CHAPTER 9
CIRCULATION

Table of Contents

CHAPTER 9
CIRCULATION

List of Tables

List of Diagrams and Figures

CHAPTER 9
CIRCULATION

INTRODUCTION

The Circulation Element establishes a program that is intended to provide a balanced transportation/circulation system that will support the anticipated growth in local and regional land uses. The City of Duarte is committed to providing a safe and efficient circulation system that improves the flow of traffic while enhancing pedestrian and vehicular safety, promoting commerce, and providing for alternative modes of transportation. The Circulation Element outlines the goals, objectives, and policies for meeting Duarte's existing and future transportation needs and describes the future circulation system needed to support the Land Use Element.

The methodology for developing the Circulation Element was to assess existing conditions, forecast future conditions based on regional growth and anticipated changes in land use densities and intensities in Duarte, then identify the transportation infrastructure needed to serve the projected demands. The Circulation Element establishes a hierarchy of roadways with specific geometric standards for each roadway category. The recommended roadway system is based on traffic volume forecasts and projected volume/capacity ratios for the General Plan buildout year of 2020. While the primary focus of the Circulation Element is the Duarte street and roadway network, alternative modes of travel such as bus transit, rail transit, bicycles, and pedestrians are also addressed and become more significant as congestion continues to mount in the Los Angeles basin.

Circulation Element Statutory Requirements

California law requires a general plan to contain a Circulation Element that shall meet specific minimum standards. More specifically, Government Code Section 65302(b) states that the general plan shall include *"a circulation element consisting of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the land use element of the plan."*

Relationship to other General Plan Elements and Program EIR

California law requires that all elements of the General Plan be consistent. While each of the General Plan elements could be characterized as independent documents, they are also interrelated in the common goal of providing a long-range integrated plan for the ongoing development of the city. The Circulation

CHAPTER 9
CIRCULATION

Element is most directly related to the Land Use, Noise, and Air Quality section of the Open Space and Conservation Elements.

A Program Environmental Impact Report (EIR) will be prepared in conjunction with the Duarte General Plan. Mitigation measures presented in the Circulation Element will also be presented as mitigation measures in the Program EIR.

GOALS, OBJECTIVES AND POLICIES

This section presents the goals, objectives, and policies for the Circulation Element of the Duarte General Plan.

Circulation Goal 1: To provide a sustainable, convenient, efficient, and cost effective circulation system to serve the present and future transportation needs of the Duarte community.

Objective 1.1: Maintain the existing transportation infrastructure in Duarte and upgrade the system when appropriate to improve traffic conditions through enhanced traffic control measures, roadway improvements, and effective planning for new development.

Policies

Circ 1.1.1 Develop, implement, and refine local east/west traffic flow elements to allow traffic to move through and within Duarte in an expeditious manner including improving the Huntington Drive bridge over the San Gabriel River.

Circ 1.1.2 Implement the roadway plan provided in the Circulation Element to meet the transportation needs of the citizens.

Circ 1.1.3 Widen substandard streets and alleys to meet the city standards where feasible.

Circ 1.1.4 Evaluate the traffic impacts of new development and require developers to employ appropriate mitigation measures to reduce traffic or improve roadway and traffic conditions.

Circ 1.1.5 Evaluate the traffic impacts from development projects in adjacent cities and work cooperatively with these cities to develop mitigation measures that will improve traffic conditions in Duarte.

Circ 1.1.6 Pursue and provide adequate right-of-way to accommodate future circulation system improvements.

Circulation Goal 2: To protect local residential neighborhoods from the impacts of through traffic and trucks.

Objective 2.1: Minimize the intrusion of through traffic, commuter traffic, and/or trucks on local streets in residential neighborhoods.

Policies

Circ 2.1.1 Discourage through traffic on local streets that are located in residential neighborhoods.

Circ 2.1.2 Restrict heavy duty truck traffic to arterial roadways.

Circ 2.1.3 Continue the practice of responding to resident complaints and requests regarding residential street traffic problems.

Circ 2.1.4 Discourage non-resident motorists from traveling through residential neighborhoods.

Circ 2.1.5 Appropriate mitigation measures should be implemented to ensure that the adverse impacts from trucks and employee traffic can be reduced.

Circulation Goal 3: To increase the use of alternative modes of transportation for traveling to, from, or through Duarte.

Objective 3.1: Encourage and promote the use of travel modes other than the single occupancy vehicle, such as bus transit, rail transit, carpools, vanpools, bicycling, and walking.

Policies

Circ 3.1.1 Continue to promote the development of the MTA Gold Line and a Duarte station.

Circ 3.1.2 Coordinate Duarte Transit System with MTA, Foothill Transit and to service major destinations within Duarte including City of Hope, Duarte Gold Line Station and proposed City Center area.

Circ 3.1.3 Promote the linking of local public transit routes with that of adjacent jurisdictions and other transit agencies.

Circ 3.1.4 Ensure that new developments incorporate both local and regional transit measures into the project design that promote the use of alternate modes of transportation.

Circ 3.1.5 Provide incentives for appropriate pedestrian and bicycle facilities throughout Duarte, particularly for bike lanes to the Gold Line Station.

RELATED AGENCIES, LAWS AND PLANS

California Department of Transportation (Caltrans)

Caltrans is the state agency that has jurisdiction over the Foothill Freeway (Interstate 210) and the San Gabriel River Freeway (Interstate 605). The I-210 Freeway runs through Duarte in an east-west direction and has on/off ramps that link the freeway to Mountain Avenue, Buena Vista Street, and Mount Olive Drive. The I-605 Freeway runs north-south and has an interchange with the I-210 Freeway near the southeast corner of Duarte. The I-605/I-210 interchange includes ramps to the north that link with Mount Olive Drive and provide a direct connection to Huntington Drive. Caltrans has jurisdiction over the freeways, the freeway on/off ramps, and the intersections where the ramps meet with the Duarte street system.

Los Angeles County Metropolitan Transportation Authority (MTA)

The Los Angeles County Metropolitan Transportation Authority (MTA) is the agency that operates the MTA bus transit lines and the Metrorail facilities, including the proposed Gold Line through Duarte. MTA also administers the Los Angeles County Congestion Management Program (CMP) and prepares the Long Range Transportation Plan (LRTP).

Southern California Association of Governments (SCAG)

The Southern California Association of Governments (SCAG) is an agency that is responsible for transportation planning in Los Angeles County at the regional level. It is the designated Metropolitan Planning Organization (MPO) for a six-county region, which includes Los Angeles, Orange, Riverside, San Bernardino, Ventura, and Imperial Counties. SCAG is responsible for preparing a Regional Transportation Plan (RTP)

Los Angeles County Congestion Management Program (CMP)

The Los Angeles County Congestion Management Program (CMP) is mandated by State of California law. This law is administered locally by MTA and requires that the traffic generated by individual development projects be analyzed for potential impacts to the regional roadway system. It also requires that local jurisdictions (cities and counties) maintain CMP conformance by monitoring development activity, reporting the results annually to MTA, and adopting a CMP transportation demand management ordinance. The only two CMP highways in or near Duarte are the I-210 and I-605 Freeways. There are no CMP arterial roadways in Duarte.

Long Range Transportation Plan (LRTP)

The Long Range Transportation Plan (LRTP), which is prepared by MTA, is the blueprint for implementing future transportation improvements in Los Angeles County. It is a program of recommended transportation projects that assists decision-makers in understanding the options that are available for improving the transportation system. The LRTP recommends a balanced transportation program with a strong emphasis on public transit to meet the region's growing travel demands.

Regional Transportation Plan (RTP)

Under federal law, SCAG must prepare a Regional Transportation Plan (RTP), which demonstrates how the region will meet federal mandates, particularly air quality requirements. The RTP must be approved by federal agencies in order to receive federal transportation funds. Only projects and programs included in the RTP are eligible for federal funding.

Regional Mobility Plan (RMP)

The Regional Mobility Plan (RMP) is part of an overall regional planning process that is linked directly to SCAG's Growth Management Plan, the Housing Allocation Process, and the South Coast Air Quality Management District's Air Quality Management Plan. The RMP consists of four elements: Growth Management, Transportation Demand Management, Transportation System Management, and Facilities Development. The active participation of local governments in transportation conformity is important to ensure that there is consistency between local general plans and the conformity criteria described in the regional Air Quality Management Plan (AQMP). The primary goal of the RMP is to improve transportation mobility levels.

Highway Performance Monitoring System (HPMS)

The Highway Performance Monitoring System (HPMS) is a federally mandated inventory system and planning tool designed to assess the nation's highway system. HPMS is used as a management tool by state and federal governments and local agencies to analyze the system's condition and performance. The HPMS data are used for allocation of federal funds, identification of travel trends and future forecasts, Environmental Protection Agency (EPA) air quality conformity tracking, and biennial reports to the U.S. Congress on the state of the nation's highways. The HPMS is administered by Caltrans, with technical data provided by local agencies.

Foothill Transit

Foothill Transit, created in 1988, is one of the largest and most successful transit competitive contracting efforts ever undertaken in the United States. Providing bus service to the San Gabriel and Pomona Valleys, the agency contracts out all services - from administration to bus driving and maintenance. Foothill Transit is governed by a five-person Executive Board.

Four members are elected by the general zone membership, and the fifth member is appointed by the Los Angeles County Board of Supervisors. General membership includes one city council member from each of 21 cities in the Foothill Transit Zone and three appointed representatives from the County of Los Angeles. Foothill Transit interfaces with Duarte Transit.

Access Services

Access Services is a state mandated local governmental agency created by Los Angeles County's public transit agencies to administer and manage the delivery of regional American with Disabilities Act (ADA) paratransit service. Access Services was established by forty-four public fixed route transit operators in Los Angeles County. It is governed by a nine member board appointed by the Los Angeles County municipal fixed route operators, the Los Angeles County local fixed route operators, the City of Los Angeles, the County of Los Angeles, the Transportation Corridor Representatives of the Los Angeles branch of the League of Cities, the Los Angeles County Commission on Disabilities, and the Coalition of Independent Living Centers. Access Services promotes access to all modes of transportation and provides quality ADA paratransit service on behalf of public transit agencies in Los Angeles County, including those serving Duarte.

CHAPTER 9
CIRCULATION

Access's primary mission is to provide ADA mandated paratransit services for people with disabilities who are unable to use public fixed route transportation systems and to coordinate various paratransit operators within Los Angeles County to provide efficient and cost effective paratransit services. Access's funding sources are the local Proposition C Discretionary sales tax, Federal Transit Administration Section 16 and 5310 grants, passenger fares and other associated sources.

TRANSPORTATION/CIRCULATION ANALYSIS

The following sections describe the existing roadway system and traffic conditions, present the projected traffic conditions for the future buildout year of 2020, and outline the recommended circulation element master plan.

Existing Circulation System

Duarte is served by the network of roadways shown on Diagram CIRC – 1, which is the circulation system from the current General Plan (City of Duarte, June 1989). The existing roadway network is essentially a grid system of north/south and east/west roads. According to the 1989 General Plan, the roadways are classified into four circulation system categories: 1) freeway, 2) arterial roadway, 3) collector street, and 4) local street. The roadways in Duarte have also been classified by the Highway Performance Monitoring System (HPMS). According to the Caltrans-administered HPMS, the roadways in Duarte are categorized into five functional classifications: 1) Principal Arterial Interstate, 2) Other Principal Arterial, 3) Minor Arterial, 4) Collector, and 5) Local. These roadway classifications are described below.

Principal Arterial Interstate

A Principal Arterial Interstate (functional classification code 11 from the HPMS) is a freeway that is included as part of the interstate highway system. It is a controlled access, divided highway that is intended to accommodate high-speed regional travel. Freeways have grade-separated interchanges that provide access from freeway to freeway or between freeways and the arterial street system. The freeways that provide regional access to Duarte are the Foothill Freeway (Interstate 210) and the San Gabriel River Freeway (Interstate 605). The I-210 Freeway runs east-west through Duarte and acts as a barrier that divides the city into a north and south area. The I-210 Freeway carried 254,000 average daily trips in 2004 through Duarte (Source: Caltrans). The I-605

Freeway runs north-south and connects with the I-210 Freeway near the southeast corner of Duarte. It is not located within the city boundary of Duarte. Planning, design, construction, and maintenance of freeways in California are the responsibility of the State of California Department of Transportation (Caltrans). So even though the I-210 Freeway is physically located within the boundaries of Duarte, it is not under the jurisdiction of the City of Duarte.

The HPMS also has a classification of Principal Arterial – Other Freeways and Expressways (functional classification code 12). This category includes the freeways and expressways that are not designated as part of the interstate highway system. There are no such facilities within Duarte.

Other Principal Arterial

The Other Principal Arterial category (functional classification code 14 from the HPMS) is comparable to a major arterial roadway. It accommodates regional, sub-regional, and intercity travel and generally has four to six through travel lanes with a raised median and/or a center left-turn lane. While Other Principal Arterials accommodate through traffic, they also provide direct access to adjacent properties and intersecting streets. The right-of-way widths for Other Principal Arterial roadways in Duarte range from 80 to 108 feet, while the pavement widths range from 60 to 80 feet. The Other Principal Arterials in Duarte are Huntington Drive, which is an east-west roadway, and Mountain Avenue, which is a north-south roadway. Huntington Drive is included as a component of Historic U.S. Route 66.

Minor Arterial

A Minor Arterial (functional classification code 16 from the HPMS) is an arterial roadway that has less of a regional significance than Other Principal Arterial roadways. It accommodates sub-regional and intercity travel and generally has four to six through travel lanes with a raised median and/or a center left-turn lane. Minor Arterials accommodate through traffic while also providing direct access to adjacent properties and intersecting streets. The right-of-way widths for Minor Arterial roadways in Duarte range from 80 to 100 feet, while the pavement widths range from 60 to 80 feet. The east-west Minor Arterial roadways in Duarte are Duarte Road and Royal Oaks Drive. The north-south Minor Arterial roadways in Duarte are Buena Vista Street, Highland Avenue, Las Lomas Road, Mount Olive Drive and Mountain Avenue south of Duarte Road.

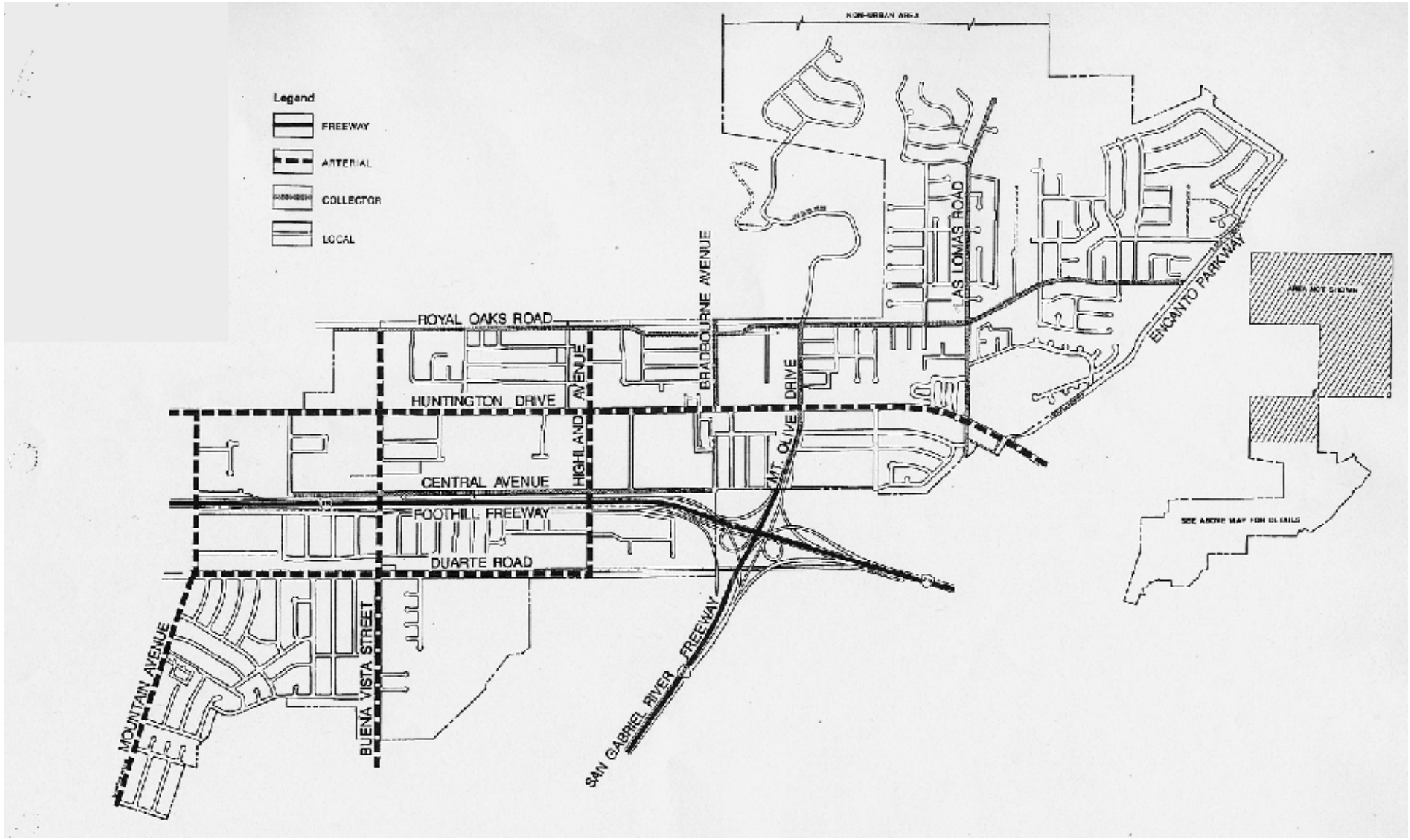


Diagram CIRC - 1

CIRCULATION SYSTEM
1989 DUARTE GENERAL PLAN

Collector

A Collector (functional classification code 17 from the HPMS) is a street that is intended to serve as an intermediate route to accommodate travel between local streets and arterial roadways and to provide access to the abutting properties. Collector streets generally have two travel lanes, although four lanes may be provided at certain locations. The right-of-way width for collector streets in Duarte is typically 60 feet, while the pavement widths range from 35 to 52 feet. The east-west collector streets in Duarte are Central Avenue, Evergreen Street, Fernley Drive, Fish Canyon Road, Galen Street, Hurstview Street, and Royal Oaks Drive east of Las Lomas Road. The north-south collector streets in Duarte are Bradbourne Avenue, Cotter Avenue, Hurlock Avenue, part of Fernley Drive, and Las Lomas Road south of Huntington Drive.

Local

A Local (functional classification code 19 from the HPMS) is a low speed street that is primarily intended to provide direct access to the abutting properties. Local streets generally have two travel lanes with parking along both sides of the street. The right-of-way widths for local streets in Duarte range from 50 to 60 feet, while the pavement widths range from 32 to 40 feet. Most of the streets in Duarte that are not otherwise classified as arterial roadways or collector streets are included in the local street category.

Bicycle Trails

The Duarte Bike Trail extends essentially along Royal Oaks Drive and is 1.6 mile long and consists of 9.96 acres. The majority of the trail is a Class 1 bike trail (intended for the exclusive use of bicycles and separated from motor vehicles traffic by lateral space or a physical barrier.) and is improved with asphalt with parallel dirt treadway from Buena Vista Street to Vineyard Avenue. A Class II facility is a bicycle lane where a portion of the paved roadway area is marked as a lane for the use of bicycles. It is identified by BIKE LANE signs, pavement markings, and lane line stripes. The bike trail becomes a Class III bike trail (a bicycle route that is designated along a public roadway with BIKE ROUTE signs. Bicycles share the right-of-way with motorized vehicles and there are no special markings on the pavement from Vineyard Avenue to the easterly city limit line. This trail provides regional bicycle assess through Duarte and to the San Gabriel River bicycle path. Diagram CIRC -2 identifies the location of Duarte Bike Trail.

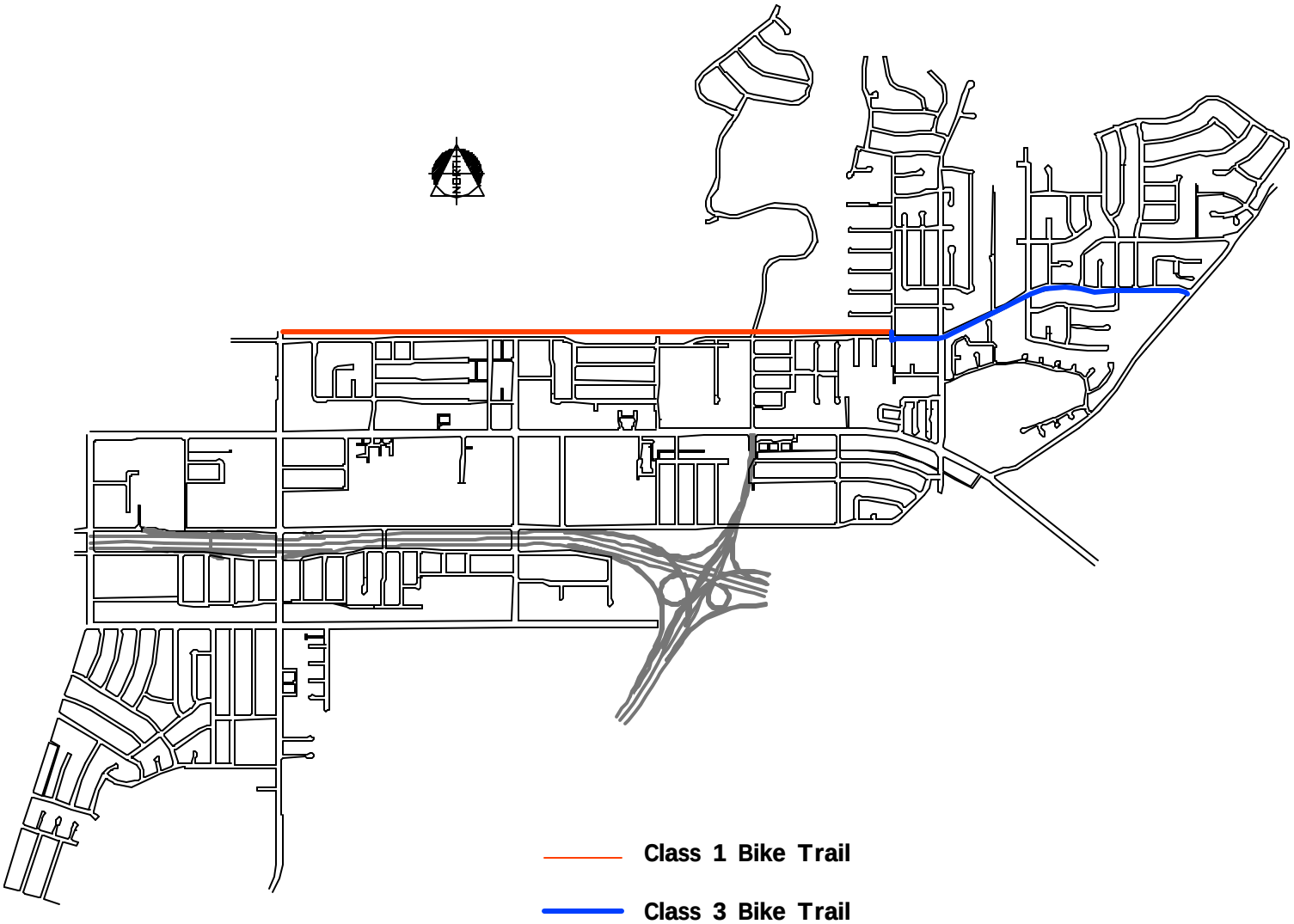


Diagram CIRC - 2 DUARTE BIKE Trails

CHAPTER 9
CIRCULATION

Duarte's Transit System

The City of Duarte has operated a "fixed route" [bus] transit system since 1984. Buses operate along two main routes, weekdays and a single route on Saturdays. There is no Sunday / Holiday service provided.
The bus fleet consists of "medium duty", diesel powered vehicles, approximately 30' in length. The buses are air-conditioned and all vehicles are "accessible" to the disabled. Two of the buses are "low-floor" vehicles which utilize an on-board accommodation ramp that eliminates the wheelchair lift apparatus.

The two main transit routes operated by Duarte Transit System are known as the "Blue" and "Green" routes. Both routes are designed to operate essentially a circular route of line and serve virtually every venue within the City of Duarte considered to be of importance. The "Blue "route operates in a "clockwise" direction and the "Green" route operates in a "counter-clockwise" direction. As the two routes essentially "overlay" each other, patrons may easily move in either direction along the route of line.

The routes connect with every transit route operated to and through the City of Duarte, operated by Foothill Transit (Lines: 184; 187; 272; 494 plus a "Transit Store" located at #1740 E. Huntington Drive) and MTA (Line 264) which provide inter-community public transit service to / from points outside of Duarte. The main transfer connection point is located along Huntington Drive at the intersection of Highland Avenue. Historically, this location was to be a "purpose developed" transit center, but to date, this has not been accomplished. The Duarte Transit System routes also have a timed inter-connection at the Target Shopping Center which further provides a location for a short layover period.

On weekdays, both "Blue" and "Green" routes operate an approximate 12 hour spread of service between the hours of 7:00 AM and 7:00 PM. Both routes operate on an hourly frequency; that is, there is a bus passing by a specific location on each route every 60 minutes – an easy schedule to recall. On Saturdays, only the "Blue" ("clockwise") route is operated on an approximate 10 hour spread of service between the hours of 8:00 AM to 6:00 PM. The frequency of service is hourly.

A third route, "Commuter" operates on weekdays between 5:30 AM and 7:00 AM (two westbound trips only). The "Commuter" route is omni-directional and basically overlays the "Green" route in easterly Duarte and overlays the "Blue" route in westerly Duarte. The purpose of the "Commuter" route is to provide home – to – transit transfer connection point service for Duarte residents who utilize public transit to / from their place of employment. In the PM, regular "Blue"

and “Green” route service provides the distribution from the transit transfer connection points to residential locations.

Funding for the Duarte Transit System is derived from three sources: The Proposition ‘A’ Transportation Fund (a ¼ cent sales tax surcharge approved by the California voters); the Proposition ‘C’ Transportation Fund and the Air Quality Management Fund. To date, the Duarte Transit System has not required General Fund support.

A point of concern pertains to the December, 2005 discontinuance of Line 177 by MTA, which eliminated public transit service east of Pasadena along Foothill Boulevard through the cities of Arcadia and Monrovia and subsequently eliminated public transit service along portions of Royal Oaks Drive in Duarte, the Duarte main transfer connection point and City of Hope. At the same time, MTA Line 264, which operates along Duarte Road with a terminal at the City of Hope, was re-configured to not serve the Duarte main transfer point by having the Line 264 turnback point occur at Highland Avenue and Business Center Drive; some distance from the Duarte main transfer point. In particular, it is important that Line 264 be restored to its former route of line to provide a convenient and efficient connection to / from other public transit routes serving Duarte, including the Duarte Transit System.

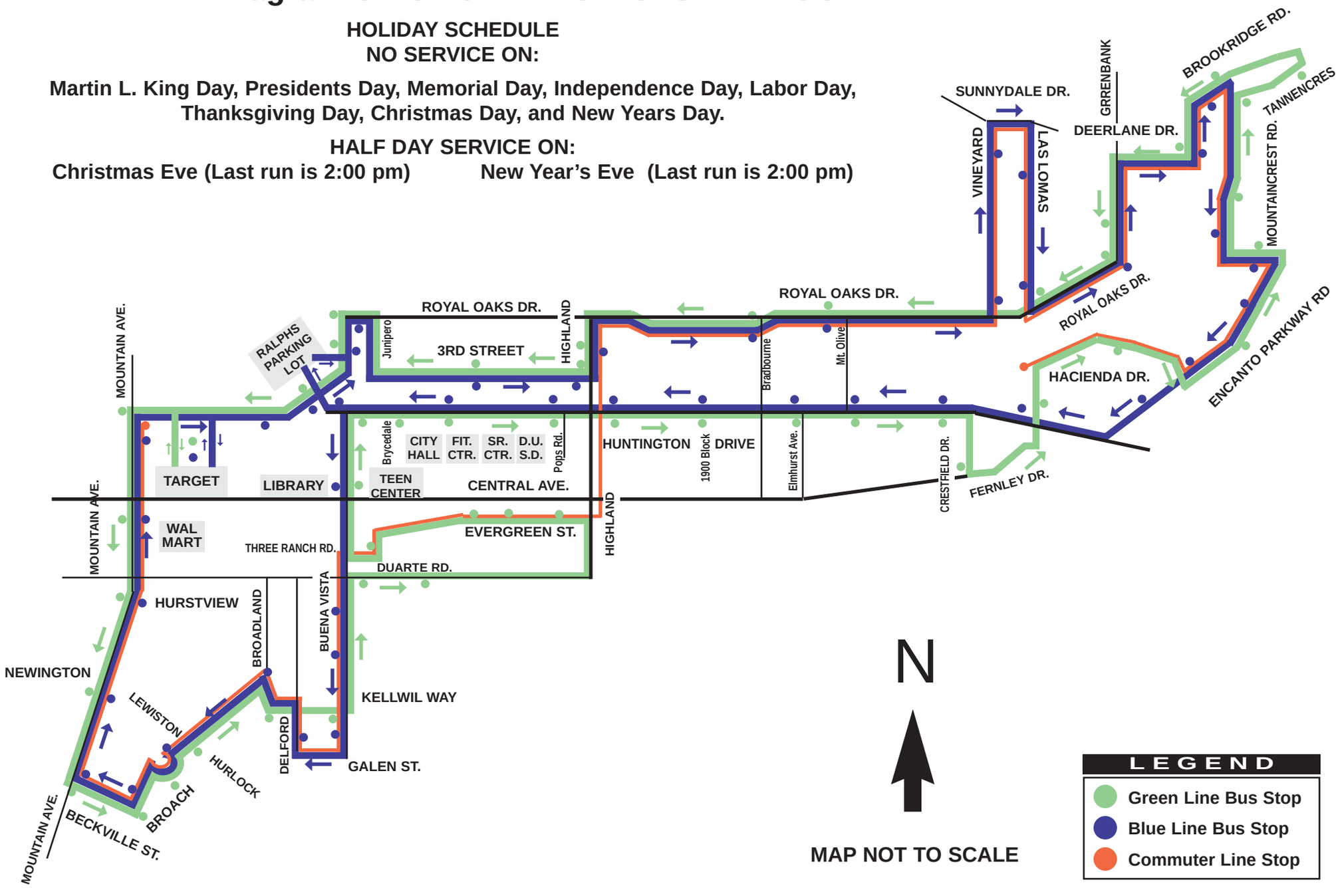
Diagram CIRC - 3 TRANSIT SYSTEM ROUTE

HOLIDAY SCHEDULE
NO SERVICE ON:

Martin L. King Day, Presidents Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, and New Years Day.

HALF DAY SERVICE ON:

Christmas Eve (Last run is 2:00 pm) **New Year's Eve (Last run is 2:00 pm)**



CHAPTER 9
CIRCULATION

Existing Traffic Conditions

The existing traffic conditions on the arterial roadways and collector streets in Duarte have been evaluated in terms of daily traffic volumes, roadway capacities, and levels of service for each roadway link in the circulation system. Traffic volume counts were taken in November 2005 at representative locations throughout the city to quantify the existing 24-hour traffic volumes. The traffic conditions on each roadway link were evaluated by comparing the existing traffic volumes to the current capacity provided by each roadway to determine the volume/capacity ratios and levels of service. The daily traffic volumes, number of lanes, capacity values, volume/capacity ratios, and levels of service for existing conditions on the Duarte roadway network are shown in Table CIRC -1. The locations surveyed represent the roadways that were included in the 1989 General Plan.

The capacity values represent the maximum number of daily vehicle trips that can adequately be accommodated on each type of roadway facility. The capacity values are based on the number of through travel lanes and the assumption that each lane has a capacity of 8,000 vehicles per day. The capacity assumptions for the arterial roadways and collector streets are as follows: 2 lanes – 16,000 vehicles per day, 4 lanes – 32,000 vehicles per day, 6 lanes – 48,000 vehicles per day.

Table CIRC -1 indicates that all of the roadway segments in Duarte are currently operating at acceptable levels of service (LOS A through D) except for Mountain Avenue between the I-210 Freeway and Duarte Road, which operates at LOS E.

Table CIRC – 1
Existing Traffic Conditions November 2005

Roadway/Location	Daily Traffic Volume	# of Lanes & Capacity	V/C Ratio	Level of Service
ARTERIAL ROADWAYS				
Huntington Drive				
Mountain Ave to Buena Vista St	26,530	4 – 32,000	0.83	D
Buena Vista St to Highland Ave	23,810	4 – 32,000	0.74	C
Highland Ave to Bradbourne Ave	26,460	4 – 32,000	0.83	D
Bradbourne Ave to Mt Olive Dr	28,640	4 – 32,000	0.90	E
Mt. Olive Dr to Las Lomas Rd	26,750	4 – 32,000	0.84	D
East of Las Lomas Rd	26,170	4 – 32,000	0.82	D
Duarte Road				
Mountain Ave to Buena Vista St	11,950	4 – 32,000	0.37	A
Buena Vista St to Highland Ave	12,740	4 – 32,000	0.40	A
Mountain Avenue				
Huntington Dr to I-210 Freeway	24,500	4 – 32,000	0.77	C
I-210 Freeway to Duarte Rd	31,040	4 – 32,000	0.97	E
South of Duarte Rd	9,550	4 – 32,000	0.30	A
Buena Vista Street				
Royal Oaks Dr to Huntington Dr	11,310	4 – 32,000	0.35	A
Huntington Dr to I-210 Freeway	18,860	4 – 32,000	0.59	A
I-210 Freeway to Duarte Rd	15,170	4 – 32,000	0.47	A
South of Duarte Rd	7,860	4 – 32,000	0.25	A
Highland Avenue				
Royal Oaks Dr to Huntington Dr	3,750	4 – 32,000	0.12	A
Huntington Dr to I-210 Freeway	11,480	2 – 16,000	0.72	C
I-210 Freeway to Duarte Rd	9,650	2 – 16,000	0.60	B
Las Lomas Road				
Royal Oaks Dr to Huntington Dr	9,440	4 – 32,000	0.30	A
Mount Olive Drive				
Royal Oaks Dr to Huntington Dr	10,230	2 – 16,000	0.64	B
South of Huntington Dr	23,870	4 – 32,000	0.75	C
Royal Oaks Drive				
West of Buena Vista St	10,650	2 – 16,000	0.67	B
Buena Vista St to Highland Ave	8,550	2 – 16,000	0.53	A
Highland Ave to Bradbourne Ave	7,610	2 – 16,000	0.48	A
Bradbourne Ave to Mt Olive Dr	7,870	2 – 16,000	0.49	A
Mt. Olive Dr to Las Lomas Rd	10,380	2 – 16,000	0.65	B
COLLECTOR STREETS				
Royal Oaks Drive				
East of Las Lomas Rd	8,000	2 – 16,000	0.50	A
West of Encanto Parkway	1,400	2 – 16,000	0.09	A
Central Avenue				
West of Buena Vista St	3,880	2 – 16,000	0.24	A
East of Buena Vista St	12,200	2 – 16,000	0.76	C
West of Highland Ave	3,550	2 – 16,000	0.22	A
Highland Ave to Bradbourne Ave	7,100	2 – 16,000	0.44	A
Bradbourne Avenue				
Royal Oaks Dr to Huntington Dr	1,260	2 – 16,000	0.08	A
Las Lomas Road				
South of Huntington Dr	4,080	2 – 16,000	0.26	A

Level of service (LOS) is a qualitative indicator that is used to describe the prevailing operating conditions on a roadway. It is a comprehensive measure that is representative of the various levels of congestion and delay experienced by motorists. Level of service ranges from LOS A (excellent conditions) to LOS F (extreme congestion), with LOS A through D generally considered to represent acceptable conditions in an urban area. Table CIRC - 2 presents a description of the six levels of service and shows the relationship between LOS and volume/capacity ratios for a roadway link.

Table CIRC – 2
Level of Service Descriptions

Level of Service	Description	Volume/Capacity Ratio
A	Excellent operation. Little or no congestion and delay. Turning movements are easily made and most drivers have freedom of movement in traffic. All approaches to the intersections appear quite open.	< 0.60
B	Very good operation. Little congestion and delay. Many drivers begin to feel somewhat restricted within platoons of vehicles. Approaches to the intersections may occasionally be fully utilized and traffic queues start to form.	0.60 to 0.70
C	Good operation. Light congestion and minor delays. Occasional backups on critical approaches at intersections. Occasionally drivers may have to wait more than 60 seconds and back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted.	0.70 to 0.80
D	Fair operation. Congestion and delays on critical approaches, but intersections functional. Vehicles are sometimes required to wait more than 60 seconds during short peaks and wait through more than one signal cycle. There are no long-standing traffic queues.	0.80 to 0.90
E	Poor operation. Severe congestion and long delays. Some long-standing vehicular queues develop on critical approaches to intersections. Delays may be up to several minutes. Blockage of intersections may occur.	0.90 to 1.00
F	Forced flow. Jammed conditions. Total breakdown of traffic flows with stop-and-go operation. Backups from downstream locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approach lanes.	> 1.00

Projected Future Traffic Conditions

The future traffic volume forecasts for the buildout year of 2020 are based on overall regional ambient growth factors, the traffic that would be generated by

several proposed short-range development projects, and the traffic that would be generated by three potential long-range development concepts.

Ambient Traffic Growth

Ambient traffic growth represents the overall increase in traffic volumes that would occur as a result of general growth in population, employment, and commerce in the region. Ambient growth would occur on the Duarte roadway system even if there were no change in housing, employment, or land use within Duarte because of the increases in through traffic volumes and the traffic that would be generated from outside the Duarte city boundaries. For purposes of this General Plan update, it has been assumed that the existing 2005 traffic levels would increase by a factor of 1.119 by the year 2020. This growth factor was obtained from the 2004 Congestion Management Program for Los Angeles County (Los Angeles County Metropolitan Transportation Authority; July 22, 2004).

Short-Range Traffic Generation

Short-range traffic growth would occur as a result of traffic that would be generated by development projects that are currently proposed in Duarte. These projects and the volumes of daily traffic that would be generated by the developments are shown in Table CIRC - 3. The trip generation rates used for the traffic estimates are from the *Trip Generation* manual (Institute of Transportation Engineers, 7th Edition, 2003) or from traffic studies that were conducted for each project. As shown, the six projects would generate a cumulative total of 4,527 vehicle trips per day. This traffic was geographically distributed onto the roadway network in accordance with the assumptions outlined in the traffic report for each project to quantify the anticipated increases in traffic volumes on each roadway segment.

Table CIRC – 3
Generated Traffic from Short-Range Development Projects

Project/Land Use	Quantity	Trip Generation Rate	Generated Daily Traffic Volume
Swiss Trail/Huntington Drive Project			
Residential Detached Condos	29 units	9.57/unit	278
Mountain Ave/Hamilton Road Retail Center			
Furniture Store	18,630 sf	5.06/ksf	94
High Turnover Restaurant	4,684 sf	130.34/ksf	611
Retail	6,030 sf	42.94/ksf	259
Fast Food Restaurant	4,400 sf	716/ksf	3,150
Total	33,744 sf		4,114
Net Trips w/20% Passby Reduction			3,291
Huntington Courts			
Single Family Residential	51 units	9.57/unit	488
Attallah Ranch Residential Development			
Single Family Residential	15 units	9.57/unit	144
Duarte Gardens	17 units	9.57/unit	163
Single Family Residential			
1600 block of Huntington Drive	17 units	9.57/unit	163
TOTAL	-	-	4,527

Long-Range Traffic Generation

The Land Use Element of the General Plan update indicates that two areas of Duarte that are currently underdeveloped could potentially be developed with mixed-use projects. One is a City Center project located in the northeast and southeast corners of Buena Vista Street and Huntington Drive. While the levels of proposed development have not yet been finalized, it has been assumed for the traffic analysis that it would have an estimated 165,000 square feet of retail space and 165 multi-family dwelling units.

The other development area is located north of Duarte Road and west of Highland Avenue adjacent to the proposed Gold Line Metro station. It has been assumed that this development would have 120 multi-family dwelling units and 100,000 square feet of mixed retail and office space. In addition, it has been assumed for the long-range analysis scenario that the Duarte Gold Line Metro station will have been completed and is anticipated to attract a ridership of 500 passengers per day. The Gold Line would reduce the overall volume of vehicular traffic on the roadway network because some of the rail transit users would otherwise have been traveling in automobiles. It has been assumed for the traffic

analysis, however, that the traffic generated by the Gold Line would be added to the roadway network, which thereby results in a conservative (over-estimated) traffic forecast. It is also likely that the mixed use development adjacent to the Gold Line station would generate less traffic than what is shown in Table CIRC – 4 because the trip generation rates are typically lower for transit-oriented developments located within walking distance of a transit station.

The City of Hope anticipates building 360,000 sq. ft. of new Science Park on their campus sometime before 2020. In addition, a five story 108,000 sq. ft. Cancer Immunotherapeutics and Tumor Immunology Center (CITI) broke ground in early 2007. Employees for the CITI will come from existing portable trailers on the City of Hope campus so no additional trips will be generated.

The traffic generation estimates for these long-range development projects are shown in Table CIRC - 4. As shown, the three planned developments, would generate an estimated 13,772 daily vehicle trips. This total includes a 20 percent reduction in the number of retail trips to account for passby traffic. Passby traffic represents the motorists who elect to stop and patronize one or more of the retail establishments while driving by the project site. As this traffic would already be traveling on the roadway system, it would not result in a net increase in traffic volumes on the roadways that serve the site.

The traffic volumes shown in Table CIRC - 4 were geographically distributed onto the roadway network in accordance with the trip distribution percentages presented in Exhibit B-3, of the “Regional Daily Trip Distribution Factors,” of the “Congestion Management Program for Los Angeles County” (LACMTA, July 22, 2004).

Table CIRC – 4
Generated Traffic from Long-Range Development Projects

Project/Land Use	Quantity	Trip Generation Rate	Generated Daily Traffic Volume
City Center Mixed Use Development			
Residential – Apartments/Condos	165 units	6.72/unit	1,109
Retail	165,000 sf	42.94/ksf	7,085
Passby Reduction (20% of Retail)			(1,417)
Total			6,777
Gold Line Mixed Use Development			
Residential – Apartments/Condos	120 units	6.72/unit	806
Office	50,000 sf	11.01/ksf	551
Retail	50,000 sf	42.94/ksf	2,147
Passby Reduction (20% of Retail)			(429)
Total			3,075
Gold Line Metro Station	500 daily passengers	2 trips/passenger	1,000
City of Hope Science Park	360,000 sq. ft	8.11/ksf	2,920
TOTAL	-	-	13,772

Future Traffic Forecasts

The future traffic volume forecasts were projected by expanding the existing traffic volumes by the ambient growth factor discussed previously, then adding the traffic that would be generated by the short-range and long-range development projects presented above in Tables CIRC - 3 and CIRC - 4. The projected daily traffic volumes for the year 2020, the proposed number of lanes according to the current Circulation Element, the roadway capacity values, the volume/capacity ratios, and the levels of service for each roadway segment are shown in Table CIRC - 5. All of the roadway segments are projected to operate at acceptable levels of service (LOS A through D) except for Huntington Drive (all of the segments except one) and Mountain Avenue between the I-210 Freeway and Duarte Road.

Table CIRC – 5
Projected 2020 Traffic Conditions

Roadway/Location	Daily Traffic Volume	# of Lanes & Capacity	V/C Ratio	Level of Service
ARTERIAL ROADWAYS				
Huntington Drive				
Mountain Ave to Buena Vista St	30,900	4 – 32,000	0.97	E
Buena Vista St to Highland Ave	27,500	4 – 32,000	0.86	D
Highland Ave to Bradbourne Ave	32,000	4 – 32,000	1.00	F
Bradbourne Ave to Mt Olive Dr	34,100	4 – 32,000	1.07	F
Mt. Olive Dr to Las Lomas Rd	31,500	4 – 32,000	0.98	E
East of Las Lomas Rd	30,000	4 – 32,000	0.94	E
Duarte Road				
Mountain Ave to Buena Vista St	14,200	4 – 32,000	0.44	A
Buena Vista St to Highland Ave	18,800	4 – 32,000	0.59	A
Mountain Avenue				
Huntington Dr to I-210 Freeway	28,200	4 – 32,000	0.88	D
I-210 Freeway to Duarte Rd	36,300	4 – 32,000	1.13	F
South of Duarte Rd	12,000	4 – 32,000	0.38	A
Buena Vista Street				
Royal Oaks Dr to Huntington Dr	13,800	4 – 32,000	0.43	A
Huntington Dr to I-210 Freeway	23,600	4 – 32,000	0.74	C
I-210 Freeway to Duarte Rd	20,400	4 – 32,000	0.64	B
South of Duarte Rd	9,300	4 – 32,000	0.29	A
Highland Avenue				
Royal Oaks Dr to Huntington Dr	5,100	4 – 32,000	0.16	A
Huntington Dr to I-210 Freeway	14,600	4 – 32,000	0.46	A
I-210 Freeway to Duarte Rd	14,000	4 – 32,000	0.44	A
Las Lomas Road				
Royal Oaks Dr to Huntington Dr	11,000	4 – 32,000	0.34	A
Mount Olive Drive				
Royal Oaks Dr to Huntington Dr	11,700	4 – 32,000	0.37	A
South of Huntington Dr	28,200	4 – 32,000	0.88	D
Royal Oaks Drive				
West of Buena Vista St	12,200	4 – 32,000	0.38	A
Buena Vista St to Highland Ave	10,300	4 – 32,000	0.32	A
Highland Ave to Bradbourne Ave	9,300	4 – 32,000	0.29	A
Bradbourne Ave to Mt Olive Dr	9,400	4 – 32,000	0.29	A
Mt. Olive Dr to Las Lomas Rd	12,100	4 – 32,000	0.38	A
COLLECTOR STREETS				
Royal Oaks Drive				
East of Las Lomas Rd	9,100	2 – 16,000	0.57	A
West of Encanto Parkway	1,700	2 – 16,000	0.11	A
Central Avenue				
West of Buena Vista St	4,900	2 – 16,000	0.31	A
East of Buena Vista St	14,000	2 – 16,000	0.88	D
West of Highland Ave	4,300	2 – 16,000	0.27	A
Highland Ave to Bradbourne Ave	8,200	2 – 16,000	0.51	A
Bradbourne Avenue				
Royal Oaks Dr to Huntington Dr	1,700	2 – 16,000	0.11	A
Las Lomas Road				
South of Huntington Dr	4,700	2 – 16,000	0.29	A

CHAPTER 9
CIRCULATION

Recommended Circulation Plan

Based on the traffic forecasts and the projected traffic conditions for the year 2020, it has been determined that the overall plan for the circulation system should be essentially the same as the HPMS functional classification system. It is recommended, therefore, that the roadway classification system presented in the 1989 General Plan be revised so that the updated General Plan will be consistent with HPMS functional classification system, which categorizes the roadways as Principal Arterial Interstate, Other Principal Arterial, Minor Arterial, Collector, and Local streets.

Two of the arterial roadways are projected to operate at unacceptable conditions; i.e., nearly the entire length of Huntington Drive and Mountain Avenue between the I-210 Freeway and Duarte Road. As these roadway links are shown to operate only slightly above the capacity levels, it would not be necessary to widen the roadways to a six-lane cross section. It is recommended, however, that measures be taken to increase the capacity and enhance traffic flow along these two roadways. Such measures that could potentially be considered include peak period parking restrictions to provide an additional travel lane, intersection improvements to provide double left-turn lanes and exclusive right-turn lanes at major intersections, and traffic signal coordination.

It is also recommended that the roadway cross-sections be standardized for each roadway classification. The 1989 General Plan shows ranges for the right-of-way and pavement widths. While it is acceptable for roadways of the same classification to have varying right-of-way and pavement widths for existing conditions, it would be advantageous to have a consistent standard cross-section that would be applicable to development proposals and dedication requirements.

The recommended Year 2020 Circulation System Master Plan Diagram is shown on Diagram CIRC - 4 and the recommended Standard Roadway Cross-Sections are shown on Figure CIRC - 1. It is also recommended that the following measures be implemented.

- For the entire length of Huntington Drive, for Mountain Avenue between Huntington Drive and Duarte Road, and for any other arterial roadways that are determined to operate at unacceptable conditions, measures should be taken to increase the capacity and enhance traffic flow during peak periods. Such measures that could be considered include, but are not limited to:

- Peak period parking restrictions to provide an additional travel lane in the peak direction of traffic flow (e.g. 6:00 to 9:00 a.m. on one side of the street and 3:30 to 6:30 p.m. on the other side).
- Intersection improvements to provide double left-turn lanes and exclusive right-turn lanes at major intersections. A major intersection is an intersection of two roadways that are designated as arterials and/or collectors in this Circulation Element.
- Traffic signal coordination.

- Right-of-way dedications should be required of development applicants to accommodate the recommended roadway cross-sections and the enhanced intersection improvements at major intersections.

- The City of Duarte should consider the implementation of a traffic impact fee program that would require developers to provide a fair-share contribution to a pool of funds that could be used for future transportation system improvements.

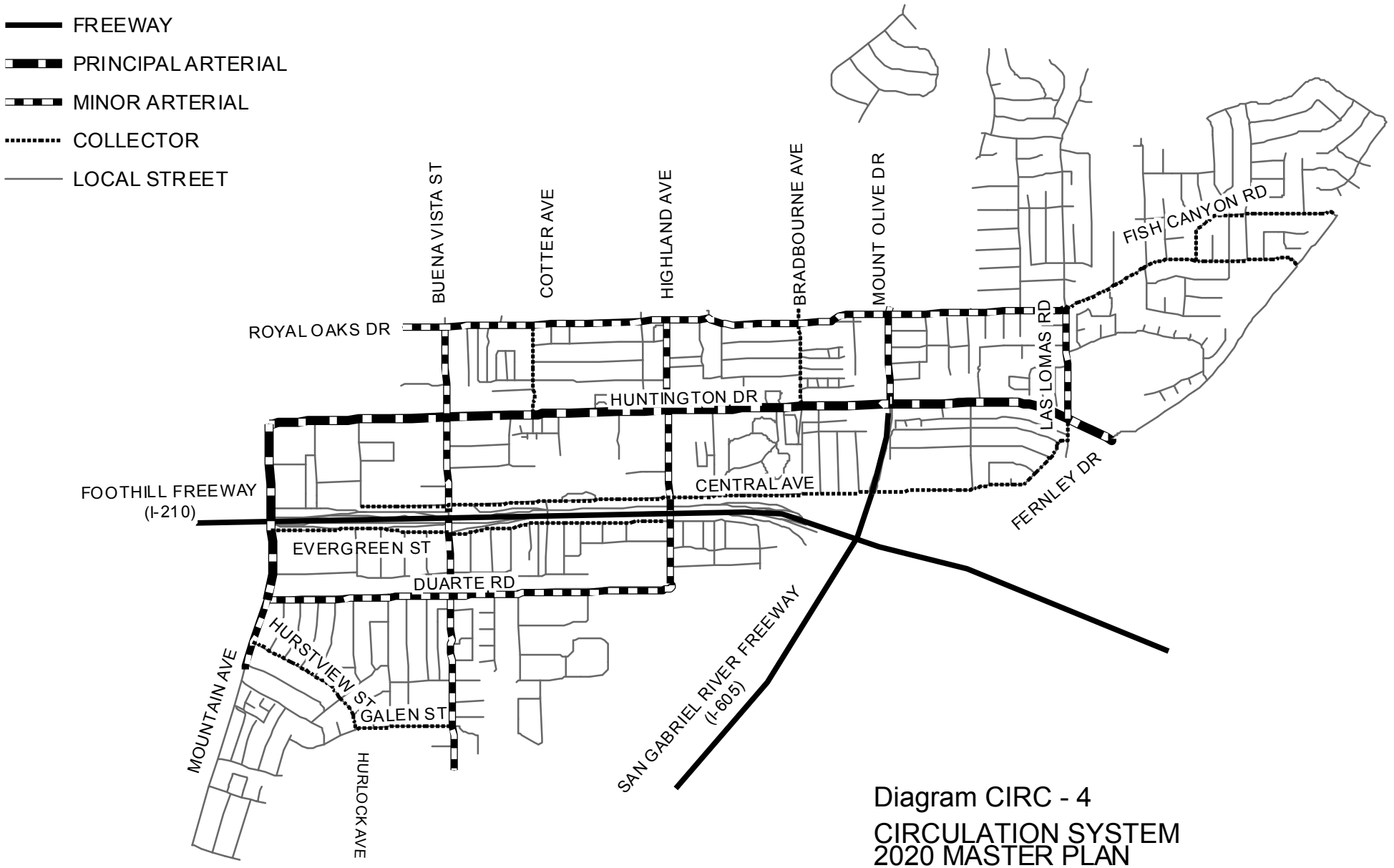
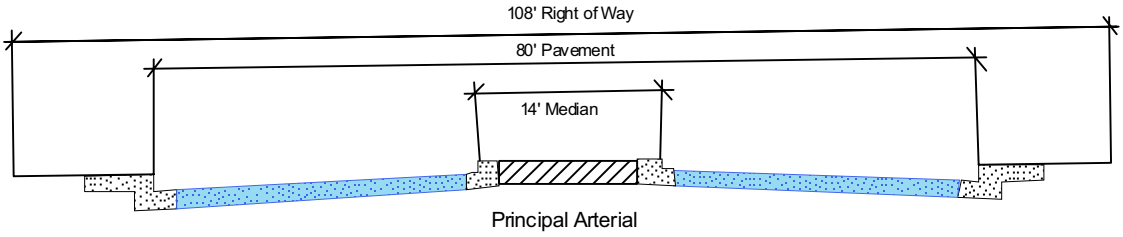
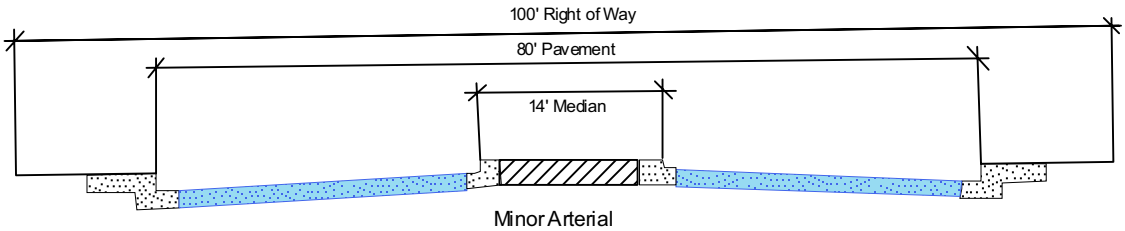


Diagram CIRC - 4

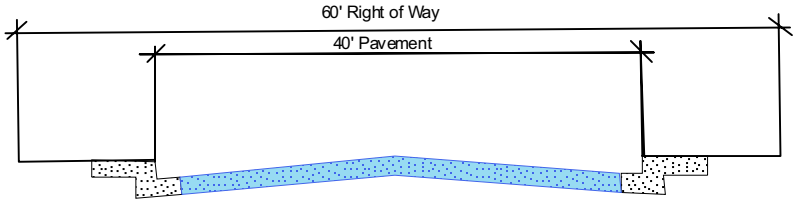
CIRCULATION SYSTEM
2020 MASTER PLAN



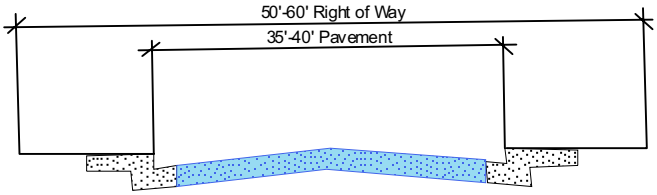
Principal Arterial



Minor Arterial



Collector Street



Local Street

Figure CIRC - 1
Standard Roadway Cross-Sections

CHAPTER 9
CIRCULATION

IMPLEMENTATION MEASURES

Government Code 65400 requires the legislative body to consider and adopt reasonable and practical means for implementing the general plan. This is necessary so that the plan will serve as an effective guide for orderly growth and development, preservation and conservation of open-space land and natural resources, and the efficient expenditure of public funds relating to the subjects addressed in the general plan. The State also requires an annual report to the legislative body, State Department of Housing and Community Development (HCD) and State Office of Planning and Research on the status of the plan and progress in implementing the plan. HCD checks to see if the city is making progress in meeting its fair share of regional housing needs.

This section provides an implementation matrix for policies found in the Circulation chapter. The matrix identifies the policy to be implemented, the implementation measure to be used for that policy, the responsible agency or department that will be implementing the measure, the funding source and the estimated timeframe to complete the implementation.

Responsible Agency:

All = All Departments
CD = Community Development
CM = City Manager
AS = Administrative Services
PS = Public Safety
P&R = Parks and Recreation

Funding Source:

GF = General Fund
RA = Redevelopment Agency
G = Grants
DF = Development Fees
SF= State funds
FF = Federal Funds
OF = Other Funds

Implementation Timeframe (or as resources provide):

ST = Short-term by 2009
MT = Mid-term by 2015
LT = Long Term by 2020
On = Ongoing

Table Circ – 6
Circulation Implementation Measures

Policy #	Implementation Measure	Responsible Agency	Funding Source	Time frame
Circ 1.1.1	Monitor traffic conditions on Huntington Drive, Royal Oaks Drive, Duarte Road, Evergreen Street, and Central Avenue and develop measures to improve traffic flow and mitigate adverse traffic impacts where necessary. Install protected/permissive left-turn phases at the left-turn lanes of signalized intersections, where feasible, so that the signal would display a green arrow followed by a green ball to increase the capacity of the left-turn movements. Employ strategies to enhance traffic flow on Duarte streets at times when freeway traffic is diverted onto the city streets during incidents, which may include the overriding of traffic signals by police personnel and the temporary use of the travel lanes on the opposing side of the street.	CD	GF, FF	On
Circ 1.1.2 Circ 1.1.3	Evaluate roadways that are not constructed to General Plan standards and program improvements into the city's capital improvements program (CIP) that are necessary to render the roadways consistent with the General Plan. Incorporate design features and measures to preserve and maintain adequate visibility at intersections. Seek to Stagger school hours where traffic conflicts exist between schools.	CD	GF, FF	On
Circ 1.1.4	Traffic impacts from proposed development projects should be analyzed and any significant adverse impacts shall be mitigated in accordance with the California Environmental Quality Act (CEQA) and the Los Angeles County Congestion Management Program (CMP).	CD	OF, DF	On
Circ 1.1.5	Evaluate the traffic impacts from proposed development projects in adjacent cities as part of the environmental (CEQA) and project review process and implement measures to mitigate any significant traffic impacts.	CD	GF	On
Circ 1.1.6	Require developers/property owners to dedicate sufficient right-of-way, in conjunction with proposed development projects, where current right-of-way widths are substandard according to the General Plan.	CD	DF, OF	On
Circ 2.1.1	Establish an acceptable level of service or traffic volume on local residential streets. If these standards are exceeded, traffic	CD	GF	ST

	reduction and/or traffic calming measures may be considered. Such measures may include but are not limited to lane narrowing, pedestrian crossing lights in the pavement, stop signs, specialized pavement design (color and texture), lane and/or crosswalk striping, and turn restrictions. Strictly enforce posted or prima facie speed limits in residential neighborhoods.			
Circ 2.1.2	Post signs to designate the arterial roadways that are legal truck routes and strictly enforce all truck route laws on city streets.	CD	GF	On
Circ 2.1.3 Circ 2.1.4	In response to resident complaints or requests, conduct neighborhood traffic studies to determine the nature and extent of actual and perceived traffic problems and consider implementing traffic control and/or traffic calming measures where appropriate.	CD	GF	On
Circ 2.1.5	As part of the environmental review process, project generated traffic must be reduced through appropriate mitigation measures	CD	GF	On
Circ 3.1.1	Actively participate as a prime advocate in the planning process undertaken by MTA to develop and implement the Gold Line rail transit facility with a station in Duarte.	CM	GF, G	ST
Circ 3.1.2	Continue to assess transit dependent needs to better serve patrons wishing to travel between major destinations and adjust transit routes accordingly.	CD	FF	On
Circ 3.1.3	Duarte will continue to cooperate with surrounding cities, MTA, and Foothill Transit in developing schedules and routes for the Duarte Transit System. If and when the MTA Gold Line station is developed in Duarte, the Duarte Transit System should modify the schedules and routes as needed to serve as a feeder to the rail transit station.	CM	FF, SF	On
Circ 3.1.4	Major developments in Duarte should be required to provide bike racks, bus stops and shelters where appropriate, and information regarding the availability of transit systems and rideshare services. Incorporate local and regional transit measures into the design and implementation of development projects.	CD	DF, OF	On
Circ 3.1.5	Include the installation of sidewalks in all future roadway widening and new construction projects to provide a continuous and convenient link for pedestrians. Require applicants to provide sidewalks adjacent to the project site along the frontage of all development projects and to provide pedestrian walkways to serve as links between the public sidewalks and the on-site	CD	GF, SF, FF, DF, OF	On

	developments. Support programs and projects to provide convenient pedestrian linkages between adjacent properties, within individual developments, and from the public right-of-way to the private developments. Prepare a bicycle plan and implement it as availability arises in conjunction with private development, street improvement projects, and funding grants. Incorporate the construction of bicycle routes or bike lanes into future roadway improvement projects, where feasible. Incorporate measures into the public right-of-way and private development projects to ensure that the Duarte downtown area is pedestrian friendly.			