

Policy 2.1: Provide and maintain a City circulation system that is in balance with planned land uses in Lake Forest and surrounding areas in the region.

Policy 2.2: Coordinate improvements to the City circulation system with other major transportation improvement programs, such as the Foothill Circulation Phasing Plan and improvement to the San Diego Freeway (I-5).

Policy 2.3: Improve the Lake Forest circulation system roadways in concert with land development to ensure adequate levels of service.

TRANSIT, BICYCLE, PEDESTRIAN, AND EQUESTRIAN FACILITIES

Public transportation offers an option to the traditional use of an automobile for traveling within and outside of the community. Non vehicular methods or modes of travel, such as bicycling or walking, can reduce demands on the roadway system where appropriate facilities exist to foster those modes. Together, public transportation and non vehicular modes

of travel provide important alternatives to travel by automobile.

GOAL 3.0 Increased use of public transportation.

Policy 3.1: Promote the provision of public transit facilities within areas of major development.

Policy 3.2: Encourage the provision of additional regional public transportation services and support facilities, such as park and ride lots near the San Diego Freeway (I-5) and the Foothill Transportation Corridor.

Policy 3.3: Encourage the provision of special transit services in Lake Forest.

Policy 3.4: Promote access and public transit service between Lake Forest and regional-serving transportation centers.

GOAL 4.0: Promotion of non vehicular modes of travel.

Policy 4.1: Promote the provision of non vehicular circulation within Lake Forest.

Policy 4.2: Provide and maintain a non vehicular component of the Lake Forest overall circulation system that supports bicycles, equestrians, and pedestrians and is coordinated with those of other service districts in Lake Forest and with adjacent jurisdictions.

Policy 4.3: Improve pedestrian access from neighborhoods to commercial areas.

PARKING

Convenient and well designed parking facilities are an important component of the City roadway system because they provide suitable vehicle storage areas at work, shopping, and recreation destinations. Proper parking area design can also allow for short distance travel of vehicles from one property

to another without impacting the public street system.

GOAL 5.0 Convenient and suitable parking facilities for motorized and non motorized vehicles.

Policy 5.1: Require sufficient off street parking for all land uses and maximize the use of parking facilities in Lake Forest.

Policy 5.2: Eliminate the use of on street parking on identified arterial streets where maximum traffic flow is desired.

Policy 5.3: Promote the provision of access between the parking areas of adjacent properties along arterial roadways to improve overall traffic flow.

TRANSPORTATION SYSTEM AND DEMAND MANAGEMENT

Transportation System Management (TSM) and Transportation Demand Management (TDM) methods are included in an overall strategy to improve transportation. These methods can improve system effectiveness and provide relief from increasing demands for more improvements to transportation facilities.

GOAL 6.0: Maximized transportation system efficiency.

Policy 6.1: Improve operational measures of the traffic system designed to maximize the efficiency of the system while minimizing delay and congestion.

Policy 6.2: Improve intersection capacity at key intersections to improve traffic flow.

Policy 6.3: Support the implementation of employer Transportation Demand Management (TDM) provisions of the Air Quality Management Plan (AQMP) and the Congestion Management Program (CMP), and participate in regional efforts to implement TDM requirements.

TRANSPORTATION FINANCING

Adequate funding must be available to finance needed improvements to the transportation system. Overall system improvements will rely upon several different sources of funding to meet the expected demands for expansion and enhancement of transportation facilities.

GOAL 7.0: Utilization of various financing methods to improve the overall transportation system.

Policy 7.1: Utilize available financing methods and sources of funding to make necessary improvements to the overall transportation system in Lake Forest.

Policy 7.2: Ensure that new development in Lake Forest associated with the Foothill

Circulation Phasing Plan meets the commitments for improvements described by the Plan.

Policy 7.3: Maintain the transportation standards required to qualify for revenue from the Congestion Management Plan and the Revised Traffic Improvement and Growth Management Ordinance (Measure M).

RELATED GOALS AND POLICIES

The goals and policies described in the Circulation element are related to and support subjects included within other General Plan elements. In turn, many goals and policies from the other elements directly or indirectly support the goals and policies of the Circulation Element. These supporting goals and policies are identified in Table C-1.

**Table C-1
Circulation Related Goals and Policies by Element**

| <i>Circulation Issue Area</i> | <i>Related Goals and Policies by Element</i> | | | | | |
|---|--|----------------|--------------------|---------------------------------|-------------------------|---|
| | <i>Land Use</i> | <i>Housing</i> | <i>Circulation</i> | <i>Recreation and Resources</i> | <i>Safety and Noise</i> | <i>Public Facilities/ Growth Management</i> |
| Intercity and Regional Transportation | 3.3, 5.7 | 1.6 | | 7.1, 7.2, 7.3, 7.6 | 2.5 | 7.1, 9.1, 9.2 |
| Local Transportation Routes | 3.1, 3.3, 4.2 | 1.5 | | 1.7, 7.4, 7.6, 7.7 | 2.2, 2.5, 5.1, 5.2, 6.1 | 7.1 |
| Transit, Bicycle, Pedestrian, and Equestrian Facilities | | 1.5, 1.6 | | 1.1, 1.3, 1.7, 7.3, 7.6 | | 7.1 |
| Parking | 3.1 | | | 7.3 | | |
| Transportation System and Demand Management | 3.1, 4.2 | | | 7.1, 7.2, 7.3, 7.5 | | 7.1 |
| Transportation Financing | 5.4 | | | | | 7.1 |

CIRCULATION PLAN

The City of Lake Forest is supported by a diverse circulation system with vehicle, transit, pedestrian, bicycle and equestrian linkages. The local system connects with the larger regional system and operation of the two systems is interdependent. This section of the element establishes the Circulation Plan. The Plan summarizes the approach to ensure safe and convenient operation of the circulation system and identifies improvements required to accommodate traffic from planned development.

Vehicle transportation is presently the primary mode and an Arterial Highway Plan (Figure C-1) is established with hierarchical roadway designations, physical design standards for the roadway designations, and service standards. The Arterial Highway Plan includes regional arterials and anticipated regional traffic levels. The use of alternative transportation modes is promoted to reduce dependency on automobile transportation.

The Plan is based on the goals and policies identified in the previous section. The Circulation Element Implementation Program, which is part of the General Plan Implementation Program, is an extension of the Circulation Plan and contains specific programs to coordinate planned development with vehicular and non-vehicular circulation improvements.

INTERCITY AND REGIONAL TRANSPORTATION

Lake Forest and the southern California region have experienced rapid urban growth in the last two decades. The success of existing and future development is in part dependent on the availability of an effective regional transportation system. The system must link localities with outside commerce centers and

regional transportation hubs. In addition, the regional circulation system must meet the needs of local residents. Lake Forest is well connected with the regional system. The San Diego Freeway (Interstate 5) extends along the western portion of the City and provides connection with other regional freeways in Orange County, San Diego County, Los Angeles County, and beyond. The Orange County Transportation Authority (OCTA) railroad traverses the central part of the City and John Wayne/Orange County Airport is located approximately ten miles to the west.

The Foothill Transportation Corridor (FTC) provides additional highway access. The FTC travels through the central portion of the City and provides regional access for residents and businesses. As a result, some traffic using the San Diego Freeway has been redirected toward the FTC. In addition, direct access to the FTC has generated new commercial and light industrial development in the central portion of the City.

Many roadways in Lake Forest serve regional transportation purposes and are part of the Orange County Master Plan of Arterial Highways (MPAH). Because development in the City could affect operation of MPAH roadways, improvements will be required. The Foothill Circulation Phasing Plan is another plan that identifies transportation facilities for anticipated regional development.

Ensuring adequate circulation for residents and business will require coordination with regional and state transportation planning efforts. Roadways within the City will be improved in accordance with the MPAH and Foothill Circulation Phasing Plan. The Lake Forest Traffic Mitigation Program (LFTM) will provide a funding source for transportation improvements to support

planned development. Completion of the FTC will be monitored to ensure adequate capacity and consistency with planned circulation improvements in the City. In addition, Measure M requirements will be implemented in the City to further control regional traffic. Application of Measure M requirements is specifically addressed in the Public Facilities/Growth Management Element.

LOCAL TRANSPORTATION ROUTES

The circulation goals and policies emphasize the need for a circulation system capable of serving both existing and future traffic. Essentially, this represents a requirement that land use and circulation must be in “balance.” The Lake Forest Arterial Highway Plan delineates the roadway component of the Circulation Element. The plan is designed to accommodate anticipated traffic levels based on buildout of the City’s Land Use Element.

Roadway Classifications

Four roadway classifications are included in the Arterial Highway Plan, these being consistent with the Orange County Master Plan of Arterial Highways (MPAH). Figure C-1 Illustrates the roadway classifications on the Arterial Highway Plan.

Principal Arterials - Principal Arterials are eight-lane roadways with raised landscaped medians. Unsignalized minor street and driveway access may be allowed under certain circumstances, but signalized access is preferred, and left-turn restrictions are typically placed at unsignalized access locations. Curbside parking is prohibited. In some locations, full buildout to eight lanes may not occur, but augmented lanes at intersections (e.g. separate right-turn lanes) can result in comparable capacity.

Major Arterials - Major Arterials are six lane roadways with raised landscaped medians.

Left-turn restrictions will generally be placed at minor unsignalized driveways, and as a primary traffic carrier, local access is confined to signalized intersections to the extent possible. Curbside parking is generally prohibited.

Primary Arterials - These are four-lane roadways with painted or raised medians. They are similar in function to Major Arterials, but have lower traffic carrying capacity needs. Parking is generally prohibited.

Secondary Arterials - Secondary Arterials are four-lane roadways without medians (undivided). Direct access from adjacent residential properties is possible and left-turning vehicles may block the center lane when making a turn. Commercial access is typically via signalized or unsignalized intersections with center turn lanes. While on-street parking can occur, it should be prohibited near intersections or where localized circumstances warrant parking restrictions.

REPRESENTATIVE ROADWAY CAPACITIES

As will be seen from the later discussion on Principal Intersections, carrying capacity of the roadway system is determined by peak hour intersection performance. With respect to daily traffic on the different types of roadways, the following is a general guide to the average daily traffic (ADT) carrying capacity of the four roadway classifications:

| CLASSIFICATION | ADT |
|------------------------------|--------|
| Principal (8-lanes divided) | 70,000 |
| Major (6-lanes divided) | 56,000 |
| Primary (4-lane divided) | 36,000 |
| Secondary (4-lane undivided) | 25,000 |

The actual carrying capacity will depend on a number of factors such as access control and

intersection treatment, and these representative ADT values are intended only as general guidelines and not for use in evaluating level of service.

COMMERCIAL DESIGNATION

The commercial qualifier for certain roadways recognizes that the daily traffic patterns for commercial uses are different than for other land uses. Most commercial activity occurs after the morning peak hour and is somewhat continuous throughout the remainder of the day. The traffic impacts of commercial use are heavier during the non-peak hours compared to most other land uses. Hence the commercial designation is applied to roadways with significant amounts of commercial use, and such roadways will typically have a higher representative ADT than those listed above.

ROADWAY DIMENSIONS

The roadway classifications are defined according to schematic cross-sections and intersection treatments. Together, these provide the City with General Plan related

mechanisms to require adequate right-of-way dedications when opportunities arise.

Cross-Sections

Figure C-2 shows schematic cross-sections of each classification of roadway. These sections represent the desirable standards, but variations in right-of-way width and specific roadway improvements will occur in certain cases due to physical constraints and/or right-of-way limitations. In some situations, additional right-of-way may be required for bikeways and trails. Also, the roadway classifications may deviate from the standards where local character dictates special treatment.

Intersection Dimensions

The cross-sections presented earlier identify midblock roadway dimensions. Right-of-way needs at intersections are typically greater than those at midblock. Table C-2 provides guidelines for determining the number of required lanes at intersection approaches for each roadway classification.

| Table C-2 INTERSECTION LANE GUIDELINES | | | | |
|---|---|-----------------------|------------------|---|
| Roadway Classification | Number of Entering Lanes (Each Direction) | | | COMMENTS |
| | Through | Left Turn | Right Turn | |
| Principal Arterial | 3 | 2 ⁽¹⁾ | 1 | Two right-turn lanes or a free right-turn may be required at specific locations |
| Major Arterial | 3 | 2 ⁽¹⁾ | 1 | A free right-turn may be required at specific locations |
| Primary Arterial | 2 | 1 or 2 ⁽²⁾ | 1 | |
| Secondary Arterial | 2 | 1 | 0 ⁽³⁾ | |
| Notes: | | | | |
| (1) Only one left-turn lane is required if left-turn is into a two-lane roadway. | | | | |
| (2) The need for one or two left-turn lanes will depend on existing and future turn volumes. | | | | |
| (3) A separate right-turn lane may be required under special circumstances or where the roadway terminates. | | | | |

Right turn lanes will typically require some additional right-of-way on one side (the entering side on the intersection). The additional right-of-way should be a minimum of six feet with 10 feet being preferable, and extend for at least 250 feet back from the intersection curb face.

PRINCIPAL INTERSECTIONS

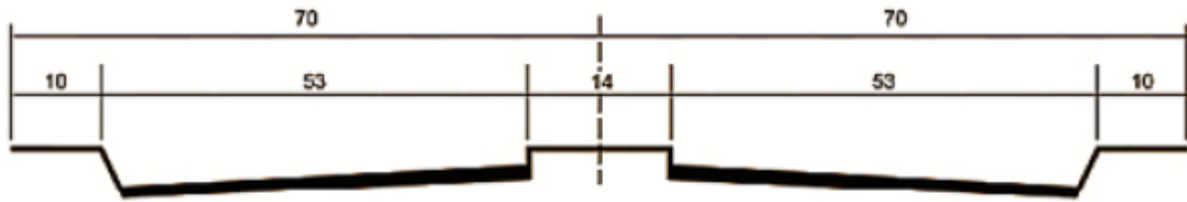
The performance of the citywide arterial system is largely dependent on intersection capacity. This is recognized in the performance criteria discussed below, and reflects the reality of driver-perceived levels of service on the roadway system. Accordingly, the Circulation Element uses the concept of Principal Intersections to emphasize the importance of intersection performance.

Principal intersections are identified as locations that are critical to the function of the overall roadway network. Their locations are such that performance failure at one or more

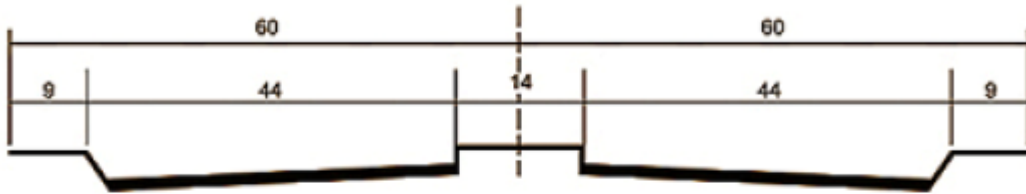
gives the appearance that the roadway system in the vicinity is failing. Such locations are regularly monitored and priority is given to them in implementing roadway improvements.

Within the set of Principal Intersections, selected locations are labeled “Critical Intersections”. These are locations that are either deficient today or are estimated to be deficient in the future even with reasonable improvements. The intent is that they be subject to regular monitoring to identify any changes in conditions that could occur over time and/or potential improvements that might be identified to remedy the situation.

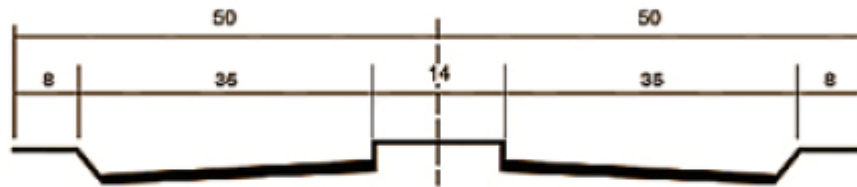
Both the Principal Intersections and the subset of Critical Intersections are defined in the accompanying administrative document entitled “Annual Transportation Report” (see later discussion), rather than specified in the Circulation Element. In this manner, intersections can be added or deleted from the list over time as circumstances warrant.



Eight-Lane Divided Roadway 140' R/W
Principal Arterial



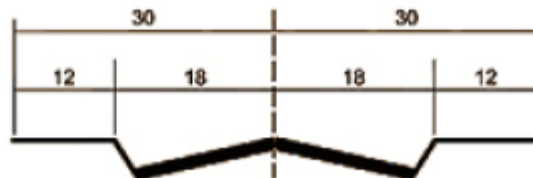
Six-Lane Divided Roadway 120' R/W
Major Arterial



Four-Lane Divided Roadway 100' R/W
Primary Arterial



Four-Lane Undivided Roadway 80' R/W
Secondary Arterial



Two-Lane Undivided Roadway 60' R/W



Source: Austin-Foust Associates

Figure C-2
Typical Cross-Sections

PERFORMANCE CRITERIA

Evaluating the ability of the circulation system to serve the traffic demand requires establishing suitable performance criteria. Performance criteria have a policy component that establishes a desired level of service (LOS) and a technical component that specifies how traffic forecast data can be used to measure the achievement of these criteria.

The performance criteria used for evaluating volumes and capacities on the City street system are based on peak hour intersection data, since as noted above intersection performance dictates the level of service experienced by drivers. The performance criteria are summarized in Table C-3, and include the thresholds used in evaluating project impacts.

These performance standards establish a basis from which to evaluate the need to improve roadway facilities (specifically intersection locations) in response to increased traffic, and also define project impact and mitigation criteria. Selected locations labeled “Critical Intersections” have difficulty meeting the performance standard even with improvements, and are subject to special monitoring as noted above. As conditions change or suitable improvements are identified for a given Critical Intersection, it would be deleted from the list.

Certain levels of analysis require that the I-5 and SR-241 freeway mainline segments serving the City and freeway ramps accessing the I-5 and SR-241 be examined. Such analysis would satisfy the Caltrans traffic impact study guidelines.

LAKE FOREST TRANSPORTATION MITIGATION PROGRAM

The Lake Forest Transportation Mitigation (LFTM) Program establishes long-range transportation improvements designed to maintain adequate levels of service on the City’s arterial road system. It also provides cost estimates and fees for funding the improvements.

The LFTM Program is described in the Annual Transportation Report along with the following pertinent information pertaining to the arterial street system:

- Current list of Principal Intersections
- Existing ADT volumes and peak hour intersection volumes
- Current status of Critical Intersections
- Current list of LFTM Program improvements
- Costs and fees for LFTM Program improvements

The document is updated yearly and provides the basic administrative and technical resource for items referred to here in the Circulation Element.

Table C-3
CITY OF LAKE FOREST PERFORMANCE CRITERIA

Calculation Methodology

Level of service (LOS) to be based on peak hour intersection capacity utilization (ICU) values calculated using the following values:

Saturation Flow Rate: 1,700 vehicles/hour/lane

Clearance Interval: .05

Right-Turn-On-Red Utilization Factor*: .75

* “De-facto” right-turn lane is assumed in the ICU calculation if 19 feet from edge to outside of through-lane exists and parking is prohibited during peak periods.

Performance Standard

LOS “D” (peak hour ICU less than or equal to .90) for all intersections except Critical Intersections where LOS “E” (peak hour ICU less than or equal to 1.00) is acceptable with the requirement that regular monitoring take place.

Mitigation Requirement for Project Impacts

For ICU greater than the acceptable level of service, mitigation of the project contribution is required to bring intersection back to acceptable level of service or to no-project conditions if project contribution to the ICU is greater than .01.

Truck Routes

Lake Forest experiences moderate amounts of truck traffic generated by commercial and light industrial uses. Truck traffic may increase in future years to support new businesses. Noise impacts and congestion can be caused by truck traffic in urban areas. To avoid such impacts, truck routes will be designated in the City through the process for the Foothill Growth Management Area.

To minimize noise impacts in residential areas, truck routes will be located along arterial roadways. In adopting a set of designated routes for truck traffic traveling through the City, steps will be taken to minimize the amount of truck traffic on arterials in

residential areas that are sensitive to congestion and noise impacts.

Transit, Bicycle, Pedestrian, and Equestrian Facilities

One of the key components of the Circulation Plan is to promote the use of alternative transportation modes such as transit, bicycling, walking, and riding. Increasing the use of alternative transportation modes will produce a number of community benefits including reduced traffic, less need for costly roadway improvement projects and improved air quality. Facilities for bicycling, walking, and riding provide recreational opportunities as well.

Public bus service is provided by OCTA. An established network of bus routes provides access to employment centers, shopping and recreational areas within the City. As the eastern portion of the City developed and public transit services demand increased for the Foothill Ranch and Portola Hills communities, OCTA has established new bus routes to serve the areas north of Trabuco Road. Figure C-3 indicates the bus routes currently serving Lake Forest. A summary of approximate origin and destination is shown on Table C-4. OCTA continually modifies the bus routes in order to meet the needs of the riders.

Station Link is a fleet of special OCTA buses scheduled to meet Orange County Metrolink train commuters at their stations. Station Link buses are commuters' connections to major work, shopping, and transit connection to regional transportation centers, such as the Irvine Transportation Center.

Table C-4
OCTA Bus Service Through Lake Forest

| <i>Line</i> | <i>Origin/Destination</i> |
|-------------|--|
| Route 86 | Costa Mesa - Mission Viejo via Alton Pkwy./Jeronimo Rd. |
| Route 89 | Laguna Beach to Mission Viejo via Laguna Canyon Rd.-El Toro Rd. |
| Route 177 | Laguna Hills to Foothill Ranch via Los Alisos-Muirlands-Lake Forest Drive |
| Route 206 | Santa Ana to Lake Forest Express via 5 freeway |
| Route 188 | Laguna Hills to Irvine Spectrum via Rockfield-Ridge Route-Trabuco-Alton |
| Route 480 | Irvine Transportation Center to Lake Forest via Alton Pkwy/Bake Pkwy/Lake Forest Dr. |

SOURCE: GPA 2008-02

The City will advocate that the planned Urban Rail and Metrolink systems serve the transit needs of Lake Forest through continued









coordination with OCTA and regional planning forums.

The planned bikeway system within the City is illustrated in Figure C-4. Table C-5 provides descriptions of the three bikeway classifications presently implemented in Orange County. As Figure C-4 indicates, the bikeway system is comprised of a network of Class II bike lanes along arterial roadways. Class I off-road bike trails are described in the Recreation and Resources Element.

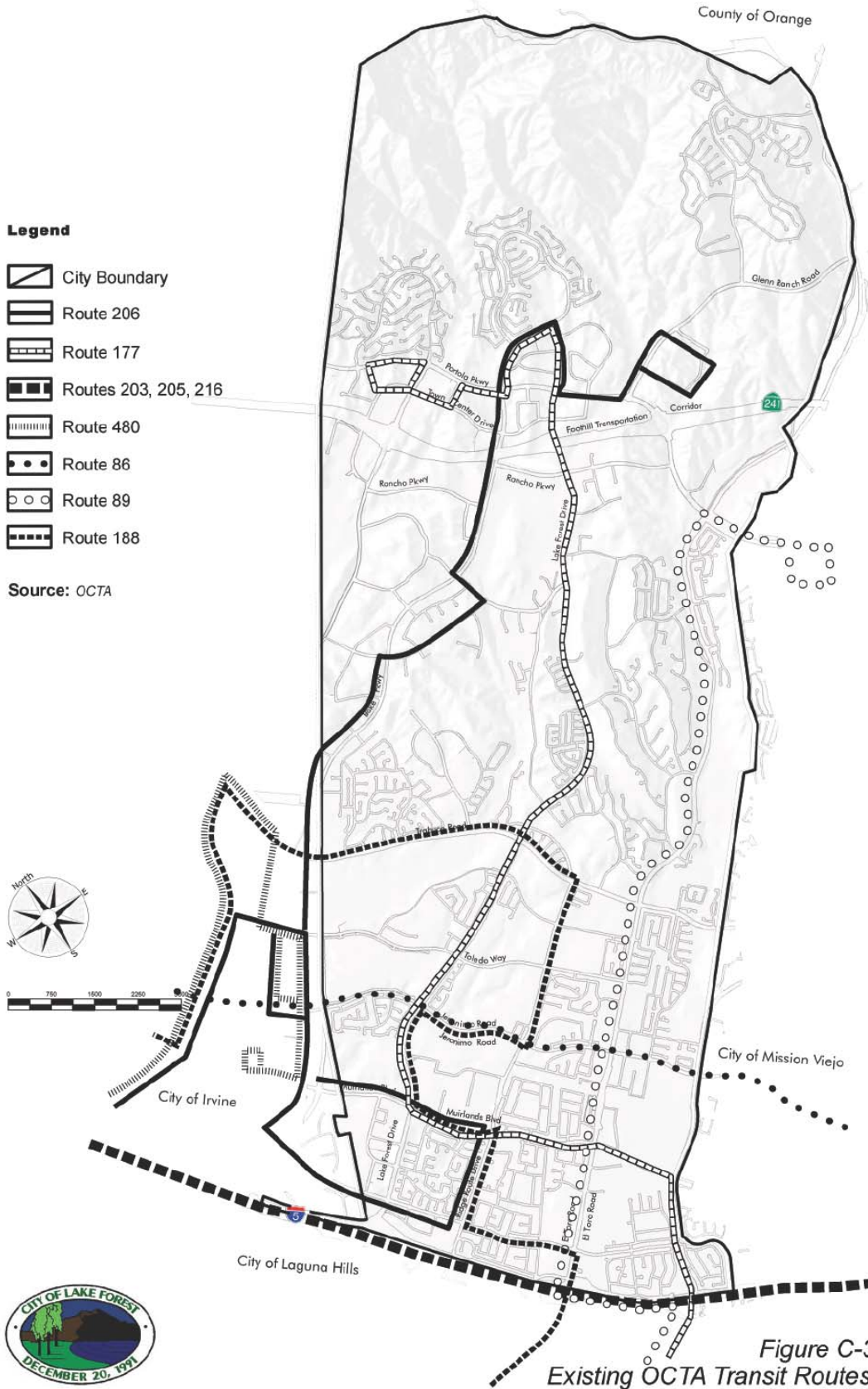
The City will continue to enhance the bikeway system as roadway improvements occur. Bikeway system projects will focus primarily on the closing of gaps in the existing system (e.g., the railroad under-crossing at Ridge Route Drive and along Rockfield Boulevard), making City bikeways continuous with the regional bikeway system (e.g., bikeway connections on the planned extension of Alton Parkway south of the Foothill Transportation Corridor, and eliminating on-street parking in marked bicycle lanes where accepted standards indicate that such parking is not advised.

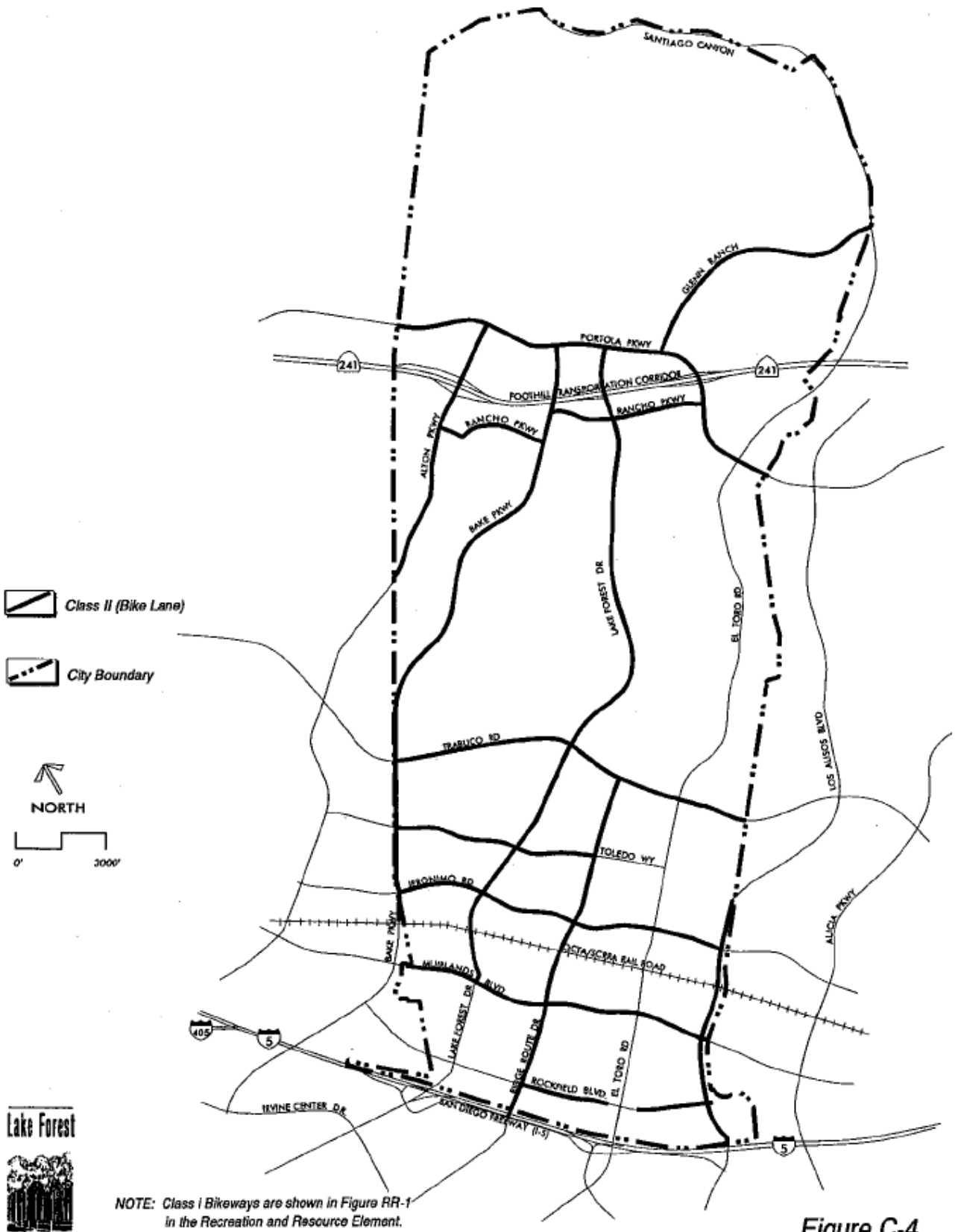
Enhanced local bicycle, pedestrian and riding linkage is planned. The goal is to link residential areas, schools, parks and commercial centers so that residents can travel within the community without driving. New east-west trail access is desired and will be sought with new development. New development projects will be required to include bicycle, pedestrian and riding trails and homeowners associations will be encouraged to construct linkage to adjacent areas where appropriate.



Legend


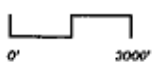
-  City Boundary
-  Route 206
-  Route 177
-  Routes 203, 205, 216
-  Route 480
-  Route 86
-  Route 89
-  Route 188

Source: OCTA





 Class II (Bike Lane)
 City Boundary


 NORTH

 0' 3000'



NOTE: Class I Bikeways are shown in Figure RR-1 in the Recreation and Resource Element.

SOURCE: Austin-Foust Associates

**Figure C-4
Planned Bikeways**

**Table C-5
Bikeway Classification Descriptions**

Class I Bike Path or Bike Trail

Provides a completely separated right-of-way designated for the exclusive use of bicycles and pedestrians; crossflows with motorized vehicles minimized.

Sizing: Minimum width for Class I (two-way) is eight feet. Desirable width is 10-12 feet. Minimum shoulder width of two feet each side. Minimum width for Class I (one-way) is five feet. Minimum shoulder width of two feet each side.

Class II Bike Lane

Provides a restricted right-of-way on a roadway's shoulder designated for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited; vehicle parking and crossflows by pedestrians and motorists permitted. Vehicle parking in a Class II bike lane is not desirable and should be discouraged. Additional lane width (12 feet minimum and 13 feet desirable) shall be required if on-street parking is permitted.

Sizing: Typical width of eight feet. A reduction in width to allow for restriping of an existing roadway or for added turning lanes may be permitted. In such cases, a five-foot width, or gutter width plus three feet, whichever is greater, is the minimum width.

Class III Bikeway

Provides for shared use of roadway facilities. These bikeways share the street with motor vehicles or share the sidewalk with pedestrians. In both of these conditions, bicycle use is a secondary function of the pavement.

SOURCES: Caltrans "Planning and Design Criteria for Bikeways in California"
County of Orange adopted standard Plans for Bikeways

PARKING

Adequate parking is an essential part of urban circulation systems. Vehicle storage areas are required at residential communities, public facilities, parks, commercial areas and employment centers. Without adequate parking, drivers are forced to park cars on-street and traffic flow can be consequently impeded.

In new development projects, sufficient off-street parking will be required and the parking ordinance will be periodically reviewed and amended to reflect current circulation needs. Shared parking access between parking areas of adjacent properties will be required along arterial roadways.

A provision for shared parking allowances is included in the parking ordinance. When monitoring the performance of arterial roadways, the City will consider eliminating on-street parking to increase traffic flow,

particularly when such parking occurs within marked bicycle lanes, where accepted standards indicate that such parking is not advised.

TRANSPORTATION SYSTEM AND DEMAND MANAGEMENT

The efficiency of the circulation system will be maximized with transportation system management (TSM) and transportation demand management (TDM) strategies. TSM involves physical improvements to the circulation infrastructure to expand capacity and increase traffic flow while TDM involves reducing the demand for vehicular transportation. In addition to enhancing the operation of the circulation system, TSM and TDM strategies provide relief from increasing demands for more improvements to transportation facilities.

Traffic signal coordination and intersection capacity improvements will be implemented as needed to maintain traffic flow.

Traffic fees for traffic impacts of new development will be collected according to established local and regional fee programs. The City will support the implementation of the employer TDM provisions of the South Coast Air Quality Management District Air Quality Management Plan and participate in regional efforts to implement TDM requirements. Programs to increase transit ridership and use of non-vehicular transportation such as walking and bicycling will be actively pursued.

TRANSPORTATION FINANCING

Implementing circulation improvements to accommodate planned growth will require financing. Funding for transportation improvements is available from several local, state, and federal sources. The City will identify available funding sources and establish a Development Mitigation Program (LFTM), and maintain the Comprehensive Phasing Program, Performance Monitoring Program, and Capital Improvement Program to guide construction and funding of transportation system improvements. More information about these programs is provided in the Public Facilities/Growth Management Element.

The standards and programs required to qualify for revenue from the Congestion Management Plan and Measure M will be applied in the City. Circulation improvements to accommodate new development projects will be constructed and/or funded by project proponents. Fees will be collected for traffic impacts of new development in accordance with established fee programs.