SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS
AND THE
CITY OF RANCHO CUCAMONGA

RANCHO CUCAMONGA FOOTHILL BOULEVARD BRT CORRIDOR STUDY

COMPASS BLUEPRINT DEMONSTRATION PROJECT NO.: 12-001-B02

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SCAG/RANCHO CUCAMONGA
COMPASS BLUE PRINT DEMONSTRATION PROJECT

FOOTHILL BOULEVARD BRT CORRIDOR STUDY
DEVELOPMENT CODE/SPECIFIC PLAN CHANGE ANALYSIS AND RECOMMENDATIONS

CONTRACT NO. 12-001-B02

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I. INTRODUCTION AND PROJECT OVERVIEW

A. Introduction

This report has been prepared in accordance with SCAG's RFP 12-001-B02 for the Rancho Cucamonga Specific Plan Corridor project and SCAG/Terra Nova Contract No. 12-001-B02 involving the entire alignment of Foothill Boulevard through the City limits. Our review of City planning documents included the 2010 City General Plan and EIR, updated City Development Code, the Foothill Boulevard Specific Plan and Visual Improvement Plan.

As historic Route 66, Foothill Boulevard has a storied past and has been important to the development of Rancho Cucamonga and other communities along its route. Foothill Boulevard is the City's primary retail/commercial corridor and has been the subject of numerous planning studies, which are no longer fully synchronized and coordinated. The importance of Foothill Boulevard as an opportunity to implement sustainable land use and transportation planning and transit-oriented development makes it a potentially valuable demonstration project for SCAG's Compass Blueprint program.

B. Understanding of the Project

The City of Rancho Cucamonga is ideally situated within the Inland Empire to demonstrate the potential for the successful implementation of enhanced land use synergies, optimized transportation infrastructure and services, and changes in the way housing and commercial services are provided along a major transportation corridor. Traffic volumes vary widely along Foothill Boulevard, ranging from a low of about 25,400 vehicles per day (VPD) to about 63,100 VPD just west of the I-15 Freeway. As the highest volume east-west street in the City, the Foothill Boulevard planning area provides all the key elements for improving residential and commercial land use efficiencies and effectively addressing pressing transportation challenges.

In addition to General Plan land use assignments, the General Plan also identifies nine separate mixed-use planning areas along the Foothill Boulevard corridor, including Victoria Gardens on the east and the Western Gateway on the west. The General Plan identifies the intent of these mixed-use areas to:

- Complete and strengthen the town center complex with complementary, community-oriented uses.
- Introduce a distinct, intensified Mixed Use development project that maximizes the potential of this key site and relates to surrounding uses in the node.
- Reinforce the Haven Avenue office corridor and anchor it at the north end.
- Contribute to a unique architectural presence by providing a design contrast to the City Hall/County Courthouse facilities, Town Center commercial complex, and the historic Virginia Dare winery building.

As a part of the subject analysis, three opportunity sites along the corridor were selected to explore land use planning and design and development standards and guidelines that would support BRT transit use. The intent is to demonstrate village-scale, transit-oriented, mixed-use development approaches that intensify and maximize potential sites, reinforce established surrounding uses, and contribute to a sense of space and architectural presence.

The subject corridor study is meant to assist the City in analyzing the City's Development Code, specifically Chapter 17.32: Foothill Boulevard Districts; the Foothill Boulevard Specific Plan; and the Foothill Boulevard/Historic Route 66 Visual Improvement Plan. These planning documents were reviewed and analyzed for consistency with the 2010 General Plan. Recommendations have been developed for updating these documents to facilitate General Plan land use, housing and other policies that support future Bus Rapid Transit (BRT) along this corridor, consistent with SANBAG's Long Range Transit Plan (LRTP) and SCAG's Transit Oriented District (TOD) principles.

The purpose of this project is also to provide concrete recommendations on plans, policies, implementation measures, and design concepts that facilitate the development of transit and other travel modes. This is accomplished through recommended revisions to these planning documents so that they better implement the goals, policies, and implementation measures of the 2010 General Plan. Recommendations are also accompanied by sequenced site plans, recommendations for development standards and guidelines, and supporting graphics and presentations that further illustrate and clarify the recommendations.

C. Project Objectives, Concerns, and Key Issues

In the preparation of this program, SCAG and the City have identified project objectives, concerns and key issues that the subject analysis and report is meant to address. Omnitrans' Design Guidelines cite the benefits of transit-oriented development, and conclude these reasons with the following:

> "These walkable transit district principles and benefits are appealing to changing demographics and growing preferences for a more convenient community life. The benefits are categorized as environmental, economic, and social."[1]

Relevant objectives, concerns and issues are briefly summarized below.

Project Objectives

The following sets forth the objectives of the Foothill Boulevard BRT Corridor study:

1. Traffic Management/Reduction: Improve traffic operations along the entire length of Foothill Boulevard through the incorporation of planned Bus Rapid Transit (BRT) plans and the regional Long Term Transit Plan.

2. Land Use Analysis: Identify and analyze existing and planned land uses and determine the degree to which they support the operation and success of planned BRT services, and analyze relevant planning documents that implement 2010 General Plan goals and policies for the corridor.

3. Optimize Mixed-Use Land Uses: Evaluate opportunities for mixed-use development in the corridor and identify the optimum mix of uses that meets the General Plan goals and policies.

4. Coordinate Commercial Development with BRT Services: Evaluate lands along the Foothill Boulevard corridor and identify opportunities to concentrate commercial uses at major intersections in a manner that optimizes the future BRT system along the corridor.

5. Promote Non-Auto Travel: Identify street design standards and opportunities to maximize walkability, bicycle facilities, and other alternative modes of transportation along the Foothill Boulevard corridor.

6. Zoning Code and Specific Plan Update: Complete a comprehensive analysis of existing regulatory documents affecting the Foothill Boulevard corridor and develop recommendations for revisions that bring these documents into harmony with the General Plan.

7. Public Input and Integration: Secure public input through interviews and consultations with City staff, business representatives and City officials, and incorporate recommendations into analysis and recommendations document.

8. Development Design Concepts: Include plans, schematic drawings, renderings and other graphics that illustrate development prototypes of housing, commercial and mixed-use development that are complementary to rapid bus transit and pedestrian and bicycle access to services and transit facilities.

1 Transit Design Guidelines, Final Draft October 25, 2012, Omnitrans.

Concerns and Key Issues

The Foothill Boulevard BRT Corridor Study is a SCAG Compass Blueprint Demonstration Project designed to address and plan to take advantage of higher intensity, mixed use development. The plan is also designed to take maximum advantage of complementary land use planning and places residential, commercial and professional services, and employment centers in proximity to BRT and other transit facilities and services.

A key issue is a lack of integrated land uses that share and cultivate the same market. As a result, opportunities for multi-purpose trips that involve one stop with multiple destinations are not exploited. Most existing developments along the corridor tend to maximize their traffic generating capacity. As a result, Foothill Boulevard is experiencing high vehicle traffic volumes. There is limited land use integration along the corridor and much of the corridor has already been developed. A high number of access drives onto smaller commercial and other developments affects roadway capacity, traffic flow, and vehicle/bicycle/pedestrian safety. Other portions of the corridor have low levels of service, which isolates portions of the planning area and limits accessibility by alternative modes of travel, including walking and bicycling.

Another key issue, and one of particular concern to SCAG and the City, is the need to actively cultivate integrated land use and economic opportunities to further develop and redevelop the planning area. For instance, additional grocery store/supermarket services along the corridor would make these more accessible by bus and non-motorized means. Additional neighborhood-serving services in the middle of the corridor would better meet the needs of adjoining residential neighborhoods. These uses located in a BRT-based mixed-use village would preclude many trips outside the neighborhood.

Also to be considered is the current level of Transportation Systems Management (TSM) systems and technologies implemented along the corridor, and how they currently do or in the future can complement planned BRT services and the desire for enhanced pedestrian and bicycle access. Also relevant are Transportation Demand Management (TDM) strategies, which can reduce demand for motor vehicle roadway capacity through more synergistic land use planning, put more people into fewer vehicles for fewer and shorter trips, and otherwise reduce overall demand. TDM programs aim to increase bicycling, carpools, vanpools, and transit ridership.

D. Project Summary

This report documents and summarizes our review and evaluation of four City of Rancho Cucamonga regulatory documents controlling development along the Foothill Boulevard corridor, including the General Plan, Foothill Boulevard Specific Plan, Development Code, and Visual Improvement Plan. It also includes a review of relevant portions of the Omnitrans System-Wide Transit Corridor Plan for the San Bernardino Valley and the sbX E Street BRT Plan as they pertain to the Foothill Boulevard corridor in the City of Rancho Cucamonga.

The report also outlines our analysis of land use and socio-economic conditions along and in the vicinity of the Foothill Boulevard corridor within the Rancho Cucamonga City limits. Current and planned long-term improvements to this roadway are described, as are opportunities and constraints to the implementation of a bus rapid transit system along this corridor.

Our efforts identify and document regulatory provisions that affect land use and transportation planning along the corridor that may affect the implementation of the Omnitrans BRT route, stations and other facilities. We also identified opportunities for enhanced pedestrian and bicycle facilities along the corridor. Finally, we have reviewed the Foothill Boulevard Visual Improvement Plan and assessed the design guidelines and improvement concepts that may need to be updated to conform with the design analysis associated with future BRT facilities, enhanced bike lanes, and pedestrian improvements.

Project Area Description

The project area consists of the entire length of Foothill Boulevard through the City, from Grove Avenue on the west to East Avenue on the east. The focus of the design concepts is the two entry gateway areas and the eight activity centers. The westerly gateway is the area from Grove Avenue to the railroad overpass. The eight activity centers are located in the areas of the major cross streets that intersect with Foothill Boulevard. They are Vineyard Avenue, Archibald Avenue, Hermosa Avenue, Haven Avenue, Milliken Avenue, Rochester Avenue, Day Creek Boulevard, and Etiwanda Avenue. The easterly gateway is the intersection at East Avenue. For purposes of this analysis, we have extended our research to one-half mile and one mile north and south of the Foothill Boulevard corridor, taking into consideration land uses that may directly or indirectly support the planned BRT system.

E. Omnitrans BRT Program and Foothill Boulevard

This discussion represents our initial and subsequent review of the various resources relevant to the ongoing effort to establish a successful bus rapid transit (BRT) corridor along Foothill Boulevard through the City. The project area is located in the northwest portion of the San Bernardino Valley. A BRT connection to much of the urbanized valley and points beyond (particularly Los Angeles County) ultimately will be provided as the overall BRT Transit Corridor Plan is developed.

As part of our initial work effort, pertinent documents describing the planned or proposed transportation infrastructure in and around the City of Rancho Cucamonga along Foothill Boulevard have been reviewed. Documents that have been reviewed include:

- System-Wide Transit Corridor Plan for the San Bernardino Valley (Omnitrans, 2010)
- City of Rancho Cucamonga General Plan Community Mobility Chapter (City of Rancho Cucamonga, 2010)
- Bus Stop Design Guidelines (Omnitrans, 2006)
- Station Design Powerpoint Presentation (Omnitrans, 2012)

Both the City of Rancho Cucamonga and Omnitrans have included the Foothill Boulevard BRT corridor in their long range planning efforts. As envisioned, the corridor is very similar for the two agencies; however, there are slight differences. The Omnitrans System-Wide Transit Corridor Plan envisions a corridor along Foothill Boulevard with no deviations. The City of Rancho Cucamonga vision includes a deviation at the eastern end of the City that would bypass the Foothill Boulevard / I-15 Freeway interchange area and would instead pass through the Victoria Gardens area of the City.

The Omnitrans plan also includes stations at Grove Street and Etiwanda Avenue that are not included in the City of Rancho Cucamonga plan. Conversely, the City of Rancho Cucamonga plan includes two (2) stations within the Victoria Gardens area that are not included in the Omnitrans plan. As discussed below, we are recommending that the City consider a minor modification to the eastern portion of its route plan to align it with Etiwanda Avenue and also reconsider the appropriateness of a station at the Etiwanda Avenue/Foothill Boulevard intersection.

Most of the station locations proposed in the City General Plan are at the intersection of major roadways at approximately one (1) mile spacing. The City General Plan Community Mobility Chapter delineates Foothill Boulevard as a truck route and also proposes the development of Class II bike lanes along this roadway.

Although all of the arterial roadway cross-sections include provisions for bike lanes, it is likely that some potential cyclists interested in accessing the BRT system will be discouraged by the relatively high traffic volumes along these roadways unless bicycles are better accommodated. All of the north-south streets at the proposed station locations are also truck routes, which would offer a further impediment to bicycle access.

The General Plan also includes many policies intended to facilitate the use of alternative modes of transportation. Examples include providing dedicated parking for electric vehicles, extending multi-use trails such as the Pacific Electric Trail, and multiple policies related to accommodating transit, bicycles, and pedestrians.

The Omnitrans documents include general recommendations and guidelines regarding transportation amenities and strategies to enhance the success of the BRT system. Two broad categories of strategies/amenities are evident:

- ways to enhance access to the BRT system, and
- ways to enhance the competitive nature of the BRT system when compared to the automobile oriented system.

In each case, users and other occupants of the transportation system are asked “To what extent are we willing to accommodate the BRT system to ensure its ultimate success?”

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II. FOOTHILL BOULEVARD IN RANCHO CUCAMONGA

A. Introduction

The following discussion examines the existing and planned conditions for Foothill Boulevard and lands adjoining the corridor. The two major components are the Foothill Boulevard right-of-way and its improvements, and the various land uses within the area of influence for BRT stations and service. Also evaluated are the socio-economic conditions in the area of influence and whether and to what extent these conditions enhance or reduce BRT use. Finally, the various "opportunity sites" identified along the corridor that could accommodate BRT-supporting development are also evaluated.

B. Land Use: The Built and Planned Environment

The Rancho Cucamonga segment of Foothill Boulevard can be divided into three sub-segments, with the first extending from Grove Avenue on the west to Haven Avenue. The discussion of existing and planned land uses along the corridor is broken down by these sub-segments and is shown in Table II-1 for the entire corridor.

Foothill Boulevard Westerly Sub-Segment

This westerly sub-segment of the corridor is dominated by neighborhood-serving and small-scale commercial land uses, along with some multi-family and mobilehome/manufactured residential uses along the roadway. Residential development a short distance north and south of the corridor is predominantly single family. The land uses are poorly mixed and reflect a varied level of land planning that appears to have occurred prior to the City's incorporation. Vacant land is limited to a few holdings of size on the south side of Foothill Boulevard, which are generally affected by southward sloping terrain, away from Foothill Boulevard. A total of four holdings of vacant land have been identified as opportunity sites for mixed-use and other development that could support BRT ridership.

Foothill Boulevard Central Sub-Segment

The second, central sub-segment of the corridor generally extends from Haven Avenue on the west to Interstate-15 (I-15) on the east. Development along this portion of the corridor differs substantially north and south of the corridor. The southern portion of the central sub-segment is characterized by the civic center, county courthouse, and professional offices along Haven Avenue, transitioning to a mix of neighborhood and community serving commercial, hospitality (hotel, restaurant,...) uses, industrial parks, the Epicenter, and institutional uses (churches and associated offices). At least one vacant holding (an opportunity site) west of Milliken Avenue is designated "Industrial" but appears better suited for high density residential, as discussed below.

The north portion of the central sub-segment of the Foothill Boulevard corridor is dominated by the Terra Vista Community Plan, which extends from Haven Avenue on the west to Rochester Avenue on the east. This sub-segment also includes Victoria Gardens. Terra Vista is largely built out, with the exception of important mixed-use and community commercial land yet to be developed. The City General Plan calls out these lands for mixed-use and general commercial, more or less consistent with the Community Plan. Discussions with the owners of the Terra Vista properties has indicated a development time horizon of three to five years and expressed their continuing intent to buildout these lands as set forth in the Community Plan. Possible alternatives or intensification of planned uses at Terra Vista are discussed below.

Table II-1
Land Use Status
Foothill Boulevard Corridor BRT Study

General Plan Designation	Land Use Status		
	Developed	Vacant	Total
Hillside Residential	22.0	11.1	33.1
Low Residential	1,390.9	12.2	1,403.0
Low Medium Residential	574.0	91.4	665.3
Medium Residential	592.4	31.6	624.0
Medium High Residential	249.4	11.7	261.1
General Commercial	340.2	58.0	398.2
Community Commercial	114.0	4.4	118.3
Neighborhood Commercial	61.7	0.1	61.7
Office	68.7	11.4	80.1
General Industrial	952.7	104.7	1,057.4
Heavy Industrial	648.1	46.1	694.2
Industrial Park	311.3	74.1	385.4
Mixed Use	500.1	184.6	684.7
Civic/Regional	124.8	--	124.8
Elementary School	89.7	--	89.7
Junior High School	52.7	--	52.7
High School	7.5	--	7.5
Open Space	186.3	0.5	186.8
Parks	167.5	19.3	186.8
Flood Control/Utility Corridor	256.4	50.1	306.4
Major Route (Railroad)	75.8	0.0	75.8
Grand Total	6,786.2	711.2	7,497.5

Note: Represents lands one mile north and south of the Foothill Boulevard corridor. Street rights-of-way are not included.

Foothill Boulevard Easterly Sub-Segment

The eastern sub-segment of the Foothill Boulevard BRT corridor extends from I-15 on the west to East Avenue (city limits) on the east. South of Foothill Boulevard and immediately east of I-15 is community-scale commercial with industrial development farther south. Farther east is a mix of multi- and single-family residential and vacant lands. North of Foothill Boulevard, land uses include institutional (Catholic church and school), general commercial, utility and drainage corridors, and vacant lands.

It is interesting to note that of the 7,497.5 acres of non-street lands in the half-mile planning area, nearly 10 percent (711.2 acres) are vacant. The greatest amount of vacant land (184.6 acres) is designated *Mixed-Use*, while the next greatest amount of vacant land is designated "*General Industrial*" and totaling 104.7 acres, with vacant *Industrial Park* lands totaling 74.1 acres. Vacant residential lands include *Low Residential* (12.2 acres), *Low Medium Residential* (91.4 acres), *Medium Residential* (31.6 acres), and *Medium High Residential* (11.7 acres).

If vacant residential lands in the half-mile planning area developed at maximum densities they would yield approximately 1,503 single-family and multi-family units. It should be noted that the General Plan does not explicitly cite allowable residential densities on mixed-use lands. Discussions with City staff and officials indicate a willingness to entertain residential densities of up to 30 units per acre with proper design and amenities. If only 25 percent of *Mixed-Use* lands were developed as high density residential these lands could yield up to an additional 1,380 multi-family units. As noted throughout this study, residents and employment centers comprise the best opportunity for generating BRT ridership along the Foothill Boulevard corridor.

C. Foothill Boulevard Improvements

Foothill Boulevard is designated a *Major Divided Arterial* in the City's General Plan, which shows varying iterations of this designation, with both mid-block and intersection delineations. Travel lanes are separated by a raised median, and buildout improvements are planned to allow dual-left turn lanes at major intersections. Additional right-of-way may be secured at intersections with special needs. No residential driveways are to be permitted, although there are numerous such access drives serving multi-family development along the corridor. No curb-side parking is permitted.

Class II bike lanes are also designated along Foothill Boulevard, although adequate right-of-way and improvements are not available to accommodate a Class II bike lane along much of its length. Furthermore, the introduction of BRT transit services on Foothill Boulevard may make the provision and safe use of Class II bikeways challenging and may encounter compatibility problems. The General Plan points to existing and planned alternative bike routes, including Class II bike lanes on Arrow Route and Church Street, a Class I Bike Path along the Deer Creek Channel, and a Class II/Class III bike lane on Hermosa Avenue.

Foothill Boulevard: Existing Improvements

The development and buildout of Foothill Boulevard has been an incremental process that has been carried out over several decades and is not yet completed. While major portions of Foothill Boulevard have been built out, especially on those segments east of Haven Avenue, the western segment of this roadway includes portions with incomplete right-of-way and improvements. These incomplete segments occur primarily, but not exclusively, adjacent to old development or along undeveloped lands. Most of the roadway west of Haven Avenue provides two travel lanes in each direction.

Foothill Boulevard: Existing and Future Operating Conditions

As noted below, four of the six corridor intersections are currently operating at Level of Service (LOS) D during the PM peak hour, with all intersections operating at LOS C or better in the AM peak period. In 2030, the General Plan projects that these intersections will continue to operate at LOS D or better with the exception of Etiwanda Avenue at Foothill Boulevard, which is projected to operate at LOS E in the PM period. As a Congestion Management Plan (CMP) roadway, Foothill Boulevard and other so designated roadways have a long-term acceptable operating standard of LOS E. It should be noted that the City General Plan sets LOS D or better as the acceptable service level.

Table II-2
Existing Operating Conditions Along Foothill Boulevard

Intersection	AM Peak LOS	PM Peak LOS
Foothill Boulevard at Grove Avenue	B	B
Foothill Boulevard at Vineyard Avenue	C	D
Foothill Boulevard at Archibald Avenue	C	C
Foothill Boulevard at Haven Avenue	C	D
Foothill Boulevard at Milliken Avenue	C	D
Foothill Boulevard at Etiwanda Avenue	C	D

Table II-3
Year 2030 Operating Conditions Along Foothill Boulevard

Intersection	AM Peak LOS	PM Peak LOS
Foothill Boulevard at Grove Avenue	C	C
Foothill Boulevard at Vineyard Avenue	D	D
Foothill Boulevard at Archibald Avenue	D	D
Foothill Boulevard at Haven Avenue	D	D
Foothill Boulevard at Milliken Avenue	C	D
Foothill Boulevard at Etiwanda Avenue	C	E

Source: City General Plan EIR. 2010.

D. Socio-Economic Environment

Introduction

The following data are taken from the 2010 Census and extrapolations therefrom. Two separate Census data runs were conducted, one for lands within one-half mile north and south of the subject Foothill Boulevard corridor within the City, and a data run for lands one mile north and south of the corridor. Based upon the relationship of transit ridership to proximity, we have focused our analysis on the one-half mile wide corridor, which encompasses almost 4,700 acres or 7.3 square miles. Demographic data for both the half-mile and full-mile corridors can be found in Appendix B of this study.

Household Size and Occupancy Status

As indicated in the following data, in 2010 the corridor extends one half-mile north and south of Foothill Boulevard and had a total of 15,419 housing units, of which 5.1 percent were vacant, with units for rent comprising more than half of vacant units. Of the total occupied units, 54.2 percent were renter-occupied and 45.8 percent were owner-occupied. Within occupied units, the average household size in 2010 was 2.68, while for all units the average is 2.55 persons per unit. Owner-occupied units have the larger household size of 2.86 persons per unit.

Table II-4
Total Housing Units by Occupancy

• Total Housing Units:	15,419 (100.0%)
• Occupied Housing Units:	14,638 (94.9%)
• Average Household Size:	2.55 persons
• Vacant Housing Units	
• For Rent:	439 (2.8%)
• Rented, not Occupied:	22 (0.1%)
• For Sale Only:	162 (1.1%)
• Sold, not Occupied:	19 (0.1%)
• For Seasonal/Rec/Occ. Use:	38 (0.2%)
• For Migrant Workers:	1 (0.0)
• Other Vacant:	100 (0.6%)
• Total Vacancy Rate:	5.1%
• Owner Occupied:	6,701 (45.8%)
• Renter Occupied:	7,937 (54.2%)

Trends in Population and Household Formation

Based upon earlier population trends, the Census Bureau has projected future population within the half-mile study area for 2011 and through the year 2016. The Census Bureau projects an 11 percent increase in population along the subject corridor between 2010 and 2016, while households are expected to grow by 10.5 percent during the same period. By 2011, average household size is projected to increase modestly to 2.7 persons and median age is expected to increase to 32.1 years. Renter occupancy is projected to increase to 54.8 percent of the housing stock in 2016, up from 54.2 percent in 2010.

Table II-5
Population and Household Trends Summary

Category	2010	2011	2016
Population	39,355	40,175	43,697
Households	14,638	14,933	16,172
Families	10,100	10,327	11,215
Average Household Size	2.68	2.68	2.70
Owner Occupied Housing Units	6,701	6,599	7,297
Renter Occupied Housing Units	7,937	8,334	8,875
Median Age	31.8	31.9	32.1

Source: 2010 US Census

Trends in Income

Household income is an important determinant in transit (including BRT) ridership. The following table and chart show the breakdown of household income for 2011; the table also shows projections for household income in the half-mile planning area for the year 2016. Households with less than $50,000 in yearly income totaled 38.3 percent of all households, with household incomes between $35,000 and $49,999 comprising 14.2 percent of total households in 2011. By contrast and indicative of a large number of households with higher incomes, 38.7 percent of all households had incomes of $75,000 or greater.

Table II-6
Household Income Trends

	2011		2016	
Households by Income	**Number**	**Percent**	**Number**	**Percent**
<$15,000	1,246	8.3%	1,216	7.5%
$15,000 - $24,999	1,058	7.1%	831	5.1%
$25,000 - $34,999	1,295	8.7%	1,059	6.5%
$35,000 - $49,999	2,116	14.2%	1,845	11.4%
$50,000 - $74,999	3,446	23.1%	3,507	21.7%
$75,000 - $99,999	2,523	16.9%	3,394	21.0%
$100,000 - $149,999	2,124	14.2%	2,959	18.3%
$150,000 - $199,999	726	4.9%	899	5.6%
$200,000+	401	2.7%	462	2.9%

Median household income also reflects economic strength within the half-mile planning area, at $60,019 in 2011 and projected to reach $71,274 by 2016. Average household income was $74,045 in 2011 and is projected to reach $83,352 by 2016. Finally, per capita income was $26,568 in 2011 and is projected to reach $29,741 by the year 2016. Note that of all 2010 household expenditures in the one-half mile market area, approximately 31.2 percent was spent on housing, while 15.4 percent was spent on transportation.

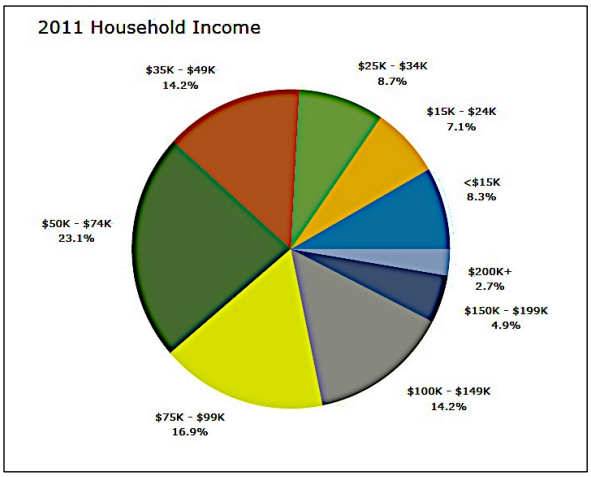
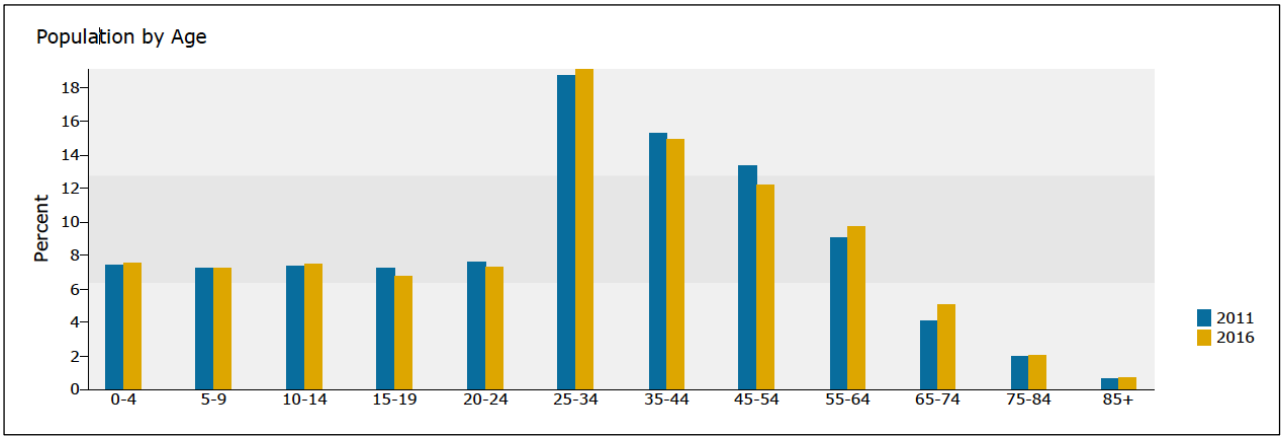


Chart II-1: 2011 Household Income

Population By Age Breakdown

It is also informative to assess the current and projected household makeup by age within the half-mile planning area. The age makeup of these residents in the year 2011 is interesting, showing equal distribution for those groups between the ages of 0 and 24 years at about 7.5 percent for each group. By contrast, the largest age group is the group between the ages of 25 and 34, making up 18.6 percent of all residents. The planning area population over the age of 45 comprises 29.2 percent of all 2011 residents. The age mix is not projected to change significantly between 2011 and 2016, with residents over the age of 25 expected to make up the majority of residents.

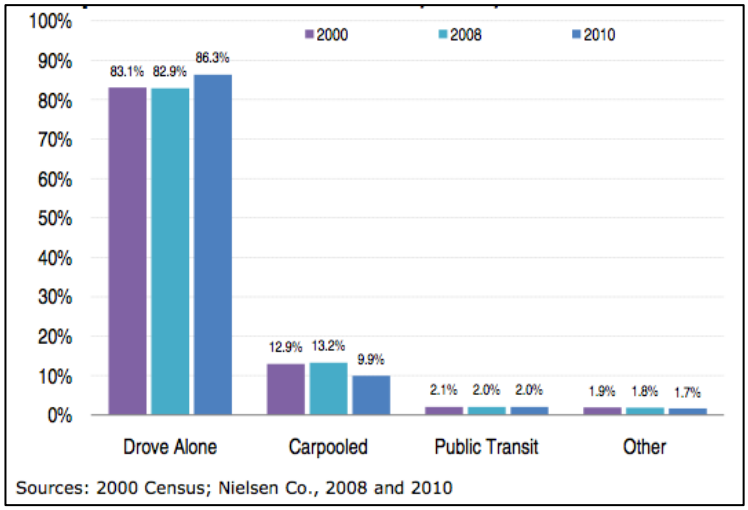
Chart II-2
Population Trends by Age Group (2011 and 2016)



Mode of Employment Transportation

The US Census and the Nielson Company solicit information from respondents about their means of transportation to work, and these data for 2000, 2008, and 2010 were reviewed. The chart to the right shows how, City-wide, employment travel is divided between driving alone, carpooling, using public transit, and "other" modes.

Chart II-3: Mode of Employment Transportation

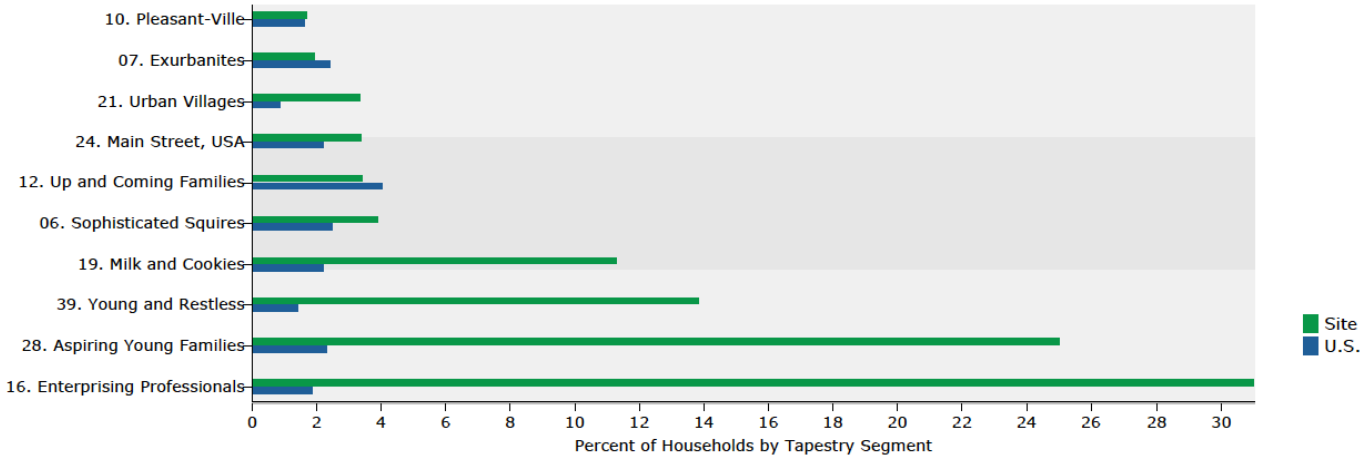


As is evident from the charted data, the vast majority of employment travel (83.1% in 2000 and 86.3% in 2010) is drivers driving alone. It is somewhat distressing that private vehicle/single occupancy travel actually went up over the decade despite employment stress and the recession. Equally disturbing is the low use of transit, with only 2.1 percent transit ridership in 2000 and falling to 2.0 percent in 2010. Also curious is the trend in reduced carpooling, down from 12.9 percent in 2000 to 9.9 percent by 2010.

Tapestry Segmentation in the Market Area

City demographic data includes a market assessment tool called "Tapestry Segmentation." This well developed market segment profiling tool from ESRI breaks down socio-economic neighborhoods into one of up to 65 life-style segments. The Tapestry Segmentation Area Profile for the Foothill BRT corridor one-half mile market area indicates that about 81.3 percent of the households are comprised of the following groups: "Enterprising Professionals" (31.1%), "Aspiring Young Families" (25%), "Young and Restless" (13.9%), and "Milk and Cookies" (11.3%). Each segment is briefly described below. It should again be noted that the segments represent the character of these neighborhoods and not the precise demographic make-up of those in the half-mile market area.

Chart II-4: Top Ten Tapestry Segments
Half-Mile Market Area Vs. US



Enterprising Professional

This socio-economic segment is comprised of younger men and women that are well educated, with about an equal number of households occupied by married and single, and generally working in professional jobs. The diversity of this segment is much the same as that for the US as a whole. Median household incomes range from $69,779 to $76,852, with most income (90%) coming from wages and salaries. Typical employment includes management, finance, computers, sales and office/administration. Generally, persons in this segment wish to own rather than rent a home. Those in this segment are younger and more mobile than the population as a whole, are highly technologically savvy, and are better than average managers of their money. Enterprising professionals also like to travel widely, are health conscious, and tend toward non-fiction reading. As noted above and in Chart II-4, this segment makes up about 31 percent of all households in the half-mile market area.

Aspiring Young Families

The "aspiring young family" segment is primarily comprised of young, start-up families, married couples without children, and single parents, with about two-thirds being families; the average household size is 3.1 persons. Families in this segment are more ethnically diverse compared to the US as a whole. The median household income is about $52,487, with wages being the primary source of income for this segment. The vast majority has graduated high school, and about 59 percent have attended college. About 51 percent of these households rent while about 47 percent own their own homes. The primary focus of this group is the family, with domestic purchases making up most of their discretionary spending. Aspiring young families are technologically savvy and have a wide array of electronic and computer-based gadgets. They are large consumers of media, especially sports, TV, and movies. This segment makes up about 25 percent of all households in the half-mile market area.

Young and Restless

As the name implies, those in this socio-economic segment tend to be on the go, are active and socially fluid, and are very career-oriented. The median age is about 28.6 years, a large portion (about two-thirds) are younger than 35, and 73 percent are in the labor force, mostly in professional, sales, service and office/administration jobs. More than half the households (about 56%) are single occupant or shared units; only about 23 percent of segment residents have children. Median household income is about $46,185. Renters dominate this segment, with 85 percent renting apartments in multi-family buildings; this is reflective of the group's mobility and willingness to move for jobs and other opportunities. The young and restless are technologically savvy and are fully engaged in lifestyle and entertainment. They are large consumers of media, especially movies. They also enjoy bars and nightclubs consistent with their active social lifestyle. This segment makes up 13.9 percent of all households in the market area.

Milk and Cookies

The upscale neighborhoods that characterize the "milk and cookies" segment are comprised of young, affluent married couples with young children, and with a median age of 33.8 years. The diversity of people in this segment is much the same as for the US as a whole, with a slightly above average black and Hispanic population. Most household income (about 90%) comes from wages, with about 69.8 percent of residents participating in the labor force. The median household income is about $64,880. The segment is educated, with about 58 percent having attended college. This segment prefers single-family homes. With a settled family-oriented lifestyle, segment members are responsible money managers, and can be frugal when necessary. Baby and children's products dominate their spending patterns. They like to watch sports and educational programs on TV, and are engaged in home improvement and gardening projects around the house. This segment comprises about 11.3 percent of all households in the half-mile market area.

Planning Area Business Data and Information

Business data were gleaned from the 2010 Census providing information on the number and types of businesses within the half-mile corridor planning area. Data and information available include the total number of businesses and those employed in the planning area, as well as the breakdown of businesses and employment by business sector (SIC codes). In 2010, there were a total of 2,577 businesses in the planning area generating a total of 27,514 jobs. For the planning area, this yields 0.69 jobs per capita.

Business Sector Breakdown

The following table provides a breakdown of the types of major businesses and employment in the half-mile planning area. The businesses making up the *Service Sector* (hospitality, auto, movies/entertainment, health, legal, education, etc.) comprised 34.7 percent of all businesses and 25.7 percent of all jobs in the planning area. The *Retail Trade Sector* represents the second highest number of businesses (22.8%), but provides the most jobs of all sectors (34.5%) in the planning area. The third largest sector is the *Finance, Insurance, Real Estate Sector*, which comprises 15.3 percent of all businesses and 10.8 percent of all the jobs. Together, these three sectors comprise 72.8 percent of all businesses and 59.3 percent of all the jobs.

Employment by Occupation

Employment by occupation was also broken down by other categories in the 2010 Census and other data, which indicate that "White Collar" comprises 61.7 percent of jobs, "Services" comprise 16.8 percent of jobs, and "Blue Collar" comprises 21.5 percent of jobs. For purposes of this analysis, US Census/City 2010 data in the table below appears most current and reliable.

Table II-7
Businesses By Standard Industrial Code
Half-Mile Planning Area

	Businesses		Employees	
SIC Codes	**Number**	**Percent**	**Number**	**Percent**
Agriculture & Mining	33	1.3%	144	0.5%
Construction	168	6.5%	947	3.4%
Manufacturing	117	4.6%	3,034	11.0%
Transportation	73	2.8%	674	2.4%
Communication	18	0.7%	112	0.4%
Utility	5	0.2%	145	0.5%
Wholesale Trade	200	7.8%	2,017	7.3%
Retail Trade Summary	588	22.8%	9,499	34.5%
Finance, Insurance, RE Summary	394	15.3%	2,983	10.8%
Services Sector Summary	894	34.7%	7,068	25.7%
Hotels & Lodging	14	0.6%	118	0.4%
Automotive Services	68	2.6%	308	1.1%
Motion Pictures & Amusements	58	2.2%	512	1.9%
Health Services	153	5.9%	1,342	4.9%
Legal Services	56	2.2%	276	1.0%
Education Institutions & Libraries	32	1.2%	840	3.1%
Other Services	513	19.9%	3,673	13.4%
Government	21	0.8%	687	2.5%
Other	65	2.5%	203	0.7%
Totals	**2,577**	**100%**	**27,514**	**100%**

Educational Attainment In Planning Area

The level of adult education of the resident population on the half-mile planning area is important and shows a generally well-educated labor pool. For the planning area's 2010 population age 25 and over, only 16.4 percent had less than a high school diploma. The total number of residents that graduated from high school totaled 26.8 percent, and those with at least some college education totaled 56.8 percent.

E. Opportunity Sites for BRT-Supporting Development

From the beginning, the project consultant and City staff team has considered the land use patterns along the corridor and future development as guided by the City General Plan, Foothill Boulevard Specific Plan, and the City Development Code. Section III of this study summarizes our evaluation of how and to what extent these regulatory documents facilitate transit-oriented development (TOD) and how they can be improved to better encourage and accommodate TOD-supporting mixed-use development.

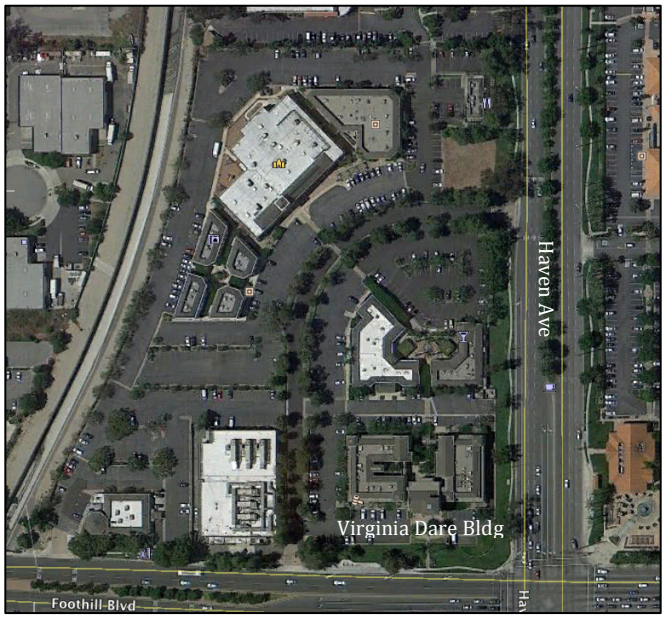
The subject discussion assesses these opportunity sites and evaluates their potential role in facilitating BRT development and providing prospective ridership for the Foothill Boulevard segment. A total of thirteen (13) opportunity sites were identified for consideration. The existing conditions at each of these sites and the constraints and opportunities associated with each site as they relate to BRT service and transit-oriented development are discussed below.

BRT Development Opportunity Sites

Opportunity Sites Location	Size (Acres±)	Development Status
1. NWC Haven Avenue & Foothill Boulevard	6.00±	Currently developed and including the Virginia Dare office building
2. NWC Haven Avenue and Civic Center Drive	5.28	Vacant land.
3. S of Foothill Boulevard at Center Avenue	16.43	Mostly vacant, with liq. store.
4. SWC Hermosa Avenue & Foothill Boulevard	17.98	Only half of mobile home park built.
5. SWC Malachite Avenue & Foothill Boulevard	6.00	Older commercial center.
6. NEC Lion Street & Foothill Boulevard	2.71	Strawberry patch.
7. NWC East Avenue & Foothill Boulevard	7.00	Pending approval.
8. NEC Etiwanda Avenue & Foothill Boulevard	5.72	Comm. project approved. Not built.
9. SEC Etiwanda Avenue & Foothill Boulevard	5.12	Comm. project expired Dec 2012.
10. Foothill Marketplace (Walmart)	55	Built out with relocating Walmart near cul-de-sac area of site w/awkward circulation. Convenient freeway access.
11. SEC Elm Avenue & Foothill Boulevard; APN: 0208-961-05,06,07	8.4	Master-planned retail and office complex comprised of two 2-story office buildings of 28,000 square feet (each), 3 single story retail buildings of 17,500 square feet (combined), and 3 single story restaurant pad buildings of 17,000 square feet in the IP (Subarea 7).
12. NWC Milliken Avenue & Foothill Boulevard	16.31	Vacant. (?) No proposal.
13. NEC Milliken Avenue & Foothill Boulevard	11.33	Vacant. (?) No proposal.

1. NWC Haven Avenue and Foothill Boulevard (BRT Station)

Opportunity Site No. 1 is comprised of the general commercial development at the northwest corner of Haven Avenue and Foothill Boulevard. Uses are predominantly office and restaurant, and the site and corner are anchored by the iconic Virginia Dare Winery building. This commercial center is bounded on the west by the Deer Creek Channel and on the north by additional general commercial development.



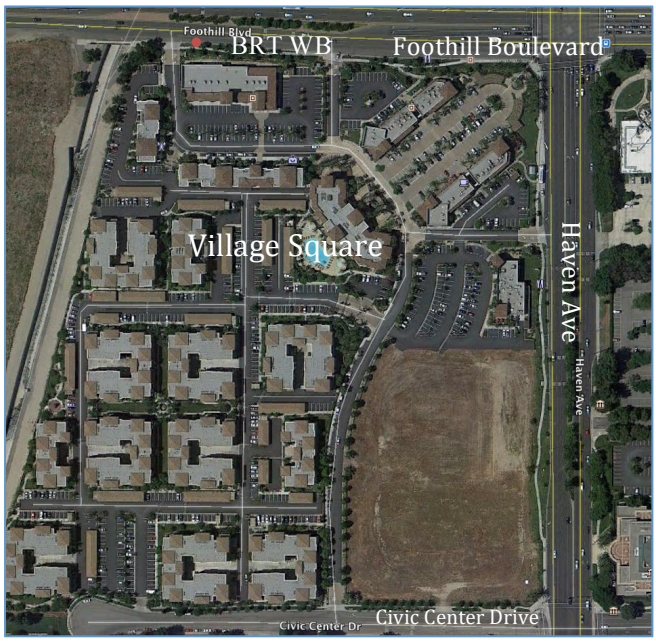
In addition to having an attractive building and landscaping, the subject intersection is one of the more promising BRT station locations along the corridor. The site's retail space is under-utilized and portions of the space are used for institutional (church) purposes. The site has good long-term prospects with proper cultivation.

The Virginia Dare building is identified in the City General Plan for "repurposing" and "adaptive re-use." The enhancement of cultural venues along Foothill Boulevard is also raised. While the northeast corner is recommended for the BRT station at this intersection, the northwest corner plays an important role in promoting BRT use and complementing the other BRT-enhancing uses at this intersection. These include the city/county governmental center at the southeast corner and the Village Square mixed-use development at the southwest corner.

Discussions with City staff and officials, residents, and business owners indicate a willingness to entertain the concept of a fine arts museum within and at least a part of space within the Virginia Dare building. The scale and character of the building appear to lend themselves to a set of fine arts galleries, as well as gathering and meeting space where a wide range of civic activities and events could also be held. Such a fine arts museum and expanded facility would enhance the downtown urban living environment and be attractive to new residents and business owners alike.

2. NWC Haven Avenue and Civic Center Drive

Opportunity Site No. 2 is a vacant holding located at the northwest corner of Haven Avenue and Civic Center Drive, and is contiguous to and immediately south of developed portions of the Village Square development, which bounds the subject site on the north and west. The 5.28± acre vacant site is also located across the street from City Hall, County offices and courts, and a wide variety of professional office and organizations, together constituting a significant employment center. The site is designated for mixed-use development and is also within the Haven Avenue Office Overlay district. Being adjacent to existing general commercial and multi-family residential, a similar mix of uses should also be considered on this site, the residential component of which would add to the existing resident and employee market for existing and future commercial services.



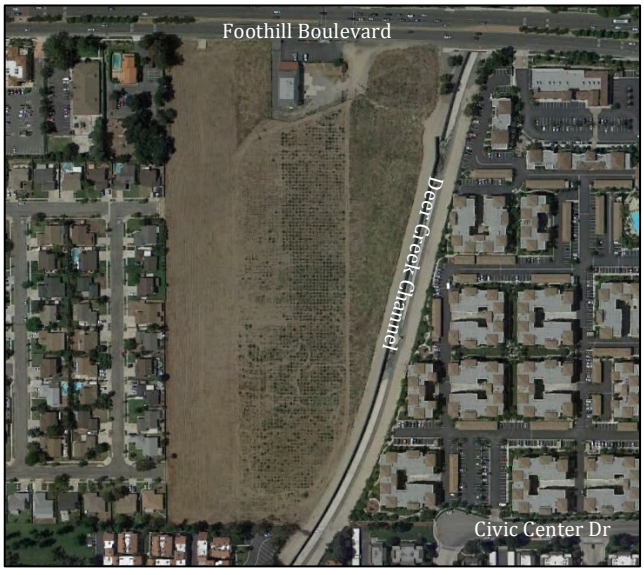
Opportunity Site No. 2 is also a short distance from the proposed Haven Avenue at Foothill BRT station and is also located along the major north-south Haven Avenue bus line. Residents at new and existing development in this area are expected to contribute to BRT ridership, as are many of those who work in the vicinity. The site is isolated from lands to the west, with Civic Center Drive terminating as a cul-de-sac just east of Deer Creek Channel.

Conceptual development plans for this site are presented in Section V of this study. The development potential of the site, including its ability to generate ridership for BRT services along Foothill Boulevard, is based on a combination of general and office commercial, and high-density residential. A hospitality use (business hotel) is also considered that can provide additional support to commercial services located in this area.

3. South side of Foothill Boulevard at Center Drive

This property is located south of Foothill Boulevard and west of Haven Avenue and the Village Square mixed-use project. It is bounded on the west by a small commercial center accessing from Foothill Boulevard, and single-family residential development. On the east, the subject property is bounded by Deer Creek Channel with the Village Square development immediately east of the channel. Lands to the south are older multi-family homes, while development across Foothill Boulevard includes new multi-family and limited commercial fronting on Foothill Boulevard. An existing on-site, free-standing liquor store is located on a 1± acre site surrounded on three sides by the subject property and would need to be either incorporated into a new design or otherwise accommodated.

The General Plan designates this 16.43± acre site for mixed-use development. However, the site slopes away from Foothill Boulevard, which has generally challenged and adversely affected visibility and accessibility for commercial development elsewhere on the south side of Foothill Boulevard. Alternative to on-site commercial, medium and high-density residential on this site could be better connected to commercial services to the east via a bike/pedestrian bridge across Deer Creek Channel at the westerly extension of Civic Center Drive.



This site provides important opportunities for medium and high-density residential development that would be supportive of BRT and nearby commercial services. Between 250 and 450 units could be developed on this site and could provide a mix of housing products to further diversify the

neighborhood. Such uses would be compatible with surrounding development, with the possible exception of existing single-family development adjacent to the southwest quadrant of this site, which would require special sensitivity and design consideration.

4. SWC Hermosa Avenue & Foothill Boulevard

Opportunity Site No. 4 is a vacant 17.98± acre site located immediately south of Foothill Boulevard and west of Hermosa Avenue, and is surrounded by developed lands. The site is approximately 760-feet west of Opportunity Site No. 3, and its northeast quadrant is bounded on the east by limited general commercial development. Lands to the west are comprised of mobilehomes and manufactured housing, with multi-family housing on the south and single-family development to the east.

The City General Plan calls for limited additional General Commercial on the eastern portion of the Foothill Boulevard frontage of Opportunity Site No. 4, with Medium Density residential assigned to the balance (majority) of the property. The area is already well served by existing adjacent and nearby neighborhood commercial across Foothill Boulevard, general commercial services to the immediate east, and several small businesses on the north side, including small, free-standing restaurants and one vacant and obsolete commercial building. It is not clear how additional commercial on Opportunity Site No. 4 would benefit the balance of this property or surrounding lands, and consideration should be given to eliminating the General Commercial designation from this site.

As with Opportunity Site No 3, Site No. 4 provides important opportunities for medium and high-density residential development. This site is just over one-quarter mile from the Village Square development at Haven Avenue, where an eastbound BRT station is recommended. Good streetscape treatment along the intervening portion of Foothill Boulevard and on Hermosa Avenue, and the extension of non-motorized access along Deer Creek and eastward to Haven Avenue will further enhance the viability of this site for transit-supporting residential.

5. SWC Malachite Avenue & Foothill Boulevard

Opportunity Site No. 5 is a relatively old strip center fronting on Foothill Boulevard and surrounded on all sides by public streets, with newer general commercial to the immediate west, an older mix of general commercial to the immediate east, and mini-storage to the immediate south with single-family neighborhoods beyond. North of Foothill Boulevard is new multi-family residential, an older mobilehome park, and a mix of general commercial on individual parcels fronting on Foothill Boulevard. The center is comprised of seven parcels and encompasses approximately 6 acres; it appears to be fully leased and a viable commercial property. The site is relatively shallow and a single family home adjoins the southeast corner of this site.

The subject site is designated "Mixed-Use" on the General Plan Land Use map and is identified as one of six mixed-use areas identified. The rationale for this designation may have been the assignment of the same "Mixed-Use" designation on the block north of Foothill Boulevard and including the aforementioned mobile home park and mix of poorly integrated commercial. However, Foothill Boulevard effectively isolates Opportunity Site No. 5 from the continuing transition on the north side.

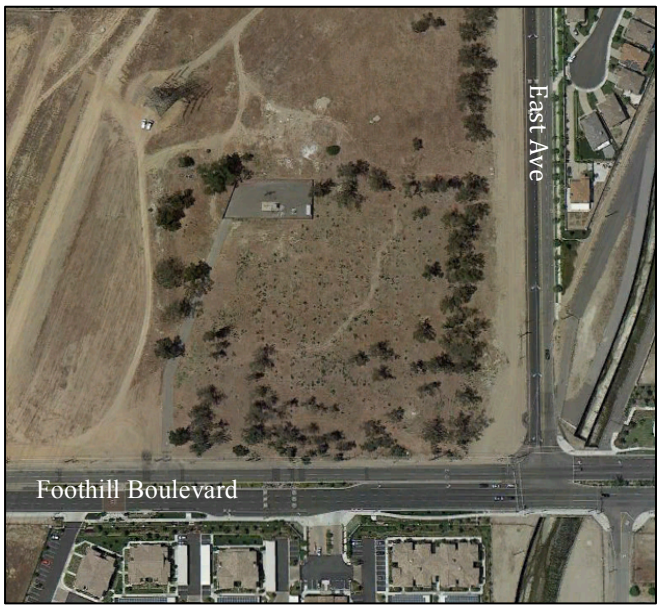
Clearly, there is an opportunity for the subject site to be better optimized as a commercial site. The areas to the rear of the house located on the southeast corner of the site could be better improved and maintained, but the existing mini-storage does insulate the surrounding single-family neighborhood from the site. It is recommended that "General Commercial" is a more appropriate land use designation for this site and that efforts can be made to work with the owner to better optimize this site, which remains a viable commercial center.

6. NEC of Lion Street and Foothill Boulevard

Opportunity Site No. 6 is a small (2.72 acres), vacant site located at the northeast corner of Lion Street and Foothill Boulevard; the site is designated "General Commercial" on the General Plan land use map. The site is bounded on the east by automotive retail (Pep Boys), on the west by Neighborhood Commercial centers, and on the north by single-family residential. Multiple-family residential is located to the immediate south across Foothill Boulevard. Given the site's limited size and surrounding development, opportunities for transit-oriented development or other mixed use development is relatively low.

7. NWC of East Avenue & Foothill Boulevard

Opportunity Site No. 7 is located at the northeast corner of East Avenue and Foothill Boulevard and the easterly City limits and encompasses 8.9± acres; the site is vacant with the exception of what appears to be a well site. There are major utility corridors to the immediate west, including a SoCal Gas easement that cuts through the northwest corner of the site. This site is designated "General Commercial" on the City General Plan land use map, as is a smaller contiguous parcel to the north; otherwise, the site is surrounded by non-commercial lands. Surrounding development is predominantly utility and drainage corridors to the west, single-family to the east across East Avenue, and multi-family housing to the south across Foothill Boulevard. Development to the southeast includes very limited commercial and mini-storage, as well scattered single-family, mobilehome park, and limited multi-family residential development.

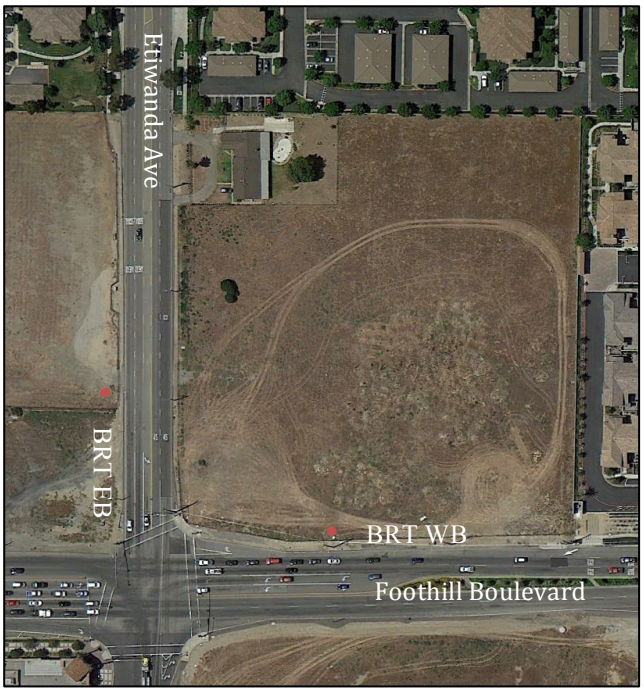


As noted below, existing development provides little support for a BRT station at this intersection. The southerly extension of East Avenue appears uncertain and will probably never occur, also affecting the value of this intersection for BRT services. The subject opportunity site could conceivably support neighborhood commercial, although at least some of these services are already provided by community-scale commercial at the southwest corner of Etiwanda Avenue and Foothill Boulevard.

Future development at Opportunity Site No. 7 and the surrounding area is not expected to provide major commercial or employment center development that would provide synergies for transit-oriented development at this location. Nonetheless, this site does offer opportunities for mixed-use development, albeit in a somewhat isolated environment.

It does not appear that existing development or potential future land uses on this site and in the vicinity are likely to support a BRT transit stop at or in the vicinity of this intersection. This Foothill Boulevard intersection is also less than one-half mile from that with Etiwanda Avenue.

8. NEC of Etiwanda Avenue and Foothill Boulevard



Opportunity Site No. 8 is located at the northeast corner of Etiwanda Avenue and Foothill Boulevard; the site encompasses 5.65± acres. The site is well proportioned but is located adjacent to a single family home that may affect future site planning unless the residential parcel can be integrated with the larger vacant holding. The site is bounded on the north and east by multi-family residential, the vacant land on the northwest and southeast (OS # 9) corners opposite the subject OS # 8. A major neighborhood/community-scale shopping center is located at the southwest corner of this intersection. The site is designated "General Commercial" on the General Plan, as are the other three corners of this intersection.

The subject OS # 8 site and the surrounding lands provide many of the types and densities of land uses that argue for the location of a BRT station here. This existing development and potential for additional BRT-supporting development has guided the recommendation to re-route the BRT transit route to loop back to Foothill Boulevard from Victoria Gardens via Etiwanda Avenue instead of East Avenue as is currently shown on the General Plan Transit Plan.

9. SEC of Etiwanda Avenue and Foothill Boulevard

Opportunity Site No. 9 is located at the southeast corner of Etiwanda Avenue and Foothill Boulevard; the site encompasses 5.2± acres. The site is an east/west rectangle, with the greatest frontage along Foothill Boulevard. It is located adjacent to single-family homes on the south and east that must be given future consideration during site planning. The site is bounded on the north and west by Foothill Boulevard and Etiwanda Avenue, respectively, and is directly across Etiwanda Avenue from major neighborhood/community-scale commercial development. The site is designated "General Commercial" on the General Plan, as are the other three corners of this intersection. The subject OS # 9 site and the surrounding lands provide many of the types and densities of land uses that argue for the location of a BRT station at this intersection.

OS #9 is a small in-fill parcel that, given its proximity to adjoining single-family homes and likely restrictions with regard to access to Foothill Boulevard, is not suitable for commercial development. However, this site can support medium density residential development. OS # 9 is the sort of site that developers frequently overlook because of its size, limitations associated with surrounding development, and the need for innovative design that is not frequently pursued by the development community on smaller sites. However, because of its proximity to planned BRT stops, major commercial, and employment, it has value as a small-scale Transit Oriented Development (TOD) with medium density residential and home-occupation as a permitted use. Please see development concepts for OS # 9 in Section V.

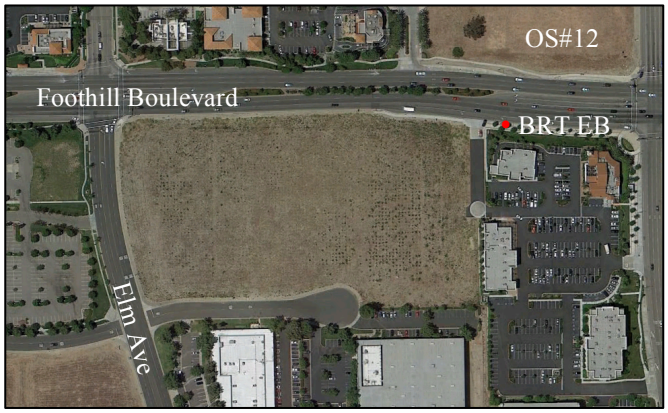
10. SWC Etiwanda Avenue and Foothill Boulevard

Opportunity Site No. 10 is a potential repurposing of the existing Walmart building located in the western portion of this large shopping center, which terminates in a cul-de-sac without westerly ingress or egress. The entire center encompasses approximately 54 acres, of which the Walmart parcel encompasses approximately 9.77 acres. As noted above, this site is designated "General Commercial" on the City General Plan. Surrounding development will significantly affect plans for any repurposing other than big-box commercial uses. Located deep within a major center and surrounded on three sides by other commercial buildings and parking, and with industrial uses to the immediate south, this site has limitations. The site's proximity to I-15 is supportive of commercial uses but could create an adverse noise environment for residences.

While conversions of such structures to mixed-use development has occurred, including the integration of residential uses with office and retail, much depends on the market and physical location where they occur. Past successes with large big-box conversions has been for such uses and churches and related facilities, marketing call centers, and breaking up the space to serve a more diversified mix of commercial tenants. Given this site's location within a major center and with excellent local and regional access, the highest and best use for this site remains community and regional commercial.

11. SEC of Foothill Boulevard and Elm Avenue

Opportunity Site No. 11 is located at the southeast corner of Foothill Boulevard and Elm Avenue, a short distance west of Milliken Avenue. The site is located south and southwest of OS#s 12 and 13, which comprise the northeast and northwest corners of Foothill Boulevard and Milliken Avenue, respectively. OS# 11 is located immediately west of a small general commercial center and immediately east of Mercury Insurance. Lands to the immediate south include a church and warehouse industrial.



The City General Plan designates this site "Industrial Park," which seems less appropriate than commercial or a medium or high-density residential designation. In any event, the assessment of this area, especially with OS #s 12 and 13 to the north, indicates it is well suited for BRT-oriented development. This site's proximity to the Foothill Boulevard/Milliken Avenue intersection and the convenience of the future BRT station argues for its consideration in this context. Based on the mix of available lands, the already substantial amount of existing and approved commercial development, and the need for critical mass at and in proximity to TOD development, it is recommended that the subject site be considered for medium to high-density residential development.

12. and 13. NWC and NEC of Foothill Boulevard and Avenue

Opportunity Sites No. 12 and 13 are two of the most promising locations for realizing TOD-oriented development of the type that could support a BRT station at this location. Both sites are vacant and are designated "Mixed-Use" on the General Plan. Substantial vacant lands are located in the northeast, northwest and southwest quadrants of this intersection, with extensive vacant lands also located farther east around Mayten Avenue.

Good potential exists for mixed-use development in the northwest and northeast quadrants, with high density residential, including senior, housing that could complement BRT ridership. The Rancho San Antonio Medical Center should also provide BRT support and may encourage additional medical office development within the mixed use planning area. Existing and future development will clearly support a BRT station at this location. For purposes of this study, approximately 27 acres in these sites have been identified for possible TOD development.

Existing development supports mixed-use development; however, market timing for mixed-use development may take longer to realize than conventional development planned on lands on the north side of Foothill Boulevard. Mixed-use, including senior housing in proximity to both medical and commercial services, should be encouraged here. In the southwest quadrant, high density residential with good BRT station access should be supported.

It is recommended that future BRT stations at Milliken Avenue be located on the near side for both eastbound and westbound travel. At these locations, mixed-use development and good commercial, medical and other services should support BRT use, while easy access to the northwest and southeast corners is still provided.

Summary

Transit-oriented land uses and related mixed-use planning and design are an important part of this study and, assuming that BRT implementation goes forward, will be essential to maximizing the positive transportation and planning effects of TOD development along the corridor. Many of the opportunity sites are admittedly less than optimal for a BRT station or mixed-used development. However, proximity to mixed use and attractive and facilitating pedestrian and bicycle access to BRT stations and "urban villages" would extend the boundary and definition of the "village."

SCAG/RANCHO CUCAMONGA
COMPASS BLUEPRINT DEMONSTRATION PROJECT
FOOTHILL BOULEVARD BRT CORRIDOR STUDY
CONTRACT NO. 12-001-B02

III. RANCHO CUCAMONGA REGULATORY DOCUMENTS

A. Introduction

As discussed in Section I, an important part of this planning effort has been to assess a variety of regulatory documents affecting and guiding development along the Foothill Boulevard corridor. In this regard, we began our analysis with and proceeded from the most general to the most specific. Therefore, our first consideration has been relevant elements of the General Plan, and specifically and primarily the Land Use Element (Chapter 2: Managing Land Use, Community Design and Historic Resources) and Community Mobility Element (Chapter 3). We have also identified other General Plan drivers that may affect corridor BRT development policy and plans. A detailed analysis of these documents is provided in Appendix A of this study.

B. General Plan Land Use Element

Our assessment begins with the vision statement for this element relevant to the Foothill Boulevard corridor and the BRT project. A detailed goals and policy assessment was also conducted and reviewed with City Planning and Public Works staff, which further refined our understanding of how these goals and policies can and should shape the BRT system along Foothill Boulevard. The complete review of the Land Use Element can be found in our Land Use and Planning Documents Analysis & Recommendations report (Appendix A) of August 3, 2012.

GP Land Use Element: Vision Statement

As noted, the Land Use Element is embedded in Chapter 2: Managing Land Use, Community Design and Historic Resources. The enhancement of the Foothill Boulevard corridor for BRT and other alternative modes of transportation are discussed throughout the chapter and include the following from the Vision statement:

> "We encourage the retention, rehabilitation, and development of a diverse housing stock that caters to residents in all stages of their lives."
>
> "We maximize the industrial economic development power of our rail and highway connections. The Foothill Boulevard, State Route 210, and I-15 corridors are the core of our commercial development and provide both jobs for our families and revenues for our community services. Our economic base maintains a mix of cultural, residential, industrial, and local and regional commercial uses with stable development."
>
> "Foothill Boulevard (Route 66) is the historic thread that ties our community together. We must continually revitalize the corridor while telling the story of the past and balancing preservation. This will be done through the adaptive reuse of buildings, strong architectural design, and public art.
>
> "We are dedicated to a sustainable balance in land use patterns (residential, business, educational, agricultural, recreational, open space, and historic uses) and supporting transportation."

Comments on Vision Statement

Relevant portions of the vision statements in the Land Use Element clearly support an integrated view of land use, including diversity of housing, commercial and other services, and employment centers. This perspective can be well supported in the various components of the BRT corridor planning effort, tying together the land uses that are in proximity to one another and that also support the use of a well-designed BRT system.

The vision statements also support the view of the corridor as an important part of the history of the community. In this regard, however, and as indicated elsewhere in the General Plan and the Visual Improvement Plan (VIP), the emphasis on the "Route 66" theme can be limiting from both a placemaking and marketing perspective. Alternatively, a broader conceptualization of the corridor based on an aesthetic of "*still making history*" and enhanced community design can diversify the corridor without unnecessarily limiting but adding to its iconic place in the community.

Before citing and responding to relevant land use policies, we should first point out that the General Plan discusses the importance of optimizing infill development and integrating land use with transportation planning. This includes recognizing the desirability of walkable neighborhoods, which can also include the "districts" planned and partially developed along the Foothill Boulevard corridor, and walkability along the length of the corridor and the surrounding neighborhoods.

The General Plan identifies the appropriateness of "Well-planned infill [that] can create cultural, social, recreational, and entertainment opportunities, gathering places, and bring vitality to historic roadway corridors (e.g., Foothill Boulevard) and [adjoining] neighborhoods." Our planning efforts are directly geared to help accomplish this goal.

Integral to this concept is a land use and transportation plan that:

> "provides greater transportation options, such as walking and transit, particularly through infill and Mixed Use development. For example, residents living in a new Mixed Use development should not only be able to walk a few blocks to grab a bite to eat or get a cup of coffee, but also to access a transit line."

The General Plan also identifies Foothill Boulevard as a focus area of land use and associated planning. The diversity of lot sizes and existing and approved development has been noted. Issues associated with the buildout of the corridor include the desirability of potential markets for mixed-use development, focusing mixed-use development and BRT transit facilities at or near major intersections, and improving the "visual feel" along the corridor.

Recent improvements along the corridor, including street trees, monuments and other signage, special paving, and landscaping, have established a coherent image of the City as a desirable place to live and work. As the Foothill Boulevard corridor continues to evolve, partly in response to the BRT system, a new aspect of the City's image can be introduced that expresses the kind of urban dynamism and activity that BRT ridership desires – density, diversity and design. Along with the public improvements, private developments (buildings and grounds) can be part of the “revitalization” of those portions of the Foothill Boulevard corridor that lag behind in development and redevelopment. Today, not only does appearance of the corridor communicate care and concern for its residents and businesses, it can also be known as a place where "things are happening," symbolized by upscale, mixed-use development with street-fronting buildings and landmark development at and near the important BRT-served intersections.

However, the vision for this area is not as well described as it might be. Specifically, reference is made to the "concentration of community- and regional-serving uses east of Haven Avenue, while neighborhood-serving uses are [to be] focused on the western portion." Regional commercial is typified in the area by Victoria Gardens, and while this project is envisioned and partially built out as a mixed-use development, it is distinctly different from the type of intimate "mixed-use village" scale and "walking corridor" we envision along Foothill Boulevard itself.

The General Plan "vision" for Foothill Boulevard also looks to the: " Design [of] new development in such a way as to accommodate both transit and automobile access." While this statement may, on the face of it, sound inclusionary, it in fact can undermine the effort to bring an effective BRT route to this corridor. Remaining roadway capacity should be viewed as an opportunity to diversify the modes of travel, including transit that can use the corridor. This cannot be accomplished by fully facilitating the automobile, which is an inefficient user of roadway capacity (see Complete Streets principles).

General Plan Land Use Policies

A variety of Land Use Element policies have been identified as most relevant to the BRT corridor plan. They speak to the creation of a "vibrant, pedestrian-friendly mixed use and high density residential areas at strategic infill locations along transit routes." This type of development is to also facilitate connectivity for pedestrians and bicyclists alike. These policies encourage creation of a diversified corridor with regional employment, cultural centers and venues, and a full range of retail destinations and services. In addition to addressing issues of land use, General Plan policies also support "smart growth" practices, including placement of higher densities and mixed uses near transit centers and along transit corridors.

The City realizes that the Foothill Boulevard corridor is really two (or more) distinct planning segments, with concentrations of "community- and regional-serving uses...(east of Haven Avenue) providing a range of commercial, office, residential, restaurant, and entertainment-related uses." The segment west of Haven Avenue includes older and less integrated or consolidated development, with commensurate impacts on the corridor and its operation.

While General Plan policies continue to speak to an enhanced pedestrian and bicycle network east of Haven Avenue, the community and regional scale of existing and planned development, especially that dominated by big-box outlets, are characteristically incompatible with TOD development goals. Policy acknowledges the importance of the intersection of Haven Avenue and Foothill Boulevard as pivotal to implementing an effective and successful BRT corridor along Foothill Boulevard. Policy also speaks directly to the idea of repurposing the Virginia Dare Winery building, which is consistent with raising the profile and importance of the Haven Avenue/Foothill Boulevard intersection.

Creating Urban Centers

The General Plan incorporates policies that seek to promote a continuing evolution and diversification of the urban form in the City by establishing mixed-use areas as higher intensity "urban centers" with an integration of land uses, multi-modal transportation options, and creation of neighborhoods with character that create a sense of place through thoughtful land planning, architecture and landscape design.

Along the Foothill Boulevard corridor, our conceptualization is crystallizing along the lines of a "string of pearls" connected by a multi-modal transportation corridor that facilitate BRT use, as well as pedestrians and bicyclists. The dominance of the automobile has not yet conquered the corridor, and adequate car (and truck) access can be assured. The General Plan appears to recognize the opportunities to optimize BRT and other alternative modes of travel.

The establishment of new and the expansion of existing mixed-use development on the corridor will be directly responsive to SB 375 mandates and can substantially reduce vehicle miles traveled. The pearls and string can provide a diverse set of "urban centers" and/or residential neighborhoods connected by thoughtfully rendered parkways supporting pedestrian and bicycle use.

General Plan policies also reveal the City's predisposition to professional jobs, which are typically higher paying, result in households (or at least local employees) with greater discretionary income, and have a more beneficial impact on the local economy. The corridor already supports a wide range of jobs and an appropriate mix of multi-family housing that is and can continue to provide higher-end condominiums and apartments, as well as more quality affordable units that in turn further diversify the neighborhoods along and near the corridor.

While the General Plan touches on historic resources and references an arts/cultural center, it references this in the context of Victoria Gardens. This development is already a "place," while "placemaking" along the downtown portion of the corridor is more limited and currently most distinguished by the civic center area. Serious consideration is being given to the adaptive re-use of all or a portion of the Virginia Dare Winery building as a fine arts museum. This would preserve the historic building and further the design concepts that are emerging along the corridor. A quality venue for fine arts, chamber music events, and special gatherings would strengthen the desirability and placemaking along the corridor, and optimize synergistic opportunities already at the node of Foothill Boulevard and Haven Avenue.

Summary: General Plan Land Use Perspective

Every community faces the dilemma of respecting the past and accommodating the present and future. In the case of Foothill Boulevard (Historic Route 66), the character of the corridor has always been one of movement, not destination. In the early years, businesses were located to serve travelers, not adjoining residents, and even new development follows the "community commercial model" as opposed to the more intimate neighborhood or village-scale model. The road has always been a “corridor” but now is an opportunity to make it more of a "Main Street" through the BRT and associated planning process.

The opportunities that exist today to shape the future are based on a new model of movement – not of the traveler, but of the neighboring resident, employee, and commuter. It is not just the private motor vehicle the corridor must now accommodate, but the mix of transit, pedestrians, cars and trucks, and bikes. While it may be thought that pedestrians are only really relevant at intersections, the increasing value and importance of walking encourages a more extensive consideration of the pedestrian corridor, as well as an extension of the functional proximity to BRT stations.

The success of this enhanced and diversified "Main Street" today and for decades to come will be the ability to serve as not only a conduit, but also an extended and connected series of dynamic neighborhoods with a context for commerce and social interaction, and as an iconic “brand” for the City. But this new brand must reflect the vastly different forces that are shaping the demographics and commerce. Commerce and residents must coexist for integrated mixed-use development to work.

Of course, the evolution of Foothill Boulevard is still related to movement and linkages, but today’s movement is vastly different (pedestrians and bicycles, NEVs, smart cars, cars, buses and especially the proposed BRT system), and the linkages must also evolve. This new "broadband mobility" must also be matched by broadband wi-fi at the BRT stops, which can serve as hotspots that offer full range of access to Internet services.

As noted above, automobiles are the least efficient users of roadway capacity. They reduce capacity that can be made available to transit and bicycles, and can adversely affect pedestrian facilities and use along the parkways and at crossings. Consideration should be made to revising this and related policies to address and resolve conflicting interest, which will frustrate the implementation of an effective BRT system.

C. General Plan Community Mobility Element

The General Plan Community Mobility chapter addresses all means of mobility in the City, supporting a transportation system that enhances mobility, provides choices, and promotes community health. The City also subscribes to the "Complete Streets" integrated design philosophy to support all users and promote a healthy community. The General Plan states that:

> *"Alternative transportation modes such as transit, bicycling, and walking should be available and convenient to all, and should connect all parts of the City. This Chapter defines a multi-modal, safe, and efficient circulation system that will support Healthy RC objectives, minimize local traffic congestion, encourage increased transit use, respond to local business needs, and facilitate coordination toward achieving regional mobility goals."*

Vision Statement

The General Plan Community Mobility Element Vision Statement sets forth three guiding principles that address modes of transportation, economic development, and a sustainable balance in land use patterns. The stated principles include:

> "We emphasize development of a balanced, integrated, multi-modal circulation system which includes sidewalks, bikeways, streets, equestrian and hiking trails, and mass transit. The system is efficient and safe, and connects neighborhoods to jobs, shopping, services, and active and passive open space."
>
> "We maximize the industrial economic development power of our rail and highway connections. The Foothill Boulevard, State Route 210, and Interstate 15 corridors are the core of our commercial development, providing both jobs for our families and revenues for our community services. Our economic base maintains a mix of cultural, residential, industrial, and local and regional commercial uses with stable development."
>
> "We are dedicated to a sustainable balance in land use patterns (residential, business, educational, agricultural, recreational, open space, and historic uses) and supporting transportation."

Vision Statement Relevance

The GP Community Mobility Element Vision Statement identifies all modes of transportation as important to social cohesion, economic development, and prosperity. The last also references a "sustainable balance" in land uses that also supports transportation.

This Foothill Boulevard Corridor BRT study emphasizes the integration of future BRT service along the full length of the corridor and its linkage with the Victoria Gardens development. The commercial importance of the corridor is also emphasized, and the extent to which land use patterns support the transport system is cited.

These guiding principles are general in nature but directly and indirectly endorse the vision of a BRT route and associated facilities along the length of Foothill Boulevard. The integration of BRT into this discussion and/or greater emphasis on mass transit appears warranted. This is especially true in light of the emphasis on connecting to industrial and business parkland uses in the corridor area. Greater emphasis could be made to explicitly support mixed-use development that places residential development in proximity to commercial services and employment centers along the corridor.

Therefore, the third guiding principle could be re-written along the following lines and may be worth considering:

> "We are dedicated to a sustainable balance of land uses located in proximity to alternative modes of travel, with particular emphasis on bus and bus rapid transit, which better connect residents to employment centers and commercial and other services."

Metro Gold Line

Consideration has been given to the General Plan discussion of the Metro Gold Line and its possible extension closer to the City. While this interconnection to Rancho Cucamonga is a worthwhile effort for purposes of further integrating interregional systems, its relevance to the subject Foothill Boulevard corridor BRT system is limited.

One of the goals of municipal planning is to achieve an optimum balance between jobs and housing. In this regard, the City is jobs rich in areas ranging from general and specialty retail, professional and institutional land uses, to a major commitment in industrial development.

As the General Plan notes, the Metro Gold Line (MGL) is best suited for travelers who wish to leave the City for destinations to the west, including downtown Los Angeles. A future MGL station at Foothill Boulevard and the Pacific Electric right-of-way would be well suited for that purpose. To this extent, a future connection to the MGL via a Foothill Boulevard BRT system would complement each system but is not integral to the success of either.

The Bike Plan

Class II Bike Lanes continue to be planned on Foothill Boulevard and Haven Avenue. However, both of these routes are also identified for Bus Rapid Transit and are major traffic arteries and truck routes. As planning proceeds for the Bus Rapid Transit corridors, it may not be possible or desirable to retain the bike lanes on these two streets. The Bicycle Plan provides various alternative and adjacent bike routes to Foothill Boulevard and Haven Avenue in the event that future conditions preclude retaining bike lanes on those streets – including Class II Bike Lanes on Arrow Route and Church Street, a Class I Bike Path along the Deer Creek Channel, and a Class II/Class III Bike Lane on Hermosa Avenue.

While the General Plan "Bike Plan" states that the vision of a Class II bike lane along Foothill Boulevard may be incompatible with the planned BRT system, every effort should be made to find ways to preserve thoughtful, innovative, and flexible design. Bicycle access along this roadway will be important to the success of the "destination neighborhoods" concept that is being explored and that is a desirable outcome of this planning effort and the success of the future BRT system.

Of equal or greater importance is the concept of providing convenient north-south connections via bicycle to the bus rapid transit stations within the City of Rancho Cucamonga. This connectivity is a key secondary aspect of and support to a successful BRT system within the City.

Walkability Improvements and Pedestrian Amenities

The General Plan Mobility Chapter says very little about sidewalks and related pedestrian mobility, and there is even less discussion regarding the integration of pedestrian facilities in commercial areas or along major corridors such as Foothill Boulevard. Reference is made to "street-adjacent sidewalks" and the need for wider sidewalks. Other amenities are briefly mentioned but in such general terms that the discussion provides little guidance. Policies call for minimum four-foot sidewalks but these are generally considered the absolute minimum and are not standard for most communities. Our conceptualization of multi-modal access along Foothill Boulevard will advocate for wider sidewalks with separation from the curb wherever possible. Sidewalk and other pedestrian-related issues are further discussed below. Again, connectivity to bus rapid transit stations within the City of Rancho Cucamonga is considered key to the success of BRT in the community.

General Plan Roadway Designation

Foothill Boulevard is designated a "Major Divided Arterial" in the General Plan Community Mobility Element, and two configurations for this roadway are delineated in the General Plan, both of which call for three travel lanes in each direction. However, while portions of the corridor do provide a total of six travel lanes, major portions provide only two lanes in each direction. At some locations, especially along the western portion of the corridor, the roadway narrows down to one travel lane, although additional lanes will probably be captured and constructed as development and redevelopment occurs.

The eastern portion of the route is planned on roads that are reduced to two lanes and, in some cases, one travel lane in each direction. These include Victoria Gardens Lane and Church Street. Where Church Street changes to Miller Avenue, and just west of Dolcetto Place, only one travel lane in each direction is provided. This is also true for southbound East Avenue. The number of travel lanes available has a significant impact on the "rapid" portion of the BRT system, which relies upon dedicated or "claimed primary" BRT lanes. The fewer lanes available, the less efficient is the BRT route and the more affected it is by other traffic on the roadway. This is probably less of an issue in the vicinity of Victoria Gardens and points east.

General Plan Transit Component

The City General Plan recognizes BRT as an important component of the City's mass transit system, enhancing bus transit with more frequent service, fewer stops, and higher average speeds compared to traditional bus service. Higher-capacity buses are also typical with hydraulic systems that lower the bus floor to match with sidewalks and/or station platforms for quick boarding that also meets the needs of ADA users. As noted above, BRT buses frequently travel in dedicated BRT lanes and may have priority access and signal preference over other vehicles.

The General Plan Transit Plan identifies the subject Foothill Boulevard corridor as a Bus Rapid Transit route and provides for BRT stations about every mile and at major intersections. The plan also calls for a Transit Center at the intersection of Day Creek Boulevard and Victoria Gardens Lane, in proximity to the southwest corner of Victoria Gardens and a short distance north of Foothill Boulevard. The planned Transit Center would necessarily be located at the northeast corner of this intersection and within an existing Victoria Gardens parking lot.

Possible Adjustments to the Foothill Boulevard Transit Route

As noted above, the Foothill Boulevard BRT corridor route shown on the GP Transit Plan calls for the eastern last leg of the route to proceed east along Church Street/Miller Avenue, and then to proceed south on East Avenue and thence east on Foothill Boulevard. This route bypasses an area of substantial commercial services and employment centers (mostly retail) between Day Creek Boulevard and Etiwanda Avenue. We have recommended that the City consider changing this portion of the route to bring the BRT south along Etiwanda Avenue, where it can directly serve a large area of existing and planned commercial development and associated employment centers around the corner of Etiwanda Avenue and Foothill Boulevard.

General Plan Mobility Policies

City General Plan Community Mobility chapter (Circulation Element) policies most relevant to the BRT corridor plan policies have been identified and analyzed to see whether they facilitate or discourage BRT implementation along the Foothill Boulevard corridor. Generally, the policies speak to the need for multiple modes of transportation and the importance of Foothill Boulevard and other major routes for additional transit planning, including BRT.

General Mobility

Mobility policies include the general and generic, targeted at providing a safe and efficient street system that takes into account all the other relevant urban planning considerations, including land use, community design and historic resources. As noted, pedestrian issues are only discussed in very general terms in the General Plan, and walkability to and from a BRT station is essential to attracting users. Not only must such access be safe and efficient, it needs to be attractive and enlivening. Parkway and streetscape design plays an essential part in making the walking experience, whether to the ultimate destination or the BRT system, a desirable experience.

Multi-Modal Transportation System

Policies also address the importance of pursuing a multi-modal transportation system that provides options wherever possible and is important for the proposed BRT corridor. For Foothill Boulevard, the BRT system can be the essential element to the type of people movement that directly supports the desired mix of land uses. The BRT system can support this concept much better than the dedicated accommodation of the automobile, and BRT should be a high level consideration in long-term transportation planning along this corridor.

Street Design

The General Plan recognizes the need for street standards and guidance to evolve corridors toward greater support for multiple modes, including bus and BRT transit, bicycles and associated facilities, sidewalks, on-street parking, access drives, and other roadway improvements. Related policies are essential to the corridor-specific design considerations that must be given to Foothill Boulevard. Foothill Boulevard can continue to accommodate through-traffic with emphasis on the automobile, but the corridor itself will suffer. This is not necessary in light of the relative focus of community and regional commercial on the east side of the corridor and in proximity to regional transportation links, and neighborhood serving commercial on the west and in proximity to adjoining residential market.

Specific to the goal of designing for an effective, efficient and used BRT system, design considerations should be prioritized in consultation with City staff and other stakeholders. It should also be noted that optimum access to the existing community and regional centers is already well provided by I-10 and I-15, as well as the 210 Freeway. The facilitation of biking and walking along and adjacent to the Foothill Boulevard corridor will directly support the success of the BRT system without adversely affecting commercial activities along this roadway.

Transportation Demand Management (TDM)

The General Plan recognizes that employment centers have an important role to play in reducing vehicle trips and encouraging the use of multi-modal transportation by their employees. Major employers in new developments are required (and existing major employers should be encouraged) to provide transportation demand management (TDM) programs that encourage use of transit, ridesharing, bicycling, and walking to get to work. These policies very much support the concept of the subject BRT system and non-motorized access to BRT stations. The effective implementation of the BRT system will not only reduce auto traffic, it will also enhance internal (intra-corridor) land use synergies and facilitate the concept of a string of distinct neighborhoods and mixed-use developments along the corridor.

Transportation Systems Management (TSM)

The General Plan also recognizes the need to continue to implement traffic management and traffic signal operation measures along Foothill Boulevard and other arterial roadways to minimize delay and congestion for all modes, without adversely impacting transit, bicycles, and pedestrians. To this end, the City is to provide traffic management and traffic signal operation measures and promote safe and efficient traffic signal timing at all existing signalized intersections. These policies will be critical to the effective implementation of the BRT system along the corridor. Priority signalization and signal control will allow the BRT busses to maintain headway, which must put the "rapid" in BRT. Not all modes may benefit from this essential management and control protocol. The after-thought in current policy still seems to emphasize a bias toward the automobile, which should be reversed or neutralized along Foothill Boulevard to make this BRT route efficient and desirable for use.

City and Omnitrans Planning

The important role Omnitrans plays in the City's transportation system is clearly valued and reflected in General Plan policy, speaking to transit in general but especially to the implementation of BRT along Foothill Boulevard and elsewhere in the community. The City Transit Plan already closely mirrors Omnitrans plans, with only minor, if important deviations. Note that this study recommends the relocation of the last north-south leg of the route east of I-15 to be placed along Etiwanda Avenue instead of East Avenue. Also as previously noted, the BRT system may be an effective means of accessing Victoria Gardens for the closer-by market; however, the three major regional freeways should be expected to serve the bulk of the community and regional traffic to this destination center.

Some General Plan mobility policies identify Foothill Boulevard by its historic use as a regional link or travel corridor, when the new emphasis should be on intra-corridor land use synergies. The route will take travelers through the portion of the corridor located in the City, but the creation of distinct shopping, employment and living neighborhoods (integrated TOD villages) will also make the corridor an attractive and desirable destination, one different from but as effective as Victoria Gardens. This will further strengthen and diversify the City economy and extend its position as a commercial powerhouse in the region.

Although beyond the scope of this analysis, the General Plan supports secondary transit routes and stops as important to the success of the primary BRT route along Foothill Boulevard. Clearly, efficient transit access to other major destinations in the City can be facilitated by thoughtful secondary route locations. The concept of relocating the Metrolink station to Haven Avenue should also be given serious consideration, the current location being less than optimal for overall system integration.

The City and Omnitrans have identified and recognize the importance of design in encouraging the use of BRT transit and other non-vehicular modes of travel. The City speaks to the need for attractive and convenient bus stops, including shade/weather protection, seats, and transit information. These policies are essential mandates requiring thoughtful consideration.

Again, the idea is to make BRT stations and the lands around them destinations, not just transfer spots. To the extent practicable, these stations should be designed as integral parts of surrounding lands and land uses, which should be a guiding principle of design efforts. What might be added as an extension to these policies are the connection between Class I, II and III bike paths and non-motorized access to the BRT stations. Biking is on the rise, and the climate in Rancho Cucamonga is conducive to its expanded use beyond recreation. Other GP policies support bike use, and bicycle access should be viewed as an integral part of the overall BRT strategy.

Summary General Plan Community Mobility Perspective

The General Plan Community Mobility chapter does a good job of coordinating City planning with regional transportation planning being conducted by Omnitrans and SANBAG, which sets the stage for development and implementation of the BRT system along Foothill Boulevard. This street is identified as a core area of commercial development and is also recognized as an area where higher density residential development is and should be supported. Finally, Foothill Boulevard directly supports and is in proximity to major corporate and institutional (civic, courts, medical, etc.) offices, as well as substantial areas of industrial development, all of which constitute major employment centers.

While some portions of the General Plan identify opportunities for enhancement of existing land uses and development of new "districts" along the corridor, a unifying concept for this roadway is still lacking. There is also a pervasive bias toward the automobile, which can be viewed as occurring at the expense of an efficient and effective BRT system. The subject BRT and land planning effort is an opportunity to take the General Plan, Specific Plan, and Omnitrans BRT plan to the next level and provide guidance for integrated planning that creates a corridor that is a destination rather than simply a means of moving people through the community.

The chapter's discussion of "The Bike Plan" states that the vision of a Class II bike lane along Foothill Boulevard may not be possible or may be precluded by the planned BRT system. Our planning effort has made every effort to contradict this conclusion. A safe and efficient Class II bike lane system appears possible through thoughtful, innovative and flexible design. Bicycle access along this roadway will be important to the success of the "destination neighborhoods" concept that is being explored and a highly desirable outcome of this planning effort and the success of the future BRT system.

The General Plan Community Mobility chapter places an emphasis on Foothill Boulevard as a major through street and even assigns a "truck route" status to this roadway. This emphasis seems to conflict with the existing land use pattern along the roadway and other aspirations for development along and in the vicinity of the corridor. The General Plan also does not appear to take adequate advantage of the numerous alternative routes available to carry through-traffic and traffic destined for the City's community and regional shopping destinations. More emphasis in this regard could be given to I-10, I-15, SR 210 freeway, and Base Line Road. Efforts should be considered to attempt to limit Foothill Boulevard truck traffic to local service, although the challenges of accomplishing this are understandably substantial.

D. Foothill Boulevard Specific Plan and City Development Code

1. Introduction

The Foothill Boulevard Specific Plan has been largely reorganized and repurposed in the City's new Development Code, as set forth in Section 17.38 of the Code. Nonetheless, there has been value in reviewing the Specific Plan to trace the evolution of the City's thinking regarding the four planning subareas that comprise it. Therefore, the following discussion reviews the Specific Plan in general terms. The Development Code review and analysis follows.

2. Foothill Boulevard Specific Plan

The Foothill Boulevard Specific Plan was developed about 25 years ago in 1987. Since that time, much has changed along the corridor, and at least two significant land development cycles have occurred throughout the City and the region. Emphasis was placed on the street's importance as a commercial corridor; the later realized Victoria Gardens center as a part of this commercial push was already anticipated.

Four planning subareas were identified in the Specific Plan, including Bear Gulch, Vineyard, Old Cucamonga and Etiwanda Avenue. These planning subareas, which are identified as "districts" in the Development Code and also implement the 1987 Specific Plan, were envisioned as "activity centers" located primarily at major intersections. They are meant to have individual identities with a stronger urban character than was to be found at the time elsewhere in the City.

The focus of the Specific Plan was on four major planning components, including community design and architecture, circulation, land use, and implementation.

Specific Plan Architectural Design

Architectural design was assumed to borrow from existing "architectural determinants," which were strongly recommended as the drivers for design. This rather narrow perspective had the potential to place unnecessary and undesirable limitations on urban and architectural design within these planning subareas.

Circulation Planning

The Specific Plan called for a six-lane roadway along the entire length of Foothill Boulevard, with an emphasis on transportation systems management, divided roadway design, access restrictions and consolidation, and adequate side street access. However, the Specific Plan also identified Foothill Boulevard as an integral part of the regional roadway system, which placed an unnecessary burden on this roadway and affected its potential for adjoining mixed-use neighborhood development. The Specific Plan did recognize this conflict, however, and the City's recent planning efforts have helped resolve at least some of these conflicts. Opportunities to provide dedicated BRT lanes should be identified and, as appropriate, pursued to enhance the efficiency of the BRT system for the long-term.

Specific Plan Land Use Planning

With a defined planning area of approximately 560 acres, development of the Specific Plan subareas was dominated by strip commercial mixed with small scale office development that constituted about 22% of the planning area. The area was also comprised primarily of a variety of small lots of diverse ownership, which made lot consolidation essential for Specific Plan implementation. The planning area lacked character and was fragmented in appearance without a unifying set of characteristics. It also lacked community activity centers that might facilitate more unified development of this important and valuable corridor.

From the beginning, the Specific Plan declared itself as an effort to establish the corridor as a viable regional commercial area. At the time of the Specific Plan's drafting, this was the conventional thinking of how commercial development should be planned. It was also indicative of the high degree of regional competition for retail dollars and associated revenues that have driven the fiscalization of land use planning in many communities.

Fortunately, other important alternatives, including the concentration of regional commercial near I-15, have taken some of the pressure off of the Foothill Boulevard corridor. The planning subarea concept has evolved, although in a somewhat conventional way, but important opportunities remain to realize truly innovative and effective mixed-use development in conjunction with BRT stations planned along the corridor that can achieve the original concept of a series of diversified neighborhoods.

Implementation

One of the major implementation measures of the Specific Plan was lot consolidation to assemble development sites of adequate size to achieve the goals of the plan. The City Redevelopment Agency was seen as the driving force for implementation, including facilitating a variety of financing mechanisms for roadway and infrastructure development, and providing incentives to attract the desired type and scale of development. Most recently, the purpose, applicability, development regulations, and development standards for the four Specific Plan subareas have been integrated into the City's new Development Code and are identified as Section 17.38.060, Foothill Boulevard Overlay Zoning District.

3. City Development Code

Review of the City Development Code was conducted on two levels, the first being an overview of permitted uses and intensities, as well as development standards and guidelines. The second part of the this review considered the Foothill Boulevard Overlay Zoning Districts and identified any particular constraints and opportunities relevant to developing land use and planning concepts at identified "opportunity sites" that will best support the development and use of the BRT system. Specific standards and guidelines are cited and observations made on how they may affect the proposed BRT project.

Section 17.120.020 Site Plan Design
This section provides site planning standards and guidance and emphasizes the use of natural site characteristics as potential development assets, encouraging integration of natural features and views and properly buffering adjoining lands. This section could provide stronger guidance. The term “compatible” used in this section is too vague; elsewhere there is a statement about linking parking areas on adjacent properties, and linking pedestrian access. This directive should be stated more emphatically so developers know they are part of and must make contributions to the whole. The difficulty is that past piecemeal strip development has been implemented without adjacency requirements, which precludes or makes difficult implementing design remedies. In the development standards and guidelines we recommend in this study, specifics are given that provide concrete site planning guidance regarding the relationship of the building type and anticipated uses with those existing or planned on adjoining lands.

To effectively achieve mixed-use development, this section also needs to provide more direct and concrete recommendations regarding street setbacks and other site planning considerations. If the goal is the street, then establish a “build-to” line so that each part contributes to a clear whole. This approach requires a definitive statement that better defines the street/building relationship, which may vary with differing types of development. In some instances, the building facade and its articulation may be integral to the development of the "public realm" portion of the development, as in the case of sidewalk dining and cafes.

In the development of recommended standards and guidelines, we describe potential adjoining uses and concretely state what the role of the building is in defining and contributing to the public realm. This approach more clearly defines the relationships and better assures that future development proposals optimize the relationship of the building and its use to the adjoining public realm, whether it is on the street or within the context of a mixed-use project.

Building Orientation
The discussion of building orientation in Section 17.120.020 communicates no real meaning, and if left to the developer to define, then no "code" is needed because none really exists to impose on the development. To address this with relation to TOD planning, in Section VI we describe and illustrate concepts of building orientation that are concrete and can provide meaningful guidance to the future development plan. Our assessment of these portions of the Code addresses building setbacks, creation of plazas, solar access and other issues.

Plaza Standards: It is essential that we define what a “plaza” is. Most developers refer to leftover space as a "plaza" or simply provide a corner cutback or open area without consideration to how it will function and what its relationship will be to the buildings and the streets that delineate it. This lack of integrated consideration is how developers end up with graphically pleasing plans that lack functionality when built. Frequently, these "plazas" are out of scale, have no or little relationship to their edges and adjoining uses, and end up not inviting but distancing the retail or other activity from the street.

Traditional urban or Congress for the New Urbanism (CNU) typologies should be cited in development standards and guidelines so that the purpose (people gathering), the size (anticipated usage related to location within streetscape and development – generally smaller is better), and the orientation and access is given adequate consideration. Plazas need to be spatially defined and also fluid, and should have boundaries that "hold" or "embrace" the space, providing a sense of enclosure without being cut off or claustrophobic. These characteristics also importantly serve to communicate the change in "space" when one crosses an imaginary threshold that defines the plaza as opposed to the rest of the open space adjacent to it.

Pedestrian Circulation Standards: The Code promotes the creation of direct and logical pedestrian connections between public sidewalks and the primary entries of each occupied building on the site. This is well intended but too general and weak in addressing the context of development at the street or along a corridor. There are larger design issues that should address building siting within the context of sidewalks along public streets or those connecting parking lots with the buildings they serve.

The logic of pedestrian connections should be more thoroughly defined and should also be illustrated, as shown in Section VI. So too should the relationship of the building to the public street and hence the associated pedestrian access. Building an interesting and even enticing connection between the street and the building must not always be direct, but can be somewhat circuitous if the way finding is clear. This can provide a change in space and atmosphere between the public realm and the environment created by the development. An attempt should be made to illustrate this and better define the range of relationships that should be addressed in mixed-use development along the corridor and in differing situations.

Solar Access Standards: The Code states that additional setbacks be required to protect solar access for adjoining properties: It is not really set forth as a standard and can be an obstacle to effective site planning and architectural design unless the "solar access" is better defined. Solar access is important on several levels, including providing sunshine onto a plaza or courtyard where outdoor use is being encouraged. It can also be associated with the assurance that opportunities for day-lighting interior space are not limited or precluded. Finally, and where most typically thought to apply, solar access is that which allows the installation of solar thermal or electric panels to capture and use sunlight as a renewable resource. The code should define the various aspects of solar access that must be considered both for adjoining properties and especially new, integrated development. Clarity of descriptions and supporting solar analysis and illustrations will help to assure that, both internally and on adjoining lands, solar access is effectively respected and protected.

Site Planning Guidelines

The Code provides vague and difficult to implement guidelines for multiple buildings, recommending that site planners vary building placement to avoid parking areas that dominate streetscape, but little else. This is too vague to provide guidance. There are numerous examples of this "principle" being applied in a manner that chops up a well-proportioned site into a site plan with buildings that do not relate well to one another, and which frequently results in convoluted and even hazardous parking lots and circulation. If the circumstance calls for the placement of buildings to create a street frontage with parking in the rear, it should be clearly stated. If the desire is to provide more room along the public street space and maintain more expansive views by interspersing building pads, the code should state that. A more important and essential consideration that should be elaborated upon in design concepts is the integration of parking with buildings, points of access, and the street (see Section V).

Also important will be determining the actual parking demand and not simply applying the Code, ULI, or other standards that may result in a level of parking that is only needed once or twice a year. Finally, the Code should elaborate on how new and existing development can optimize a program of reciprocal parking within the context of thoughtful site planning. This approach places parking at convenient locations and also is attractive to visitors who access the site on foot, by bike, or from a transit station.

Building Siting and Setbacks Guidelines

The Code guidelines include rather simple statements recommending the avoidance of creating a "strip-commercial" appearance where buildings are plotted in a straight row with parking along entire street frontage. Setbacks are to be directly proportionate to the scale of the proposed building. Once again, if street frontage is desired and dictated by the use then define the “build-to” line and state the minimum and maximum building heights. Minimum heights should be set because without enough building presence along the street frontage, the amorphous street corridor dominates the spatial and ordering experience.

Along Foothill Boulevard, the height at major intersections might be a minimum 40 feet (3 stories) and a maximum of 70 feet (6 stories). If this is the case, then the corner configuration must be defined (chamfered a la Barcelona, re-entrant corner) and all four corners should be the same to create the spatial identity of the intersection. This is a very effective place-making strategy where it can be executed.

The Code also states that setbacks for larger buildings are also to be guided by the need to balance the scale of the buildings and protect solar access. This is too simple a design recommendation and frequently results in development that provides little relationship between buildings and the street. Such a general rule leads to monotonous site plans that are found all over Southern California and which have homogenized the treatment of the public street. To the extent some areas of SoCal have high summer temperatures and shade is at a premium, larger buildings along the street can be an asset and not a detriment.

If the boulevard identity and experience are to be heightened and enhanced, then there should be opportunities for more building siting along the street (see Section VI). This would be especially useful along the west end of the corridor where, on the north side of the street, low density residential is prevalent and relatively close by. In such an instance, whether existing or planned for the future, buildings along the street can enhance the commercial boulevard feel while better buffering nearby residential.

Attention also needs to be paid to the quality of building design, which does not necessarily translate into significant (or any) additional building costs but does require the employ of better architects, land planners, and landscape architects. This is not to say that view corridors to mountain views or other natural and scenic amenities are undesirable. In the present case, the corridor is also already recognized as an "urban space" and, as such, it warrants true urban design principles, not conventional suburban sliced white bread that seems to evade or escape the built environment.

Access and Circulation

The Code guidelines state that the access and circulation of a development should be designed to provide a safe and efficient system, both on and off the site. The following standards and guidelines set forth in the Code appear most relevant to accomplishing mixed-use TOD development along the Foothill Boulevard corridor.

Access and Circulation Standards

The Code simply states that the purpose of access and circulation standards is to minimize conflicts between vehicles and pedestrians within developments and along the street. This standard is unclear and appears to try to address the potential for on-site drive lanes to cross the pedestrians' primary route of access to the building. If this is the intent, then further elaboration is warranted to better clarify.

There is little question that access consolidation along Foothill Boulevard is a big issue on the western portion of the corridor and its resolution will be essential to preserving roadway capacity along the road for all users, especially the BRT system. It will also be important to the creation of a pedestrian experience that feels safe, enjoyable and well served by thoughtful streetscape treatments, including sufficiently wide sidewalks, landscape and other buffers between curb and sidewalk.

Depending on the location of BRT stations, it may be necessary to provide protected pedestrian access to median-sited (center running) stations that serve BRT traffic in both directions. In this case, the BRT stop must be consciously designed as a pedestrian-friendly "gateway," and visual/amenities clues need to be a part of the stations design, whether they are on the street or on private property.

Pedestrian Systems Standards

The Code mandates the creation of safe, continuous, pedestrian routes between the public sidewalk and primary building entrances. This standard, which largely repeats earlier standards, is meant to be obligatory but is difficult to implement in many instances. One problem is the conventional thinking of many retailers that parking needs to be in the front of the building for both perceived accessibility and as an advertisement of the business. With the creation of the expanded urban environment along the corridor there will be more opportunity to provide direct access to the building for pedestrians regardless of the point of origin (car, BRT bus, foot, or bike). Consolidated access drives will help, and side and rear parking will also allow for less travel lane/sidewalk conflicts. A greater emphasis on buildings fronting the street will also avoid this issue, as shown in Section VI.

Pedestrian Connectivity

Access and circulation standards also cite the need to integrate the pedestrian circulation system and any accompanying plaza and patios as a unified network. This directive is too vague and does not provide meaningful guidance, much less serve as a development "standard." Such a directive will not be applicable in many instances and, if forced, can result in a gratuitous and wasteful use of lot area that is infrequently or never used.

As discussed above, plazas and patios need to be described and defined in the Code guidelines. Concrete examples and some form of true standard needs to be developed if this is to be a design standard for general application. Code standards and guidelines should provide definitions of this type of design element and should provide criteria for when and where their application may be warranted.

To the extent the pedestrian network needs to connect the parking lots with the rest of the site, Code requires that site plans provide safe and orderly transitions between vehicular and pedestrian traffic by means of clearly identifiable and attractive walkways. This is largely a repetition of an earlier standard but emphasizes clarity and attractiveness of pedestrian paths and vehicle lanes. This concept should include the breaking up of large parking areas into defined "parking courts"; perhaps two double-loaded bays by 14 cars (140' x 140' ~ 50 cars), for instance as illustrated in Section VI. Then perhaps the in-between area can incorporate a pedestrian passage that also serves as the detention area (think walkway over cobble or striped pavement). Also, as noted before, consideration should be given to reducing the parking requirement; establish maximum parking count, not a minimum.

Section 17.122.030 Commercial, Office, and Industrial Development
The majority of design standards and guidelines for commercial, office, and industrial development are provided in Chapter 17.120 (General Design Provisions). This section discusses only those provisions that are unique to commercial, office, and/or industrial park development.

Special Site Design Provisions
The Code guidelines for commercial projects encourage giving special attention to creating pedestrian scale and inviting places for pedestrians. The guideline is fairly vague. "Pedestrian scale" is generally thought of as the height of buildings, but the real issue is the vast and amorphous space that surrounds the buildings. Scale, enclosure, and threshold, as well as other design considerations are essential to the effective creation of this type of space. The guidelines also encourage attention to such site amenities as walls, hardscape, street furniture, trash enclosures, lighting, and monument signs, stating that they should be designed as part of the total architectural package for the project.

The real goal is to create a defined/experiential outdoor realm (room, plaza, piazza, piazzetti, corridor, mews, lane). The buildings then serve the purpose of defining the edge of those outdoor realms, and their height should not be so important because the experience of the pedestrian is densified at the pedestrian realm (8' wide x 12 – 16' high). The buildings can be 3 to 6 stories high if the facades are articulated correctly, and the pedestrian realm is made interesting – there is some action there, some reason to be there in the first place.

Parking Area Designs Standards
Parking standards for commercial, office and industrial park users set forth in this section of the Code focus on the screening and shading of parking areas. Issues associated with parking areas and screening concerns should be illustrated and further described in the Code. Landscape mounds or berms, and low, freestanding and retaining walls can also be effective. The issue of tree-shading parking lots is problematic and of questionable efficacy in any event. The prescribed tree density is very high, and trees in the middle of parking areas are brutalized by a lack of surrounding soil and the typical excessive over-trimming by landscape maintenance crews.

If trees are to be an integral part of parking lot design, their spacing should be a function of the species to be used and not subject to a "one standard fits all" approach. A more valuable and timely alternative is to provide shading through the provision of shade structures that integrate solar photovoltaics. In this way, the shade structure will do its job with minimal maintenance and no water demand, and will generate a revenue stream for the project owners. By applying tree-shaded parking in proximity to the building, where solar access will be less in any event, the trees can serve to soften and complement the building.

Parking Area Design Guidelines
Code guidelines recommend that site plans distribute parking evenly throughout the site instead of concentrating all parking in one large lot. This is a general statement and is hard for developers to apply and planners to judge. The amount of parking aside, the placement of parking is defined by the needs of the business employees and the convenience of the shopper. Just a cursory review of commercial and industrial park area parking shows that adherence to such a general guideline can yield a wide range of undesirable results. As we have noted, it is better to define the limits of parking both in terms of maximum number of spaces and in general locations. For instance, how many spaces should go in a "car court," how many in front of the building, how many in back or on the side, and how many overall.

The Code directives that use the "Don't do this" approach are not really guidelines, and such a vague "prescriptive prohibition" is simply not realistic. Development parking strategies almost always dominate the site because conventional office and commercial developers insist that there be substantial parking on the street-side (typically the entry-side) of the building. Victoria Gardens, with its faux Main Street is an alternative, but for something like this to work, the development off Foothill Boulevard has to be based upon a two-sided entry street drive where the storefronts face the entry drive, not Foothill Boulevard and not the parking areas. As noted elsewhere, parking planning standards and guidelines should be further developed that are responsive to the mixed-use development opportunities. These will be conceptualized in our post-report technical memorandum. Examples of explicit and concrete design standards and guiding principles will be provided.

Pedestrian Orientation

Code guidelines addressing pedestrian-oriented design include references to colonnades or loggias and other covered walkways or structures that provide shade to pedestrian spaces. This is stated as a standard rather than as a guideline. In desert areas, such a recommendation may be acceptable, but is this really important to development in Rancho Cucamonga? Will the determination of "whenever possible" be made by staff or the developer? Would this be applicable to all pedestrian walks serving in-line stores greater than 40 feet and facing all compass points?

Rather than attempting to dictate architectural design, the guidelines would better serve if they defined the problem, if there really is one, and better described and illustrated a variety of design concepts that can be adapted to a variety of architectural styles. If there is room for such structures, there is also room for trees that can serve the same purpose. Code revisions should specifically address this issue in concrete but appropriately open-optioned terms in conceptual design standards and guidelines.

Section 17.122.040 Foothill Boulevard

This section of the Code establishes parameters within which the community character for the entire Foothill Boulevard Corridor can be created. To do so, a number of issues and design concepts have been previously explored. However, at the core of all discussion and investigation has been the attempt to define community character in an accurate, comprehensive, and pragmatic manner. The Community Design Guidelines are primarily focused on the creation of aesthetic character. The purpose is to create a visual environment that evokes a distinctive and unifying image, which is unique to Rancho Cucamonga. To accomplish this task, the Foothill Boulevard Corridor must first distinguish itself from other major thoroughfares in nearby communities and, second, it must serve as a visually unifying concourse that links the entire community of Rancho Cucamonga. Lastly, it is important to have a design statement for the Foothill Boulevard Corridor with each contributing community design element skillfully orchestrated to promote a contiguous, cohesive, community design image.

The first principles should not be aesthetic, but rather definition of the corridor itself. The use of the term "corridor" is instructive because it means an enclosed linear passageway. For a traffic corridor in strip center sub-urban design, the vertical curb is the defining element, later supplemented by street trees, streetlights, and "pad" buildings. Currently, the vertical edge of the corridor staggers back-and-forth from big-box buildings (set back >300 feet), parking areas with low shrubs and trees (a soft edge which is not of interest, but pleasant), pad buildings (set back 30 feet), monument signs and older big pole signs, and interspersing of low utilitarian buildings from years ago when the ROW was 80 feet.

To create identity, the corridor should read like a defined, linear space. The fill-in efforts with street trees and banners along the parking lots are fine, but at the development entries and especially the intersections, the first priority should be to create a strong vertical definition of the edge of the public realm. The buildings should be placed at a "build-to" line, should have a minimum height for parapets of about 36 feet, and should be long enough to read as more than one small retail outlet.

Applicability and Image Enhancement Features

The application of the provisions of this section is mandatory for all Foothill Boulevard Districts, unless otherwise specified herein. Community image is related to the way people experience the City -- driving through it, observing its natural qualities, and seeing and moving through the built environment. Again, as with much of the standards and guidelines, the current community image guidelines seem to anticipate more of the large-scale neighborhood and community scale retail outlet and less of an intimate, mixed-use development that is more desirable if one is trying to create an intimate urban environment.

The use of hardscape is often a replacement for integrated design if it is not a part of and derived from the design of the buildings and the site plan. Signage is also a poor tool for creating areas of distinction and can lead to unsightly visual clutter. Clearly, different buildings or developments should differentiate from one another, but hardscape is generally an ineffective (but common) approach to providing identification. This is due to the plan-view conceptualization of development, the mistakes of which may not become evident until the project is built. Once visitors are on the corridor, the visual diversity provided by great buildings and effective landscape treatment will help create a series of destinations, a string of pearls; people will realize that they are where they want to be and will be interested in taking in more of the full Foothill Boulevard experience.

The concept of civic, commercial, or cultural public urban open space discussed in the Code should be further developed, citing existing examples along Historic Route 66 and how they do or don't function in the way desired. To this end, we provide a description and illustrations of urban design elements that should be integral to the BRT stations and the planned mixed-use projects that provide the character-defining aspects of these developments and the Foothill Boulevard corridor. Identifiable districts, as set forth elsewhere in the City Development Code and originating in the Specific Plan, are elaborated in our design concepts. The overall design concepts, including ideas for site planning and architecture, are where the "aesthetic" may help define each district.

Nodal identification and wayfinding are also important issues along the corridor, and place identification along the corridor should be made clearer by use of distinctive urban design elements. For instance, a "landmark" is created that is a meaningful urban-scale element, and the nearby buildings cue off the landmark in some way. Iconic buildings, towers and other elements can help in this regard. The development of new and the enhancement of existing opportunity sites should incorporate buildings of height and scale, as well as distinctive architecture that they too serve as landmarks that contribute to the creation of the tied string of "pearls" concept we have identified. The need for and appropriateness of BRT station flags or banners that alert users to the approach on the stations should also be considered.

Community Design Vocabulary

This section of the Development Code cites design vocabularies that can provide a unique community image for the Foothill Boulevard Corridor. In this regard, the Code refers to "activity centers" as points of concentrated activity giving identity to individual subareas. Code Section 17.122.040 could be substantially strengthened by better defining and illustrating the terms that will create the desired

“boulevard" effect. It is not enough to simply state that the desired effect is "activity centers." These need to be conceptualized, characterized, and described.

The first step is to define and densify the intersections so that there is some activity that can be “centered" upon. What the Code implies here is the intersection and the related mixed-use development around it. But what is not stated is that, in addition to the buildings and businesses, a “center” of activity needs to be created that is recognizable, memorable, alive, and connected and connecting. The Code should also try to identify the distinctive stylistic elements, color, material, or other element that makes one “activity center” different from another.

As a pictorial example, imagine that the colors of identifiable and regularly applied elements from east to west go from yellow, green, blue, and violet as a series of color zones. Key elements within the complex of that area have the color as an underlying theme. If you say to your friend, “I’ll meet you at Foothill Boulevard and Vineyard Avenue,” you know it’s the one with blue buildings or banners (the blue zone or district). While this is an example that may be too bold for Rancho Cucamonga, it illustrates how such a concept would add to the festive character and color code locations along and celebrating the corridor. See Section VI of this study, which further addresses these issues.

Development Code Pages 17.122-54 (Design Provisions)
This section of the Development Code consolidates design standards and guidelines for specific subareas in the City, including those along the Foothill Boulevard corridor. The following categorical discussion examines those standards and guidelines relevant to BRT-supporting residential and mixed-use development.

Building Orientation
The Code dictates building orientation that is "compatible with surrounding existing and planned uses and buildings." Recommendations regarding setbacks continue the current isolation of activity centers from the street by application of "proportionate setbacks." These directives can also establish a front-back dilemma that, in many cases, will not be satisfactory to the tenant or the shopper. This is where entry drive orientation or public plaza orientation should be explored on a case-by-case basis both in terms of the proposed site plan and use. The parking area screening concepts discussed under General Provisions, above, also apply to the Foothill Boulevard corridor. This issue is addressed in Section VI.

Access/Circulation
The Code states that access and circulation of a development should be designed to provide a safe and efficient system, both on and off the site. Points of access shall be designed in conformance with the City's access regulations. The circulation system shall be designed to reduce conflicts between vehicular and pedestrian traffic, minimize impacts on adjacent properties, combine circulation and access areas where possible, and provide adequate maneuvering areas. Points of access shall not conflict with other planned or existing access points. Pedestrian walkways shall connect every building with public sidewalks.

Transit Improvements
The Code provides limited discussion of transit and how it should be accommodated, but does encourage pedestrian (we would add bicycle) access to transit stops. While the General Plan clearly anticipates the need for such facilities, the Development Code does not and should provide both standards and design guidelines for these facilities.

Specific to the sbX BRT plans developed and being further elaborated by Omnitrans and SANBAG, in Section VI we provide concrete siting criteria, design standards, and development concepts for future BRT facilities along the corridor. These have been developed in consultation with Omnitrans and the City Public Works Department and should set the standard for future BRT station development.

Building Design Along Foothill Boulevard
Issues of concern and opportunities for Code enhancements include discussions on building scale, connectivity and the pedestrian experience.

Building Scale
The Code directs that the mass and scale buildings be "proportionate to the site, open spaces, street locations, and surrounding developments. No matter what the scale of a building, setbacks and overall height should provide an element of openness and human scale. Multi-story buildings should be set back toward the center of the site or be designed in a stepped style." This is a very important issue as it relates to the creation of an urban space along at least portions of the Foothill Boulevard corridor. The balancing of scale and openness is always a difficult passage and one that cannot be adequately addressed through a single, monolithic standard or guideline.

There is a fundamental disconnect between what we consider “human scale” and what is “urban scale.” The human scale is measured by how a single individual relates to a single building. In the prevailing low-building ethos of SoCal suburbia, we are wrongly concerned that a tall building is evil and not of human scale. This is primarily a function of tall buildings being stand-alone anomalies, as opposed to a tall-building composition (think downtown Orange) where the taller buildings (still only 3-stories) define a public realm that is definitely pedestrian-scale, and the pedestrian realm (12’ wide x 12-16’ high) is interesting.

Generally, regulations want to limit height because height doesn’t (or is preconceived to not) fit into an overall “district” or public realm, so we are concerned that the building will overwhelm the person. However, in order to create the “pedestrian experience” and the “urban setting,” buildings must be designed at a “roadway scale” or a “plaza scale.” When buildings are designed along a major street or within a commercial center and the emphasis is on the parity of man-to-building (as suggested in “human scale”), the buildings will be too diminutive to define the space of the roadway or plaza. The sensibilities of “human scale” need to be adapted to the urban environment to emerge along the Foothill Boulevard corridor.

To address this need for a broader perspective, three scales are needed to define the appropriate massing for buildings to create the desired “pedestrian experience.” These three scales are, from large to small:

Roadway Scale: This is the scale perceived by the person as a driver or pedestrian. These "viewers" need to recognize that a significant vertical mass is creating both destinations along the roadway and the boundaries of the roadway. In this circumstance, the typical, conventional commercial development is composed of a few pads along the roadway with parking behind. Parking extends to the core of the development, which is comprised of 26- to 36-foot high commercial boxes at the rear of the site.

The height and mass of the pad buildings provide no sense of “scale” to the roadway; there is no sense of a “public realm.” Rather, the spatial experience as viewed from the street and sidewalk is a characterless bubble that weaves in and out of the center, punctuated by an entry statement, then a pad, then a stretch of parking, then another pad. There is no single or collective element that can hold its own with the typically broad roadway, which continues to dominate the space in a characterless, amorphous manner.

The vertical-to-horizontal ratio of the typical arterial (120-foot ROW) is 1:8. This is sometimes improved by street trees, but overall the "corridor" is really a broad river of space on a mildly undulating plain. Roadway scale requires buildings that are three to four stories tall (40 to 50 feet) within 25 feet of the ROW. Building edges can be softened with arcades, step-backs, and ins-and-outs (articulation) of the façade. But there must be a substantial architectural statement, a gravitas to the buildings being asked to create a sense of "corridor".

It is important that the rhythm and pattern of wall-to-windows of these fronting buildings communicate an implied "place" within the building for the pedestrian that extends the outside into the structure in an organic way. The buildings need to tell a story of human activity, whether the story is of an office worker, teacher, patient, shopper, resident – the important aspect is a sense that a person can project him/herself into the building and occupy it. This is one downshift in scale that is necessary.

Entry/Arrival/Destination Scale: Architects correctly insist that the building entry is not a sign. It does not matter if it is a sign on a pole or a monument. A sign is not an entry statement. A sense of arrival is created by a sequence of forms squeezing down the vehicular speed and increasing the complexity at the ground plane for motorists and others moving along the public realm. This type of scale is defined by buildings on both sides of the road, probably in most cases without direct front door access (though this does not necessarily need to be the case). The street trees follow the road, there are sidewalks on both sides, and the buildings have display windows. This is an entry that could serve pedestrians, but unless the BRT is highly used and located at the intersection, it is less likely to be used by pedestrians.

Connection Scale: This is what is commonly called the "pedestrian scale," but it cannot exist without the other scales that distinguish it from roadway scale/activity, arrival scale/activity, and strolling scale/activity. This is the string that connects the pearls and needs to have an organic, scalar relationship to the other two levels of scale.

E. Visual Improvement Plan

Introduction & Critique

The Foothill Boulevard Visual Improvement Plan was developed in the late 1990s and was adopted by the City Council in early 2002, following adoption of the Foothill Boulevard Specific Plan in 1997. The Visual Improvement Plan (VIP) takes a somewhat narrow cultural and aesthetic view of the public realm created by the Foothill Boulevard right-of-way, based on the Historic Route 66 theme, stating that:

> "...it (Rt. 66) was known for its unique car culture of the mid-century, its creative highway signage, motels, trading posts, tourist traps, and service stations."

Due respect is paid to the history of America's car culture, but these identifying elements alone will not "activate" the creation of a modern, 21st century, urban downtown along Foothill Boulevard that can support and optimize the use of a BRT transit system. The VIP states that:

> "The purpose of the Foothill Boulevard/Historic Route 66 Visual Improvement Plan is to develop a design specification plan that will set forth design concepts for the streetscape improvements within the public rights-of-way and entry areas along the entire length of Route 66 in Rancho Cucamonga."

To the extent that the VIP establishes the basis for subsequent design refinements and implementation, this Plan serves its purpose. Fortunately, the VIP recognizes that the designs are "concepts," thereby not meant to be a straight jacket but a guiding document for subsequent design and implementation.

An essential point is that the VIP appears to only really recognize the mid-20th century car culture and aesthetic, which continues to have cultural recognition but at a level that is substantially less than the VIP would imply. To limit the aesthetic development of the Foothill Boulevard corridor to Rt. 66 themes and their icons and artwork risks stunting the type of creativity and innovation that is transforming cities in Southern California and across the country. It is recommended, therefore, that the City widen its perspective to a more open and inclusive approach to improving the visual character along the corridor, one that invites diversity and sensitivity to a modern urban lifestyle that goes beyond the 1950s car culture.

An Expanded Aesthetic

The Visual Improvement Plan for Foothill Boulevard does not set forth aesthetic principles that have guided its development. Rather, the VIP locks onto notions of what Historic Route 66 has meant for older generations, which are the primary market for this theme. It is more an "engineered" concept that sets forth hard design specifics such as pavement widths and tree well dimensions, paving materials and plant type prescriptions that are rigidly applied to the gateways and activity centers.

The effect is more one of an interior designer applying a limited palette of elements and colors, but in this case to a variety of development opportunities along a seven-mile stretch of roadway corridor. To the extent it espouses any aesthetic at all, the VIP promotes highly conventional "design concepts" that have been done and over-done throughout Southern California. Something more than homogenous sliced white bread is needed to create a vibrant and dynamic down town along the Foothill Boulevard corridor.

Rather, the best aspects of the past can be married with the new and emerging concepts of urban life and urban transportation, which are especially applicable to the subject Foothill Boulevard BRT transit and urban planning effort. The dominance of the car has had a significant effect on the downtown, and while our love affair with automobiles will be with us for a long time to come, urban development necessarily must harken to cleaner and more efficient transit and offer other alternative modes of travel.

Babies and Bath Water

The design opportunities at the two gateway locations and associated planning subareas have been assessed, as have opportunities at the other subareas and opportunities sites located along Foothill Boulevard. An effort has been made to extract and extend the best elements set forth in the VIP and to expand the aesthetic perspective based upon a vision of BRT and multi-modal transportation. This effort has further expanded upon the City's stated intent to provide a true urban, mixed-use downtown environment. The following is a brief critique and recommended approach to the specific elements discussed in the VIP.

Entry Gateways

The City is already distinctly different from its neighbors to the west and east, and overt statements of a shift in character should reflect the rich heritage and broadened aesthetic of the new Rancho Cucamonga, with less emphasis on the progressively dated Route 66 theme. The Western Gateway (Bear Gulch Area) provides an important opportunity to take a holistic approach to identifying the City's entry, and the concept can also be applied to the East Avenue gateway area.

The Western Gateway area is ready for major redevelopment, with old and inappropriate land uses for such an important and high profile location. The vacant and underutilized lands provide important opportunities to do more than paste on a few conventional improvements to enhance the appearance of this City gateway. Consideration should be given to land use concepts that make the gateway appearance integral to a district-wide plan.

The gateway at East Avenue has limited constraints and better "bones" on which to design an entry statement that complements existing and future development, one that takes advantage of the long-term open spaces areas, including drainages and utility corridors, that should be integral parts of the overall gateway design concept.

Activity Centers

The VIP references the eight activity centers identified in the Foothill Boulevard Specific Plan, and again indicates that each (and apparently every one) is to serve as a focal point emphasizing the Historic Route 66 character, although that "character" is never really described in the VIP. A less rigid application of the Route 66 design concept and more individual and distinctive urban design concepts are recommended as a part of the aesthetic treatment of these important development nodes.

It is also important that the application of urban and architectural design at major activity centers be coordinated to assure a harmonious blend of urban environments. A case study is the Foothill Boulevard @ Vineyard Avenue intersection, with four different corner treatments, which undermines the sense that the crossing is the important feature as opposed to the individual developments. VIP treatments should emphasize the component of the urban landscape making a coherent, identifiable whole. All four corners share the same basic underlying elements and order but have not (perhaps yet) executed the VIP concept. Future probable redevelopment at the northeast corner should reflect building and corner treatment on the northwest corner using similar trees and walls.

It should be noted that the prescribed treatments are very much typical of suburban, low-level retail center development that is pervasive across Southern California. This approach does not create the type of urban environment that attracts pedestrians or creates sidewalk activity. While many cars are seen at the intersection, there are few pedestrians and fewer bicyclists.

Suburban Parkways

The VIP is very much entrenched in the suburban parkway concept that dominates the region, and again emphasizes the Route 66 theme to the detriment of all other opportunities. It is uncertain whether the very limited landscape palette presented in the VIP is to be applied along the entire length of the Foothill Boulevard corridor. If so, it will further homogenize its appearance and result in monolithic character, and may frustrate wayfinding for drivers and BRT users. As a general rule, thoughtful diversification of the streetscape creates distinct and identifiable districts and planning areas that allow residents and businesses to identify with a unique locale along the corridor.

The use of on-street Rt. 66 signage is expensive, will soon become discolored, and does little to distinguish the area unless one is looking down on the street. Serious consideration should be given to limiting this type of pavement treatment to that already constructed.

While beyond the scope of this assessment, it should be noted that the landscape concepts for intersections and the associated plans have the potential to create line of sight problems for traffic accessing Foothill Boulevard from side streets. Landscape planning should take into account required minimum sight distances and assure that adequate visibility is preserved.

Foothill Boulevard BRT and the VIP

It should be kept in mind that Route 66 was built as part of the system of trans-continental linkages. Whereas the railroad and telegraph linked east and west coasts on a common/public system, Route 66 introduced privacy to the linkage. Private motor cars (and motels) and private conversations (phone booths) made the linkage more fine-grained. Personal, individual mobility was king and was considered an outward sign of freedom and individuality.

Today, the perspective of new generations of Americans is rapidly changing. The next generation of linkages is not hardwired in rail lines, roads or even airports, but rather in wireless mobile devices, broadband, social media and free-choice. Cars are less useful and even burdensome in an urban environment where land is valued for living space, commercial enterprise, and parks and other open space.

Therefore, the Foothill Boulevard BRT system has to offer privacy along with common/public space. The BRT has to be personal and intimate at the same time. The physical elements of the BRT system must match up with contemporary needs and expectations, to be "modern," obvious, and convey the sense that one is physically and conveniently “connected” to the community. This connectivity (linkage) includes transponders for the bus to queue jump and prioritize green time, Wi-Fi/GPS/smartphone access for a rider to know the exact place and time of the bus, linkage to useful services nearby (secure bike storage, nearby NEV parking, coffee and donuts), and a rewarding public realm surrounding the BRT station. The bottom line is that the BRT experience has to be as good or better than car commute.

Comments on VIP

Of course, the VIP is largely limited to the elements in the street right-of-way, and recommendations are relatively meaningless unless there is a commensurate effort to define the role of the private elements: buildings, et al. Unless the role of buildings in defining the corridor and the intersections, or nodes, is clearly articulated and regulated, all the applied streetscape treatment will be lost in the amorphous and “soft” edges created by the small-scale pad buildings, street trees, and icons. All these are too weak to achieve the sense of identity sought by the General Plan and the Visual Improvement Plan.

It is also worth mentioning that the VIP is trying to improve the look of parts of the corridor that do not have an impact on the economic success of Foothill Boulevard. Foothill Boulevard has the opportunity to actually achieve the goals of identity, vibrancy, and relevancy, but the real tools are allowed, such as floor-to-area ratios (FAR), the “build-to” lines, and the urban scale definition for intersections and secondary entry roads.

New Vision

Rancho Cucamonga is a rapidly diversifying community and an emerging center for corporate headquarters in the Inland Empire, while also hosting world-class regional commercial, major industrial, and institutional development. It is a business town, but is also a “hometown,” a “college town,” a “baseball town,” and much more. With the push to unify the Foothill Boulevard corridor via BRT and an evolution as an urban center, it can become the sophisticated and dynamic “The Downtown” place to be in the region.

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IV. PUBLIC OUTREACH AND WORKSHOPS

A. Introduction

As a part of the Foothill Boulevard BRT corridor study, a public outreach program and materials were developed in coordination with the City, Omnitrans, and SANBAG. Prior to initiating the workshops, research was conducted to identify the key attitudes and behaviors that are related to use of transit. Numerous research reports and previously conducted surveys were reviewed before preparing those for the Foothill Boulevard BRT corridor study.

With important and valuable assistance from the City Planning Department, we conducted public opinion and related research, including holding workshops and conducting surveys that provided insight into the overt and implied motivations of businesses, customers, renters and homebuyers, and other interest groups. Workshops and stakeholder interviews associated with this project allowed a more detailed exploration of the type of development that may complement and support the operations of a BRT route and non-motorized portions of the transportation corridor. In addition to preparing materials to facilitate workshops and interviews, we characterized and categorized the input provided, the preferences identified, and the constraints and opportunities identified by stakeholders. These are documented below.

Public Outreach Efforts

A significant effort was made to reach the general public, as well as specific audiences of interest (stakeholders) through a combination of efforts, including articles in the Daily Bulletin, posting on an electronic signage board, posting the project and making surveys available on the City's web site, and hundreds of direct mailings to businesses and property owners along the corridor.

B. Business and User Group Surveys

As noted, an important part of the public outreach and input process was the preparation of stakeholder surveys, two of which were developed for bus riders and one for local merchants. Surveys were distributed through several means, including at workshops, stops and drop-offs, online, and through mailings. In all, surveys were delivered to more than 800 businesses and 700 residents, but only 26 survey forms were completed. While the number of respondents was relatively low, the information they provided, in conjunction with that from interviews and workshops (see below), gave valuable insight into several BRT-related issues.

Bus User Survey No. 1

This general survey was the shortest and most direct of the two bus user surveys, with questions focusing on services they would like to see in a BRT transit system, their relative ranking or importance of transit features, primary trip purpose, and concerns about current bus service. Prospective and current bus riders completed this survey. A total of eleven (11) usable surveys were received and analyzed with the following responses:

- Respondents were all from the City
- 36% of respondents frequently use the bus
- 83% of respondents preferred frequent bus service
- More than 90% like wide (half mile plus) station spacing
- Almost 73% feel giving BRT buses signal priority is important
- Almost 73% prefer that fare payments be made off-board for faster boarding
- 100% of respondents liked (versus disliked) dedicated travelways for BRT buses
- Enhanced stations were the preferred (64%) "comfort and convenience" feature of BRT, followed by enhanced buses and real-time arrival information
- Primary trip purposes include work, shopping & medical/dental (18% each), with others to attend religious services and to visit friends and family
- Cited BRT service concerns included slow travel (45%), followed closely by infrequent headway
- Preference for station locations was equally distributed

Comments provided included:

- Great opportunity to expand transit service for our community
- Provide more street signs with brighter colors and lighting for night-time
- Provide more street lights; some locations too dark
- Provide more weekend and holiday service
- Provide expanded bicycle service on buses

Bus User Survey No. 2

This commuter survey was the longest and most detailed of the two bus user surveys, with 30 questions focusing on travel habits and behavior that would indicate potential levels of BRT use. Probably due to its length, only six of these commuter surveys were completed and analyzed with the following responses:

- Respondents were from five different zip codes with all but one City resident
- Work travel was between 7 AM and 6 PM
- All but one respondent indicated that he/she carpools to work
- Reasons for not currently using the bus include lack of nearby stops and no direct service, followed by a lack of information and the need for a car at work
- Drive distance ranges from 1 to 30 miles and drive time from 5 to 40 minutes
- Most travel *to work* is direct, with stops for gas and the post office
- Most travel *from work* includes stops for shopping, eating out, gas, banking, and exercise
- Weekly travel costs ranged from $5 to $46 plus
- Alternative modes that would be considered included the bus (50%) followed by carpool and bicycle (33% each)
- Services within walking distance of work include medical, exercise gym, restaurant/café, and retail shopping
- Services desired near work include convenience store, banking, retail shopping, childcare and supermarkets
- 66% of respondents *did not* regularly walk to available nearby services during the work day
- Services driven to during the work day include exercise gyms and retail outlets
- Most respondents (66%) were employed in a "professional/technical" job

Comments provided included:

- Current commute not particularly stressful and not a motivator to use transit
- Professional services and food important part of TOD mix

No additional comments were provided from this set of respondents.

Business/Merchant Survey

This business owner/merchant survey focused on business owners along the Foothill Boulevard corridor, with 31 questions focusing on business type and history, number of employees and customers, parking availability, transportation options, multi-modal services that should be supported, and BRT station preferences. The following summarizes the results of the nine merchant's surveys received.

- Respondents included bar restaurant owners, and real estate and escrow professionals
- Most businesses are served by private and shared on-site parking
- 66% of the businesses had six or more employees and 66% with 99 or fewer customers per day
- Existing parking is considered at least adequate to good for employees and customers
- All but one business respondent drives to work, with one walking
- Most employees drive to work, but walking, transit and bicycling were also cited
- 44% said that transit access was convenient for both business owners and employees
- Most customers come from local neighborhoods but customer origin largely unknown
- Most customers drive directly to the business, while transit and walking followed
- Neighborhood safety and comfort *for walking and biking* was generally characterized as "good"
- Opinions were generally split on whether additional improvements to serve biking and walking are important, with greatest support for Class I-type trails and paths, followed by better street lighting
- Most important BRT station characteristics cited were security/safety, followed closely by appearance (aesthetics) and station maintenance/cleanliness
- Most important BRT station design features cited were visual representations of history and culture, followed by community and functional art, and nature and the environment
- The majority of respondents (~66%) had a neutral or "Don't know" opinion of the BRT project

- Most respondents (66%) felt that the BRT system would not affect customer numbers
- Asked whether they would participate in a business assessment district to improve conditions in proximity to their business, all respondents (66% of total) said no
- Most of the respondents said they would like to stay engaged in the City's BRT efforts

To summarize, respondents to the merchant's survey represented a somewhat limited cross section of the businesses located along the Foothill Boulevard corridor, most being smaller businesses with fewer employees and customers than many of the businesses along the corridor. Most customers appear to be from the surrounding neighborhoods, most drive to the businesses, and few use transit or other modes of transportation. BRT station preferences were for attractive appearance, good maintenance, and visual representation of art, culture and history. Most felt that the BRT service would not affect their business one way or the other.

C. Public and Planning Commission/City Council Workshops

As a part of the public outreach program for this project, two public workshops were held at the James Brulte Senior Center on October 1 and 8, 2012. A joint Planning Commission/City Council study session was also held on December 18, 2013 at which the City staff and consulting team reported to the Commission and Council on the results of research, surveys, and interviews. These workshops and their results are summarized below.

Public Workshops

Preparations for the public workshops included an automated PowerPoint presentation, display boards on "Complete Streets," BRT station design, the current General Plan Transit Plan, BRT station graphics, subarea aerial exhibits, and preliminary design concepts. A variety of information fliers and brochures were also provided. The workshops were advertised by electronic billboard, City web site, email, and other means. Staff from the City, consulting team, Omnitrans, and SANBAG were in attendance and participated in the public workshops.

Attendance at the workshops was somewhat disappointing but those that did attend provided valuable and insightful information ranging from a local resident and business owner perspective, to that provided by City staff and officials. These workshops also provided an opportunity for freewheeling discussions regarding land use, transportation, and recent roadway and associated improvements along Foothill Boulevard.

A consensus began to emerge on the ideas and vision regarding BRT-oriented mixed-use development and associated characteristics, including high-density residential development, and more intense and diverse commercial business. A sensitive topic was adjustments in parking requirements consistent with experience with TOD projects, with a concern that under-parking would result in problems encountered in recent multi-family residential developments. TOD parking demand is discussed in Section VI.

How BRT buses would be accommodated on Foothill Boulevard was also discussed in the public workshops, and concerns were voiced that the City had just completed a major investment in improving the west end of the corridor. Uncertain how quickly and how extensively travelers along the corridor would embrace rapid transit, it was suggested that there be a phased implementation of rapid transit that minimized disruption to existing improvements. This included a preference for mixed-flow rather than dedicated BRT lanes, and side-running BRT stations rather than bi-directional, center-sited stations. With sufficient BRT use, the City can determine whether and how to implement dedicated BRT lanes.

Joint Planning Commission/City Council Workshop

As noted, a joint study session of the City Planning Commission and Council was held on December 18, 2013 to review the state of research on the BRT corridor, hear the results of the surveys and public workshops, and provide input on BRT and its implementation along the corridor. A staff report was provided and a presentation supported by a PowerPoint slide show was made. The workshop was well attended by Council, the Commission, City staff, and Omnitrans, and SANBAG.

Issues Raised

A wide range of questions were asked by Commissioners and Council members, including the low community turnout at the two workshops, despite substantial effort to make the public aware of them. Staff noted that mobilehome and apartment residents, who are most likely to use BRT services, were also made aware of the workshops and were provided with survey forms. BRT topics discussed included the following:

• *Side and Center-Running Stations*: The issue of physically implementing the BRT route along Foothill Boulevard was discussed at length and involved dialogue with Omnitrans staff. The discussion indicated that a mix of both side-running and center-running travelways and stations can work but must be carefully planned. The discussion did not address the mixed-flow travelway design; however, this open travelway approach necessarily depends on side-running stations for boarding and alighting.

• *Ticketing and Boarding*: Ticketing and boarding were discussed and identified as essential to keeping the "rapid" in BRT. Unlike standard buses, BRT ticketing occurs via machines located at the station. It was also suggested that other types of ticketing, including monthly passes, student passes, and similar cards be provided that can be read by a laser or mag card reader. This too would assure rapid ticketing and boarding. BRT buses typically have two or three doors that allow rapid boarding and alighting. Omnitrans indicated this bus design will be used for the Foothill Boulevard corridor.

• *BRT Route Deviation*: Our research indicates that the proposed Omnitrans BRT route along Foothill Boulevard does not fully take advantage of the major activity area or destination that is Victoria Gardens. The City Transit Plan calls for a loop up from Day Creek Avenue to Victoria Gardens Lane to Church Street, and then east on Church Street to East Avenue, then south to Foothill Boulevard again, and eastward into Fontana. Further land use analysis argues for further realignment of the route by bringing it southward from Church Street to Foothill Boulevard via Etiwanda Avenue. Omnitrans agreed that they could make the revised BRT route work and would coordinate with the City in this regard. Tying the Foothill Boulevard BRT route into other BRT and transit routes was also viewed as a

desirable plan, with focus on the north-south routes connecting with the MetroLink, Chaffey College, and other "activity centers."

• *Park and Ride Facilities*: The question was raised whether park and ride facilities would be a part of the Foothill Boulevard corridor BRT plan. Omnitrans indicated that the proposed transit center at the northeast corner of Day Creek Avenue and Victoria Gardens Lane would serve well as a park and ride location. It should be noted that discussions with Victoria Gardens management did not see the benefits of the BRT system to its operations, although the mixed use nature of the development clearly argues for expanded and better sited transit services. Since the workshop, the two BRT stations proposed for the intersection of Church Street and Victoria Gardens Lane could also serve those who wish to park and ride. Presumably, an arrangement would need to be made with Victoria Gardens for use of surplus parking for this purpose.

• *BRT Demographic/Target Audience*: It is likely that BRT users (also see Section V-B) include those who make a conscious, economically and/or environmentally motivated decision to use BRT, much as they might use light rail. As discussed throughout this study, BRT will also be supported by nearby high-density residential development and a good mix of commercial services and employment centers. New TOD development is proving attractive to the new Gen-Y, younger (and older) hip urban professionals, as well as starter families and other wanting more affordable and convenient living with a dynamic downtown or "urban village" environment.

• *TOD and Residential Density*: Recent changes in the General Plan and Development Code have provided for increased residential densities in mixed-use developments and especially those supporting transit, as envisioned for BRT stations along the Foothill Boulevard corridor. Some concern was expressed about the effects of density on the "family-friendly" feel of the community. The target audience and its emergence in cities and suburbs is the young urban professional, medical and other technicians, starter families, and even empty-nesters that are downsizing and want convenient access to goods and services in a dynamic social environment.

The synergy of density and convenient transit is well understood, and the market is growing for this type of "urban village" development that can not only support BRT but also diversify the community and economy. Affordability will be an important component, but so too will opportunities for live/work housing. New tools must be developed to help fund workforce, live/work, and senior housing in such developments. Over the next 10 to 20 years most new housing opportunities in the City will be for multi-family, and higher residential densities as an essential part of the overall transit-oriented development strategy are an important way of capturing the value and capacity of roadways and other City infrastructure investment.

• *BRT Station Design*: The PC/CC study session wrapped up with questions about the design of the BRT stations themselves, and whether these designs could be customized to provide a character distinct to the City. The City sees itself as a leader in progressive community design and insistence on high design standards. We want that quality to also be reflected in the BRT stations.

The study session ended with an understanding that there remained questions and concerns about implementing BRT along Foothill Boulevard and how this might be done in a phased manner that allows BRT to prove itself before other major BRT investments are undertaken. Questions about how density can be accommodated within TOD also remained. However, it was clear that both the City and Omnitrans would work together to assure coordinated planning and implementation of the BRT corridor.

D. Stakeholder Interviews

Another important way of gauging the community's interest in and support for the Foothill Boulevard BRT corridor project was a series of interviews conducted in late 2012 and early 2013. Interviewees included landowners, business owners, developers, realtors, property managers, City officials, and City staff. While many of the questions discussed with interviewees came from the three user and merchant surveys, additional issues were explored. Interview results are discussed categorically below.

• *Foothill Boulevard BRT Corridor - General Opinions*: The overwhelming opinion is that BRT service along Foothill Boulevard is a good idea, the consensus seeing a need to offer a more diverse transit system and the potential for near and long-term economic benefits. That said, there was a diversity of understanding and concern regarding what the BRT project really means and what are the pitfalls in its adoption and implementation. Some expressed uncertainty about whether BRT would succeed along the corridor given the car-centric nature of SoCal culture. There was a general consensus to support further planning but to start incrementally with implementation recognizing the need to limit impacts to roadway capacity. Concern was also expressed about getting a return on the substantial recent investment in Foothill Boulevard improvements. Also see BRT Infrastructure discussion below.

• *TOD Planning*: Several of the opportunity sites identified by City staff were discussed with interviewees to gauge their opinions of nodal transit-oriented "urban villages" at these and possibly other locations along the corridor. The idea of mixed-use synergies and how they could be successfully realized through land use and transportation planning was discussed. Recognizing the substantial lower density development that occurs in many areas north and south of the corridor, there is a general (but not universal) consensus about the need for more intense development at these TOD nodes to support the Foothill Boulevard BRT route.

• *TOD and Residential Density*: Several of the interviewees were familiar with the recent changes in the General Plan and Development Code allowing higher residential densities in mixed-use developments and especially those supporting transit. These planning documents have anticipated the subject BRT corridor and have evolved from a 1990s perspective that still encumbers design and development of dynamic and properly scaled TOD-based urban villages (see Section III). As also reflected in the surveys, the target audience emerging in cities and suburbs includes young urban professionals, medical and other technicians, starter families, and even older empty-nesters. What they have in common is the desire to downsize, to have convenient access to goods and services, and to live in a dynamic social environment. As noted, the market is growing for this type of synergistic "urban village" development that can not only support BRT but also diversify the community and economy. Also see related discussion in Section IV-C, above.

• *Foothill Boulevard BRT Corridor Connectivity*: A broader view of Foothill Boulevard as a transportation corridor was also discussed. There was a strong consensus for a multi-modal approach to the corridor with support for improved sidewalks and bikeways, especially along the western portion of the corridor. Support for bike racks and lockers was also expressed by several interviewees. The opinion was frequently expressed that the BRT stations would get more use from a broader geographic area if enhanced intervening access is provided for pedestrians and bikers. It was also recognized that a variety of solutions needs to be considered and applied, the corridor having a diverse mix of constraints to and opportunities for bike lanes and wider parkways. Conflicts with cars, trucks, and buses were cited as on-going safety concerns. Support was voiced for limiting truck traffic on Foothill Boulevard to local deliveries as one way of reducing truck traffic along the corridor.

• *BRT/Transit Plan Route Adjustments*: As noted above, the City Transit Plan modestly deviates from the BRT route developed by Omnitrans, which does not fully take advantage of potential ridership generated by Victoria Gardens. Interviewees concurred with the recommended realignment of the route, bringing it southward from Church Street to Foothill Boulevard via Etiwanda Avenue. Victoria Gardens management did express some skepticism about their project generating significant transit ridership now or in the future, anecdotally citing limited use of an existing bus station at the southwest corner of the development. There was a clear consensus to tie the Foothill Boulevard BRT route into other BRT and transit routes.

• *BRT Station Locations*: It was generally understood that BRT stations needed wider spacing than conventional buses, and that the positive (or negative) effects that could result depended on their location along the roadway and on the adjoining land uses. Interviewees with and without technical expertise indicated a preference to have BRT stations located as side-running (along the parkway) and at major intersections with existing or future potential BRT-supporting development. Stations were viewed as more than transportation but also as integral parts of a walkable "urban village" development that generates BRT use. Interviewees recognized that, if significant BRT ridership is realized, it will argue for center-running travelways and stations sited in the center median. This would be a profound change to Foothill Boulevard, and most do not see the need for a center-running system for many years to come.

• *BRT Station Design*: The standard BRT station selected by Omnitrans is a sort of "fractal modern" design with angular supports and planes providing walls and canopy of aluminum and clear carbonate. Omnitrans plans also show integrated solar PV panels in the canopy. Most interviewees expressed an interest in seeing the City's BRT stations reflect its distinct character and identity. As reflected in the PC/CC study session, Omnitrans indicated that BRT station designs could be customized to provide a character distinct to the City. Specific BRT station design requirements must be met, but there appears to be opportunity to give these stations a distinction that says, "You are now in Rancho Cucamonga!"

• *BRT Buses and Technology*: Several interviewees felt that there is still something of a "blue collar" or "working class" stereotype associated with those who ride the bus, although a brief presentation of changing urban demographics and travel behavior helped to relieve some of this concern. Regardless, the consensus clearly wants to see that the quality of the stations, the bus, and the travel experience are exceptional or the ridership will not be as broad based as needed. Omnitrans and other BRT information was shared with interviewees who were generally impressed with the quality of the buses and bus and BRT station technologies. In summary, quality design and facilities were considered essential for wide adoption and use of the BRT route.

• *BRT Bus Operations*: Interviewees generally felt that BRT buses would need to run along the corridor with relatively short headway; that is, the time between buses should be frequent so that use is convenient and reliable. If either one of these essentials was not provided, the BRT service would not work for many and they would stop using it. There was consensus that BRT buses should be given signal priority to facilitate the "rapid" in BRT, but that care should be taken to minimize impacts on roadway capacity for other vehicles. BRT buses should also provide easy bicyclist use with adequate bike racks on buses and at stations.

• *Transit-Oriented Development Planning*: Finally, and central to this discussion and the City's concerns, is effective transit-oriented development that can complement existing and lead the way on future development along the Foothill Boulevard corridor. Beyond residential densities, a variety of other considerations specific to TOD supporting design are important. These include the optimal balance

and mix of commercial, professional, and office uses in TOD "urban villages" that provide walkable access to these services for village and other nearby residents and BRT system riders starting or ending their trip at the station. Related to these issues and planned synergies are appropriate development standards and guidelines that provide sufficient flexibility to accommodate different sites and assure that the transportation, social, and economic dynamics of TOD development are optimized and not contaminated by uncomplimentary land uses or poor quality development.

E. Summary of Survey and Workshop Findings

Despite the less than stellar attendance of the general public at the City's two workshops, all avenues of input pursued have provided a coherent and reasonably consistent picture of community understanding and attitudes about the implementation of the Foothill Boulevard BRT route. While concerns remain about the problems of implementing BRT on Foothill Boulevard and on the prospects for success, there is a clear interest and understanding of the need to expand transportation options on this iconic City roadway. That the Foothill Boulevard BRT route could have significant economic benefits is also foremost in the minds of many of the interviewees. There was some property owner resistance to revising their development expectations, having Specific Plan or implied entitlements that are based on shorter development time horizons than might be practical for BRT implementation.

Generally, a somewhat cautious, incremental approach is recommended by most. A frequently cited concern was that the roadway's current and long-term capacity not be compromised, and that the value of capital investments be preserved. This can be accomplished by City/Omnitrans coordination on an incremental approach to BRT implementation, starting with side-running stations and BRT buses running in an open, mixed-flow condition at least for the foreseeable future. Multi-modal connectivity should also be an integral part of future BRT planning on the corridor.

Appropriate transit-oriented land uses and related mixed-use planning and design are deemed particularly important and, assuming that BRT implementation goes forward, will be essential to maximizing the positive transportation and planning effects of TOD development along the corridor. Many of the opportunity sites were admittedly less than optimal for mixed-used development. However, proximity to mixed use, and attractive and facilitating pedestrian and bicycle access to BRT stations and "urban villages," would extend the boundary and definition of the "village." This extended proximity would allow several of these sites to provide additional market for BRT services. These opportunities are identified in the discussion of the opportunity sites in Section II. TOD design issues, standards, guidelines and concepts are presented in Section VI.

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V. BUS RAPID TRANSIT PLANNING AND DESIGN

A. Introduction

An important part of this study has been to examine methods of BRT system design that enhance station access, provide adequate station areas with amenities that are conducive to an efficient and enjoyable BRT experience, and provide local access to the stations for all modes of transportation, with a particular emphasis on alternative modes, such as pedestrian, bicycle, and even less traditional modes like neighborhood electric vehicles (NEVs).

The issue of enhancing the competitive nature of the BRT system involves choices that are potentially difficult to address and may require a step-by-step or evolutionary perspective. An exclusive BRT facility typically requires dedicating a travel lane in each direction, implying at least an initial reduction in capacity for competing modes of transportation, particularly the automobile. Less intrusive strategies include partially exclusive facilities, where BRT is favored only where it does not impact other modes of transport, or non-exclusive BRT that relies primarily on station spacing and system management strategies to achieve BRT goals.

The following discussion examines general BRT system design principles and how they affect the desirability, accessibility, comfort, and functional travel convenience of BRT for those traveling to work, school, personal errands, shopping, or for other purposes. Design issues that are specific to the City's portion of Foothill Boulevard are addressed, as are BRT design recommendations that follow.

BRT Successes: Lessons Learned

It is frequently helpful to know what other communities have had to contend with and how they successfully implemented BRT. The following briefly summarizes the assessment of several bus rapid transit systems and how they have been able to serve the transit and economic needs of the communities they serve.

Cleveland RTA HealthLine

Cleveland's RTA HealthLine is a 9.2 mile BRT route that has proven a well-designed and well-run system that has significant beneficial economic impacts on the corridor it serves. Named after the project's sponsors, Cleveland Clinic and University Hospital, the RTA HealthLine connects major employment centers, including the cited medical facilities, with homes and commercial services. Associated streetscape and other parkway improvements have also served to make Cleveland's RTA HealthLine a success. The BRT system has induced new investment in housing, retail, and commercial development, and investments in nearby hospitals, colleges and museums.

Over a three year period, ridership along this line has increased more than 60 percent, and the system's approval rating is above 90 percent due to its reliability and on-time service. Valuable and transferable lessons learned from the Cleveland RTA HealthLine include the importance of off-board (at station) fare collection, at-level bus boarding and alighting, reliability and shorter waits (headway) between buses, stations that are comfortable and convenient, the value of coordinating BRT and land use planning, and induced investment in nearby businesses and parkway appearance.

Los Angeles Metro Rapid Bus Service

A study of Los Angeles Metro bus service showed that half the time a bus is in service, it is stopped either at a red traffic signal or at a bus stop to board and/or alight passengers. The Metro Rapid Demonstration Program was implemented along two key corridors in June 2000 to help improve bus speeds. Other system improvements, including bus signal priority, low-floor buses, and fewer stops, reduced passenger travel times by as much as 29 percent. An initial boost in ridership of up to 40 percent was realized on some lines.

An important part of the Metro system's success is the bus signal priority system, collaboratively developed by the Los Angeles Department of Transportation and Metro for use in the City of Los Angeles. Comprised of loops and radio transponders, the system can extend the green phase or shorten the red phase of traffic signals, therefore reducing the amount of bus delay at intersections. The system also provides real-time passenger information at each station. The second bus signal priority system uses wireless technology and is used in areas outside the City of Los Angeles. System designs that enhance use include simple and direct routes of travel, frequent stops (3-10 minutes during peak periods), minimum three-quarter mile station spacing, easy boarding and alighting, signal priority, and color-coded buses and stations.

Kansas City MAX & Bus Rapid Transit

The Kansas City MAX Bus Rapid Transit service provides faster, more frequent service than standard bus service and features the latest technology in the transit industry. MAX uses easy-to-identify vehicles. Its stops are well lit, with highly visible information markers and newly designed passenger shelters. Information markers feature real-time arrival information so that customers may wait with greater confidence. The system provides fewer stops, faster service, and uses hybrid buses and attractive stations.

B. Demographics of Transit Riders

Introduction

A variety of transit passenger surveys have been conducted over the years, including those by the Center for Urban Transportation Research, the American Public Transit Association, and the Federal Transit Administration. As cited in Section II, US Census data also provide information on the means of travel used by households. Numerous transit agencies have also conducted individual on-board surveys; the analysis of some 150 on-board surveys conducted between 2000 and 2005 are summarized below. These data from the American Public Transit Association (APTA) transit user study[1] provide insight into the demographics of typical transit users. The APTA report is the largest on-board survey study ever conducted about the public transportation industry. Survey results are gleaned from questionnaires completed by over 496,000 public transit riders from across the United States. Data collected included public transit travel behavior and the characteristics of transit ridership.

Demographic Characteristics of Transit Riders

Public transit is used primarily by the adult population, with about 59 percent of riders being between 25 and 54 years of age. By comparison, this ridership segment makes up about 43.6 percent of the US population in this age bracket. The ethnicity of surveyed ridership was as follows: 40.6 percent White/Caucasian; 33.1 percent Black/African American; 14.3 percent Hispanic/Latino; 5.5 percent Asian/Pacific Islander; and 6.6 percent "multi-ethnic" or of "other" ethnicities. Of all transit riders surveyed, more than 55 percent were female.

Reported household incomes (2004 dollars) of transit riders were varied, with: 20.1 percent of riders reporting household incomes of less than $15,000; 45.6 percent with household incomes of between $15,000 and $49,999; 24.8 percent with household incomes of between $50,000 and $99,999; and 9.5 percent with household incomes exceeding $100,000. Also useful is a comparison of median household incomes for transit riders ($39,000) and for the nation as a whole ($44,389), which shows that transit riders are from across the socio-economic spectrum. Another relevant demographic characteristic of transit riders includes typical household size (2.0 persons).

Transit use is primarily used for travel to and from places of employment, which constitute 72.1 percent of transit riders. Student transit riders attending K through 12 and college make up about 10.7 percent of ridership, with 6.4 percent of ridership being "unemployed," 6.7 percent being "retired," 20.0 percent being homemakers, and 2.2 percent being "other." It is important to note that these numbers characterize transit riders rather than describing the actual trip purpose at the time of the surveys.

Density, Distance and BRT Station Locations & Use

There are two dimensions of development density that affect BRT use; they are the vertical development density, and the horizontal distance from the BRT station. Depending upon the anticipated amount of use, the BRT station should be surrounded by residential development that can reach the BRT station within a five-minute walk. Residents within 2.5-minutes of the BRT station are likely to use BRT twice as much as residents with a five-minute walk. Prospective BRT riders employed in proximity to a BRT station are moderately more sensitive to walking time between the station and work, with utilization of BRT comparable to residential riders within the 2.5 minute walk time; however, employee-based ridership falls off more rapidly with greater distance than does resident ridership.

[1] "American Public Transportation Association: A Profile of Public Transportation Passenger Demographics and Travel Characteristics Reported in On-Board Surveys," American Public Transportation Association, Washington, DC, May, 2007.

Surveys conducted in 2005 Washington Metropolitan Area Transit Authority (WMATA) regarding Metrorail usage provide a somewhat different but comparable example for predicting BRT use as it is influenced by distance from a BRT station. WMATA found that:

- In the immediate vicinity of the station 35% of ridership is from office workers and 54% of residents in this location,
- At 0.25 mile (1,320 feet) from the station, office workers make up only 23% of ridership and residents comprise 43% of ridership from this 0.25 mile radius,
- Office worker ridership fell by about 1% for every additional 100-feet of distance from the station.

It should be noted that prevailing weather conditions can affect the size of the market for BRT services. This is especially true if protected and attractive walkways, as well as complementary land uses, are situated along the route to the BRT station. Therefore, the market for BRT services in Rancho Cucamonga will be greater than that identified in cities with a less forgiving climate. The bottom line is that BRT stations need to be located in proximity to its prospective ridership market. While commercial destinations may generate ridership, residents and employees living and working in proximity to the BRT station is its essential market.

There are a variety of studies analyzing the characteristics of transit users, and the results appear to vary with the type of urban environment where transit use was analyzed. Generally, however, an applicable study reported in a 2006 issue of the Journal of the American Planning Association[2] found that only about one-third of respondents reported access to transit as one of the top three reasons for choosing to live in a transit-oriented development. They were equally or more likely to cite lower housing cost or the quality of the neighborhood. Those who reported that their choice of residence location was motivated in part by access to transit were more likely to use transit than those who did not.

Trip Purpose of Transit Riders

In January 2006, Metro conducted a survey of Orange Line riders, collecting information about trip purpose, previous travel mode, boarding and alighting patterns, service perceptions and passenger demographics. The survey showed that, during the morning peak:

- 86 percent of eastbound passengers and 91 percent of westbound passengers indicated that their trip began from home; and
- 65 percent of eastbound passengers and 73 percent of westbound passengers indicated that their final destination was work.

During the evening peak:

- 42 percent of eastbound passengers and 41 percent of westbound passengers indicated that their trip began from work; and
- 44 percent of eastbound passengers and 36 percent of westbound passengers indicated that their final destination was home.

Overall, out of those riders who indicated their trip purpose, about 41 percent were heading between home and work, while 31 percent were heading to other destinations like shopping, medical appointments, or school. This indicates that the Orange Line is not just a commuting service, but is also being integrated into other community activities.

[2] "Reasons for Living in a Transit-Oriented Development and Associated Transit Use," Lund, H., Journal of the American Planning Association, Volume 72, Issue 3, 2006.

The survey also showed that 79 percent of all riders arrived at the station via transit, bike, or walking, while only 13 percent drove. This is consistent with the original project goal of 80 percent access by means other than a personal vehicle. Similarly, upon reaching their final station, most Orange Line riders either walked (28%) or transferred to bus (28%) or rail (26%) service to reach their ultimate destination. Only five percent of passengers drove to their final destination from an Orange Line station.

Foothill Boulevard Corridor Transit Surveys
Discussed in greater detail in Section IV are the results of one merchant and two bus-user surveys taken during the fall of 2012. A total of nine (9) businesses provided input of some sort, although not all completed survey forms; a total of sixteen (16) surveys were completed by bus-users. While the surveys conducted for this study did not yield a statistically meaningful sample, anecdotal evidence indicates strong interest from a broad socio-economic cross section.

C. BRT General Design Principles

Introduction
The following discussion outlines the basic design principles that are applicable to the creation and implementation of a successful bus rapid transit system. Assuming a service area with the appropriate land use and demographic characteristics, BRT system features that must be addressed include:

- Bus running (or travel) ways
- BRT signal priority
- Bus and system capacity
- Operating characteristics of the route (limited or express)
- Headway (time between buses)
- Station spacing (typically 0.75 miles but can be closer to serve high activity nodes)
- Station amenities
- System costs
- Station construction requirements
- Rights-of-way requirements

System Design Components
Omnitrans and many other transit authorities have considered the various design parameters that are integral to an effective BRT system, including available on-street travelways and separate and mixed-flow lanes, lane separators, signal prioritizing, and others. Also relevant are supporting land uses around BRT stations. The following briefly discusses the BRT system components that must be considered.

BRT Route Selection
The subject Foothill Boulevard corridor BRT route is one of ten (10) such routes that have been selected by Omnitrans for development in its service area. It includes the subject segment of the "Foothill West" corridor, which extends from Sierra Avenue on the east to Montclair on the west. The "Foothill West" segment is the westerly leg of a route that continues east along Foothill Boulevard and then transitions north to 5th Street in San Bernardino, and then to a return loop in Highland.

The route is meant to be a mix of "express" operation and to also serve well-spaced high activity nodes, this mix being reflected in the City's portion of the Foothill Boulevard BRT corridor. As discussed elsewhere in this study, the City's Transit Plan for the subject Foothill Boulevard segment closely corresponds to that of Omnitrans, with recommended minor deviation. Recommendations to modify the route are discussed below.

BRT Running Way Options

Substantial research has identified three major issue areas associated with BRT bus running ways (lanes) that affect the effectiveness of BRT investment. These include convenience of access to the BRT station, built or planned investment in running ways that demonstrate local commitment, and a sense of permanence (even if development is phased) of the BRT system and its efficacy and accessibility that attracts private developers.

The selection of the type and operation of running ways have a direct impact on system speed, reliability and cost, with segregated running ways associated with greater cost. Three types of running ways have been considered by Omnitrans and other BRT operators, and each is briefly described below[3]:

- Mixed-Flow Traffic Lanes – Travel lanes used by both buses and regular traffic.
- Converted Bus-Only Lanes – Lanes, either at the curb or the median, that have been converted from mixed-flow or parking lanes to bus only lanes. These lanes may be used exclusively for buses during peak periods or throughout the day. The lanes are not physically separated from adjacent mixed-flow lanes and are usually delineated by pavement striping or signage.
- Dedicated Bus-Only Lanes – Similar to a converted bus-only lane, either at the curb or the median, that are purpose-built for transit and are physically separated from mixed traffic by barriers, bollards, or raised medians/ curbs. As such, physical implementation and capital costs are somewhat higher for dedicated bus-only lanes compared to converted ones. The sbX Green Line E Street corridor operates in portions of dedicated bus-only lanes. The following discussion describes various BRT running way operating environments. Each defines the running way, identifies key operating advantages and disadvantages, and describes the applicability of each running way option available to Omnitrans and San Bernardino County.

BRT Station Design Considerations

Particularly important to the success of the BRT system is the siting and design of stations, which include median (double-loaded) and parkway (side-loaded) facilities. The functionality of each station and how it fits into the surrounding urban context must address the following design objectives:

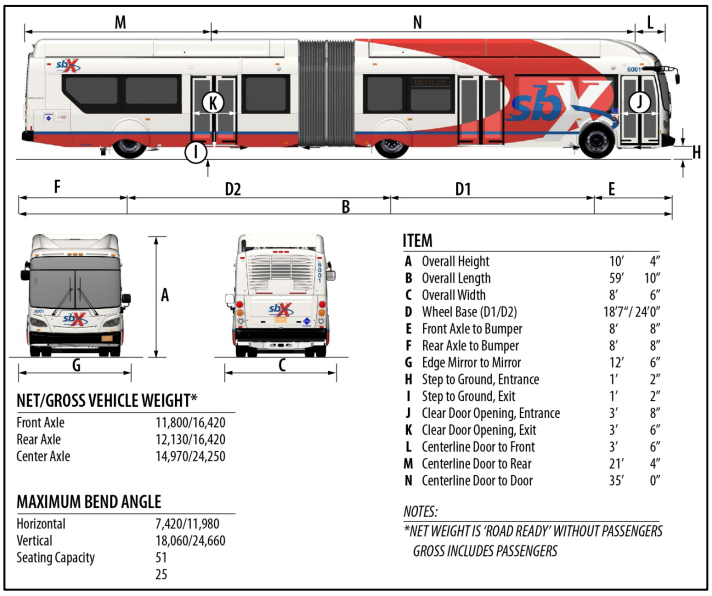
- Location that is integrated and has linkages with adjacent land uses
- Distinctive image that emphasizes motion and technology, and responds to the architectural environment as a whole
- Sense of place provided at stations
- Protection from the sun, wind, and rain
- Accessibility for persons with disabilities and services incorporated into the design of the station
- Sense of security for patrons
- System and neighborhood information available at stations
- Design modularity to respond to individual site conditions, such as narrow sidewalks or adjoining development, and for flexibility in expansion
- Ease of maintenance and parts replacement
- Rapid boarding and alighting through raised platforms and/or low floor vehicles, as well as fare prepayment or smart cards
- Sustainability considerations, including solar PV for signage and electronic messaging

[3] Transit Design Guidelines, Final Draft October 25, 2012, Omnitrans.

BRT Bus Designs and On-Board Services

BRT buses use a variety of designs and vehicle technologies to facilitate boarding and alighting, and to inform the travelers and make them as comfortable as possible. These buses typically have wide doors, as well as low floors or hydraulic systems that allow the bus to stoop to the curb or platform, making boarding and alighting quicker and easier. Bus designs tend to be more stylized with rounded curves and streamline profile. They are also emblazoned with graphics and branding that distinguishes BRT buses from other vehicles, using unique graphics, colors, designs, or full bus wraps.

BRT buses are also frequently used to show off new propulsion and other technologies, including use of low emission engines (typically compressed natural gas). These technologies are often deployed to further differentiate BRT service and emphasize the unique services and time saving and environmental benefits resulting from BRT service. BRT buses are designed for comfort and a smooth ride. Interiors are characterized by high-quality amenities, such as comfortable seats, better lighting, and real-time arrival and information displays and audible station information.



As a part of its sbX BRT system, Omnitrans is using specialized 60-foot articulated buses with high capacity and maneuverability. Buses are specially designed with five (5) doors that accommodate boarding at center-running and side-running stations. The Omnitrans BRT buses are designed with a low floor (13.5 inches) for level boarding at sbX stations to allow for quick boarding, and are also equipped with wheelchair ramps for passenger use. As noted for such buses, the sbX BRT buses will be given a stylized wrap and the "sbX" brand will be prominently displayed in the bus graphics. Omnitrans' BRT buses will hold up to 96 passengers, as well as up to eight (8) bicycles. BRT bus interiors are characterized by high-quality amenities, such as comfortable seats, quality lighting, and real-time arrival and information displays.

BRT Station Locations & Use: Density, Distance and Convenience

There are two dimensions of development density that affect BRT use; they are the vertical development density, and the horizontal distance from the BRT station. Depending upon the anticipated amount of use, the BRT station should be surrounded by residential development that can reach the BRT station within a five-minute walk. Residents within 2.5-minutes of the BRT station are likely to use BRT twice as much as residents with a five-minute walk.

Prospective BRT riders employed in proximity to a BRT station are moderately more sensitive to walking time between the station and work, with utilization of BRT comparable to residential riders within the 2.5 minute walk time; however, employee-based ridership falls off more rapidly with greater distance than do resident riders.

BRT System Reliability

One of the most desirable and attractive aspects of BRT is high speed and short travel times. Ridership loyalty will be won if the rider can depend on consistent levels of service. Reliability can be affected by traffic conditions, route length, recovery times built into the route schedules, distance between stations/number of stops, daily distribution of passenger demand, demand for wheelchair lifts/ramps, and BRT vehicle breakdowns due to unforeseen mechanical or non-mechanical problems.

Many features of BRT that improve reliability include dependability in running time, short and consistent station dwell time, and assured availability of service. Dependable running time and station dwell time relate to a system's ability to meet a schedule or a specified travel time consistently, while service reliability refers to aspects of the system that enhance passengers' *perception* of service availability and dependability. Running time reliability means maintaining a consistently high speed to provide customers with consistent travel times. Running way characteristics that contribute to reductions in running way travel time, such as dedicated BRT lanes, can also improve reliability.

There are specific design components of a BRT system, particularly those that involve physical infrastructure investment, that have positive effects on land use and development. Each is addressed in the section below.

D. Corridor-Specific Design Issues

This study has focused on assessing and enhancing the prospects for BRT use along Foothill Boulevard. While this effort has been guided by a variety of local, regional, and transit agency planning documents, the primary controlling factor, at least in the near to mid-term, is existing conditions along the corridor. These establish the constraints and opportunities that must be negotiated if an effective BRT system is to be implemented.

BRT Issues and Opportunities

For purposes of this analysis, a broader view of the Foothill Boulevard corridor has been taken, including the areas within one mile north and south of Foothill Boulevard. Results of this demographic and land use analysis can be found in Section III of this study.

Considerations include the local street network connected to Foothill Boulevard, along with the previously presented arterial roadway system. The local street system is an important aspect of the overall transportation network within the project area.

The following issues and opportunities have been identified:

- Planning and improvement plans for Foothill Boulevard are challenged by a diversity of missing right-of-way segments and partial roadway improvements, numerous and conflicting access drives, and variable levels of street and parkway improvement. Long-term planning should include a strategic plan with a unifying vision of the BRT system and its facilities.
- Current plans generally locate BRT stations at major intersections, and further refinements are herein recommended to better utilize land that is currently vacant and/or underdeveloped.
- There is an identified need for better correspondence between land use patterns, especially residential and employment centers but also commercial and perhaps cultural activity centers, and the effectiveness and efficiency of BRT travel; is there or can we create an adequate market for BRT use along this corridor?

- Possible relocation of stations away from major intersections to locations where additional available roadway capacity may afford an opportunity for partially exclusive BRT strategies, such as queue jumper lanes.
- Development and/or redevelopment of lands along the corridor that provide mixed-use, higher intensity development that is supportive of and generates ridership for a BRT system.
- The local roadway system may provide an opportunity to establish enhanced networks of facilities that emphasize alternative modes of transport, including pedestrians, bicycles, and NEVs.
- The City has recently made substantial improvements to the Foothill Boulevard corridor. How can BRT be implemented without adversely impacting these improvements?

These issues and opportunities have led to questions that were put to decision-makers and other involved local citizens to gauge the degree of support for various strategies. These include:

- Would you support increased development density in the vicinity of BRT station locations to enhance ridership and system success, recognizing that this could (but not necessarily) also lead to an increase in traffic?
- Would you support dedicating travel lanes to exclusive BRT use if this could be done without changing or violating the City's current Level-of-Service (LOS) standard?
- Would you support shared use of travel lanes, such as right turn lanes, to allow BRT vehicles to "queue jump" past automobiles?
- Would you be willing to support identifying designated bicycle and/or NEV routes on selected local streets?
- Would you support dedicating space in public or private property within or near station locations to provide amenities such as bicycle lockers, showers, or other facilities to support the BRT system?

These and a variety of other questions and opinion surveys were distributed and data collected from a broad cross section of the community served by or having an interest in this corridor. The results of public input are discussed in detail in Section IV of this study.

E. BRT Design Recommendations for the Foothill Boulevard Corridor

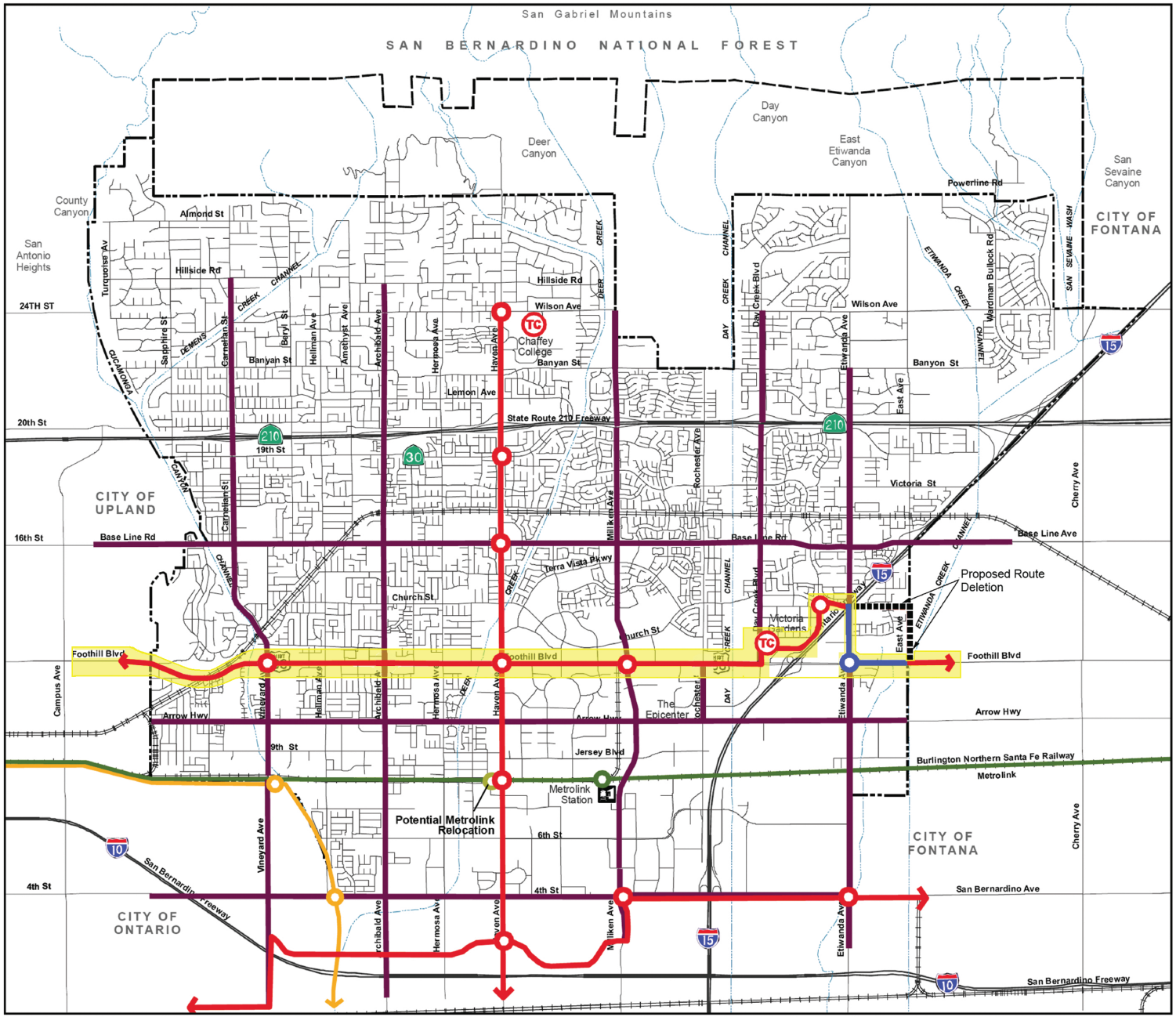
1. Introduction

A great deal of progress has already been made in developing and implementing the Omnitrans BRT system, including on-going consultation and coordination with SANBAG and the affected cities, including Rancho Cucamonga. The earliest phases of the sbX BRT system are under construction along "E" Street in San Bernardino, which will inform subsequent BRT design and implementation. The City and Omnitrans should continue to share ideas and information, and discuss how and to what extent BRT service and facilities should be tailored to the needs and opportunities of the Foothill Boulevard BRT corridor in the City.

2. Recommended Route Alignment

The selected BRT route affects what locations a rider can directly reach without transferring, and determines the resources required for serving the route. The Foothill Boulevard segment of the route can provide valuable intra-city service along its length, while it is also expected to provide important intercity service for regional employees, shoppers, and other travelers. The Foothill Boulevard BRT route, with its growing mix of land uses, would provide service to a wide range of prospective riders while minimizing the need for transfers, which require more capital and labor resources and encounter much more variability in operations.

Further diversifying land uses along the Foothill Boulevard route increases its offering of point-to-point service, which will further attract riders to the BRT system. Increasing the number of choices along the route can require trade-offs in simplicity and clarity of the route structure, as is the case with the City's proposed Victoria Gardens loop. However, throughout the City the BRT route is very direct and highly simplified, and the Victoria Garden loop should not have a significant adverse effect on route operation, but rather should enhance ridership.



General Plan Transit Plan

Community Mobility

RANCHO CUCAMONGA GENERAL PLAN Figure CM-4:

Foothill Boulevard *BRT* Corridor Plan
Transit Plan Recommendations
SCAG Compass Blueprint Demonstration Project

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3. Recommended BRT Station Locations

As part of the initial screening, station locations and the bus route itself were reviewed in detail along Foothill Boulevard. An analysis of the corridor's land use characteristics was used to refine the recommended station locations. The recommended station locations are intended to: target major community facilities, existing and future population, and employment centers; provide access to other transit routes and multimodal infrastructure; and achieve the proper spacing to maximize travel efficiency. In addition, growth and development potential are assessed to ensure that stations will continue to be in appropriate locations in the future.

Important criteria considered in siting BRT stations include locations that can integrate well with other modes of travel, have strong linkages with surrounding land uses, and express distinctive design character and sense of place. Stations must also provide protection from the weather, ADA accessibility, general safety and security of riders, and system and neighborhood information boards. Stations should also be flexible in design and construction so that they can be customized to individual site needs, and are easy to maintain. Finally, stations should incorporate raised platforms or be otherwise designed to facilitate easy and quick boarding and alighting.

BRT system operating speeds are greatly influenced by a number of operational planning issues, including the distance or spacing between stops. The spacing of stops has a measurable impact on the BRT system's operating speed and customer total travel time. Long station spacing increases operating speeds and lessens rider travel time. On arterial roadways, BRT systems operate with headways between 5 and 15 minutes; that is, a BRT vehicle stops at the station every 5 to fifteen minutes, depending on the operating parameters of and demand along the route. It is assumed that the Foothill Boulevard BRT system will offer all-day service and peak-hour frequencies of 12 minutes or less.

BRT station spacing generally falls between one-half to one mile, although some systems or segments of systems have both greater and less station spacing. As set forth in the City General Plan Transit Plan and largely consistent with SANBAG and Omnitrans plans, BRT station spacing along Foothill Boulevard is at approximately one mile intervals.

Intersections Analyzed

The intersections selected for BRT station location analysis included those shown on SANBAG and Omnitrans plans but primarily on those established by the City General Plan Transit Plan. This plan, which closely corresponds with that of Omnitrans, includes two minor route deviations that extend BRT service to Victoria Gardens and bring the BRT route back south along Etiwanda Avenue to Foothill Boulevard. At the City's request, the prospects for a BRT station at the Foothill Boulevard intersections with Grove and East Avenues were also evaluated. Intersections are discussed beginning on the west end of the City and proceeding east.

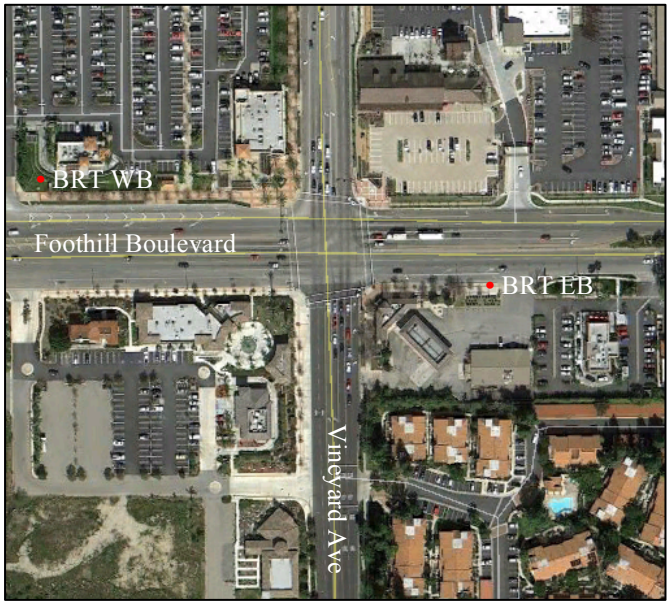
Grove Avenue @ Foothill Boulevard

Neither the City nor Omnitrans plans call for a BRT station at this intersection, which is affected by Foothill Boulevard alignment, area topography, existing development, and limited opportunities for major changes in land use or intensity. The three major sources of BRT ridership (residential density, major commercial and other services, employment centers) do not occur in proximity to this intersection. Given the existing land use pattern and limited vacant lands available for development, it is not believed that existing or future land uses in proximity to this intersection are supportive of BRT investments here. There are conventional, but minimal, bus stops east and west of the intersection (see Table V-1).

Vineyard Avenue @ Foothill Boulevard

The existing conventional bus stations are as well located as current conditions permit. Existing conventional stops are located on the far side of the intersections, with the westbound bus stop being improved with a shelter and substantial waiting area. The eastbound station is located on the far side and is comprised of a single bench with a good tree canopy providing shade but limited protection against rain. Substantial, higher-density residential occurs on the south side of Foothill Boulevard while relatively low density single-family residential dominates on the north. Limited vacant land occurs in the SW quadrant with some potential for additional BRT-supporting residential development in a mixed-use environment.

Commercial development occurs on all four corners and is dominated by neighborhood commercial with a variety of other commercial establishments, including restaurants and a factory outlet store. The lion's share of commercial development is located on the north side of the street. Beyond the existing commercial development, there is no significant employment center in proximity to this intersection. Employment centers in the BRT service area are limited to existing retail outlets.



BRT stops at this location appear viable, and the attraction to potential riders could be enhanced with thoughtful station siting and design. It is recommended that BRT stations be placed in proximity to the existing conventional bus stations, utilizing and expanding upon existing bus-serving infrastructure.

Archibald Avenue @ Foothill Boulevard

The existing conventional bus stops are located on the far sides of the intersection and provide one bench but no shade or shelter. Commercial development exists at all four corners and is older and limited in scope, providing service-commercial, restaurant and offices. Surrounding residential is low density and is dominated by single-family neighborhoods.

The Central Elementary School on the north is the only employment center of any scale in proximity to this intersection. There is limited new development potential in the NW and SW quadrants, with a need for consolidation of at least some of these properties to get new development with even minimal scale. Therefore, future new development supportive of BRT service is not expected at this intersection.

No BRT station is recommended at this intersection. Existing conventional bus service at this location should suffice. The very limited potential for current and future BRT system riders in the vicinity of this intersection appears too low to justify BRT investment at this location.

Haven Avenue @ Foothill Boulevard

The existing westbound conventional bus stop lacks benches or shade structures, while the eastbound stop provides both. Community-scale commercial development dominates the NE corner (Terra Vista) and extends east. A public plaza and Panera restaurant anchor the NE corner and are supportive of BRT use. The NW corner includes offices, neighborhood-scale commercial services, a church, and restaurants. The Virginia Dare Building provides office space and is recommended for repurposing. Mixed-use on the SW corner (Village Square) supports BRT use. The SE corner includes major governmental center and offices, including the civic center and county courthouse, both supportive of BRT use.

Vacant lands are limited to those located south of Foothill Boulevard and east of Haven Avenue. West of the intersection and south of Foothill Boulevard is another large vacant parcel that could support high density residential and generate substantial BRT ridership if supported by well-designed and maintained sidewalks along Foothill Boulevard. Repurposing the Virginia Dare Building for a possible mix of civic purposes (Fine Arts Museum) and leasable offices should also be considered. Blended with the existing mix of uses, the Virginia Dare building could serve as an important cultural center and event and meeting venue that would also attract transit use to this intersection.

The location of the existing conventional stops seems to serve well for their specific purpose. However, for purposes of providing BRT services at this intersection, it is recommended that the future BRT stations be located on the near sides of the intersection to take advantage of BRT-complimenting commercial and mixed uses development at the NE and SW corners. The SW corner station should be located west of the intersection and near the access drive into this development. The BRT station at the NE corner should be sited just before the beginning of the westbound right turn pocket.

Milliken Avenue @ Foothill Boulevard

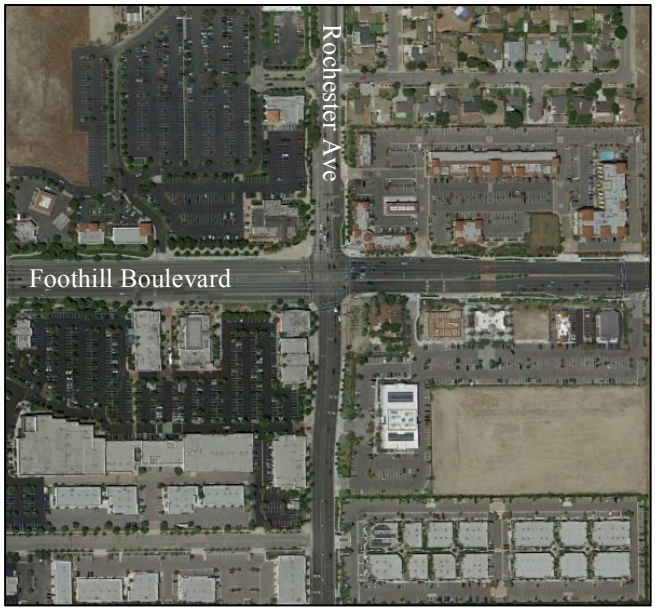
There is currently a conventional bus stop and shelter at the southeast corner (EB), and single bench but no shelter at northwest corner (WB) at this intersection. San Antonio Hospital and a major senior housing development in the northeast quadrant are good potential markets for BRT riders, as will be future commercial and higher density residential planned for this area north of Foothill Boulevard. Community-scale commercial on the southeast corner is anchored by Lowe's.

Substantial vacant lands are located in the northeast, northwest, and southwest quadrants of this intersection, with extensive vacant lands also located farther east around Mayten Avenue. Good potential exists for mixed-use development in the northwest and northeast quadrants, with high density residential, including senior housing that could complement BRT ridership. Existing and future development will also support a BRT station at this location.

Existing land uses support mixed-use development at this location; however, market timing for mixed-use development may take longer to realize than conventional development planned on lands on the north side of Foothill Boulevard. Mixed-use, including senior housing in proximity to both medical and commercial services, should be encouraged here. In the southwest quadrant, high density residential with good BRT station access should be supported.

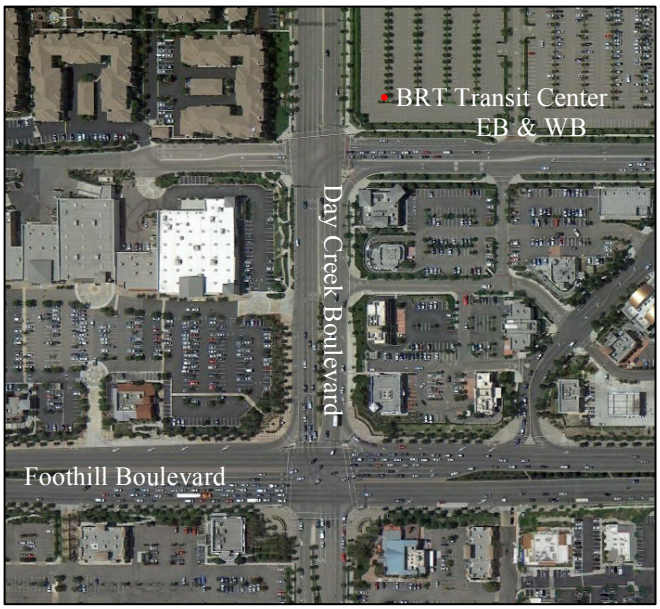
It is recommended that future BRT stations at Milliken Avenue be located on the near side for both eastbound and westbound travel. At these locations, mixed-use development and good commercial, medical and other services should support BRT use, while easy access to the northwest and southeast corners is still provided.

Rochester Avenue @ Foothill Boulevard



There are existing, newer conventional bus stops and shelters located at the northwest (WB) and southeast corners (EB). Existing development in the vicinity includes community- and neighborhood-commercial at the northwest, southwest, and northeast corners. There is also office development and limited vacant land at and beyond the southeast corner and in the northwest quadrant. There is limited low-density residential development to the north. Residential development potential in the northwest quadrant at medium densities is already planned. Existing commercial is the only employment center in this area, and the potential for additional commercial development is low. The potential of this location to generate meaningful BRT ridership now and in the future appears to be limited. Also, this intersection is only about one-half mile from Milliken Avenue and is arguably too close for another BRT station. It is recommended that BRT stations at this location be deleted from future BRT plans.

Day Creek Boulevard @ Victoria Gardens Lane (Transit Center)



The existing conventional bus stops serving this area are located along Day Creek Boulevard on the far side at Main Street and a substantial distance north of Victoria Gardens Lane. Regional, community and neighborhood commercial development are all in proximity to this intersection. High density residential at the northwest corner will also support BRT use. In addition to providing residential density, the area also is a regional destination shopping district and major employment center, all of which should support BRT use. The potential for new development in the vicinity of this intersection is limited. It is anticipated that the redevelopment of the outermost parking lot in the northeast quadrant can serve the BRT station and the transit center planned for this location.

Victoria Gardens Lane @ Church Street

There are currently no conventional bus stops along this roadway. The City Transit Plan calls for a BRT station at the curve in Victoria Gardens Lane, which is bounded on the north by mall parking and on the south and east by the I-15 freeway. There is no apparent potential for additional development at this site, which does not have a nearby market for BRT riders. The potential for this location to generate meaningful BRT ridership now or in the future appears to be quite limited. Existing and planned medium density residential on the north and Victoria Gardens access argues for relocation of this station.

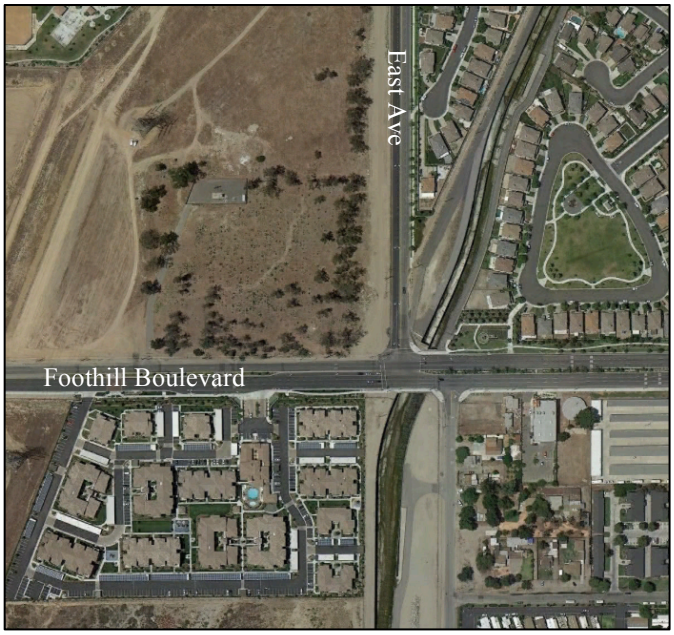
It is recommended that future plans for these BRT stations provide for their location at the southeast (EB) and southwest (WB) corners of Victoria Gardens Lane and Church Street, with both stations located on Victoria Gardens Lane. Major-regional commercial in the southwest quadrant is also a major employment center, and multi-family development is occurring just to the west along Church Street that would also support a BRT station at this alternate location.

Etiwanda Avenue @ Foothill Boulevard

There are currently no conventional bus stops serving this intersection. Vacant lands occur at the northeast, northwest, and southeast corners, with multi-family beyond in the northwest and northeast quadrants with access to future BRT station. There are meaningful development opportunities for commercial, residential, and mixed-use at three of the four intersections. The proposed alternate route and BRT station locations provide a better loop back to Foothill Boulevard than does East Avenue. Station locations will better serve major employment and existing and new multi-family residential. Recommended BRT station locations are also intended to facilitate route jog up Etiwanda Avenue and are recommended on the west side of Etiwanda Avenue north of Foothill Boulevard for eastbound travel, and on the east side of Etiwanda Avenue and north of Foothill Boulevard for westbound (north) travel.

East Avenue @ Foothill Boulevard

There is a conventional westbound bus stop on the east side of this intersection, but there is no stop for eastbound travelers. Surrounding development is predominantly single-family and limited multi-family housing, with very limited commercial and mini-storage in the southeast quadrant. Existing development provides little support for a BRT station at this intersection.



Major drainages and utility corridors bisect the area at and around the intersection. The southerly extension of East Avenue appears uncertain and will probably never occur, also affecting the value of this intersection for BRT services. Vacant lands in the northwest quadrant are divided northeast to southwest by utility corridors. The northwest corner of the intersection could conceivably support neighborhood commercial. Future development will not provide major commercial or employment center development. Most future residential development will likely be single-family and medium density residential.

Neither existing development nor potential future land uses are likely to support a BRT station at or in the vicinity of this intersection. Even major redevelopment in the southeast quadrant, which is constrained by existing development and limited developable land, does not enhance the intersection for BRT service. This Foothill Boulevard intersection is also less than one-half mile from that of Etiwanda Avenue. No BRT station is recommended at this intersection.

Table V-1
Prospective BRT Station Locations
Summary Recommendations

CROSS STREET	EXISTING LOCATION		EXISTING DEVELOPMENT	DEVELOPMENT POTENTIAL	RECOMMENDATION		COMMENT(S)
	EB	WB			EB	WB	
Grove Avenue	Far Side (east of int.)	Far Side (west of int.)	One bench and Bus info sign approximately 110-feet east of intersection. In SW & NW quadrants, development divided between limited neighborhood and strip commercial with low and medium density residential behind. NE quadrant includes small-scale ag., golf course and low density residential. The SE quadrant is comprised of a mix of service commercial and other small scale uses, with limited vacant land.	New development potential quite limited, constrained by existing development, topography, irregular road alignments, etc. Residential types and densities not especially supportive of BRT at this intersection.	No BRT station recommended at this intersection.		Neither existing development nor potential future land uses are expected to be supportive of a BRT station at or in the vicinity of this intersection. Even major redevelopment is constrained by existing development and limited still developable land.
Vineyard Avenue	Far Side (east of int.)	Far Side (west of int.)	Existing stations are as well located as the intersection permits. Commercial development on all four corners. Substantial higher density residential on south side and significant commercial on north side of street, less on the south.	Some vacant land in SW quadrant but potential for additional development in the future BRT station is limited. Employment centers in area limited to retail.	Far Side (East of int.)	Far Side (West of int.)	Utilize and expand upon existing bus-serving infrastructure.

Table V-1
Prospective BRT Station Locations
Summary Recommendations

CROSS STREET	EXISTING LOCATION		EXISTING DEVELOPMENT	DEVELOPMENT POTENTIAL	RECOMMENDATION		COMMENT(S)
	EB	WB			EB	WB	
Archibald Avenue	Far Side (east of int.)	Far Side (west of int.)	Existing bus stops limited to single bench without shade structures. Older and limited commercial development on all four corners, including service commercial, restaurant, and offices. Surrounding residential is low density dominated by single-family neighborhoods. The Central Elementary School on the north is the only employment center of any scale in proximity to this intersection.	Limited new development potential in the NW and SW quadrants with need for redevelopment of at least some of these properties to get development with even minimal scale. Therefore, future new development supportive of BRT service is not expected at this intersection.	No BRT station recommended at this intersection.		Existing conventional bus service at this location should suffice. The very limited potential for current and future BRT system riders in the vicinity of this intersection is too low to justify BRT investment at this location.

Table V-1
Prospective BRT Station Locations
Summary Recommendations

CROSS STREET	EXISTING LOCATION		EXISTING DEVELOPMENT	DEVELOPMENT POTENTIAL	RECOMMENDATION		COMMENT(S)
	EB	WB			EB	WB	
Haven Avenue	Far Side (east of int.)	Far Side (west of int.)	Community-scale commercial development dominates the NE corner and extending east; a public plaza and Panera anchor the NE corner and is supportive of BRT use. The NW corner includes offices, neighborhood-scale commercial services, a church and restaurants. The Virginia Dare Building is recommended for repurposing. Mixed-use on the SW corner supports BRT use. The SE corner includes major governmental center and offices, both supportive of BRT use. Westbound conventional bus stop lacks benches or shade structures, while eastbound stop provides both.	Vacant lands are limited to those south and east of Haven Avenue and west of the intersection and south of Foothill Boulevard. Design considerations argue for additional higher density residential on these lands, although their distance from the intersection could affect BRT ridership. Repurposing Virginia Dare Building for possible mix of civic purposes (Fine Arts Museum) and leasable offices should also be considered to further attract transit use to this intersection.	Near Side (west of int.)	Near Side (east of int.)	Existing conventional stops seem to serve well. Recommend location of EB and WB BRT stations at near side locations to take advantage of BRT-complimenting commercial and mixed uses development at these corners.

Table V-1
Prospective BRT Station Locations
Summary Recommendations

CROSS STREET	EXISTING LOCATION		EXISTING DEVELOPMENT	DEVELOPMENT POTENTIAL	RECOMMENDATION		COMMENT(S)
	EB	WB			EB	WB	
Milliken Avenue	Far Side (east of int.)	Far Side (west of int.)	Newer conventional stop and shelter at SE corner (EB), and single bench but no shelter at NW corner (WB). Hospital and Sr. Housing on NE corner are good potential market for BRT riders, as will be future commercial and higher density residential planned for this area north of Foothill Boulevard. Community-scale commercial on SE corner anchored by Lowe's.	Substantial vacant lands in NE, NW and SW quadrants, with extensive vacant lands farther east around Mayten Avenue. Good potential for mixed-use development in NW & NE quadrant, with high density residential, including senior housing could complement BRT ridership. Existing and future development will also support a BRT station at this location.	Near Side (west of int.)	Near Side (east of int.)	Existing development supports mixed use development; however timing may be longer than conventional development planned on lands on the north side. Mixed use, including senior housing, should be encouraged here. In the SW quadrant, support high density residential with good BRT station access.

Table V-1
Prospective BRT Station Locations
Summary Recommendations

CROSS STREET	EXISTING LOCATION		EXISTING DEVELOPMENT	DEVELOPMENT POTENTIAL	RECOMMENDATION		COMMENT(S)
	EB	WB			EB	WB	
Rochester Avenue	Far Side (east of int.)	Far Side (west of int.)	Newer conventional stops and shelters at NW (WB) and SE corner (EB). Community-scale and neighborhood commercial NW, SW & NE corners, office development & limited vacant land beyond SE corner and in NW quadrant. Limited, low density residential to north.	Residential development potential in NW quadrant at medium density already planned. Existing commercial is only employment center, with potential for additional commercial limited.	No BRT station recommended at this intersection.		The potential of this location to generate meaningful BRT ridership now and in the future appears to be limited. Also, this intersection is only about one-half mile from Milliken and may be too close for another BRT station.
Day Creek Boulevard @ Victoria Gardens Lane (Transit Ctr.)	Current stops are located far side at Main St. farther to the north.		Regional, community, and neighborhood commercial all in proximity. High density residential at NW corner. Other corners are commercial. Site provides residential density, destinations, and employment center all supporting BRT use.	Potential for new development limited; most of recent vintage. Redevelop outermost parking in NE quadrant for BRT station and transit center.	Place transit center in NE quadrant of Victoria Gardens Lane & Day Creek Boulevard.		High-density residential, multi-tier/destination retail and major employment center argues for BRT station; transit center may also be well served at this location.

Table V-1
Prospective BRT Station Locations
Summary Recommendations

CROSS STREET	EXISTING LOCATION		EXISTING DEVELOPMENT	DEVELOPMENT POTENTIAL	RECOMMENDATION		COMMENT(S)
	EB	WB			EB	WB	
Victoria Gardens Lane	N/A	N/A	Victoria Gardens Mall and I-15 freeway.	None apparent at original site, which does not have nearby market. Existing and planned medium density residential on north and Victoria Gardens access argues for relocation of this station.	Relocate future BRT station location to SE and SW corner of Victoria Gardens Lane and Church Street.		The potential of this location to generate meaningful BRT ridership now and in the future appears to be limited. Also, this location is adjacent to the I-15 and has no direct connection to other modes of travel beyond perhaps park and ride.

Table V-1
Prospective BRT Station Locations
Summary Recommendations

CROSS STREET	EXISTING LOCATION		EXISTING DEVELOPMENT	DEVELOPMENT POTENTIAL	RECOMMENDATION		COMMENT(S)
	EB	WB			EB	WB	
Etiwanda Avenue	N/A	N/A	Major-regional commercial on SW corner is a major employment center. Church in NW quadrant may also support BRT. Vacant lands at NE, NW & SE corners, with multi-family beyond in NW & NE quadrant with access to future BRT station.	Development opportunities for commercial, residential, and mixed use at three of four intersections.	Southbound. West side of Etiwanda Avenue north of intersection.	North-bound East side of Etiwanda Avenue north of inter-section. Alt. loc. on Foothill.	Provides better loop back to Foothill Boulevard than does East Ave. Station locations will better serve major employment and existing & new multi-family residential. Locations intended to facilitate route jog up Etiwanda.

Table V-1
Prospective BRT Station Locations
Summary Recommendations

CROSS STREET	EXISTING LOCATION		EXISTING DEVELOPMENT	DEVELOPMENT POTENTIAL	RECOMMENDATION		COMMENT(S)
	EB	WB			EB	WB	
East Avenue	N/A	Near Side (east of int.)	Predominantly single family and limited multi-family housing, with very limited commercial and mini-storage in SE quadrant. Major drainages and utility corridors bisect area at and around intersection. Southerly extension of East Avenue uncertain. Existing development provides little support for a BRT station at this intersection.	Vacant lands in NW quadrant cut NE to SW by utility corridors; corner could support neighborhood commercial. Future development will not provide major commercial or employment center development. Most future residential likely to be single family and medium density residential.	No BRT station recommended at this intersection.		Neither existing development nor potential future land uses are likely to support a BRT station at or in the vicinity of this intersection. Even major redevelopment in the SE quadrant, which is constrained by existing development and limited still developable land. Also too close to Etiwanda and prospective Fontana BRT station.

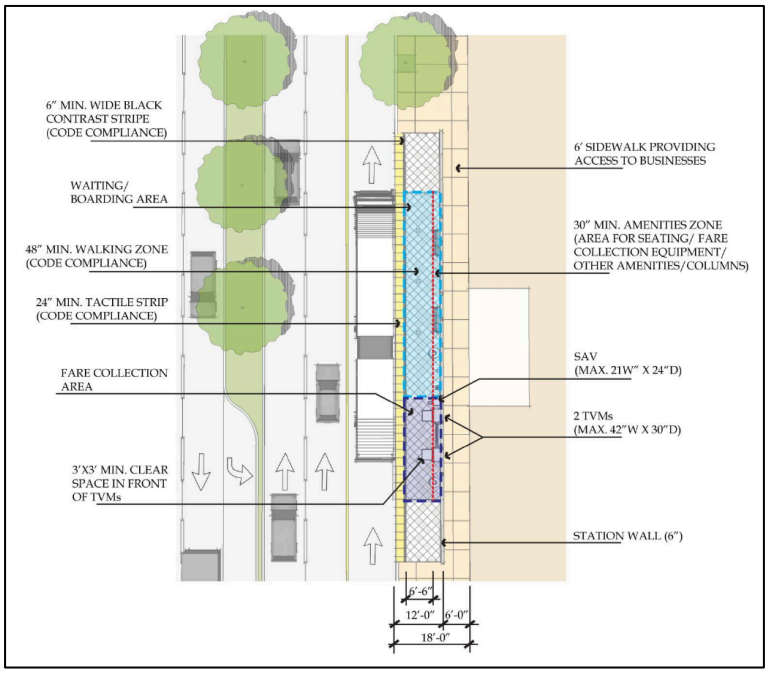
4. BRT System Design Recommendations

The BRT bus system is comprised of three major components: rapid transit buses, BRT-specific stations, and bus running or travel ways. To the extent that the subject Foothill West BRT corridor and the other BRT routes being developed by Omnitrans necessarily rely on a high level of standardized design and construction, there is every indication that Omnitrans will work with affected jurisdictions to assure compatibility with the community. Recommendations regarding each of these major components are discussed below.

BRT Station Design

Based on consultations between the City and Omnitrans, station architecture is subject to some degree of local input and control; therefore, serious consideration should be given to customizing City-specific designs that contribute to the unique character and aesthetic being developed along the Foothill Boulevard corridor within the City. In consideration of current traffic and roadway improvements, and continuing opportunities for development along the Foothill Boulevard corridor, it is recommended that side-running BRT stations be used along the City's segment of this BRT corridor for the foreseeable future.

A major component of the Omnitrans sbX station is expected to be the uniform application of the sbX logo. Other design considerations for the stations include canopies, seating/benches, windscreens, bike racks, water fountains, and fare collection/ticketing equipment. Omnitrans staff has acknowledged to the City Council that the City will have the opportunity to provide input on station designs that are responsive to City design concerns.



As a part of our consideration of design development, we have researched a suite of considerations that may guide how the BRT stations should be integrated with existing and future development. In addition, we have considered a variety of supporting land uses, activities, and technologies, including core mixed-use, convenience commercial services and gathering places (activity nodes). BRT services should also enhance the social experience by providing broadband wi-fi and stations in proximity to coffee shops and cafes with tables where riders can socialize and pick up something to drink, eat, or read before or at the end of their trip.

The BRT station designs developed by Omnitrans are clean and modern looking with a kind of fractal geometry of angular supports holding tilted sheets of polycarbonate and/or glass, which also enhance visibility and safety. In some instances, stations appear to include full transparent panels on the street side. The station design should facilitate maintenance and long-term appearance.

However, the degree to which the somewhat narrow Omnitrans canopies will provide effective shelter is questionable. If the designs terminate the canopy closer to the curb and provide more of a continuous canopy, as well as side panels, the stations will provide better protection from wind and rain. Presumably, tinted and PV-mounted roof panels will also provide much needed shade during the summer.

Passenger circulation and access are primary station design issues that must be considered in the context of the intersection, crosswalks, signalization, and adjoining sidewalks and land uses. Station and circulation layout should channel and segregate boarding and alighting passengers to the greatest extent practicable. Circulation dead-ends should also be avoided. Boarding areas should be of sufficient size to allow rapid boarding and alighting, and with minimal waiting lines. Careful consideration should be given to station and wayfinding signage so that appropriate BRT station access and departure routes are easy to find and follow. Finally, adequate visibility, lighting, and shelter are essential to provide a safe and pleasant BRT experience. Passengers should be able to see and be seen from locations within the station and from outside space.

As noted above, the design of the BRT station can have significant effect on the economic vitality of the area of influence. A new BRT station provides an opportunity to diversify and enhance public transit, and create a livable community at the same time. Station designs that effectively link transit service to the adjacent land uses maximize the development potential of surrounding lands. It is important to note that the inclusion of routes in BRT systems that combine feeder service and line-haul (trunk) service reduces the need for large parking lots and parking structures, thereby freeing land at accessible locations for development.

Recommended BRT Running Way

While dedicated bus-only lanes may be a part of the long-term BRT system improvements along the subject segment of Foothill Boulevard, rider demand warranting their development may not be sufficient for many years to come. Therefore, for the near to mid-term, it is recommended that the City and Omnitrans plan for the implementation of BRT that relies upon mixed-flow lanes. Accommodating and shared by all roadway vehicles, mixed-flow lanes will require minimal investment. With the implementation of Transit Signal Priority (TSP) and queue-jumping lanes, intersection delays can be greatly reduced. Reliance on mixed-flow lanes also provides optimal flexibility to accommodate utility, maintenance, and other work in the roadway.

Alternatively, sharing lanes means that bus travel is not independent of, and is affected by, other vehicles and general traffic conditions. This can reduce route speeds and affect system reliability; however, given current and long-term improvements on Foothill Boulevard, BRT service should be able to operate at high levels of timeliness and reliability. As overall traffic volumes increase, along with BRT ridership, incremental alterations in BRT bus travelways should be considered and included in future master planning and Capital Improvement Programs for this roadway.

Recommended BRT Vehicles

The quality of design and maintenance of BRT buses enhances the attractiveness of using the BRT system, and indirectly can affect the desirability of a neighborhood and its development potential. BRT buses are streamlined, open, and spacious in design that attracts ridership and can also be used to support brand (sbX) identity. Advanced BRT bus design also reduces adverse noise and pollution impacts and improves the overall environment along the Foothill Boulevard corridor.

As noted above, the Omnitrans BRT system utilizes 60-foot articulated buses that will operate on compressed natural gas. The functional design adopted by Omnitrans and the quality design and amenities should serve the City and subject route well. Special attention must be paid to how boarding and alighting are facilitated, with expected increased use by seniors and others that may be physically challenged. Bicycle carrying capacity should also be a priority and should enhance BRT ridership. In addition to electronic message boards, Omnitrans should be encouraged to include audible announcements of upcoming station and other critical information. Finally, BRT buses should be served by Wi-Fi that can allow riders to access the Internet anywhere along the route.

Recommended Service Frequency

Service frequency determines how long passengers must wait for service. Tailoring service frequency to the market served is one of the most important elements in planning and operating a BRT system. While many high-frequency bus routes have 15-minute headway (time between buses), it may be advisable to have higher frequency at least during the AM and PM peak hours. A ten-minute headway would seem reasonable for peak periods of the day. Lower frequency of 15 to 20 minutes could be permissible during off-peak periods; however, higher frequency is better to acquire and hold onto new riders. Ultimately, Omnitrans and the City will need to assess demand for service on an on-going basis and ramp up bus frequency as demand warrants.

Capacity Preservation Recommendations

As noted throughout this study, it is felt that a step-by-step, measured approach to implementing BRT on the Foothill Boulevard corridor is advisable. The City can greatly influence how future development proceeds but cannot control the market or ignore the substantial existing development already affecting traffic volumes and patterns. The goal should be to incrementally bring BRT services on line and ramp up services and infrastructure as modal use and land use patterns evolve.

As shown on Table II-2, major intersections along the Foothill Boulevard corridor are operating at Level of Service (LOS) B to LOS D, with PM peak hours operating at worse LOS than AM peak periods. This study speaks to the way in which existing development opportunities along the corridor can be realized that support BRT and other transit, and that reduce vehicle traffic. Section V-B of this study discusses the demographics of today's transit riders and what this growing segment can mean for the efficient and balanced implementation of BRT services along the Foothill Boulevard corridor.

SCAG/RANCHO CUCAMONGA COMPASS BLUEPRINT DEMONSTRATION PROJECT FOOTHILL BOULEVARD BRT CORRIDOR STUDY CONTRACT NO. 12-001-B02

VI. TRANSIT-ORIENTED LAND PLANNING AND DESIGN

Introduction: Transit-Oriented Development Overview

This section of the Foothill Boulevard BRT Corridor Study differs somewhat from the preceding sections, in that it heavily relies on graphics and illustrations to convey the issues associated with TOD development planning and design. The discussion begins with a purpose statement and overview of transit-oriented development, followed by a discussion of principles and how these can be applied to three opportunity sites.

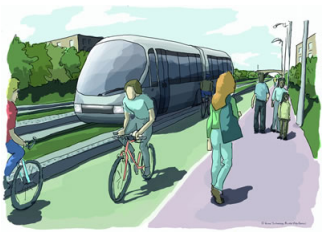
The goal of this section is to clarify the role various design principles have in realizing effective, efficient and attractive TOD development. Design principles addressed include: *connectedness or connectivity, development density and intensity, diversity of use and quality design.* The interactive roles of land use and transportation are explored and build off the success of earlier TOD developments.

One of the most important concepts of TOD design is that of the "public realm", where social interaction takes place and where the sense of neighborhood or community is forged. The public realm is the shared space or community commons, which should be created at an intimate scale and enhanced to provide a pleasant and comfortable environment for sitting, talking and dining. It is this public realm that creates the coherent and cohesive nature of successful TOD design.

I PRINCIPLES OF TRANSIT-ORIENTED DEVELOPMENT

PURPOSE

The purpose of transit-oriented development is to bring a critical mass of people and activities close to well-served transit stops so people who want or need an efficient alternative to the private car can use the bus. Several fundamental conditions are necessary for a successful TOD project:



- **Connectivity** – you can get from "here" to "there" easily; home, work, shop and social are connected by a network of sidewalks, paths, lanes, and streets ; you can drive, take the bus, bike or walk.
- **Density** – lots of people live close by; the housing choices fit the needs and desires of a variety of people in the community.
- **Intensity** – most needs can be met close by; everyday shopping and services are right there and you are part of the action.
- **Design** – the place looks and feels good, solid and soft (like home) at the same time; the transit, the sidewalks, the trees, the buildings all contribute to a whole that is hip and dynamic.

The "transit" part also has requirements

- It must be safe, convenient, pleasant, efficient, and reliable
- It goes where those who live nearby want to go
- It is viewed as a viable alternative to the car

PURPOSE (cont.)

LAND USE AND DESIGN

Transit-oriented developments are based upon land use policies that promote diverse uses and higher densities combined with high design standards for the public realm. More people and more diverse uses in close proximity are essential for successful transit oriented development.

- **Land use:** The immediate area around a transit station supports the activities needed by people who use the BRT (coffee shops, incidental shopping, food, retail and entertainment, as well as parking). A synergy of uses in a fine-grain, walkable neighborhood of stores, services, and workplaces.
- **Land use:** The allowable density and floor area ratio should be increased compared to other areas within the community. This brings more density and intensity, and is an economic incentive for developers to undertake the costlier buildings typical of TOD.
- **Design:** The public realm should be beautiful and rewarding to the pedestrian; a place where one is glad to spend time.
- **Design:** The buildings should be "active" at the ground level and the walls more or less transparent. This enhances safety (eyes on the street), it evokes pedestrian/building interaction, and it offers service/food businesses a window to prospective customers.
- **Design:** The ground floor of buildings should be adaptable to changes in use over time so the framework of the neighborhood remains, but the businesses can adapt and evolve.

DENSITY
People/Acres

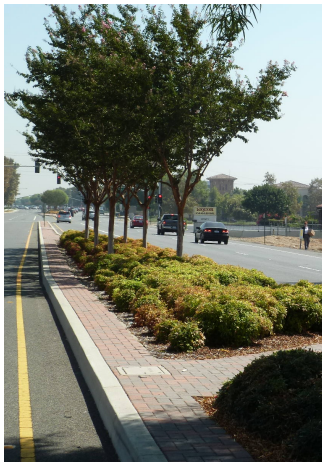
FAR
Floor area/Lot size

TOD
Must be pleasant, safe, and rich in aesthetics

PURPOSE (cont.)

TRANSIT ORIENTED DEVELOPMENT ALONG FOOTHILL BOULEVARD

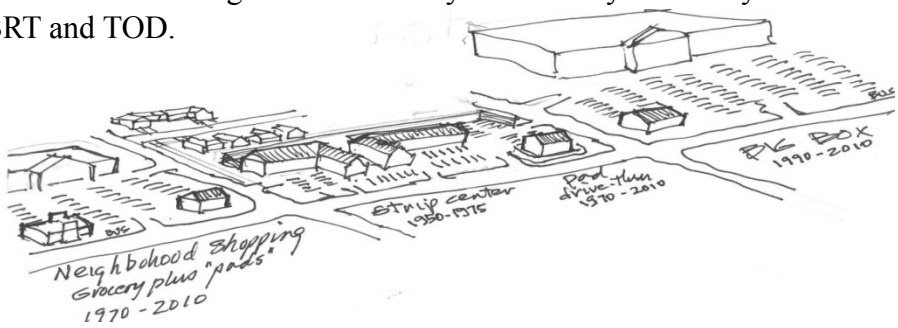
Foothill Boulevard in Rancho Cucamonga is already beautiful.
The recent upgrades to medians and parkways (street trees, paving and monuments) along Foothill Boulevard sets a standard of care and design that expresses pride in the City. The design elements and composition convey a handsome, coherent pattern along the corridor.



However, historic patterns of development with buildings setback deep onto parcels remove the pedestrian from Foothill Boulevard, and undermine the integration of activity and density necessary for successful BRT and TOD.

HISTORIC PATTERN
of development does not support BRT

BUILDINGS
and USES isolated



As the technology of cars has advanced, people have increased their reliance on cars, and our built environment has been shaped exclusively by a car-dictated life style. Though for the brief time between car and door we are all pedestrians, the path is without interest, diversion, opportunity to interact.
Re-establishing a network of pathways that reward pedestrians with activities, people and beauty is critical to successful transit systems and transit-oriented development. A community with transit requires connectivity, density, diversity and design.

PRINCIPLE 1 CONNECTIVITY

Connectivity allows one to get from here to there via a selection of different paths and modes. Connectivity is essential to TOD because people using transit must experience the connection from home to bus or work to bus as convenient, reliable, interesting and safe.

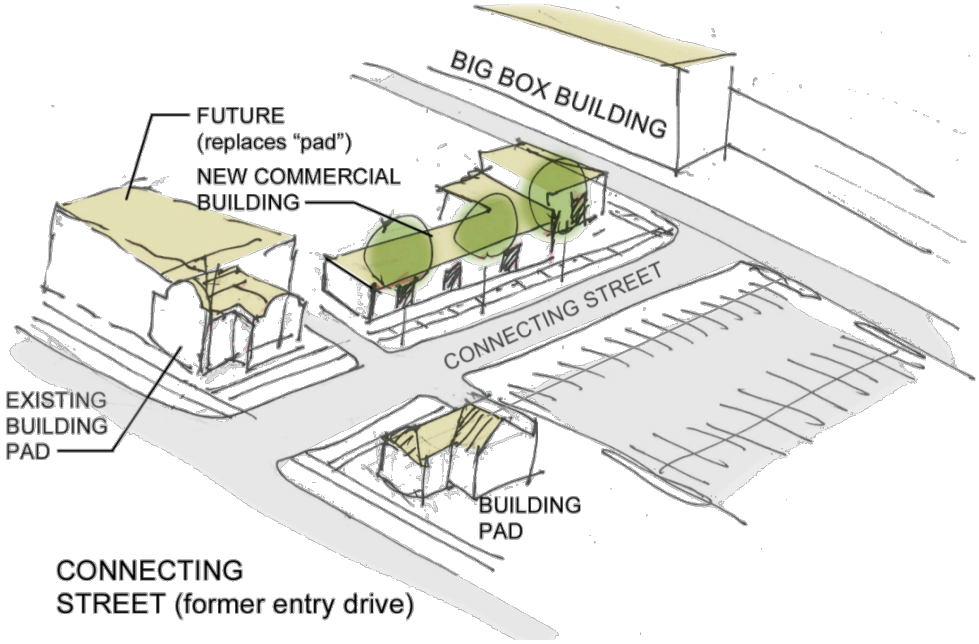
Connectivity applies to paths within a transit-oriented development as well as between the TOD and the greater community. TOD's are not islands; they are a series of urban villages along Foothill Boulevard.

The network of pathways that creates connectivity includes traditional streets and lanes as well as back ways and short cuts – all of which give the resident the feeling that they belong and "own" their neighborhood - you know how to get around. Over time people develop paths that are convenient and to their liking. Connectivity includes:

- Entry /connecting streets
- Internal streets
- Non-motorized short cuts

ENTRY STREETS
connect Foothill Boulevard and stores and TOD

INTERNAL STREETS
connect adjacent projects



PRINCIPLE 1 CONNECTIVITY

Entry/connecting streets and Internal streets

In historic patterns of development, the entry is flanked by isolated pads separated from the main stores by 250 – 400 feet. There is no connection between the main street and the stores, and even when lined by trees, the driveway is no place for a pedestrian or biker. In TOD, the entry must be a street lined with stores to animate the environment for both cars and people.

Similarly, to create the pedestrian environment necessary for connectivity, internal streets should not be simply driveways that connect adjacent developments or buildings within a development. They should be designed as streets that function equally well for pedestrians, bikes, NEV as well as cars. In this way they help reduce local traffic on Foothill Boulevard, and they create the fine-grain network of connectivity.

PRINCIPLE 1 CONNECTIVITY

Connectivity and Parking

Another part of adapting to compact, mixed-use development, or transit-oriented development, is adjusting parking requirements. As workplaces and shops become more integrated with where people live, the 300-to-400 square feet of land devoted to a parked car will become more valuable. Shared parking, or park-once-and-walk, frees up land for more revenue-producing use. But simply bringing uses together is not enough, the pedestrian realm must be enhanced so once out of the car, one can get around in environment with continuity of storefronts, access to workplaces and home tied together by a safe, convenient and beautiful integrated network of paths.

Simply creating a beautifully landscaped walkway between "pad buildings," however, is not connectivity; it will not by itself entice someone out of their car. Pedestrians are fickle, and the public realm devoted to them must also serve real needs – social and commercial.

It is common in a TOD to park cars toward the center of a development with buildings lining streets – internal and external. This helps create continuity, a defined slow-speed realm, and creates the "street life" that has been sacrificed in recent development patterns. As this pattern is implemented at BRT stops along Foothill Boulevard, the major intersections will express the street life and activity that accompanies density and intensity.

PRINCIPLES OF TRANSIT-ORIENTED DEVELOPMENT

PRINCIPLE 2 DENSITY

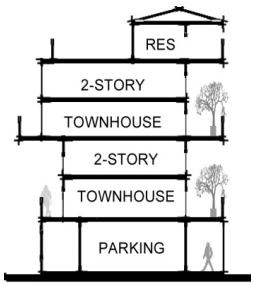
The word "density" generally means more people. This idea, also called "intensification" is often resisted by communities in the early stages of developing a full spectrum of connectivity and housing choices. Policy-makers and the Rancho Cucamonga community must be comfortable with the positive contributions that transit and TOD make to the community, which may be summarized as follows:

Transit-oriented mixed-use development is not for everyone. But for some, and perhaps for many of us at certain stages in our lives, being near "the action" is desirable; this is important to old and young alike. Diversity of housing alternatives reflects the diversity of our society.

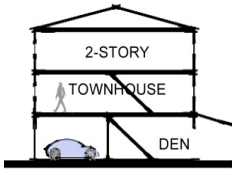
More housing choices:
The detached SFR remains the dominant housing type developed today, even as household make-up has diversified, morphed and splintered. Besides the well-documented growth of "millennials" and "boomers" there are other trends that indicate that denser housing choices are desirable as part of a strong, diverse community. Responding to these demographic changes along with transit alternatives will generate BRT ridership and acceptance of connectivity, density and diversity within the community.

Building types that mix uses vertically increase both density and diversity and help shape the pedestrian realm.

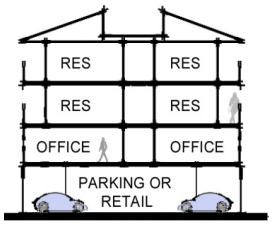
TOD Density
16 – 40 DUA



RESIDENTIAL & TWO-STORY TOWNHOUSE OVER PARKING



3-STORY WOOD FRAME TOWNHOUSE W/OFFICE



RESIDENTIAL OVER OFFICE & PARKING OR RETAIL

Density/Intensity
where "the action" is
with more
- housing choices
- stores & offices
- pedestrian

amenities

PRINCIPLES OF TRANSIT ORIENTATED DEVELOPMENT

PRINCIPLE 3 DIVERSITY OF USES

LEGEND

- A Internal Parking
- B Corner Prominence
- C Retail
- D Office over retail & plaza at corners
- E Residential over commercial
- F Three story Residential

Compact and transit-oriented developments are based upon the idea of bringing together the parts that make up our lives – home, work, shopping and social. The scale of these developments and the integration of uses is best characterized as "urban villages." The density and intensity of uses reverses the pattern of isolated, single-purpose buildings. TOD includes a tableau of mixed and related uses connected by sidewalks.

Land use: To accommodate diverse and intense activity, land use regulations should be more permissive in terms of uses, and more selective in terms of requiring conditional use permits.

HOME, SHOP, WORK, SOCIALIZE

ALL CLOSE BY

Flexible and diverse commerce: To make more dense development desirable to residents, the immediate area around the BRT station should be developed for a fine-grain mixture of housing types (studios, one- and two-bedroom units) AND commercial space that can serve a coffee shop, a small office, specialty retail stores, nail and hair salons, dry-cleaners, a green grocer, specialty wine/beer store, and personal business services that are not even in existence yet.

Instead of zoning for specific isolated uses, compact development permits the overlapping of functions; it can be a bit messy at times, but it is more convenient and offers more opportunity for interaction.

PRINCIPLES OF TRANSIT ORIENTATED DEVELOPMENT

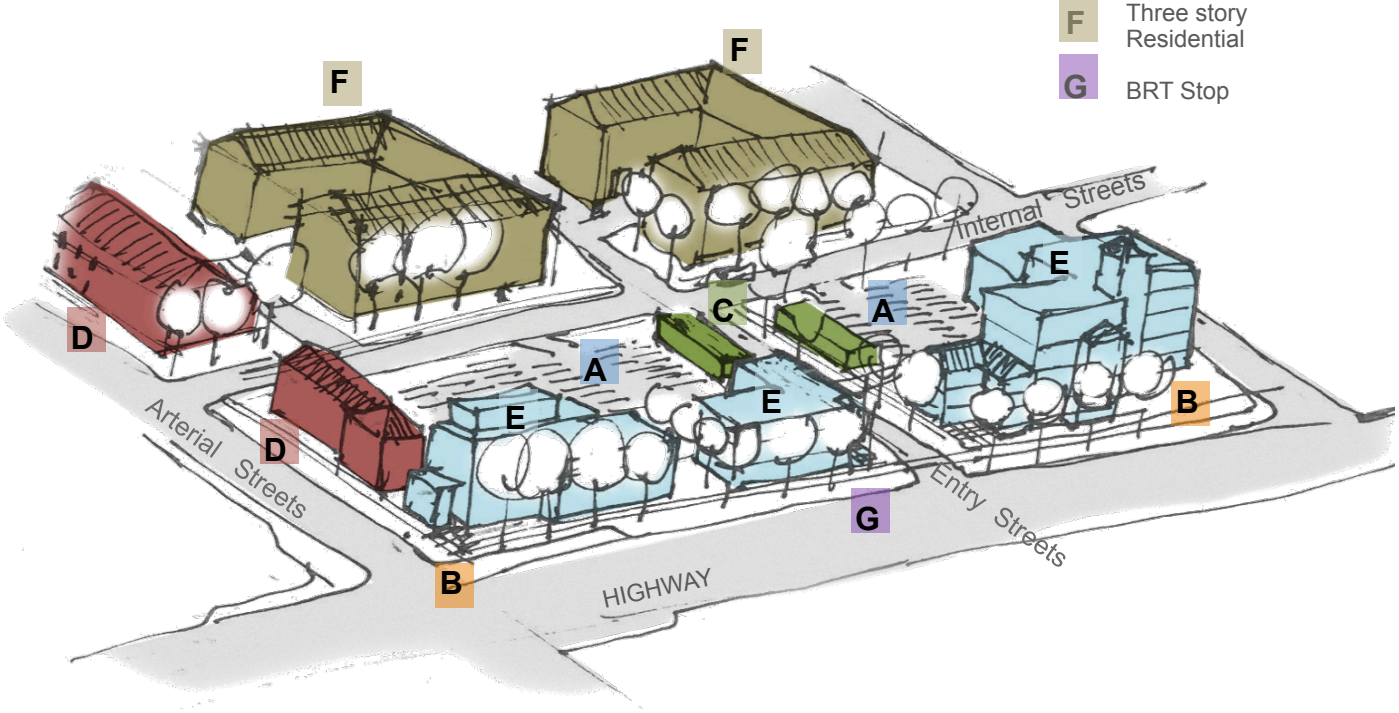
PRINCIPLE 3 DIVERSITY OF USES

LEGEND

- A Internal Parking
- B Corner Prominence
- C Retail
- D Office over retail & plaza at corners
- E Residential over commercial
- F Three story Residential
- G BRT Stop

**HOME, SHOP,
WORK, SOCIALIZE**

ALL CLOSE BY



E

F

PRINCIPLES OF TRANSIT-ORIENTED DEVELOPMENT

PRINCIPLE 3 DIVERSITY OF USES

Enrichment of social experience: Compact and diverse development that was common in small downtowns two generations ago still serves as a model for urban villages with the integration of commerce and social exchange. This pattern is especially relevant today when time has shrunk and space has expanded leaving only small islands of social experience in our towns and cities. (Starbucks thrives on the need for social encounters more than on the need for caffeine.) The public realm in transit-oriented development is the stage setting for a rich public social life.

Buildings: The design and composition of buildings also must adapt and provide flexibility to accommodate the needs of diverse uses within the TOD, where buildings should:

- Create ground floor volume with ground-to- 2nd floor heights of 14'.
- Increase variety at the ground level by designing the storefront module as multiples of 6' (12', 18', 24' and 30').
- Encourage retail and food as the primary uses along a sidewalk.
- Require continuity of storefronts to enrich visual communication between inside and outside. Limit blank walls to 24'.
- Compose and animate the facades of multi-use buildings to tell the story of what goes on inside.
- Allow/encourage home-offices and live/work developments.
- Allow regulated signage in second floor home office windows.

2 DESIGN PRINCIPLES FOR TRANSIT-ORIENTED DEVELOPMENT

CONNECTIVITY, DENSITY, DIVERSITY AND THE PUBLIC REALM.

The following design principles are intended to help shape the Foothill Boulevard corridor in ways that support the Bus Rapid Transit system currently under consideration. The principles will contribute to an integrated approach to design and development that over time will make transit efficient, convenient and pleasant, and will contribute to the economic strength, sustainability and social cohesion of Foothill Boulevard.

In general, the design principles are in line with what is called "compact development" or "transit-oriented development." Both terms describe an approach to development that emphasizes connectivity, density of population, and diversity of uses within new and in-fill projects along travel paths with access to alternative modalities of mobility and a rich, safe and beautiful public realm.

It is important to recognize that the people who are drawn to a TOD belong to demographic groups that are large and have significant economic clout. Recent trends show that seniors who are downsizing may want to be less dependent on the car and enjoy the activity in a pedestrian-friendly mixed-use neighborhood. For "millenials" the appeal is similar – being able to integrate the social, work and shopping aspects of their lives, and not have to support a car. (Also see the discussion of life-style segmentation in Section II-D of this report.)

As the principles of density and diversity shape new developments, design becomes increasingly important. Not necessarily because things should simply be "pretty" but because the public realm increasingly influences the lives of people in these compact mixed-use centers.

SPECIFIC PRINCIPLES

PEDESTRIAN EXPERIENCE

THE PEDESTRIAN

For both BRT systems and transit-oriented developments, success hinges on the pedestrian. We are all pedestrians at some point during the day. Whether simply walking from our parked car or we are on our daily route, a successful transit system must be designed for the pedestrian experience. When we walk, we are part of the public realm, but heretofore the public realm has been designed primarily for the driver.

ENHANCE THE PUBLIC REALM

The "public realm" is the space where we share our lives in public. The public realm is not just the public rights-of-way – streets, alleys, sidewalks and parkways, it also includes the facades of buildings, plazas, parking areas, "open space". Regulatory documents (General Plan, Specific Plan, Development Codes) already extend the influence of the City onto private property; these documents recognize the shared impact of private developments. The purpose of the Design Principles described herein is to create a shared public realm that is functional, legible, coherent, attractive and expressive of the values of Rancho Cucamonga. The public realm complements the density and diversity necessary for successful transit systems by creating an environment that rewards being part of the community.

BRT AND TOD DESIGN PRINCIPLES

The Foothill Boulevard corridor BRT Design Principles start where Omnitrans Bus and Station Guidelines leave off. The Omnitrans Guidelines focus on making the buses and stops pleasant, convenient and reliable. For the BRT system to be successful, similar principles must apply to the public and private realms surrounding the BRT stops. The goal is to create a pleasant experience for the rider from home-to-bus-to-work. The diversity of the BRT-oriented urban village will help assure loyal ridership.

SPECIFIC PRINCIPLES

PEDESTRIAN EXPERIENCE (cont.)

THE PEDESTRIAN EXPERIENCE

For both these TOD Design Principles and the Omnitrans Guidelines, the pedestrian experience is the starting point. The overall experience for a prospective BRT rider must be a reliable service that is pleasant, convenient, connected and interesting. Likewise for every pedestrian – Rancho Cucamonga resident, visitor, bus rider, worker, shopper – the experience of the public realm is an essential element of a successful community. It is as a pedestrian that we are most aware of the impact of the public realm on our well-being.

IT TAKES TIME

A BRT system requires considerable time to become firmly established in a community, therefore, the proposals that follow are intended to guide development over time, and do not imply an instantaneous materialization. Nonetheless, each and every decision made by traffic and civil engineers, architects and landscape architects will enhance or detract from the pedestrian experience. Following the Design principles can influence the incremental as well as broad, full-seep changes along the corridor.

SPECIFIC PRINCIPLES

PEDESTRIAN EXPERIENCE (cont.)

DESIGN PRINCIPLES AT DIFFERENT SCALES

There are essentially three scales at which these design principles apply, the eye-level **sidewalk scale**, the **street scale**, and the **highway scale**. Because so much depends on the pedestrian experience and how it relates to the success of a BRT system, we first address the area immediately adjacent to a BRT stop. OMNITRANS has devoted considerable time and effort to make their part of the experience pleasant; it is in the hands of the City and private developers to continue that commitment.

IT ALL STARTS WITH THE PEDESTRIAN EXPERIENCE AT A BRT STOP

Among the many elements and issues related to a good BRT stop, the following stand out:

- BRT system that operates efficiently and reliably
- Protect the pedestrian from traffic
- Make the stop identifiable for pedestrian, biker and driver
- Create an environment that is interesting and facilitating

SPECIFIC PRINCIPLES

PEDESTRIAN EXPERIENCE (cont.)

PROTECTION: Pedestrians and bicyclists are vulnerable near traffic; to be a safe setting at BRT stops, include the following elements:

- Street lights, monuments and bollards arranged at the stops to contribute to pedestrian safety.
- Where possible, large "urban" street trees that have stout trunks and large shade canopies should be placed as part of the overall station design. Specific species that are distinctive and majestic are a symbol of sustainability within the urban fabric, and reinforce the continuity of the rich pedestrian realm all the way to stepping on the bus. The trees must be setback from the curb so branches do not interfere with buses and trucks.

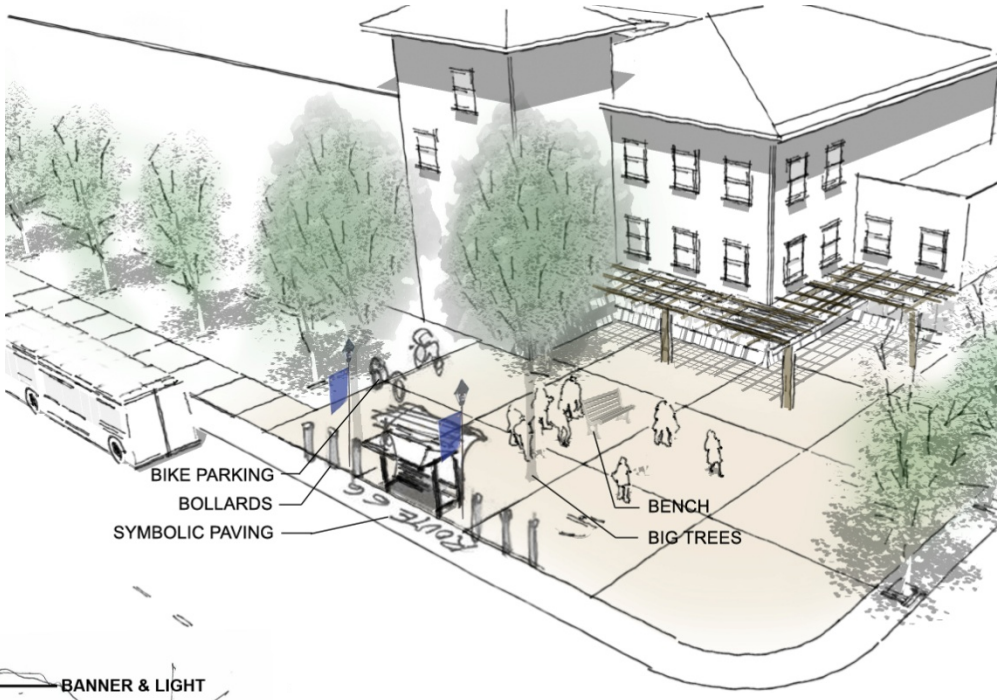
Source: Omnitrans Design Guidelines

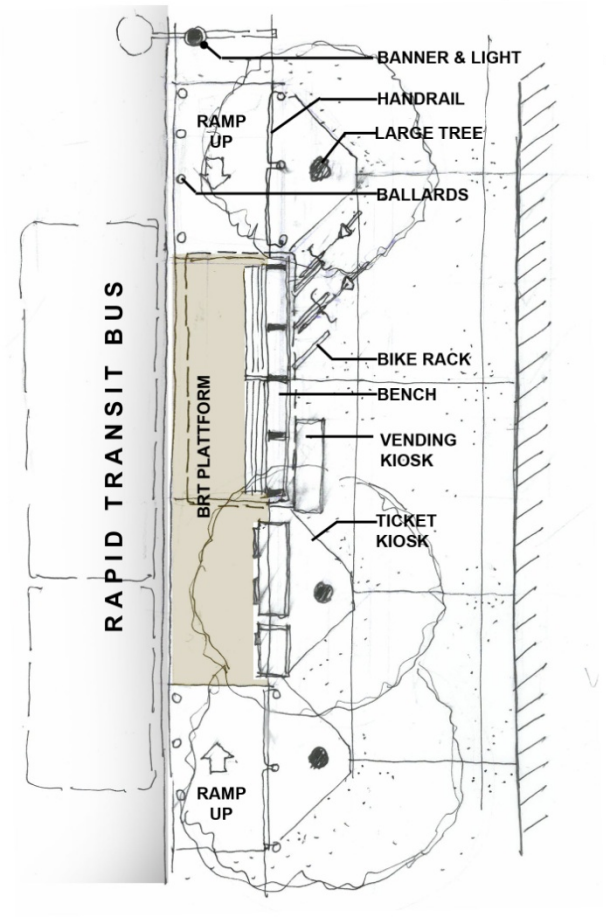
SPECIFIC PRINCIPLES

PEDESTRIAN EXPERIENCE (cont.)

IDENTIFIABLE PLACES

- Big trees
- Banner
- Bollards
- Bench
- Bike park
- Paving





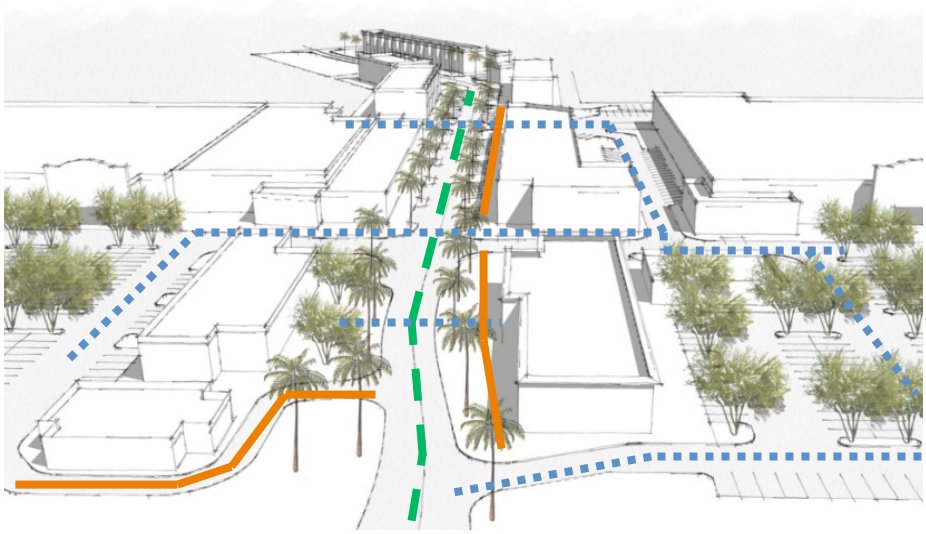
IDENTIFIABLE PLACE: Along Foothill Boulevard, Rancho Cucamonga has already implemented a pattern of street trees, enhanced paving and monuments that clearly show a community that cares about its image, and have improved the experience for bicyclists and pedestrians. At BRT stops, these elements should be concentrated and accentuated.

- A street light with banners, active route and time display, bollards that identify the actual door locations, and site-specific paving or monument when designed together will convey the importance of the BRT stop along Foothill Boulevard.
- A specific species of urban canopy trees – for shade, protection and identity.

SPECIFIC PRINCIPLES

PEDESTRIAN EXPERIENCE (cont.)

SAFE
INTERESTING
CONNECTED



PEDESTRIAN EXPERIENCE AS ONE APPROACHES A BRT STOP THE SIDEWALK SCALE

The BRT system is one of the elements of connectivity within the greater metropolitan area, and each stop is the gateway into the local fabric of the street and neighborhood. The sidewalk is the next link in the overall network of connectivity. So in addition to street trees and pedestrian protection, sidewalks leading to the BRT should follow these principles:

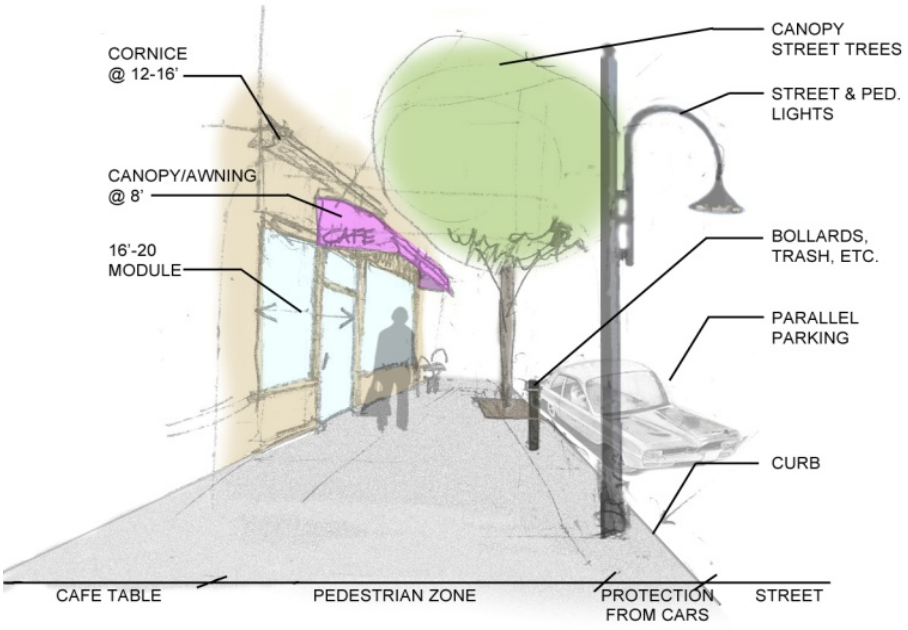
- Link the BRT with plazas, buildings, and parking
- Define the public realm by connected buildings - no large gaps
- Be adjacent to accessible stores with significant transparency and interest – no long blank walls

SPECIFIC PRINCIPLES

BUILDING-TO-SIDEWALK EXPERIENCE

Buildings, their placement, scale and design are the essential elements that define the public realm and create the pleasant and interesting pedestrian experience. Buildings within transit-oriented developments and within close proximity of the BRT stations should follow these principles:

- Place buildings at the back edge of sidewalks ("build-to" the sidewalk as opposed to "setback" from the sidewalk)
- Have a regular rhythm of storefront piers (multiples of 6' works well; 12', 18', 24', and 30' are all workable store widths in creating a dense and diverse pedestrian commercial area)
- Have a horizontal element at between 12 – 14 feet above the sidewalk to suggest the "pedestrian scale." A "belt cornice" is the traditional means of creating vertical scale. Also to provide adequate volume for ground level retail, the second floor should be at about 14' so the cornice lends legibility to the façade.
- Extend over the sidewalk with awnings, canopies or arcades.



- The store windows themselves can contribute to the pedestrian scale. With a bulkhead at about two feet, and a header at about eight feet, the human eye is right in the middle of the glass panel.

SPECIFIC PRINCIPLES

BUILDING-TO-SIDEWALK EXPERIENCE (cont.)

These elements together create a legible framework for the façade. Of course styles and tenants change over time, but a building that will endure should have legible structure, rhythm and proportions.

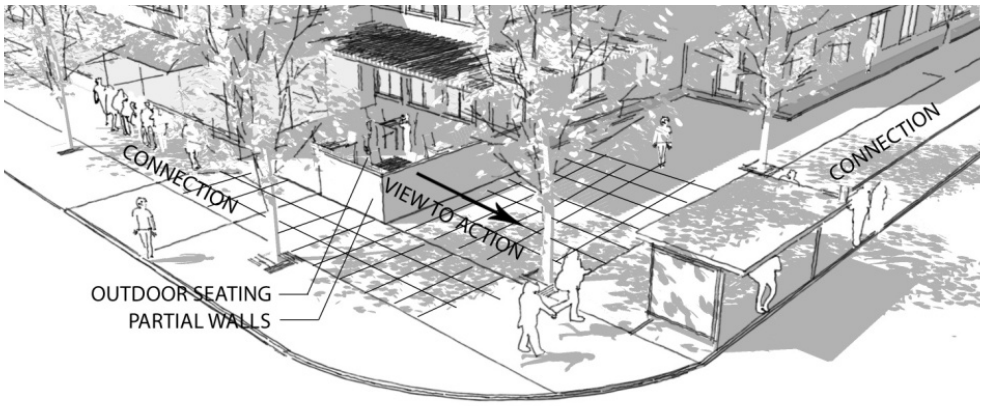
THE PEDESTRIAN EXPERIENCE – OPEN SPACE

The next element of the successful sidewalk scale and pedestrian realm is properly-sized open space. Plazas, piazettes, and outdoor rooms require the sidewalk and buildings to make accommodations to the "build-to" line. The successful outdoor pedestrian space should provide the following:

- protection from cars
- shade from trees, awnings, and arbors
- partial enclosure by walls and overhead elements
- a view of street activity; plazas are part of the street scene, not isolated from "the action"
- connection to stores, parking and the sidewalk

SPECIFIC PRINCIPLES

PLAZA EXPERIENCE



SENSE OF PLACE - PLAZA, PIAZZA, PIAZETTE

Generally bigger is not better for creating a lively "place." We, as individuals, are the measure of "placeness." It is the individual who feels safe, connected, welcomed, so bigger may undermine the sense that an outdoor area seems to "fit." A too-big plaza conveys a feeling not unlike peering into a large empty restaurant. Too many people is better than too much space.

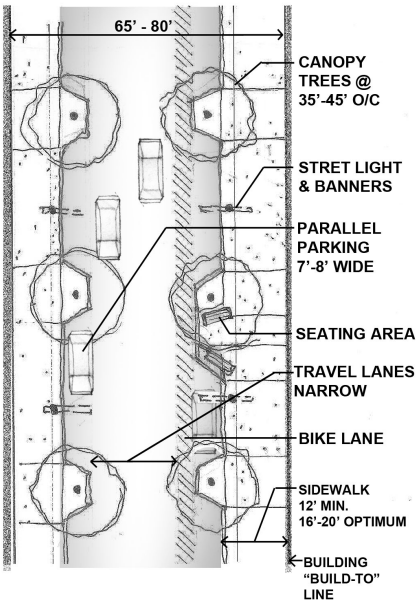
The "places" created suggest that one can linger; outdoor places provide for the social interaction that is essential to a lively and diverse "street life."

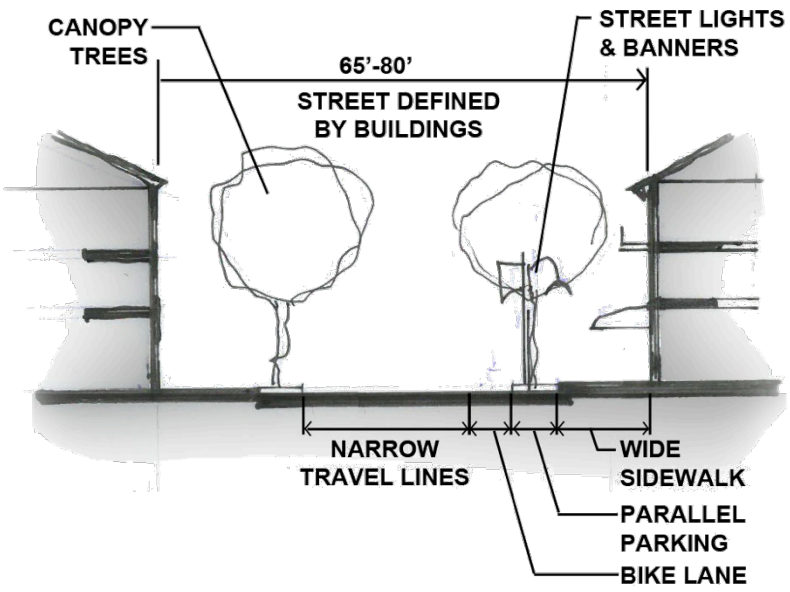
These places may simply be a bulge in the sidewalk where one can step out of the way of other walkers/shoppers, or it may be a line of outdoor tables where one can stop and have a coffee or sandwich, or it may be a semi-formal piazza with benches, an arbor, perhaps a fountain – all of which suggest that "open space" is intended as a *public place* and available for a longer "break."

These "outdoor rooms" may be along streets, in alleys or lanes, or slipped in between buildings entries. In any case, they are part of the network that is the fine-grain pedestrian life in the public realm.

SPECIFIC PRINCIPLES

STREET SCALE





THE STREET SCALE DESIGN PRINCIPLES

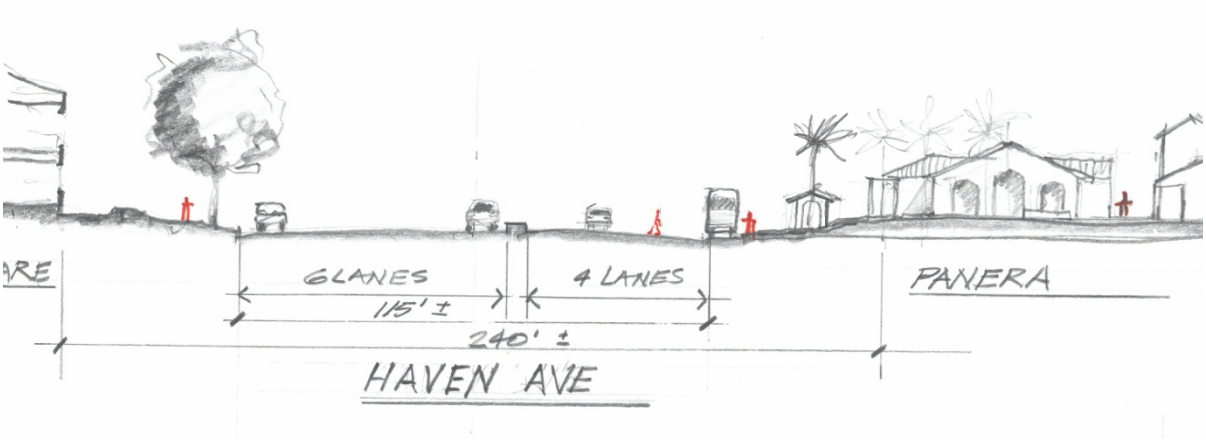
The next scale that these TOD Design Principles are intended to influence is the street. To link the BRT and TOD to the greater neighborhood, and to accommodate a range of mobility choices, the street should be viewed as a linear space that is enlivened and defined by flanking buildings, sidewalks, trees, lights and signs. The street section (from building to building) is critical in creating the scale that brings pedestrians and vehicles in parity. Current standard engineering practice in street design emphasizes efficiency and safety based upon the needs of vehicles, and often "driven" by fire and trash trucks. The unintended consequence is that the street becomes intimidating to the pedestrian and bicyclist. The recent movement toward "Complete Streets" is an effort to define the public realm to include a desirable pedestrian experience.

In TOD the street design itself should follow these principles:

- be as narrow as possible. This is a traffic calming strategy as well as an aesthetic consideration
- provide parallel parking. The parked cars protect pedestrians from traffic and provide dispersed parking.
- accommodate bicycles
- be framed by vertical elements - street trees, lights, banners
- sidewalks wide enough for protection, movement and seating
- be lined by buildings with storefronts
- Provide enhanced pedestrian street-crossing to encourage flowing movement and enliven both sides of a street

SPECIFIC PRINCIPLES

HIGHWAY SCALE



HIGHWAY SCALE

At the scale of highways like Foothill Boulevard, the speed and volume of vehicular traffic does not support meaningful pedestrian orientation for buildings. Along highways, the design of TOD is concerned with identifying the development as a dynamic, hip, "happening place." The windshield impression needs to express identity, activity and density; the resident wants to be able to say "I live in those cool buildings at Milliken Avenue and Foothill Boulevard." The TOD must show the driver that once within the TOD, the pedestrian experience is rich; it's worth going there to experience and perhaps to live.

Though not a pedestrian scale, the streetscape needs to be inviting and expressive of activity. The buildings need to have a "street presence," and the overall development needs to express its specialness along the highway corridor.

TOD Design principles at the **highway scale**

- Bring the building to the street. The "build-to" concept applies to the highway as well as the street, even though actual pedestrian access is limited along highways. When buildings are separated from the highway by parking lots, the message is that cars are welcome, but pedestrians are on their own.
- Animate facades to express life and variety within.
- Shape the building to create plazas or other "people places" at BRT stops and corners. These outdoor rooms are both functional and symbolic - they convey "importance" and people oriented activity at the highway and street scales.

SPECIFIC PRINCIPLES

PARKING DEMAND

Perhaps the most challenging aspect of making the BRT system successful is finding the balance between too much and not enough parking. It is generally agreed among planners and traffic engineers that the historical pattern of commercial development does not take into consideration joint-use or shared parking.

Multi-Family Residential Parking Demand [1] [2]

In California, valuable research has been conducted on the travel behavior of those living near transit-oriented development. Analyses of TOD resident transit use within one-quarter mile of transit services looked at 20 to 60 acre multi-family developments and found that most residents were young professionals, singles, retirees, childless households, and immigrants from foreign countries. These residents also needed less dwelling space compared to other households, and were drawn to TOD-type residences by convenience and finances. Also relevant and important for TOD success is that most TOD residents worked "downtown" and in other locations with convenient transit service.

An analysis of twelve housing projects near Bay Area Rapid Transit (BART) stations in the San Francisco area found that occupancy rates averaged 1.66 people and 1.26 vehicles per household. These results were compared with an analysis of the overall average household size and vehicle ownership in the same census tract and found that household occupancy averaged 2.4 people and 1.64 vehicles. While 48 percent of all households had fewer than two vehicles, about 70 percent of TOD resident had fewer than two vehicles.

Several years' analysis, including extensive study of transit use and TOD development in California, clearly indicate the potential to reduce parking by 23 percent in multi-family developments within or in proximity to a transit station. These efficiencies are best realized in TOD development by providing a variety of household types, as mentioned above. It is also apparent that with changing economics and demographics, more and more residents are choosing to live within or near transit services.

1 "Statewide Transit-Oriented Development Special Study Parking and TOD: Challenges and Opportunities", California Department of Transportation, 2002.

2 "Vehicle Trip Reduction Impacts of Transit-Oriented Housing", Robert Cervero, University of California, Berkeley G. B. Arrington, PB Placemaking, 2008.

SPECIFIC PRINCIPLES

PARKING DEMAND

Parking for Commercial Uses

There has generally been a lack of systematic analysis of the parking demand effects of incorporating office and retail commercial in mixed-use and especially transit-oriented development. More research has been conducted on the common problem of providing too much parking for both office and retail commercial within a TOD. It must be realized, however, that numerous factors affect commercial parking demand, including residential densities, employee demographics, retail sales volumes, employee densities, and types of adjacent land use. Some of the TOD-style developments that have been analyzed indicate that convenient access to transit can substantially reduce office and retail parking demand.

Mixed Land Uses and Shared Parking

The mix of residential, office and commercial uses can be optimally integrated in a TOD in a manner that makes shared or reciprocal parking possible and can reduce overall parking demand for such developments. This sharing of parking by different land uses is possible because peak activity and parking demand periods can differ between land uses. This integrated land use and parking approach generates parking demand that is substantially less than that typically called for by each of the individual land uses. This frees up valuable land for other on-site uses.

As implied above, there are important issues of land use management that must be addressed to make shared parking effective and adequate to serve all users. First, it is critical that the various mix of TOD land uses have differing peak activity periods and associated parking demand. Such complementary land uses might include offices (a daytime use) adjacent to a dinner house or movie theater (evening uses) which share parking but during different times of the day.

SPECIFIC PRINCIPLES

PARKING DEMAND

Another characteristic of an effective mix of TOD land uses is one that provides retail and personal commercial service that may have a typical daytime peak activity period but which can tap into a substantial pedestrian market of residents, and office and other employees that take advantage of these commercial services before, during or at the end of the work day. This type of land use mix can realize market synergies that draw from a wider geographic area without a commensurate increase in parking demand.

The bottom line is that thoughtfully matched and integrated land uses in TODs can significantly reduce the total parking demand for these uses, including residential. Examples show that an overall reduction in parking demand can be realized through thoughtful TOD planning and use management. A conservative rate of reduction of about 25 percent could significantly affect the quality, appeal and amenities of TOD projects.

Table VI-1

Commercial Parking Reductions at Selected TODs

TOD	Land Use	Parking Reduction
Pacific Court (Long Beach, CA)	Retail	60%
Uptown District (San Diego, CA)	Commercial	12%
Rio Vista West (San Diego, CA)	Retail/Commercial	15%
Pleasant Hill (CA)	Office	34%
Pleasant Hill (CA)	Retail	20%
Dadeland South (Miami, FLA)	Office	38%
City of Arlington (VA)	Office	48%-57%
Lindbergh City Center (Atlanta, GA)	Speculative Office	19%
Lindbergh City Center (Atlanta, GA)	Retail	26%
Portland (OR) Suburbs*	General Office	17%
Portland (OR) Suburbs*	Retail/Commercial	18%

* Based on maximums specified in Metro's Title 2 Regional Parking Ratios.

SPECIFIC PRINCIPLES

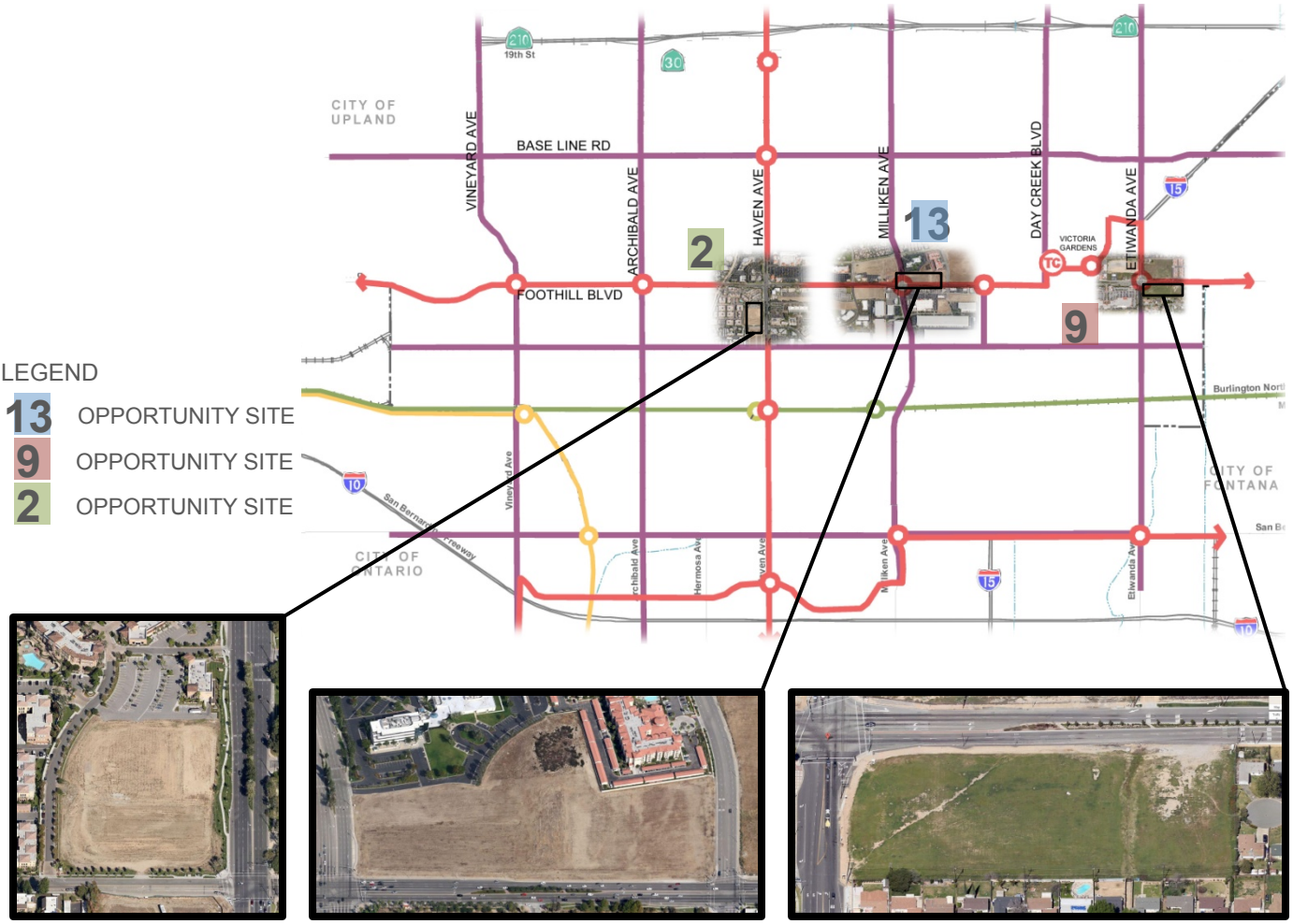
CONCLUSION

These TOD design principles are generally intended for new developments, however, changing economics, land values and lifestyles may make smaller in-fill properties as well as existing properties ripe for repurposing or redevelopment based upon positive pedestrian experience, and add to connectivity, density and diversity. Development along Route 66 has been in constant evolution; as new technologies, new lifestyles, new travel options emerged, development patterns adapted. Likewise now as the bus rapid transit system is introduced new opportunities and patterns will emerge. These principles can help guide that ongoing evolution and renewal process.

3 TRANSIT-ORIENTED DEVELOPMENT OPPORTUNITY SITES

SITE PLANNING PRINCIPLES

The City of Rancho Cucamonga has identified 13 sites along Foothill Boulevard as candidates for development following the principles of compact or transit-oriented development. (Section II-D of this report describes each of the opportunity sites.) In this section we are focusing on three such opportunity sites (#13, #2, and #9) because together they represent a cross-section of issues related to TOD – size of parcel, surroundings, and importance to the overall City. The approach we have taken to each illustrates principles that are transferrable to other sites, whether identified as "opportunity sites" or not.



OPPORTUNITY SITE #13

CONTEXT AND DEVELOPMENT OPPORTUNITY

The vacant parcels at Foothill Boulevard and Milliken Avenue offer the most immediate opportunity for introducing the principles of transit-oriented development along the BRT route. The intersection, already important in terms of traffic, will have BRT stops, and already has both jobs and housing nearby (the hospital, apartments to the north and senior complex to the NE.)

Furthermore, Site #13 along with Site #12 across Milliken Avenue, and Site #11 across Foothill Boulevard to the west, are all currently vacant so a "conceptual prototypic " site development plan can be freer in illustrating the principles of connectivity, density, diversity and design.

We have focused our conceptual mixed use site design on the westerly half of Opportunity Site #13, though we also include an overall land use plan for all three sites. It is important to realize that true mixed-use TOD projects must be placed selectively; they won't work everywhere.

LEGEND

- R — Residential - Medium Density
- M — Mixed Use

PROPOSED LAND USE

LEGEND

- 1 — Single-Family
- 2 — Multi-Family
- 3 — Retail
- 4 — Medical Center
- 5 — Senior Housing

EXISTING LAND USE

OPPORTUNITY SITE #13

SITE PLANNING PRINCIPLES

This westerly half of OS #13 represents the best opportunity for a near-term transit-oriented development. It has connectivity, nearby existing and future potential ridership, and is of a size that would make an impact on Foothill Boulevard and the success of the BRT system.

SITE INFOMATION

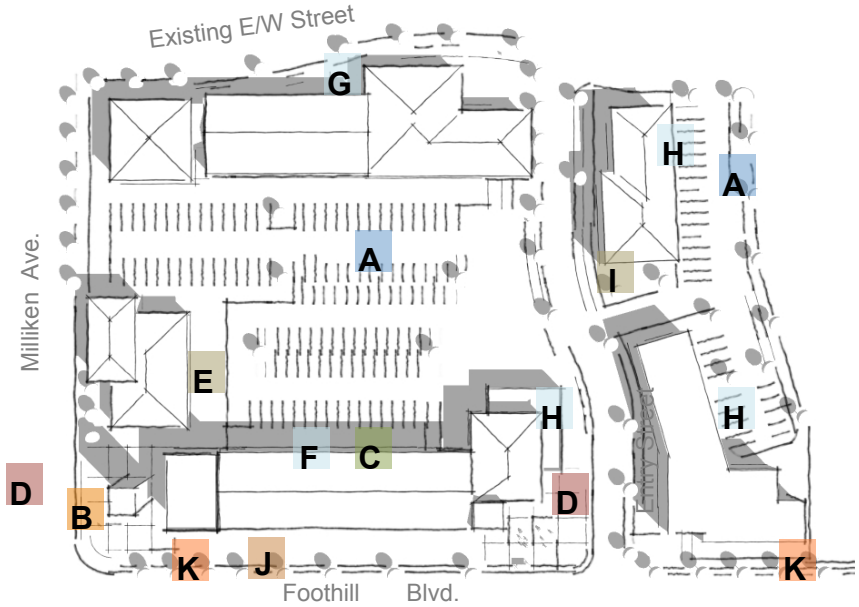
Parcel Size: 5 AC
Dimensions 560' x 400'
Land Use: Retail
Office
Residences
Total Units: 85 approx.
F.A.R. : 0.54
Parking: 200

Applied to OS #13, the first principle of TOD success, connectivity, requires that a midblock internal street connect the medical center and the senior housing to Foothill Boulevard. This entry-connecting street can be developed with ground floor pedestrian-responsive uses on both sides, and residential uses above. Along the existing entry street off Milliken Avenue, there is a development opportunity for supplementing the medical center with additional medical offices. This existing street should be continued westward across Milliken Avenue to begin the internal street circulation that accommodates local vehicular traffic, alternative vehicles (NEV and bicycles) and is pedestrian friendly. With the BRT proposed for the easterly side of Milliken Avenue, the corner at Milliken Avenue or the new mid-block street can be shaped to provide opportunities for retail and food surrounding a BRT-responsive plaza similar to what exists at the NE corner of Haven Avenue and Foothill Boulevard.

The new building fronting on Foothill Boulevard will have a mix of uses – commercial/retail, parking and residential. To emphasize the pedestrian scale, retail should be focused at the corners by having the buildings create plazas. The retail uses then wrap around the corner to create more pedestrian-scale streetscapes. The buildings at Milliken Avenue corner should be sized to express the importance of the development at the highway scale.

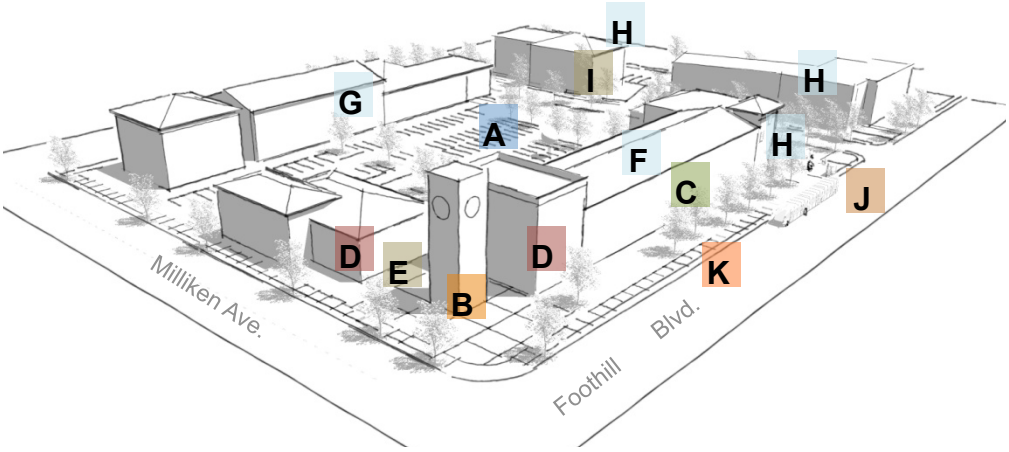
LEGEND

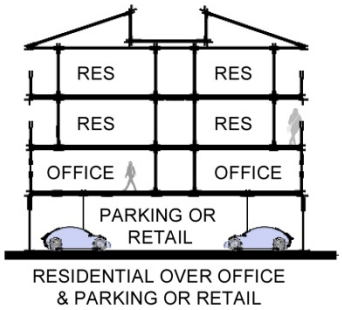
- A Internal Parking
- B Corner Prominence
- C Highway-scale building
- D Retail & plaza at corners
- E Access to parking
- F Residential over parking
- G Residential over medical
- H Residential over retail
- I Buildings at sidewalks
- J BRT Stop
- K Foothill Boulevard streetscape



OPPORTUNITY SITE #13

SITE PLANNING PRINCIPLES

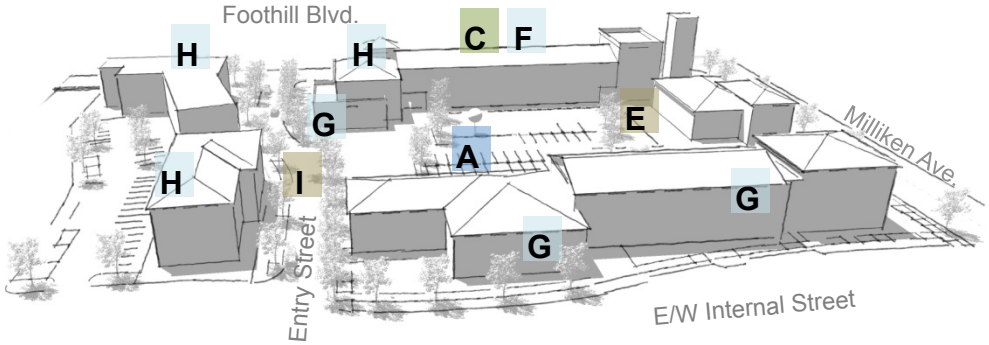




Building-to-street relationship – Foothill Boulevard:
The buildings along Foothill Boulevard will define the highway scale of this TOD. The buildings will have pedestrian access at the corners, however, the street length will have parking for the residences above. This type of building, called "podium" is typical of mid-rise mixed-use buildings. Because the building along Foothill Boulevard is at "highway" scale, direct pedestrian access is unlikely. However, the design of the ground level façade should express the rhythm and pattern of commercial activity. The true pedestrian scale will begin at the corner plazas and extend northward along the streets.

LEGEND

- A Internal Parking
- B Corner Prominence
- C Highway-scale building
- D Retail & plaza at corners
- E Access to parking
- F Residential over parking
- G Residential over medical
- H Residential over retail
- I Buildings at sidewalks
- J BRT Stop
- K Foothill Boulevard streetscape



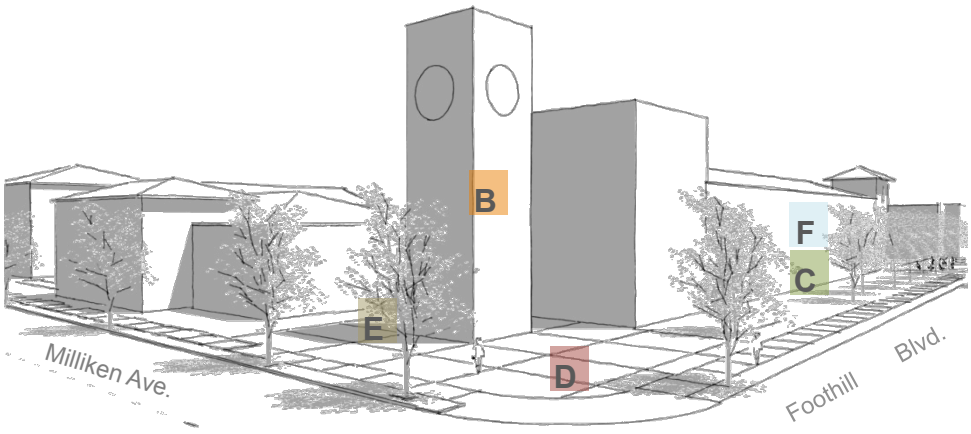
Building-to-street relationship – existing E/W internal street:
On the south side of the existing E/W internal street (between the medical center and the proposed TOD) a mixed-use building with medical offices on the ground floor and two-floors of residential above would reinforce the potential jobs-housing balance, and begin the process of introducing TOD principles. If offices have direct outdoor access, place the building at sidewalk, if offices have an internal corridor allow landscape buffer between building and sidewalk.

OPPORTUNITY SITE #13

SITE PLANNING PRINCIPLES

LEGEND

- A Internal Parking
- B Corner Prominence
- C Highway-scale building
- D Retail & plaza at corners
- E Access to parking
- F Residential over parking
- G Residential over medical
- H Residential over retail
- I Buildings at sidewalks
- J BRT Stop
- K Foothill Boulevard streetscape

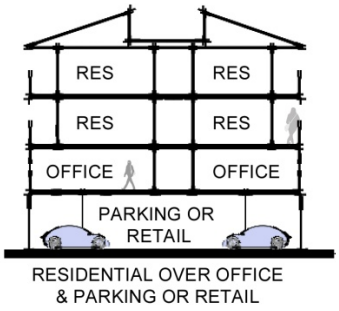


Building-to-street relationship – Milliken Avenue:
The intersection at Foothill Boulevard and Milliken Avenue is important at both the highway scale and the pedestrian scale. At both scales connectivity across Milliken Avenue is important. As the buildings wrap the corner, a plaza with vertical element would signify that this intersection is important in the City. Around the plaza, retail or food establishments should create pedestrian interest, activity and scale. In addition, visual and pedestrian access to the interior parking is essential to support the principle of connectivity. An example of this pattern exists at the plaza on the NE corner of Foothill Boulevard and Haven Avenue. Beyond the corner plaza along Milliken Avenue, the building should define the pedestrian scale by being placed at a build-to line (back of sidewalk).

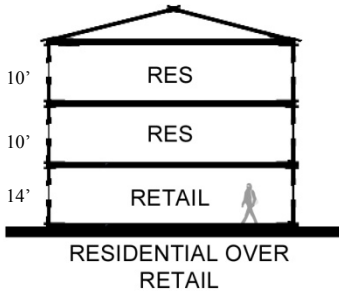
Building Types:
Compact mixed-use developments require stacking uses; the building types in TOD are typically 3 – 5 stories high. Structural loads and fire resistive requirements may require more sophisticated building systems. The discussion below briefly describes building types common in TOD.

OPPORTUNITY SITE #13

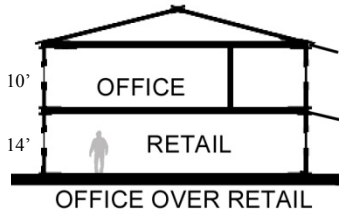
SITE PLANNING PRINCIPLES



Building type A – Foothill Boulevard:
To accommodate the density and diversity appropriate to the TOD principles, the building along Foothill Boulevard should be three-story wood-frame above a concrete podium. This concrete deck is required as separation between office or residential above parking. (Note: the podium should be set at about 14' above the ground so the ground level can serve retail, office or parking. This type of flexibility is part of the sustainable and form-based approach to development.



Building type B – Mid-block street:
At the mid-block intersection, commercial and retail uses at ground level start the pedestrian connectivity that will continue along the entry street and internal street frontages. These buildings are commonly three-story and wood frame. To allow flexibility and volume at the ground level, the second floor should be at 14'.

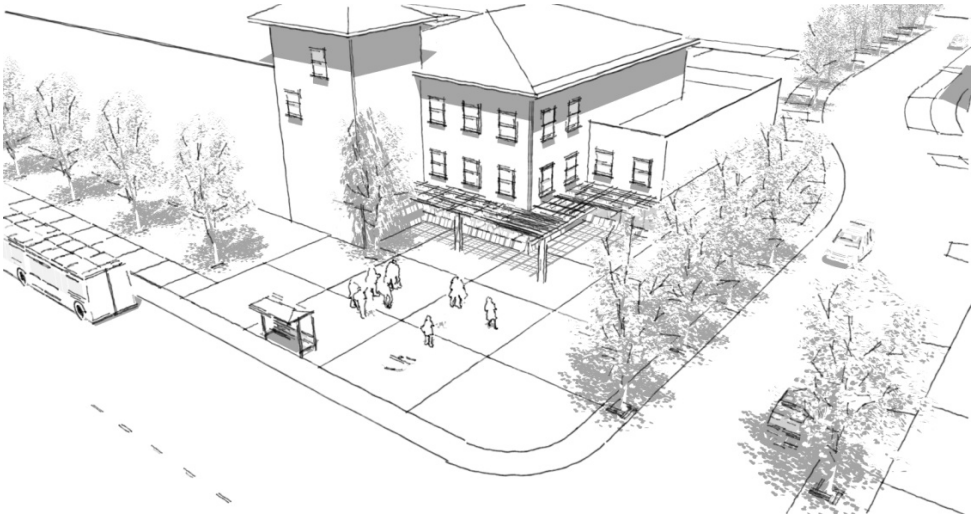


Building type C – across from medical center:
Depending upon the market demand for medical offices, this building type could either accommodate residential over office/retail, or be exclusively office/retail use.

OPPORTUNITY SITE #13

DESIGN PRINCIPLES

Building-to-street relationship – Entry street:
From Foothill Boulevard the entry street and its buildings express the principles of TOD. The mid-block entry street is a car-and-pedestrian scale with 3-story buildings on both sides. The buildings are placed at the "build-to" line (back of sidewalk) and will have ground level pedestrian-related retail/commercial uses. At the corner, the buildings should have prominence and also welcome pedestrians. Internally the street should be pedestrian friendly: buildings at the sidewalks, activity and interest at ground level, narrow travel lanes and parallel parking, canopy street trees and residences overlooking the street ("eyes on the street.")



OPPORTUNITY SITE #9

CONTEXT AND DEVELOPMENT OPPORTUNITY

OS #9 is a small in-fill parcel. It is bordered on the east and south by single-family residences. It is across Foothill Boulevard from BRT stops on Etiwanda Avenue, and it is across Etiwanda Avenue from an existing neighborhood/community-scale commercial center.

This site is not suitable for commercial development because access directly from Foothill Boulevard will be limited, and the site is surrounded by single-family homes. However, the site could support a transitional medium density residential development. This is the kind of site that developers overlook because a profitable "yield" is difficult unless height and density requirements are in line with TOD principles. Because of its proximity to a BRT stop and stores, it has value as a small-scale TOD with medium density residential and home-occupation as a permitted uses.

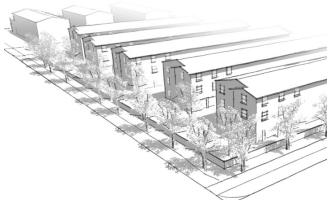
LEGEND

1 Single-Family
2 Multi-Family
3 Retail

OPPORTUNITY SITE #9

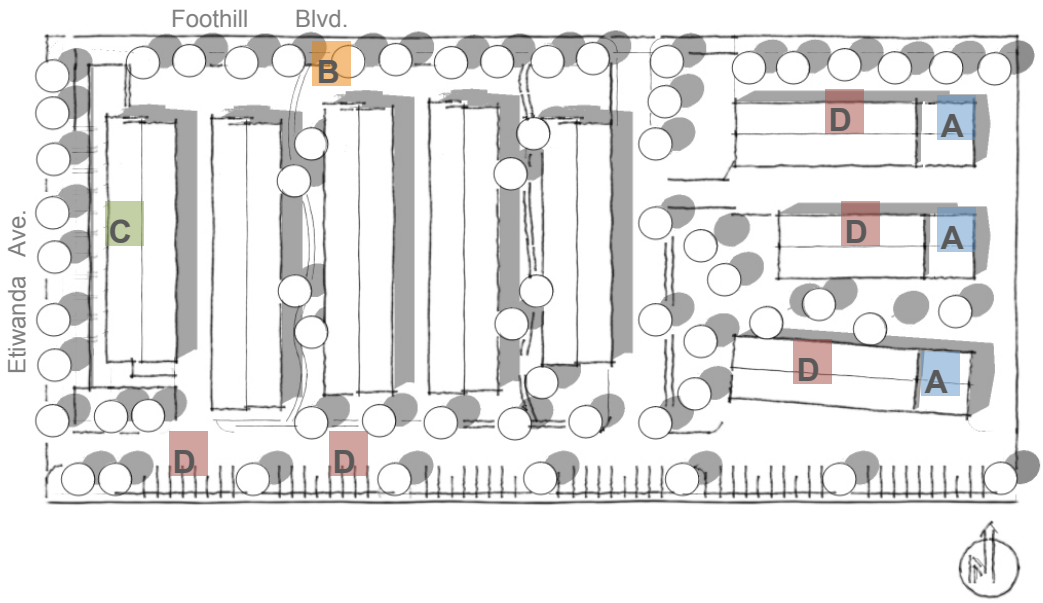
SITE PLANNING PRINCIPLES

The primary access for a residential development will be from Etiwanda Avenue, however, an emergency egress will probably be required onto Foothill Boulevard. The main E/W drive and carport parking will be opposite the existing commercial drive and will serve as a buffer for the homes to the south. Orienting the buildings will vary to respond to the adjacent conditions: The easterly buildings will step down in height and allow solar orientation for PV panels. The westerly buildings are turned to a north-south access to reduce exposure to noise, to provide view corridors and to optimize the yield. The row-house arrangement requires special care in the design of the areas between buildings – both those that serve cars/garages, and the lanes where front doors are located. Home occupation units should be limited to those units facing the side street.



LEGEND

- **A** Step building down when adjacent to existing homes
- **B** Residential scale and rhythm created by gable ends
- **C** Mixed use – home occupation in units facing Etiwanda Ave.
- **D** PV solar panels on south-facing roofs and carports



SITE INFOMATION

Parcel Size:	4.92 AC
Dimensions	670' x 320'
Land Use:	Residential Limited mixed use Home Occupation
Density:	16-20 DUA
Total Units:	85 approx.
F.A.R. :	0.85
Parking	
Garage:	1/ unit
Open:	.75/ unit
Total Provided:	150

Building-to-street:

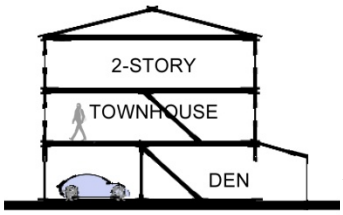
The frontage on Foothill Boulevard east of OS #9 is residential in character and scale. To the south, adjacent are also single-family homes. By orienting the long axis of the easterly buildings in an east-west direction, and stepping the buildings down (A) to two-story at the east end, a transition is created from existing homes to the taller in-fill buildings. Orienting the buildings toward the westerly end so the gable ends face Foothill Boulevard will create a residential-scale and rhythm (B) even though the buildings are three-story. For the building facing Etiwanda Avenue, units with home occupations have a front door accessible to the sidewalk.

OPPORTUNITY SITE #9

DESIGN PRINCIPLES

Public Realm: Along a major boulevard like Foothill Boulevard, it is difficult to define the public realm at a residential scale. However, regularly spaced street trees and a block wall along the street create the boundary between private and public realms, and the wall somewhat mitigates traffic noise.

Building design: For the easterly building fronting on Foothill Boulevard, and the building facing Etiwanda Avenue, front porches will extend the home toward the street expressing the residential character. For the buildings where gable ends face Foothill Boulevard, the porch can wrap the corner of the building addressing both the street and the landscaped courtyard. The porches create an in-between semi-private/public realm. In addition, the gable ends of the buildings should be animated with awnings, overhangs, and stepbacks.



3-STORY WOOD FRAME
TOWNHOUSE W/OFFICE

Building type C: The building type will be wood-frame, three story. The upper two floors are a two-bedroom townhouse; the ground floor has a garage in the back and a flexible space with bathroom off the front entry to accommodate limited live/work.

Sustainable design: For buildings that are oriented with the long east-west axis, the south-facing roofs optimize solar orientation for PV panels. On buildings with the long axis north-south, PV panels are also effective. Carports can also be designed for PV arrays. Solar thermal panels provide the quickest payback when they provide domestic hot water as well as space heating in a hydronic system.

Pedestrian realm: Because this is a residential development, the walls and fences along the street serve as a boundary between the public and private realms. The "pedestrian realm" is internal to the development, and not public.

Trees are crucial in the driveways and courtyards between buildings; they provide privacy between facing units, shade, visual relief, and add value to the marketing efforts of the developer.

OPPORTUNITY SITE #2

CONTEXT AND DEVELOPMENT OPPORTUNITY

As a contiguous extension of the Village Square mixed-use development, OS #2 fits the purpose of transit-oriented development: live-work-shop all within walking distance, and is BRT convenient. The site can be developed with a mix of housing, office/work place, small and specialty retail and a business-oriented hotel uses.

The residential development is essential to increase density within one-quarter mile of the Foothill Boulevard BRT stops, and is in keeping with the development to the north and west. Furthermore, significant employment opportunities in retail, services and government all exist within easy walking distance.

To express the "activity and civic center" that the intersection of Haven Avenue and Foothill Boulevard represents, a new three-story building should front on Haven Avenue, and create a small plaza as it turns onto Civic Center Drive. The hotel as well should have Haven Avenue exposure. The residential buildings along Civic Center Drive should continue the pattern of three-story buildings, with home occupation live/work uses permitted. To allow the kind of intensity of development desirable at this location, a shared parking program between the new development and the existing restaurant should be developed.

To support the principle of connectivity, Civic Center Drive should be extended westward over the channel, at a minimum for pedestrians and bicycles.

LEGEND

1 Single-Family
2 Multi-Family
3 Retail
4 Office/Civic

OPPORTUNITY SITE #2

SITE PLANNING PRINCIPLES

The existing three-story multi-family residences to the west establish a clear, coherent building-to-street pattern. To the north, east and south of the parcel, however, there are different scales and types of buildings. Just to the north of this site are one-story commercial buildings, and at the corner, the grade drops dramatically. Across Haven Avenue at the southeast corner of Haven Avenue and Foothill Boulevard, the existing four-story office building is a crisp box set back from the street and behind tall trees. City Hall, while dignified and handsome, does not have a strong presence on Haven Avenue, and does not create a public space facing the street. Its inner courtyard is effective, but the street presence does not match its importance. Finally, to the south, across Civic Center Drive is a blank canvas – a rectangular parcel extending a block and a half.

The conceptual site plan below places a business-oriented hotel at the north edge of OP #2 to be close to existing retail and restaurants at the Haven Avenue – Foothill Boulevard intersection. The hotel slab–building is oriented with the rooms facing NE/SW to minimize exposure to traffic noise, limit the visual on Haven Avenue, and offer some relief to the orthogonal relationship of all other buildings in the vicinity. The suggested three-story building facing Haven Avenue (D) may be mixed use with residential over office, or be exclusively office use except for some retail surrounding a plaza at the corner. A modest plaza at this intersection is part of the pedestrian connection between residences to the west and offices across Haven Avenue. Three-story residential buildings (B) are proposed to wrap the southeast corner of the site and reflect the scale of existing apartments to the east. The proposed units are designed as live/work with ground floor home-occupation and a townhouse unit above.

SITE INFOMATION

Parcel Size: 7.1 AC

Land Use: Retail
Office
Residences
Business Hotel

Total Units: 26-50 approx.
120 hotel rooms

F.A.R. : 0.60

Parking: 220 (shared)

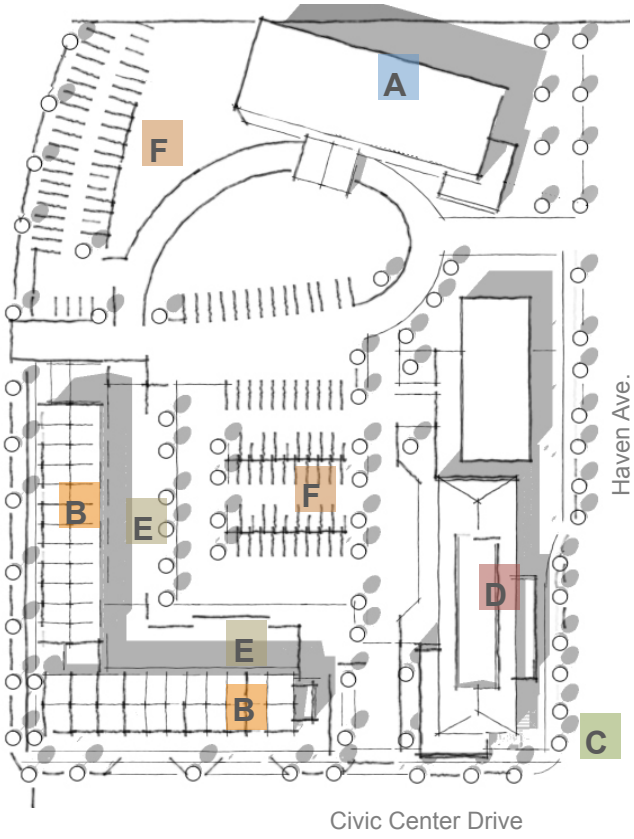
OPPORTUNITY SITE #2

SITE PLANNING PRINCIPLES

A parking strategy including joint-use with the restaurant to the north, tuck-under garages, and even structured parking should be part of the overall development.

LEGEND

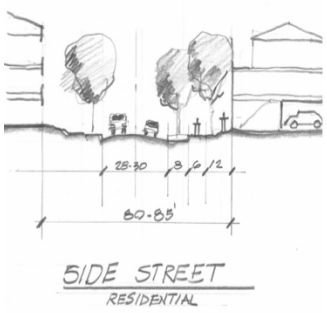
- A Hotel
- B Live/work townhouses
- C Retail/food at plaza
- D Three story office or residential over offices
- E Garages
- F Shared parking

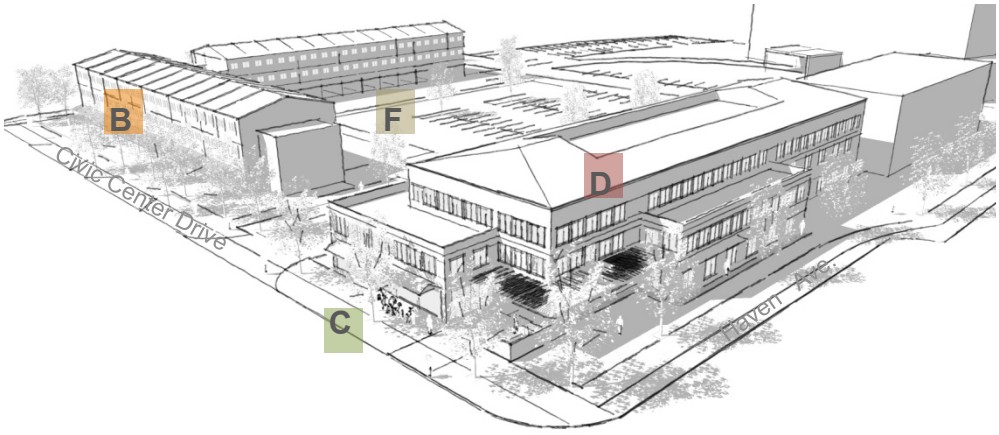


OPPORTUNITY SITE #2

SITE PLANNING PRINCIPLES

Building-to-street relationship along Haven Avenue:
Two factors argue against retail along Haven Avenue in the suggested site plan: the setback to existing buildings along Haven Avenue is deep, making pedestrian access difficult, and retail exists at both the northeast and southwest corners of Haven Avenue and Foothill Boulevard. The surrounding civic and office uses suggest that ground floor offices could be successful. The building frontage should be designed with windows for daylight and to animate the façade, but would provide no pedestrian access from the meandering sidewalk along Haven Avenue. However, at the corner of Haven Avenue and Civic Center Drive the building should create a small plaza and then be set at the back of the sidewalk along Civic Center Drive. This location could be a successful restaurant for workers in the corporate and government offices across Haven Avenue as well as residents to the west. The corner location is good for the tenant, and expresses activity in the public realm.

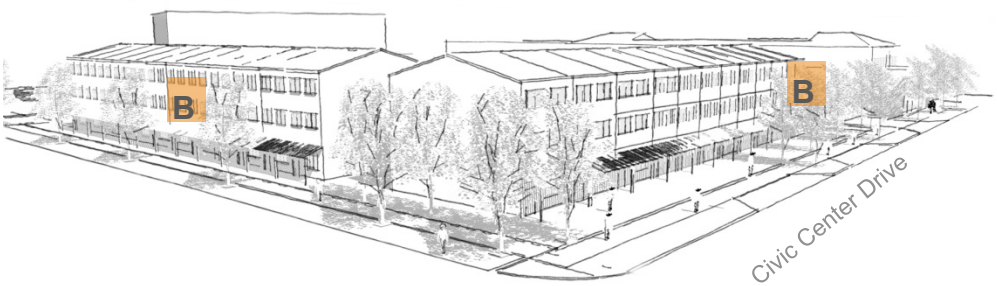




LEGEND

- A Hotel
- B Live/work townhouses
- C Retail/food at plaza
- D Three story office or residential over offices
- E Garages

Building-to-street relationship along Civic and internal road:
The residential buildings will front Civic Center Drive and turn the corner to resemble the existing buildings on the west side.

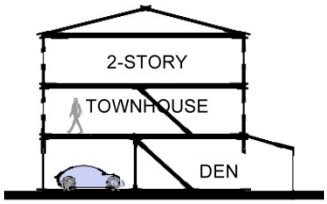


OPPORTUNITY SITE #2

DESIGN PRINCIPLES

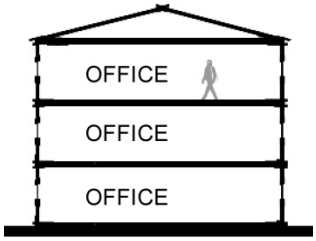
Public Realm – sidewalks: The public realm for this site includes all street frontages, plazas and interior parking. The pedestrian experience will be different along each frontage as well as within the site. Along Haven Avenue the sidewalk is meandering, and buildings are well back from the street. Street trees and landscape similar to the improvements on Foothill Boulevard are appropriate here. As the sidewalk turns west along Civic Center Drive, the proposed building should create a plaza – a stopping point and transition from arterial/commercial to local/residential. The existing and suggested three-story residential buildings enliven the street, but a porous boundary between the public sidewalk and the private entrances is important to create an in-between realm.

Because the suggested units are configured to allow live/work on the ground floor, the individual entries are nuanced: front doors should be visible, but the access should be nuanced. Individual gates, front yards, trees and porches together convey welcome, but maintain the residential character of the street. This pattern will be similar to the existing three-story apartments to the west.



3-STORY WOOD FRAME
TOWNHOUSE W/OFFICE

Small corner plaza: The scale of this plaza is important to play several roles. First, it will be a symbol of commercial activity at a high-value secondary intersection. It will also be a welcoming place for local residents and workforce to get coffee or lunch, and it will serve as a transition from high volume traffic to the slower traffic on Civic Center Drive.



Building types:

Residential: This building type will be wood-frame, three story. The ground floor has a garage in the back, and in front, a flexible space with bathroom can serve as a home-occupation functional space. Stairs lead from the entry up to a two-level townhouse – living – kitchen on the second floor and bedrooms on the third.

Office: This building is proposed as three-story, either wood frame or steel frame depending upon whether the market will support Class A office space in this location.

Hotel: A proposed six-story internal corridor slab building typical of franchise business, suite or extended stay hotels.

APPENDIX A

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS
AND
CITY OF RANCHO CUCAMONGA

RANCHO CUCAMONGA SPECIFIC PLAN BRT CORRIDOR STUDY

SCAG COMPASS BLUEPRINT
DEMONSTRATION PROJECT
CONTRACT NO. 12-001-B02

Land Use and Planning Documents Analysis & Recommendations

Evaluating the General Plan Land Use and Community Mobility Elements, Foothill Boulevard Specific Plan, Development Code, Visual Improvement Plan and Omnitrans BRT Plans

Terra Nova Planning & Research, Inc.®
42635 Melanie Place, Suite 101
Palm Desert, CA 92211
Phone: 760-341-4800

In Association with:
Interactive Design Corporation
Urban Crossroads
VisionScape Imagery

August 3, 2012

SCAG/RANCHO CUCAMONGA
COMPASS BLUE PRINT DEMONSTRATION PROJECT
FOOTHILL BOULEVARD BRT CORRIDOR STUDY
CONTRACT NO. 12-001-B02

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SCAG/RANCHO CUCAMONGA
COMPASS BLUE PRINT DEMONSTRATION PROJECT
FOOTHILL BOULEVARD BRT CORRIDOR STUDY
CONTRACT NO. 12-001-B02

INTRODUCTION

This preliminary report documents our review and evaluation of four regulatory documents controlling development along the Foothill Boulevard corridor, including the General Plan, Foothill Boulevard Specific Plan, Development Code and Visual Improvement Plan. It also includes a review of relevant portions of the Omnitrans System-Wide Transit Corridor Plan for the San Bernardino Valley and the sbX E Street BRT Plan.

Our efforts identify and document regulatory provisions that affect land use and transportation planning along the corridor that may affect the implementation of the Omnitrans BRT route, stations and other facilities. We also identify opportunities for enhanced pedestrian and bicycle facilities along the corridor. Finally, we have reviewed the Foothill Boulevard Visual Improvement Plan and assess the design guidelines and improvement concepts that may affect or may need to be updated to bring into conformance with the design analysis associated with future BRT facilities, and enhanced bike lanes and pedestrian improvements.

This report and our forthcoming review meeting will satisfy Tasks 2.1 through 2.6 of this project.

Project Area Description

The project area consists of the entire length of Foothill Boulevard through the City, from Grove Avenue on the west to East Avenue on the east. The focus of the design concepts will be at the two entry gateway areas and the eight activity centers. The westerly gateway is the area from Grove Avenue to the railroad overpass. The eight activity centers are located in the areas of the major cross streets that intersect with Foothill Boulevard. They are Vineyard Avenue, Archibald Avenue, Hermosa Avenue, Haven Avenue, Milliken Avenue, Rochester Avenue, Day Creek Boulevard, and Etiwanda Avenue. The easterly gateway is the intersection at East Avenue. For purposes of this analysis we have extended our research to one mile north and south of the Foothill corridor, taking into consideration land uses that may directly or indirectly support the planned BRT system.

OMNITRANS BRT PROGRAM AND FOOTHILL BOULEVARD

This discussion represents our initial effort documenting our review of the various resources relevant to the ongoing effort to establish a successful bus rapid transit (BRT) corridor along Foothill Boulevard through the City of Rancho Cucamonga. The project area is located in the northwest portion of the San Bernardino Valley. A BRT connection to much of the urbanized valley and points beyond (particularly Los Angeles County) will ultimately be provided as the overall BRT Transit Corridor Plan is developed.

As part of our initial work effort, pertinent documents describing the planned or proposed transportation infrastructure in and around the City of Rancho Cucamonga along Foothill Boulevard have been reviewed. Documents that have been reviewed include:

- System-Wide Transit Corridor Plan for the San Bernardino Valley (Omnitrans, 2010)
- City of Rancho Cucamonga General Plan Community Mobility Chapter (City of Rancho Cucamonga, 2010)
- Bus Stop Design Guidelines (Omnitrans, 2006)
- Station Design Powerpoint Presentation (Omnitrans, 2012)

Both the City of Rancho Cucamonga and Omnitrans have included the Foothill Boulevard BRT corridor in their long range planning efforts. The corridor as envisioned is very similar for the two agencies, however there are slight differences. The Omnitrans System-Wide Transit Corridor Plan envisions a corridor along Foothill Boulevard with no deviations. The City of Rancho Cucamonga vision includes a deviation at the eastern end of the City that would bypass the Foothill Boulevard / I-15 Freeway interchange area and would instead pass through the Victoria Gardens area of the City.

The Omnitrans plan also includes a station at Grove Street and a Station at Etiwanda Avenue that are not included in the City of Rancho Cucamonga plan. Conversely, the City of Rancho Cucamonga plan includes 2 stations within the Victoria Gardens area that are not included on the Omnitrans plan. As discussed, below, we are recommending that the city consider a minor modification to the eastern portion of the route to align it with Etiwanda and also reconsider the appropriateness of a station at the Etiwanda/Foothill intersection.

Most of the station locations proposed in the City General Plan are at the intersection of major roadways at approximately 1 mile spacing. The City General Plan Mobility Element also delineates Foothill Boulevard as a truck route and also proposed the development of Class II bike lanes along this roadway.

Although all of the arterial roadway cross-sections include provisions for bike lanes, it likely that some potential cyclists interested in accessing the BRT system using their bicycles will be discouraged by the relatively high traffic volumes along these roadways unless better accommodated. All of the north-south streets at the proposed station locations are also truck routes, which would offer a further impediment to bicycle access.

The General Plan also includes many policies intended to facilitate the use of alternative modes of transportation. Examples include providing dedicated parking for electric vehicles, extending multi-use trails such as the Pacific Electric Trail, and multiple policies related to accommodating transit, bicycles, and pedestrians.

The Omnitrans documents that were reviewed as a part of this initial resource review included general recommendations and guidelines regarding transportation amenities and strategies to enhance the success of the BRT system. Two broad categories of strategies / amenities are evident; ways to enhance access to the BRT system, and ways to enhance the competitive nature of the BRT system when compared to the automobile oriented system. In each case, users and other occupants of the transportation system will be asked "To what extent are we willing to accommodate the BRT system to ensure its ultimate success?"

Methods of enhancing access include providing adequate station areas with amenities that are conducive to an efficient and enjoyable BRT experience, as well as providing local access to the stations for all modes of transportation, with a particular emphasis on alternative modes such as pedestrian, bicycle, and even less traditional modes such as neighborhood electric vehicles (NEVs).

The issue of enhancing the competitive nature of the BRT system involves choices that are potentially even more difficult. An exclusive BRT facility typically requires dedicating a travel lane in each direction to the BRT system, implying a reduction in capacity for competing modes of transportation, particularly the automobile. Less intrusive strategies include partially exclusive facilities, where BRT is favored only where it does not impact other modes of transport, or non-exclusive BRT, which relies primarily on station spacing and system management strategies to achieve BRT goals.

Omnitrans System Design Concepts

The transit authority has considered the various design parameters that are integral to an effective BRT system, including available on-street travelways and separate and mixed-flow lanes, lane separators, signal prioritizing and others. Equally important is the siting and design of BRT station, which include median (double-loaded) and parkways sited facilities. The functionality of each station and how it fits into the surrounding urban context must address the following design objectives:

- Location which is integrated and has linkages with adjacent land uses
- Distinctive image that emphasizes motion and technology and responds to the architectural environment as a whole
- Sense of place provided at stations
- Protection from the sun, wind and rain
- Accessibility for persons with disabilities and services incorporated into the design of the station
- Sense of security for patrons
- System and neighborhood information available at stations
- Design modularity to respond to individual site conditions, such as narrow sidewalks, and for flexibility in expansion
- Ease of maintenance and parts replacement
- Rapid boarding and alighting through raised platforms, low floor vehicles, fare prepayment or smart cards
- Sustainability considerations

BRT Station Design

Station architecture is subject to some degree of local input and control and serious consideration should be given to customizing RC-specific designs that contribute to the unique character and aesthetic being developed along the Foothill corridor within the City. A major component of the sbX station is expected to be the uniform application of the sbX logo. Other design considerations for the stations include canopies, seating/bench, windscreens, bike racks, water fountains and fare collection equipment.

For purposes of the next phase of design development, we anticipate possibly expanding upon this suite of considerations and also providing design concepts that show how the stations should be integrated with existing and future development. In addition, we envision development of a variety of supporting land uses and activities and technologies, including broadband wi-fi, convenience commercial services, including coffee shops and cafes with tables and gathering places where riders can socialize and pick up something to drink, eat or read.

BRT Issues and Opportunities

For purposes of this analysis, we have taken a broader view of the Foothill Boulevard corridor, including the areas within 1 mile north and south of Foothill Boulevard. Our consideration includes the local street network, along with the previously presented arterial roadway system. The local street system is an important aspect of the overall transportation network within the project area.

The following issues and opportunities should be considered in the next phases of this project:

- The available plans require reconciliation of competing modes of travel to present a unified vision that will allow for ongoing planning and a concerted effort to provide the necessary station facilities.
- The planned station locations are generally located at major roadway intersections, and further refinement to build upon opportunities to better utilize land that is currently vacant and / or underdeveloped should be possible.
- There is an identified need for better correspondence between land use patterns, especially residential and employment but also commercial, and the effectiveness and efficiency of BRT travel; is there or can we create an adequate market for BRT use.
- Another opportunity is the possible relocation of stations away from major intersections to locations where additional available roadway capacity may afford an opportunity for partially exclusive BRT strategies such as queue jumper lanes.
- The local roadway system may provide an opportunity to establish enhanced networks of facilities that emphasize alternative modes of transport, including bicycles and NEVs.

These issues and opportunities lead to questions that can be put to decision-makers and other involved local citizens to gauge the degree of support for various strategies. Possible questions include:

- Would you support increased development density in the vicinity of BRT station locations to enhance ridership and system success, recognizing that this could (but not necessarily) also lead to an increase in traffic?
- Would you support dedicating travel lanes to exclusive BRT use if this could be done without changing or violating the City's current LOS standard?

- Would you support dedicating travel lanes to exclusive BRT use if this would require changing or violating the City's current LOS standard?
- Would you support shared use of travel lanes such as right turn lanes to allow BRT vehicles to "queue jump" past automobiles?
- Would you be willing to support identifying designated bicycle and / or NEV routes on selected local streets?
- Would you support dedicating space in public or private property within or near station locations to provide amenities such as bicycle lockers, showers, or other facilities to support the BRT system?

All of these questions must be asked within the context of information about what these questions mean for the operation of Foothill Boulevard. As a prelude to soliciting input on these and other relevant questions, we envision an information packet that describes BRT systems and how they operate. These and other questions to be developed in consultation with City staff will be used to gather input from a wide range of stakeholders during the next phase of this project.

Integrated Design Analysis

Working with Omnitrans and City Planning and Public Works staff, we will pursue an integrated approach to BRT travelway and station design and development. This will include an assessment of the best possible travelway layout and design, optimum and most efficient station siting and design (including architectural design options), and adjoining land use planning that complements, and supports the demand for and use of the BRT system.

RANCHO CUCAMONGA GENERAL PLAN POLICIES

We began our analysis with and proceed from the most general to the most specific. Therefore, our first consideration has been relevant elements of the General Plan, and specifically and primarily the Land Use Element (Chapter 2: Managing Land Use, Community Design and Historic Resources) and Community Mobility Element (Chapter 3). We have also identified other General Plan drivers that may affect corridor BRT development policy and plans.

General Plan Land Use Element

GP Land Use Element: Vision Statement

As noted, the Land use Element is embedded in Chapter 2: Managing Land Use, Community Design and Historic Resources. The enhancement of the Foothill corridor for BRT and other alternative modes of transportation are discussed through out the chapter and include the following from the Vision statement:

> "We encourage the retention, rehabilitation, and development of a diverse housing stock that caters to residents in all stages of their lives."
>
> "We maximize the industrial economic development power of our rail and highway connections. The Foothill Boulevard, State Route 210, and I-15 corridors are the core of our commercial development and provide both jobs for our families and revenues for our community services. Our economic base maintains a mix of cultural, residential, industrial, and local and regional commercial uses with stable development."
>
> "Foothill Boulevard (Route 66) is the historic thread that ties our community together. We must continually revitalize the corridor while telling the story of the past and balancing preservation. This will be done through the adaptive reuse of buildings, strong architectural design, and public art.
>
> "We are dedicated to a sustainable balance in land use patterns (residential, business, educational, agricultural, recreational, open space, and historic uses) and supporting transportation."

Comments on Vision Statement

Relevant portions of the vision statements in the Land Use Element clearly support an integrated view of land use, including diversity of housing, as well as the commercial and other services and employment centers. This perspective can be well supported in the various components of the BRT corridor planning effort, tying together the land uses that are in proximity to one another, and that also support the use of a well-designed BRT system.

The vision statements also support the view of the corridor as an important part of the history of the community. In this regard, however, and as indicated elsewhere in the General Plan and the Visual Improvement Plan (VIP), the emphasis on the "Route 66" theme can be limiting from both a placemaking and marketing perspective. Alternatively, a broader conceptualization of the corridor from a "making history" and enhanced community design aesthetic can diversify the corridor without unnecessarily limiting its iconic place in the community.

Before citing and responding to relevant land use policies, we should first point out that the General Plan discusses the importance of optimizing infill development and in integrating land use with transportation planning. This includes recognizing the desirability of walkable neighborhoods, which can also include the "districts" planned and partially developed along the Foothill corridor, and walkability along the length of the corridor itself.

The General Plan identifies the appropriateness of "Well-planned infill [that] can create cultural, social, recreational, and entertainment opportunities, gathering places, and bring vitality to historic roadway corridors (e.g., Foothill Boulevard) and [adjoining] neighborhoods." Our planning efforts are directly geared to help accomplish this goal.

Integral to this concept is a land use and transportation plan that:

> "provides greater transportation options, such as walking and transit, particularly through infill and Mixed Use development. For example, residents living in a new Mixed Use development should not only be able to walk a few blocks to grab a bite to eat or get a cup of coffee, but also to access a transit line."

The General Plan also identifies Foothill Boulevard as a focus area of land use and associated planning. The diversity of lot sizes and existing and approved development has also been noted. Issues associated with the buildout of the corridor include the desirability of mixed-use development, focusing commercial development and BRT transit facilities at major intersections, and improving the "visual feel" along the corridor.

However, the vision for this area is not as well described as it might be. Specifically, reference is made to the "concentration of community- and regional-serving uses east of haven Avenue, while neighborhood-serving uses are [to be] focused on the western portion." Regional commercial is typified in the area by Victoria Gardens, and while this project is envisioned and partially built out as a mixed-use development, it is distinctly different from the type of "walking corridor" we envision along Foothill itself.

The "vision" for Foothill Boulevard also looks to the: " Design [of] new development in such a way as to accommodate both transit and automobile access." While this statement may, on the face of it, sound inclusionary, it in fact can undermine the effort to bring an effective BRT route to this corridor. Remaining roadway capacity should be viewed as an opportunity to diversify the modes of travel, including transit that can use the corridor. This cannot be accomplished by also fully facilitating the automobile, which is an inefficient user of roadway capacity (see Complete Streets principles).

General Plan Land Use Policies

The following Land Use Element policies have been identified as most relevant to the BRT corridor plan, are cited and are briefly discussed below. The policies and one goal are in Italics, with our comments in plain text and noted as "comment".

Policy LU-2.1*: Plan for vibrant, pedestrian-friendly Mixed Use and high density residential areas at strategic infill locations along transit routes.*
Discussion: Based on a comprehensive land use analysis, the General Plan identifies

areas that are appropriate for Mixed Use development. Generally, these areas are located along Foothill Boulevard, although other limited areas designated for Mixed Use development are located within the southern industrial section of the City. The General Plan allows considerable latitude in terms of the mix of uses and development density/intensity to encourage excellence of design, integrated uses, and sustainability in Mixed Use development.

Comment: This policy provides authority to the concept of medium and high-density development along the corridor and will be relied upon to rationalize the land use development concepts we are developing.

Policy LU-2.2*: Require new infill development to be designed for pedestrians and automobiles equally, and to provide connections to transit and bicycle facilities.*
Discussion: While the development pattern of Rancho Cucamonga demands significant automobile usage to get from one use to another, the General Plan seeks to achieve a more balanced mix of transportation choices as the City evolves. Consequently, the General Plan expands the potential for Mixed Use development in key areas. Development of higher-density housing mixed with a variety of commercial and civic uses, and public spaces, with convenient access for pedestrians, bicycle riders, and transit users will have positive impacts on air quality, mobility, and other general quality of life measures.

Comment: This policy is internally inconsistent, giving equal weight to transit and pedestrian/bicycle users, while doing the same for the automobile. As noted above, automobiles are the least efficient users of roadway capacity, reduce capacity that can be made available to transit and bicycles, and also can adversely affect pedestrian facilities and use along the parkways and at crossings. Consideration should be made to revising this and related policies that ignore these contradictions, which will frustrate the implementation of an effective BRT system.

Policy LU-3.1: *Encourage the creation and maintenance of regional employment, cultural and retail destinations, as well as a full range of amenities and services to support residents of Rancho Cucamonga.*
Discussion: The Rancho Cucamonga community currently enjoys a wealth of various employment, cultural, entertainment, and retail destinations. The General Plan recognizes that the City will need to continue to attract and maintain a balanced mix of uses, a range of amenities, and high-quality development to adequately meet the needs of the growing population base.

Comment: Pursuant to this policy, the development of new and differentiated land uses along Foothill can greatly diversify the corridor with a mix of housing and commercial and possibly additional office development that places jobs near housing, and also creates scaled down retail destinations that support dining, entertainment and other complementary commercial uses.

Policy LU-3.2: *Encourage a mix of retail, service, industrial and manufacturing, and professional uses that create diverse, well-paying employment opportunities.*
Discussion: A diverse employment base that includes different business sectors allows for a diverse workforce and income levels. This diversity allows for competitive salaries and rewarding employment opportunities for all levels of society. Further, a diverse employment base maximizes job opportunities for Rancho Cucamonga residents. The General Plan establishes a comprehensive set of land use designations that allows flexibility and responsiveness to market conditions and supports a diversity of businesses.

Comment: This policy is essentially the same as LU-3.1, but reveals the city's predisposition to professional jobs, which are typically higher paying, result in household (or at least local employees) with greater discretionary income, and have a more beneficial impact on the local economy. The corridor already supports a wide range of jobs, and an appropriate mix of multi-family housing can provide higher end condominiums and quality apartments, as well as more affordable dwelling units, which in turn and further diversify the neighborhoods along and near the corridor.

Policy LU-3.8: *Implement land use patterns and policies that incorporate smart growth practices, including placement of higher densities near transit centers and along transit corridors, allowing Mixed Use development, and encouraging and accommodating pedestrian movement.*
Discussion: Smart growth emphasizes accessibility, meaning that the activities people use frequently are located close together. Its practices integrate transportation and land use decisions by encouraging more compact, Mixed Use development within existing urban areas and along transit lines, such as Omnitrans bus routes and possible future Bus Rapid Transit lines. Higher density development along transit corridors could lead to fewer automobile trips as residents opt for transit use, particularly along Foothill Boulevard and Haven Avenue.

Comment: This policy is directly responsive to SB 375 and other state mandates that tie land use to transportation and the reduction of VMTs and associated GHG and other emissions. The emphasis on pedestrian movement, especially in the absence of trying to add more cars, is also welcome and consistent with needed design concepts to support BRT and other non-car modes of travel. The Foothill BRT corridor concept should bank on this policy.

GOAL LU-4: *Establish a pedestrian-friendly Foothill Boulevard corridor that facilitates transit use and provides a range of commercial destinations to serve both local and regional needs.*

Comment: This goal can play directly into the BRT concept for the corridor. What might be added to this would be to also establish a land use pattern and bicycle and pedestrian-friendly... and that also provides a range of residential developments and commercial destinations... The point is that the strategy needs to be an integrated one that supports development of a balanced mix of residential and commercial development.

Policy LU-4.1*: Provide new Mixed Use development opportunities along the Foothill Boulevard Corridor to allow residential, commercial, and civic uses, and to accommodate both transit and automobiles.*
Discussion: A key focus of the Foothill Boulevard planning concept is the design of an attractive, pedestrian-oriented corridor that promotes the use of walking, biking, and transit, and that supports the potential for higher-density mixed commercial and residential uses throughout the corridor.

Comment: Comments on the above referenced goal also apply to this policy. It is uncertain what additional "civic" uses are intended. Branch libraries, senior centers and similar civic uses could certainly help to support a diverse corridor. Here too, it is fortunate that an attempt is not made to shoehorn the automobile into the policy. Appropriately scaled commercial that does not require the use of an automobile will be an essential part of our commercial concepts along the corridor and at or near transit stations.

Policy LU-4.2: *Concentrate community- and regional-serving uses on Foothill Boulevard (east of Haven Avenue), providing a range of commercial, office, residential, restaurant, and entertainment-related uses.*
Discussion: Eastern Foothill Boulevard (east of Haven Avenue) will focus more on community and regionally focused retail and commercial service land uses. There will be some opportunities to integrate residential, commercial, office, and medical uses. These uses are meant to work together to create an environment that is pedestrian friendly, but also accommodates transit, bicycle, and automobile use.

Comment: This portion of the planning area already has substantial community-serving commercial development east of Haven Avenue, including a Home Depot sited on lands designated General Commercial, although this can also be construed as a regional commercial use. While there may be opportunities for mixed-use development in conjunction with BRT stations this area has limited opportunities but should not be discounted for this purpose.

Policy LU-4.5: *Continue to reinforce the identity of the intersection of Foothill Boulevard and Haven Avenue by supporting development projects that are comparable to the quality of the Civic Center and County Courthouse complex, Terra Vista Town Center, and the adaptive re-use of the historic Virginia Dare Winery.*
Discussion: The intersection of Foothill Boulevard and Haven Avenue is an important area of the City due to the civic uses of the City Hall and Courthouse complex, the re-use of the Virginia Dare Winery, the Town Square Mixed Use project, and the Terra Vista Town Center Shopping Center.

Comment: All four corners of the Foothill/Haven intersection are already fully developed. The principle opportunity identified in the General Plan is the potential adaptive re-use of the Virginia Dare building, which is currently an office center. Given the high levels of employment in the immediate vicinity, the substantial institutional uses (City Hall, courts, churches, etc.) and the substantial residential development at the southwest corner, there is a valuable opportunity to further diversify this node on the corridor. Such diversification might include a fine arts museum in the Virginia Dare building.

Policy LU-4.6: *Accommodate land uses that support the activity centers envisioned in the Historic Cucamonga sector, as identified in the Foothill Boulevard Specific Plan.*
Discussion: Creating identifiable centers is important in placemaking. Building on the City's historic routes is a viable way to create meaningful places with appropriate land uses. See the Historic Resources section of this Chapter for more information regarding historic districts.

Comment: While the historic resources discussion touches on an arts/cultural center, it references this in the context of Victoria Gardens. This development is already a "place", while the downtown portion of the corridor is more limited and currently most distinguished by the civic center area. We believe that serious consideration should be given to the adaptive re-use of the Virginia Dare Winery building as a fine arts museum. This would preserve this historic building and further the design concepts that are emerging along the corridor, would strengthen the desirability and placemaking along the corridor, and optimize synergistic opportunities already at the node of Foothill and Haven. We will speak more to this in future documents and design concepts.

Policy LU-5.1: *Create a central business hub at the intersection of Foothill Boulevard and Haven Avenue, extending south to 4th Street, with higher-intensity office, commercial, and public/quasi-public uses.*
Discussion: To accommodate more office and professional uses in Rancho Cucamonga, Haven Avenue, between Foothill Boulevard and the City's southern boundary, is planned as the City's office district. The proximity to transportation, including the freeways, Metrolink, and the proposed Bus Rapid Transit system will benefit workers as well as reducing the need for the automobile for commuting.

Comment: The business hub concept seems to be well underway at the subject corner and along South Haven. The status of the parcel at the southwest corner of Civic Center Drive and Have Avenue would be good to know. The General Plan designation on this parcel appears to be Office with a Haven Avenue Office Overlay. Regardless, we have been collecting data one mile north and south of Foothill, and this corridor could be an important market for Foothill commercial, residential and BRT development.

Policy LU-5.4: *Promote a pedestrian-friendly corridor where employees can walk to restaurants, commercial services, and other amenities in the area.*
Discussion: Haven Avenue is planned to accommodate a more pedestrian friendly environment with retail and dining opportunities within walking distance so that employees and visitors can walk to amenities.

Comment: While this policy appears to refer specifically to Haven Avenue, it could easily apply to the Foothill corridor and perpendicular streets that feed to it. Enhanced bicycle access would also extend the market to Foothill. It is our intent to evaluate and, to the extent practicable, enhance bicycle use along Foothill as part of an overall multi-modal approach that will broaden activity along the corridor.

Policy LU-9.4: *Ensure that infill development is sensitive and compatible with the design and scale of all adjacent historic properties.*
Discussion: Every act of construction is an opportunity to repair, enhance, or embellish a district. The best way is to create infill development that is sensitive to and inspired by the existing conditions. This includes materials, scale, and massing.

Comment: We certainly endorse this policy. However, there appear to be limited "historic properties" along the corridor with the exception of the Virginia Dare building. We also hope to broaden the concept of Foothill beyond the "Route 66" concept and iconography to include the modern and vibrant downtown being conceptualized.

Policy LU-9.5: *Establish Mixed Use areas as higher intensity "urban centers" where there is sensitive integration of land uses, convenient modes of transportation, and a focused "sense of place" that emanates from the architectural and landscape design.*
Discussion: Rancho Cucamonga has a well-established pattern of suburban and rural development. The City has the opportunity to enhance this pattern with the development of more urbanized centers of activity within suitable locations. This General Plan provides detailed land use and design guidance for each of the Mixed Use areas, which are envisioned as concentrations of activity at carefully selected locations within the City.

Comment: Our conceptualization is crystallizing along the lines of a "string of pearls" that are connected by a multi-modal transportation corridor that facilitate BRT use, as well as pedestrians and bicyclists. The dominance of the automobile has not yet conquered the corridor and adequate car (and truck) access can be assured but the General Plan appears to recognize the opportunities to optimize BRT and other alternative modes of travel. The establishment of new and the expansion of existing mixed-use development on the corridor will be directly responsive to SB 375 mandates and can substantially reduce vehicle miles traveled. The pearls and string can and should provide a diverse set of "urban centers" or neighborhoods connected by thoughtfully rendered parkways supporting pedestrian and bicycle use.

Summary General Plan Land Use Perspective
Every community faces the dilemma of respecting the past and accommodating the present and future. In the case of Foothill Boulevard (Historic Route 66) the character of the corridor has always been one of movement, not destination. In the early years the businesses were located to serve travelers, not adjoining residents and even new development follows the "community commercial model" as opposed to the more intimate neighborhood model. The road has always been a "corridor" but now is an opportunity through the BRT and associated planning process to make it a "Main Street".

The opportunities that exist today to shape the future are based on a new model of movement – not the traveler, but the neighboring resident and employee, and the commuter; it is not the private vehicle the "corridor" must now accommodate, but the mix of transit, pedestrians, cars, bikes. While it may be thought that pedestrians are only really relevant at the intersections, the increasing value and importance of walking encourages a more extensive consideration of the pedestrian corridor as well.

The success of this enhanced and diversified "Main Street" today and for decades to come will be the ability to serve as not only a conduit, but also an extended and connected series of dynamic neighborhoods with a context for commerce, and as an iconic "brand" for the city. But this new brand must reflect the vastly different forces that are shaping the demographics and commerce. Commerce and residents must coexist for the broadband mobility to work. And the methods of movement must incorporate not only the car but especially the BRT system, as well as bicycle and pedestrian mobility.

Of course, the evolution of Foothill Boulevard is still related to movement and linkages, but today's movement is vastly different (bicycles, golf carts and NEVs, smart cars, cars, buses and especially the proposed BRT system), and the linkages must also evolve. This new broadband mobility must also be matched by broadband wi-fi with the BRT stops being hotspots that offer full range access to the internet and the bus time of arrival, capacity etc. We will elaborate this concept in our next phase of planning.

General Plan Community Mobility Element

Vision Statement

The General Plan Community Mobility Element Vision Statement sets forth three guiding principles addressing modes of transportation, economic development and a sustainable balance in land use patterns. The stated principles include:

> "We emphasize development of a balanced, integrated, multi-modal circulation system which includes sidewalks, bikeways, streets, equestrian and hiking trails, and mass transit. The system is efficient and safe, and connects neighborhoods to jobs, shopping, services, and active and passive open space."
>
> "We maximize the industrial economic development power of our rail and highway connections. The Foothill Boulevard, State Route 210, and Interstate 15 corridors are the core of our commercial development, providing both jobs for our families and revenues for our community services. Our economic base maintains a mix of cultural, residential, industrial, and local and regional commercial uses with stable development."
>
> "We are dedicated to a sustainable balance in land use patterns (residential, business, educational, agricultural, recreational, open space, and historic uses) and supporting transportation."

Vision Statement Relevance

The GP Community Mobility Element Vision Statement identifies all modes of transportation as important to social cohesion, and economic development and prosperity. The last also references a "sustainable balance in land uses that also supports transportation.

The subject Foothill Boulevard Corridor BRT study emphasizes the integration of future BRT along the full length of the corridor and its linkage with the Victoria Gardens development. The commercial importance of the corridor is also emphasized. Also, the extent to which land use patterns support the transport system is cited.

These guiding principles are general in nature but seem to endorse the vision of a BRT route and associated facilities along the length of Foothill Boulevard. The integration of BRT into this discussion and/or greater emphasis on mass transit appears warranted. This is especially true in light of the emphasis on connecting to industrial and industrial land uses in the corridor area. Greater emphasis could also be made to explicitly supporting mixed-use development that places residential development in proximity commercial services along the corridor.

Therefore, the third guiding principle could be re-written along the following lines and may be worth considering:

> "We are dedicated to a sustainable balance of land uses located in proximity to alternative modes of travel, with particular emphasis on bus and bus rapid transit, which better connect residents to employment centers and commercial services."

Metro Gold Line

Consideration has also been given to the General Plan discussion of the Metro Gold Line and its possible extension closer to the City. While this interconnection to Rancho Cucamonga is a worthwhile effort for purposes of further integrating interregional systems, its relevance to the subject Foothill corridor BRT system is limited.

One of the goals of municipal planning is to achieve an optimum balance between jobs and housing. In this regard, the City is jobs rich in areas ranging from general and specialty retail, professional and institutional land uses, to a major commitment in industrial development.

As the General Plan notes, the Metro Gold Line is best suited for travelers who wish to leave the City for destination to the west, including downtown Los Angeles. A future MGL station at Foothill and the Pacific Electric right of way would be well suited for that purpose. To this extent, a future connection to the MGL via a Foothill BRT system would complement one another but are not integral to the success of either system.

The Bike Plan

Class II Bike Lanes continue to be planned on Foothill Boulevard and Haven Avenue. However, these are also routes identified for Bus Rapid Transit, as well as being major traffic arteries and truck routes. As planning proceeds for the Bus Rapid Transit corridors, it may not be possible or desirable to retain the bike lanes on these two streets. The Bicycle Plan provides various alternative and adjacent bike routes to Foothill Boulevard and Haven Avenue in the event that future conditions would preclude retaining the bike lanes on those streets – including Class II Bike Lanes on Arrow Highway and Church Street, a Class I Bike Path along the Deer Creek Channel, and a Class II/Class III Bike Lane/Street on Hermosa Avenue.

While "The Bike Plan" states that the vision of a Class II bike lane along Foothill Boulevard may be incompatible with the planned BRT system, every effort should be made to find ways to preserve both through thoughtful and innovative and flexible design. Bicycle access along this roadway will be important to the success of the "destination neighborhoods" concept that is being explored and that we feel is a highly desirable outcome of this planning effort and the success of the future BRT system.

Walkability Improvements and Pedestrian Amenities

The General Plan Mobility Chapter says very little about sidewalks and related pedestrian mobility, and there is even less discussion regarding the integration of pedestrian facilities in commercial areas or along major corridors such as Foothill Boulevard. Reference is made to "street-adjacent sidewalks" and to the need for wider sidewalks. Other amenities are briefly mentioned but is such general terms that the discussion provide little guidance. Policies call for minimum four-foot sidewalks but these are generally consider the absolute minimum and are not standard for most communities. Our conceptualization of multi-modal access along Foothill Boulevard will advocate wider sidewalks with separation from the curb wherever possible. Sidewalk and other pedestrian-related issues are further discussed below.

General Plan Roadway Designation

Foothill Boulevard is designated a "Major Divided Arterial" in the GP Community Mobility Element, and two configurations for this roadway are delineated in the GP, both of which call for three travel lanes in each direction. However, while portions of the corridor do provide a total of six travel lanes, major portions provide only two lanes in each direction. At some locations, especially along the western portion of the corridor, the roadway narrows down to one travel lane, although additional lanes will probably be captured as development and redevelopment occurs.

The eastern portion of the route is also planned on roads that are down to two lanes and in some cases one travel lane in each direction. These include Victoria Gardens Lane and Church Street. Where Church Street changes to Miller Avenue, and just west of Dolcetto Place, only one travel lane in each direction is provided. This is also true for southbound East Avenue.

The number of travel lanes available has a significant impact on the "rapid" portion of the BRT system, which relies upon dedicated or "claimed primary" BRT lanes. The fewer lanes available, the less efficient is the BRT route and the more affected it is by other traffic on the roadway. This is probably less of an issue in the vicinity of Victoria Gardens and points east.

General Plan Transit Component

The City General Plan recognizes BRT as an important component of the City's mass transit system, enhancing bus transit with more frequent service, fewer stops, and higher average speeds when compared to traditional bus service. Higher-capacity buses are also typical with hydraulic systems that lower bus floor to match with sidewalks and/or station platforms for quick boarding that also meets the needs of ADA users. As noted above, BRT buses frequently travel in dedicated BRT lanes and may have priority access and signal preference over other vehicles.

The General Plan Transit Plan identifies the subject Foothill Boulevard corridor as a Bus Rapid Transit route and provides for BRT stations about every mile and at major intersections. The plan also calls for a Transit Center at the intersection of Day Creek Boulevard and Victoria Gardens Lane, in proximity to the southwest corner of Victoria Gardens and a short distance north of Foothill. The planned Transit Center would necessarily be located at the northwest corner of this intersection and within an existing Victoria Gardens parking lot.

Possible Adjustments to the Foothill Transit Route

As noted above, the Foothill BRT corridor route shown on the GP Transit Plan calls for the eastern last leg of the route to proceed east along Church Street/Miller Avenue, and then to proceed south on Eastern Avenue and thence east on Foothill. This route bypasses an area of substantial commercial services and employment centers (mostly retail) between Day Creek Boulevard and Etiwanda Avenue.

We recommend that the City consider changing this portion of the route to bring the BRT south along Etiwanda, where it can directly serve a large area of existing and planned commercial development and the associated employment centers around the corner of Etiwanda and Foothill.

General Plan Mobility Policies

The following Community Mobility Chapter (Circulation Element) policies have been identified as most relevant to the BRT corridor plan, are cited and are briefly discussed below. The policies and one goal are in Italics, with our comments in plain text and noted as "comment".

Policy CM-1.1: *Provide a safe and efficient street system in the City to support mobility goals, all transportation modes, and the goals of the Managing Land Use, Community Design, and Historic Resources Chapter.*
Discussion: The Managing Land Use, Community Design, and Historic Resources Chapter focuses on coordinating land use and transportation decisions. The Chapter also addresses pedestrian accommodations in land use planning.

Comment: This policy tries to cover it all and as a result doesn't really address any of the mobility issues in a meaningful way. As noted elsewhere, pedestrian issues are only discussed in very general terms in the General Plan (well, it is a "general plan" after all), and walkability to and from a BRT station is essential to attracting users. Not only must such access be safe and efficient, it needs to be attractive and enlivening. Parkway and streetscape design plays an essential part in making the walking experience, whether to the ultimate destination or the BRT system, a desirable experience.

Policy CM-1.2: *Provide an integrated network of roadways that provides for convenient automobile, transit, bicycle, and pedestrian circulation movement around the City.*
Discussion: This policy recognizes that not all streets need to serve all transportation modes, but that certain streets may also need to fully allow for the efficient and convenient use by travel modes other than the automobile.

Comment: This is an important policy for the proposed BRT corridor. The discussion says more and something different than the policy itself and could be more pointedly worded. For Foothill Boulevard, the BRT system can be the essential element to the type of people movement that directly supports the desired mix of land uses. The BRT system can support this concept much better than the accommodation of the automobile and this should be a high level consideration in the planning of the BRT system along this corridor.

Policy CM-1.5: *Implement street design standards. Modified standards may be applied where appropriate on arterial corridors relating to transit, bicycle facilities, sidewalks, and on-street parking to be context sensitive to adjacent land uses and districts, and to all roadway users, including transit, bicycles, and pedestrians.*
Discussion: This policy applies to both public and private roadways. Private roadways may be constructed with slightly reduced standards pursuant to the Development Code. The standards for various roadway types have been established to accommodate the forecast traffic volumes and functions of the existing and future roadways.

Comment: This policy is essential to the corridor-specific design considerations that must be given to Foothill Boulevard. Again, this is a very general policy and along the subject roadway a hierarchy of priorities needs to be established with sound rationalization. Yes, we can accommodate through-traffic with emphasis on the automobile, but the corridor itself will suffer. This is not necessary in light of the relative focus of community and regional commercial on the east side and in proximity to regional transportation links, and neighborhood serving commercial on the west and in proximity to adjoining residential neighborhoods (their market). Specific to the goal of designing for an effective, efficient and used BRT system, we will prioritize design considerations in consultation with City staff and other stakeholders.

Policy CM-2.1: *Facilitate bicycling and walking citywide.*
Discussion: The Community Mobility Chapter supports alternative transportation options, including bicycling and walking that are sustainable modes and contribute to a Healthy RC.

Comment: As discussed throughout this analysis, the implementation of this policy is integral to the success of a BRT system on this corridor. Foothill should be viewed as a destination and not just a way of getting somewhere else. Optimum access to the existing community and regional centers is well provided by I-10 and I-15, as well as via the 210 Freeway. Facilitating biking and walking along and adjacent to the Foothill Boulevard corridor will directly support the success of the BRT system without adversely affecting commercial activities along this roadway.

Policy CM-2.7: *Require new developments of more than 100 employees (per building or per tenant/company) to develop Transportation Demand Management programs to minimize automobile trips and to encourage use of transit, ridesharing, bicycling, and walking.*
Discussion: Transportation Demand Management programs are aimed at reducing auto driver trips through the use of other modes, and thereby achieving a more balanced transportation system and reducing vehicular emissions.

Comment: This is a very ambitious policy and establishes a low threshold requiring businesses to implement TDM programs. However, it very much supports the concept of the subject BRT system and non-motorized access to BRT stations. The effective implementation of the BRT system will not only reduce auto traffic, it will also enhance internal (intra-corridor) land use synergies and facilitate the concept of a string of distinct neighborhoods (pearls) along the corridor.

Policy CM-3.1: *Consult with regional transit operators to maintain and improve the coverage and frequency of transit service in the City.*
Discussion: Continue to work with Omnitrans, Metrolink, and other transit providers to increase access to the public transit network. The outcome should be a system that provides a true alternative to single-occupant vehicles.

Comment: We have already had very productive discussions with Omnitrans staff regarding their plans for the sbX BRT system and specifically how it will be implemented along Foothill Boulevard in RC. The discussion portion of this policy again de-emphasizes the auto in support of transit, which will serve this planning effort.

Policy CM-3.2: *Support Omnitrans' expansion of Bus Rapid Transit (BRT) into Rancho Cucamonga, along Foothill Boulevard, with stops at all major north-south streets, and with direct routing via Victoria Gardens.*
Discussion: Foothill Boulevard is an ideal corridor to expand BRT services. Many of the City's higher residential densities and major commercial retail centers are located on or near Foothill Boulevard. This corridor connects many regional destinations located throughout San Bernardino County. This General Plan envisions additional Mixed Use development along Foothill Boulevard and supports creating a more pedestrian-friendly environment for this corridor.

Comment: As with Policy 3.1, this policy directly supports BRT system development along Foothill Boulevard and the transit plan also reflects this concept. Note that we are recommending the relocation of the last north-south leg of the route east of I-15 to be placed along Etiwanda Avenue instead of East Avenue. Also as previously noted, the BRT system may be an effective means of accessing Victoria Gardens for the closer in market; however, the three major regional freeways should be expected to serve the bulk of the community and regional traffic to this destination center.

Here again, the discussion confuses Foothill as a regional link or travel corridor, when the new emphasis should be on intra-corridor land use synergies. Yes, the route will take travelers through the portion of the corridor located in RC but the creation of distinct shopping, employment and living neighborhoods will also make the corridor an attractive and desirable destination, one different from but as effective as Victoria Gardens. This will further strengthen and diversify the City economy and extend its position as a commercial powerhouse in the region.

Policy CM-3.4: *Consult with Omnitrans to establish and maintain transit hubs at Victoria Gardens, Chaffey College, the Metrolink Station, and other locations as appropriate to facilitate use of transit and transfers between transit services.*
Discussion: Victoria Gardens, Chaffey College, and the Metrolink Station are some of the major activity centers in Rancho Cucamonga that can support transit services.

Comment: Although beyond the scope of this analysis, secondary transit routes and stops will be important to the success of the primary BRT route along Foothill Boulevard. Clearly, efficient transit access to these major destinations can be facilitated by thoughtful secondary route locations. The concept of relocating the Metrolink station should also be given serious consideration, the current location being les than optimal for overall system integration.

Policy CM-3.6: *In addition to requiring private development to provide transit amenities, consult with regional transit operators to provide attractive and convenient bus stops, including shade/weather protection, seats, transit information, and bus shelters as appropriate.*

Discussion: Providing transit amenities will provide a more pleasurable experience for transit riders and encourage new users.

Comment: This is an essential policy mandate and one that is getting thoughtful consideration by the project team. Again, the idea of these stations along Foothill Boulevard is making the stations and the lands around them destinations, not just transfer spots. To the extent practicable, these stations should be designed as integral parts of the surrounding lands and land uses, which will be a guiding principle of our design efforts.

Policy CM-3.7: *Continue to develop and maintain a citywide bicycle network of off-street bike paths, on-street bike lanes, and bike streets to provide connections between neighborhoods, schools, parks, civic center/facilities, recreational facilities, and major commercial centers.*
Discussion: The Bikeways Plan, Figure CM-6, will be the basis for implementing a system of Class I, Class II, and Class III bike paths. The Trails Implementation Plan will be updated to maintain consistency with the General Plan.

Comment: What might be added to this policy are the connection between Class I, II and II bike paths and non-motorized access to the BRT stations. Biking is on the rise and the climate in RC is conducive to its expanded use beyond recreation. Other GP policies support bike use and bicycle access should be viewed as an integral part of the overall BRT strategy.

Policy CM-3.12: *Continue to require that the siting and architectural design of new development promotes safety, pedestrian-friendly design, and access to transit facilities.*
Discussion: Rancho Cucamonga will continue to ensure that project site planning incorporates the needs of the pedestrian by providing designated walkways from parking lots to buildings, between buildings, and to adjacent uses where appropriate.

Comment: This type of policy should be a given to most urban design situations. The design concepts were are working on and briefly discuss herein rely heavily on safe and efficient pedestrian access between BRT stations and adjacent land use While the auto and support facilities are not the "enemy", they can be significant barriers to the perceived safety of pedestrians and bikers, and can affect BRT use. The same is true of architectural design both at the stations and in more broad applications.

Policy CM-3.14: *Enhance pedestrian and bicycle access to local and regional transit, including facilitating connections to transit.*
Discussion: Bike racks and lockers at transit stations and bike racks on busses allow bicyclists to connect to bus and rail services, increasing mobility. Pedestrian walkways and shortcuts that connect to transit stops can increase transit use.

Comment: This policy is also a given and reinforces the idea that transit users need to feel safe and a considered part of the multi-modal mix, not just an after thought or add-on that is not well integrated with the roadway, or surrounding parking or land uses. The level of station support for bicycles needs further consideration given the potential demand for these facilities and the space they require.

Policy CM-4.1*: Continue to implement traffic management and traffic signal operation measures along the arterial roadway to minimize delay and congestion for all modes, without adversely impacting transit, bicycles, and pedestrians.*
Discussion: The City will provide traffic management and traffic signal operation measures and promote safe and efficient traffic signal timing at all existing signalized intersections. Maximizing traffic flow efficiencies at major intersections decreases congestion on roadways.

Comment: This policy will be critical to the effective implementation of the BRT system along the corridor. Priority signalization and signal control will allow the BRT buses to maintain headway, which must put the "rapid" in BRT. Not all modes may benefit from this essential management and control protocol. The after thought in the policy seems to emphasize a bias toward the auto, which will need to be either reversed or neutralized to along Foothill Boulevard to make this BRT route efficient and desirable for use.

Policy CM-4.2: *Continue to design and operate arterials and intersections for the safe operation of all modes of transportation, including transit, bicyclists, and pedestrians.*
Discussion: If users do not feel safe, they will not take advantage of alternative transit systems. With Rancho Cucamonga's wide streets and high speed traffic flows on certain streets, it is especially important to be aware of the potential harm that could come to transit riders, bicyclists, and pedestrians.

Comment: Yes, safety is an essential aspect of system design regardless of the mode of transportation. The discussion recognizes that wide streets can frustrate pedestrians and compromise safety. They can also require extended green time at crosswalks that can reduce green time along the mainline (east-west). The thoughtful adaptation of Foothill Boulevard to BRT can have multiple benefits in terms of reducing auto traffic volumes, while affecting traffic calming and a pedestrian and bike-friendly feel along the corridor.

Summary General Plan Community Mobility Perspective
The General Plan Community Mobility Chapter does a good job of coordinating City planning with regional transportation planning being conducted by Omnitrans and SANBAG, which sets the stage well for development and implementation of the BRT system along Foothill Boulevard. This street is identified as a core area of commercial development but is also recognized as an area where higher density residential development is and should be supported. Finally, Foothill Boulevard directly supports and is in proximity to major corporate and institutional (civic, courts, medical, etc.) offices, as well as substantial areas of industrial development, all of which constitute major employment centers.

While some portions of the General Plan identify the opportunities for enhancement of existing land uses and development of new "districts" along the corridor, a unifying concept for this roadway is still lacking. There is also a pervasive bias toward the automobile, which can be at the expense of and efficient and effective BRT system. The subject BRT and land planning effort is an opportunity to take the General Plan, Specific Plan and Omnitrans BRT plans to the next level and provide guidance for an integrated planning effort that creates a corridor that is a destination rather than simple a means of moving people through the community.

The chapter's discussion of "The Bike Plan" states that the vision of a Class II bike lane along Foothill Boulevard may not be possible or may be precluded by the planned BRT system. Our planning effort will make every effort to contradict this conclusion through thoughtful and innovative and flexible design. We believe that bicycle access along this roadway will be important to the success of the "destination neighborhoods" concept that is being explored and that we feel is a highly desirable outcome of this planning effort and the success of the future BRT system.

That the General Plan Community Mobility Chapter places too great an emphasis on Foothill Boulevard as a major through street and even assigns a "truck route" status to this roadway seems to conflict with the existing land use pattern along the roadway, and the other aspirations for development along and in the vicinity. The General Plan also does not appear to take adequate advantage of the numerous alternative routes available to carry through traffic and that destined for the city's community and regional shopping destinations. More emphasis in this regard could be given to I-10, I-15, SR 210 freeway, as well as Base Line Road

Foothill Boulevard Specific Plan and City Development Code

Introduction

The discussion and preliminary evaluation of these two planning documents has been combined based on our understanding that the Specific Plan has been largely reorganized and repurposed in the City's new Development Code as set forth in Section 17.38 of the Code. Nonetheless, there has been value in reviewing the Specific Plan to trace the evolution of the City's thinking regarding the four planning subareas that comprise it. Therefore, the following discussion first reviews the Specific Plan in general terms then moves on to the Development Code and its applicability, and opportunities and constraints as they relate to the proposed BRT route along Foothill Boulevard.

Foothill Boulevard Specific Plan

The Foothill Boulevard Specific Plan was development about 25 years ago in 1987. Since that time, much has changed along the corridor and at least two significant land development cycles have occurred along the corridor and throughout the City and the region. Emphasis is placed on its importance as a commercial corridor, and the later realized Victoria Gardens center as a part of this commercial push was already anticipated.

Four planning subareas were identified in the Specific Plan, including Bear Gulch, Vineyard, Old Cucamonga and Etiwanda. These planning subareas, which are identified as "districts" in the Development Code, which implements the 1987 Specific Plan, were envisioned as "activity centers" located primarily at major intersections. There are meant to have individual identities with a stronger urban character than was to be found at the time elsewhere in the City.

Specific Plan Architectural Design: The focus of the Specific Plan was on four major planning components, including community design and architecture, circulation, land uses and implementation. Architectural design was assumed to borrow from existing "architectural determinants" and was strongly recommended as the drivers for design. This rather narrow perspective had the potential to place unnecessary and undesirable limitations on urban and architectural design within these planning subareas.

Circulation Planning: The Specific Plan called for a six-lane roadway along the entire length of Foothill Boulevard, with an emphasis on transportation systems management, divided roadway design and access restrictions and consolidation, and adequate side street access. However, the Specific Plan also identified Foothill as an integral part of the regional roadway system, which places an unnecessary burden on this roadway and limits it potential for adjoining mixed-use neighborhood development. The Specific Plan did recognize this conflict, however, and the subject planning effort may serve to help to resolve at least some of these conflicts.

Specific Plan Land Use Planning: With a defined planning area of approximately 560 acres, development was dominated by strip commercial mixed with small scale office development and constituted about 22% of the planning area. The area was also comprised primarily of a variety of small lots of diverse ownership, which made lot consolidation essential for Plan implementation. The planning area lacked character and was fragmented in appearance without a unifying set of characteristics. It also lacked community activity centers that might facilitate a more unified development of this important and valuable corridor.

Right up front, the Specific Plan declares itself as an effort to establish the corridor as a viable regional commercial area. At the time of its drafting, this was the conventional thinking of how commercial development should be planned. It was also indicative of the high degree of regional competition for retail dollars and associated revenues that has driven the fiscalization of land use planning in many communities.

Fortunately, other important alternatives, including the concentration of regional commercial near I-15 has taken some of the pressure off of the Foothill corridor. The planning subarea concept has evolved although in a somewhat conventional way but important opportunities remain to realize truly innovative and effective mixed-use development in conjunction with BRT stations planned along the corridor that can achieve the original concept of a series of diversified neighborhoods.

Implementation
One of the major implementation measures of the Specific Plan was to be lot consolidation to assemble development sites of adequate size to achieve the goals of the plan. The City Redevelopment Agency was seen as the driving force for implementation, including facilitating a variety of financing for roadway and infrastructure development, and as a means of providing incentives to attract the desired type and scale of development. Most recently, the purpose, applicability, development regulations and development standards for the four Specific Plan subareas have been integrated into the City's new Development Code and are identified as Section 17.38.060 Foothill Boulevard Overlay Zoning District.

City Development Code
We have reviewed the City Development Code on two levels, the first being an overview of permitted uses and intensities, as well as development standards and guidelines. The second part of the this review has been to consider the Foothill Boulevard Overlay Zoning Districts and to identify any particular constraints and opportunities relevant to developing land use and planning concepts at identified "opportunity sites" that will best support the development and use of the BRT system. Specific sections are cited and observations made on how they may affect the proposed BRT project.

Section 17.130.020 Site Plan Design

A. Existing Site Conditions. Existing site conditions such as mature vegetation, slopes, drainage courses, rock outcroppings, and views should all be considered as possibilities for inclusion in the project. Use of valuable existing site elements will assist in formulating a focused design theme, such as:

1. Standards

i. Preserve existing, mature trees where the drip-line is outside of the proposed building footprint unless it can be demonstrated that other development standards cannot be met (e.g. parking).

ii. Provide a buffer where a non-residential development adjoins residential property by not exceeding the height of the residential structure, providing additional setback at a ratio equivalent to the additional height and/or providing a landscape buffer.

2. Guidelines

i. Relate the location of site uses with adjoining properties to avoid possible conflicts and take advantage of mutual potentials.

Comment: This is almost a meaningless statement. The term “compatible” is too vague; elsewhere there is a statement about linking parking areas on adjacent properties, and linking pedestrian access. What are "mutual potentials"? This should more emphatic so developers know they are part of the whole, and must make contributions to the whole. The difficulty is that past piecemeal strip development has been implemented without adjacency requirements, which precludes or makes difficult implementing design remedies.

Recommendation: In the development standards and guidelines we will recommend, specifics will be given that provide concrete guidance regarding the relationship of the building type and anticipated uses with those existing or planned on adjoining lands.

ii. Consider street setbacks on adjacent properties. While variety is generally desired, the street must function as a whole and the setbacks must relate.

Comment: Once again, this "prescription" is really not one and is too vague. If the goal is the street, then establish a “build-to” line so that each part contributes to a clear whole. This approach requires a definitive statement that better defines the street/building relationship, which may vary with differing types of development. In some instances, the building facade and its articulation may be integral to the development of the "public realm" portion of the development, as in the case of sidewalk dining and cafes.

Recommendation: In the development of recommended standards and guidelines, we will describe potentially adjoining uses and will concretely state what the role of the building is in defining and contributing to the public realm. This approach will more clearly define the relationships and better assure that future development proposals optimize the relationship of the building and its use to the adjoining public realm, whether it is on the street or within the context of a mixed-use project.

iii. Preserve existing, mature trees as a focal point.

B. Building Orientation. Placement of the buildings shall be done in a manner compatible with surrounding existing and planned uses and buildings.

Comment: Once again, this is a statement that communicates no real meaning. What does compatibility mean? If it is left to the developer to define then no "code" is needed because none really exists to impose on thee development.

Recommendation: Again, we will describe and illustrate concepts of building orientation that are concrete and can provide meaningful guidance to the future development plan.

The following standards and guidelines apply:

1. Standards

i. Arrange buildings to create plazas;

Comment: It is essential that we define what a "plaza" is. Most developers refer to leftover space as plaza or simply plunk down a corner cutback or open area without consideration to how it will function and what its relationship will be to the buildings and the streets that delineate it. This is how we end up with graphically pleasing plans that lack functionality when built. Frequently, these "plazas" are out of scale, have no or little relationship to their edges and adjoining uses, and end up not inviting but distancing the retail or other activity from the street.

Recommendation: Historic or CNU typologies should be cited in development standards and guidelines so that the purpose (people gathering), the size (anticipated usage related to location within streetscape and development – generally smaller is better), and the orientation and access. Plaza needs to be spatially defined and also fluid, and should have boundaries that "hold" or "embrace" the space, providing a sense of enclosure without being cut off or claustrophobic. These characteristics also importantly serve to communicate the change in "space" when one crosses an imaginary threshold that defines the plaza as opposed to the rest of the open space adjacent to it. A serious explanation of an acceptable plaza should be included so the end result is an actual place.

ii. Create direct and logical pedestrian connections between public sidewalk and the primary entries of each occupied building on the site.

Comment: This is well-intended but too general and therefore essentially meaningless in the context of development at the street or along a corridor. There are larger design issues that should address building siting within the context of sidewalks along public streets or those connecting parking lots with the buildings they serve.

Recommendation: The logic of pedestrian connections will be more thoroughly defined and may also be illustrated. So too will be the relationship of the building to the public street and hence the associated pedestrian access. Building an interesting and even enticing connection between the street and the building must not always be direct, but can be somewhat circuitous if the way finding is clear. This can provide a change in space and atmosphere between the public realm and the environment created by the development. We will attempt to illustrate this and will better define the range of relationships that should be addressed in mixed-use development along the corridor and in differing situations.

iii. Provide additional setback, as needed, to protect solar access of adjacent properties.

Comment: This is not really a standard and will only be an obstacle to effective site planning and architectural design unless the "solar access" is better defined.

Recommendation: Solar access is important on several levels, including providing sunshine onto a plaza or courtyard where outdoor use is being encouraged. It can also be associated with the assurance that opportunities for day-lighting of interior space is not limited or precluded. Finally, and where most typically thought to apply, solar access is that which allows the installation of solar thermal or electric panels to capture and use as a renewable resource. We will define the various aspects of solar access that must be considered both for adjoining properties but especially within new, integrated development. Clarity of descriptions and supporting illustrations will help to assure that both internally and on adjoining lands solar access is effectively respected and protected.

2. Guidelines

i. For multiple buildings, vary placement to avoid parking areas that dominate streetscape.

Comment: This is too vague to provide guidance. There are numerous examples of this "principle" being applied in a manner that chops up and well proportioned development site into a master site plan with buildings that do note relate well to one another, and one which results in convoluted and even hazardous parking lots and circulation.

Recommendation: If the circumstance calls for the placement of buildings that to create a street frontage with parking in the rear, state it. If the desire is to provide more room along the public street space and maintain more expansive views by interspersing building pads, state that. A more important consideration, and one we will elaborate upon in our design concepts, is the integration of parking with buildings, points of access and the street.

Also important will be determining the <u>real</u> parking demand and not simply applying the Code, ULI or other standards that may result in a level of parking that is only needed once or twice a year. Finally, we will elaborate on how new and existing development can optimize a plan and program of reciprocal parking within the context of thoughtful site planning that places parking at convenient locations and also is attractive to visitor who access the site on foot, by bike or from a transit station.

ii. Avoid "strip-commercial" appearance where buildings are plotted in a straight row with parking along entire street frontage.

iii. The setback from streets and adjacent properties should be directly proportionate to the scale of the proposed building.

Comment: Once again, if street frontage is desired and dictated by the use then define the "build-to" line and state the minimum and maximum building heights. Minimum heights should be set because without enough heft to or presence along the street frontage, the amorphous street corridor dominates the spatial and ordering experience.

Recommendation: Along Foothill Boulevard, the height at major intersections might be a minimum 40-foot (3 stories) and a maximum of 70-foot high (six stories). If this is the case, then the corner configuration must be defined (chamfered a la Barcelona, re-entrant corner) and all four corners should be the same to create the spatial identity of the intersection. This is a very effective place-making strategy where it can be executed.

iv. Setback larger buildings to balance the scale and protect solar access.

Comment: This is a sterotypical planning recommendation that has resulted in development that provides little relationship between buildings and the street. Such a general rule leads to monotonous site plans that are found all over Southern California and which have homogenized the treatment of the public street. To the extent some areas of SoCal have high summer temperatures and shade is at a premium, larger buildings along the street can be an asset and not a detriment.

Recommendation: If the boulevard experience/identity is sought then there should be opportunities for more building siting along the street. This would be especially useful along the west end of the corridor where on the north side of the street low density residential is prevalent and relatively close by. In such an instance, whether existing or planned for the future, buildings along the street can enhance the commercial boulevard feel while better buffering nearby residential.

v. Place buildings to provide the most aesthetic public views.

Comment: This is also a gratuitous and meaningless statement; aesthetic views of what? The built environment is not the aesthetic enemy of the community.

Recommendation: On the contrary, more attention needs to be paid to the quality of building design, and quality design does not necessarily translate into significant (or any) additional building costs. But quality design does require the employ of better architects, land planners and landscape architects. This is not to say that view corridors to mountain views or other natural and scenic amenities are not desirable. In the present case, the corridor is also already recognized as an "urban space" and as such warrants true urban design principles, not conventional suburban sliced white bread that seems to evade or escape the built environment.

C. Access/Circulation. The access and circulation of a development should be designed to provide a safe and efficient system, both on and off the site. The following standards and guidelines apply:

1. Standards

i. Minimize the vehicular crossings of primary pedestrian pathways between the public sidewalk and the primary entry to buildings.

Comment: This standard is unclear and appears to try to address the potential for on-site drive lanes to cross the pedestrians' primary route of access to the building. If this is the intent then further elaboration is warranted to better clarify.

Recommendation: There is little question that access consolidation along Foothill Boulevard will be essential to preserving roadway capacity along the road for all users and especially the BRT system. And yes, it will also be important to the creation of a pedestrian experience that feels safe, enjoyable and well served by thoughtful streetscape treatments, including sufficiently wide sidewalks, landscape and other buffers between curb and sidewalk.

Depending on the location of BRT stations, it may be necessary to provide protected pedestrian access to median-sited stations that serve BRT traffic in both directions. In this case, the BRT stop must be consciously designed as a pedestrian-friendly “gateway”, and visual/amenities clues need to be a part of the stations design, whether they are on the street or on private property.

ii. Create safe, continuous, pedestrian routes between the public sidewalk and primary building entrances

Comment: This standard is meant to be obligatory but is difficult to implement in many instances. One problem is the conventional thinking of many retailers that parking needs to be in the front of the building for both perceived accessibility and as an advertisement of the business.

Recommendation: With the creation of the expanded urban environment along the corridor there will be more opportunity to provide direct access to the building for pedestrians regardless of the point of origin (car, BRT bus, on foot or by bike). Consolidated access drives will help and side and rear parking will also allow for less travel lane/sidewalk conflicts. A greater emphasis on buildings fronting the street will also avoid this issue.

iii. Where feasible, share access with adjoining properties. New developments shall connect to existing access points when available.

iv. Align access with existing driveways, intersections, or median openings.

v. Provide two means of ingress and egress, not including emergency only access.

vi. Avoid dead-end parking aisles.

vii. Access points must conform to the City's access control policies and standards.

viii. Maintain adequate sight lines for motorists at intersections and driveways.

ix. Incorporate emergency vehicle access / fire lanes into the access/circulation plan rather than considering emergency access separately.

D. Pedestrian System. Project should provide a safe, comprehensive and connected pedestrian system. The following standards apply:

1. Standards

i. Include a connected pedestrian circulation system and accompanying plaza and patios as an integral part of a unified site design.

Comment: Once again, this type of directive is too vague and does not provide meaningful guidance much less serve as a development "standard". Such a directive will not be applicable in many instances and if forced can result in a gratuitous and wasteful use of lot area that is infrequently or never used.

Recommendation: Plazas and patios need to be described and defined. Concrete examples and some form of true standard needs to be developed if this is to be a design standard for general application. We will provide definitions of this type of design element and will provide criteria for when and where their application to the design may be warranted.

ii. Provide for the safe and orderly transition of vehicular and pedestrian traffic by means of clearly identifiable and attractive walkways.

Comment: This is largely a repetition of an earlier "standard" but seems to be emphasizing clarity and attractiveness of pedestrian paths and vehicle lanes. If so, OK.

Recommendation: Please see our recommendation under item ii. of "Building Orientation. It should also be incorporated into the concept of breaking up large parking areas into defined “parking courts.” Perhaps two double-loaded bays by 14 cars (140’ x 140’ ~ 50 cars), for instance. Then perhaps the in-between area can incorporate a pedestrian passage that also serves as the detention area (think walkway over cobble or striped pavement). Also, as noted before, consideration should be given to reducing the parking requirement; establish maximum parking count, not a minimum.

iii. Clearly delineate on-site pedestrian walkways with special pavement, landscaping, and lighting.

iv. Connect the on-site pedestrian system and open space with the areawide pedestrian and open space network.

Section 17.132.030 Commercial, Office, and Industrial Development

The majority of design standards and guidelines for commercial, office, and industrial development are provided in Chapter 17.130 (General Design Provisions). This Section contains only those provisions that are unique to commercial, office, and/or industrial development.

A. Special Site Design Provisions

2. Guidelines

i. For commercial projects, give special attention to creating pedestrian scale and an inviting place for pedestrians to shop.

Comment: This statement is too vague. “Pedestrian scale" is generally thought of as the height of buildings, but the real issue is the vast and amorphous space that surrounds the buildings; a good example is the inappropriately scaled "plaza" at the northeast corner of Haven and Foothill. Scale, enclosure and threshold, as well as other design considerations are essential to the effective creation of this type of space.

Recommendation: The real issue is to create a defined/experiential outdoor realm (room, plaza, piazza, piazzetti, corridor, mews, lane). The buildings then serve the purpose of defining the edge of those outdoor realms, and their height should not be so important because the experience of the pedestrian is densified at the pedestrian realm (8’ wide x 12 – 16’ high). The buildings can be 3 to 6 stories high if the facades are articulated correctly, and the pedestrian realm is interesting – there is some action there, some reason to be there in the first place.

ii. Site amenities, such as walls, hardscape, street furniture, trash enclosures, lighting, and monument signs, should be designed as part of the total architectural package for the project.

iii. Integrate signs into the architectural program.

B. **Parking Areas.** The following standards and guidelines apply:

1. Standards

i. Screen parking areas from public view with mounding, landscaping, low walls, grade differentials, and building orientation.

ii. For parking areas, include one tree for every three parking stalls for shade.

Comment: This is problematic and of questionable efficacy in any event. This prescribed density is very high, and trees in the middle of parking areas are brutalized by a lack of surrounding soil and the typical excessive over-trimming by landscape maintenance crews. Even if properly maintained, at this density there is substantial expense in the form of maintenance and water demand.

Recommendation: If trees are to be an integral part of the parking lot design, their spacing should be a function of the species to be used and not subject to a standard fits all sizes approach. A more valuable and timely alternative is to provide shading (which is the point) through the provision of shade structures that integrate solar photovoltaics. In this way, the shade structure will do it job with minimal maintenance and no water demand, and will generate a revenue stream for the project owners. By applying tree-shaded parking in proximity to the building, where solar access will be less in any event, the trees can serve to soften and complement the building.

2. Guidelines

i. Distribute parking evenly throughout a site instead of concentrating all in one large parking lot.

Comment: This is such a general statement that its application is hard for developers to apply or planners to judge. The amount of parking aside, the placement of parking is defined by the needs of the business employees and the convenience of the shopper. Just a cursory review of commercial and industrial area parking shows that adherence to such a general guideline can yield a wide range of undesirable results.

Recommendation: As we have noted before, it is better to define the limits of parking both in terms of maximum number of spaces and in general locations. For instance, how many spaces should go in a “car court”, how many in front of the building, how many in back or on the side, and how many overall.

ii. Consider the types of users desired and plan the project accordingly rather than trying to maximize building floor area.

iii. Parking areas should not be the dominant element in the overall design of a project and should be designed to minimize visual disruption.

Comment: "Don't do this" is not really a guideline, and such a vague prescription/prohibition is simply not realistic. Most site planning parking strategies almost always dominate the site because conventional office and commercial developers insist that there be substantial parking on the street-side (typically the entry-side) of the building. The Victoria Gardens with its faux Main Street is an alternative, but for something like this to work, the development off Foothill has to be based upon a two-sided entry street drive where the storefronts face the entry drive, not Foothill, and not the parking areas.

Recommendation: as noted elsewhere, we will provide draft parking planning standards and guidelines that are responsive to the mixed-use development opportunities we will be conceptualizing during the next phase of this project. These will provide concrete design standards and guiding principles that will be explicit.

iv. Parking areas should be screened from streets through a combination of mounding, landscaping, low-profile walls, and grade separations.

v. The design of parking areas should also minimize auto noise, light and glare, and ambient air temperature. This can be accomplished through the use of sound walls, general location, use of well-designed lights, and landscaping throughout the parking lot.

D. Pedestrian Orientation

1. Guidelines

i. Colonnades or loggias and other covered walkways or structures that provide shade to pedestrian spaces shall be utilized whenever possible.

Comment: This is stated as a standard rather than as a guideline. In the low desert areas such a recommendation may be OK but is this really important to development in RC? Will the determination of "whenever and possible"? Would this be applicable to all pedestrian walks serving in-line stores greater than 40 feet and facing all compass points.

Recommendation: Rather than attempting to dictate architectural design, the guidelines would better serve if they defined the problem, if there really is one, and better describe a variety of design concepts that can be adapted to a variety of architectural styles. If there is room for such structures there is also room for trees that can serve the same purpose. We will specifically address this issue in concrete but appropriately open option terms in our conceptual design standards and guidelines.

ii. At street level, the use of building materials and building details that relate to human activity shall be required where appropriate.

Comment: It is not clear what this means. There is some implied concern, either aesthetic or functional, but what the intent is and what "human activity" is being referred to is unclear.

Recommendation: We will develop general design standards and guidelines that address the issue of building materials and their application. There may be issues of building protection, quality of facade articulation, etc. that should also be considered and we will do so.

iii. Convenient pedestrian circulation shall be provided throughout all projects to connect public streets, parking areas, and public transit facilities with buildings and pedestrian open spaces.

iv. Open spaces shall be integrated with pedestrian walks and defined by landscaping and other elements to create a sense of place.

v. Where possible, open spaces shall be accessible to the public.

vi. Street Furniture. Benches, light standards, kiosks, drinking fountains, trash receptacles, and other street furniture in on-site open spaces shall be designed in a coordinated fashion to enhance the appearance and function of the site and open space. Pedestrian areas shall be highly visible and well lit.

Section 17.132.040 Foothill Boulevard

This section establishes parameters within which the community character for the entire Foothill Boulevard Corridor can be created. To do so, a number of issues and design concepts have been previously explored. However, at the core of all discussion and investigation has been the attempt to define community character in an accurate, comprehensive, and pragmatic manner. The Community Design Guidelines are primarily focused on the creation of aesthetic character. The purpose is to create a visual environment that evokes a distinctive and unifying image, which is unique to Rancho Cucamonga. To accomplish this task, the Foothill Boulevard Corridor must first distinguish itself from other major thoroughfares in nearby communities and, second, it must serve as a visually unifying concourse that links the entire community of Rancho Cucamonga. Lastly, it is important to have a design statement for the Foothill Boulevard Corridor with each contributing community design element skillfully orchestrated to promote a contiguous, cohesive, community design image.

Comment: The first principles should not be aesthetic, but rather definition of the corridor itself. The use of the term "corridor" is instructive because it means an enclosed linear passageway. For a traffic corridor in strip center sub-urban design, the vertical curb is the defining element, later supplemented by street trees, streetlights, and "pad" buildings. But nowhere is the vertical edge of the corridor established because it staggers back-and-forth from big box (set back >300 feet), parking areas with low shrubs and trees (a soft edge which is not of interest, but pleasant), pad buildings (set back 30 feet), monument

signs and older big pole signs, and interspersing of low utilitarian buildings from years ago when the ROW was 80' feet.

Recommendation: To create identity, the corridor should read like a defined, linear space. The fill-in efforts with street trees and banners along the parking lots is OK, but at the development entries and especially the intersections, the first priority should be to create a strong vertical definition of the edge of the public realm. The buildings should be placed at a "build-to" line, should have a height of parapet a minimum of about 36 feet, and should be long enough to read as more than one small retail outlet.

A. Applicability. The provisions of this section shall apply to all Foothill Boulevard Districts, unless otherwise specified herein. Any addition, remodeling, relocation, or construction requiring a building permit within any Foothill Boulevard District is subject to Site Development, Minor Design Review or Major Design Review.

B. Image Enhancement Features. Community image is related to the way people experience the City -- driving through it, observing its natural qualities and the character of it's buildings, walking through commercial areas, and visiting specific destinations. The best communities have the following memorable image enhancement features:

1. A clear sense of arrival through a distinct change in landscape, hardscape, built areas, or special entrance monumentation features.
Comment: Again, as with much of the standards and guidelines, these seem to anticipate more of the large-scale neighborhood and community scale retail outlet and less of an intimate, mixed-use development that is more desirable if one is trying to create an intimate urban environment. The use of hardscape is often a replacement for integrated design if it is not a part of and derived from the design of the buildings and the site plan. Signage is also a poor tool for creating areas of distinction and can lead to an unsightly visual clutter.
Recommendation: Clearly, different buildings or developments should differentiate from one another but hardscape is generally an ineffective (but common) approach to providing identification. This is due to the plan-view conceptualization of development, the mistakes of which do not become evident until the project is built. Once visitors are on the corridor, the visual diversity provided by great buildings and effective landscape treatment will help create a destination; people will realize that they are where they want to be and will be interested in taking in more of the full Foothill Boulevard experience.

2. A civic, commercial, or cultural public urban open space, which defines the activities, history, commerce, or natural/manmade features which the community as a whole values. Typical public urban open spaces consist of plazas, courtyards, urban paseos, market streets, historic landmarks, and public parks.
Comment: This concept should be developed much more, citing examples along Historic Route 66 that already exist and how they do or don't function in the way desired.
Recommendation: It is our intent to provide a description and illustrations of urban design elements that should be integral to the BRT stations and the planned mixed-use projects that provide the character-defining aspects of these developments and of the Foothill corridor. Identifiable districts, as set forth elsewhere in the development Code and originating in the Specific Plan, will be elaborated in our design phase. The overall design concepts, including the ideas for site planning and architecture, are where the "aesthetic" may help define the district.

3. A clear organization of streets, and landmarks which gives people a sense of direction and orientation. The extent of confusion in traffic circulation, and the amount of congestion increasingly figures in people's perceptions of cities.
Comment: Wayfinding appears to be the issue and along the corridor this should be made clearer by distinctive urban design elements.
Recommendation: Perhaps a "landmark" is created that is a meaningful urban-scale element, and the nearby buildings cue off the landmark in some way. Iconic buildings, towers and other elements can help in this regard. We will consider the need for and appropriateness of BRT station flags or banners that alert users to the approach on the stations, while closer in we hope to elaborate on Omnitrans designs for the E Street leg of the sxB station and provide design concepts that allow the RC stations to be distinguished from others along the route.

The development of new and the enhancement of existing opportunity sites should incorporate buildings of height and scale, as well as distinctive architecture that they too serve as landmarks that contribute to the creation of the tied string of "pearls concept we hope to develop.

4. A sense of uniqueness. This quality can be derived from a single feature, a district-wide theme reflecting ethnic or historical themes, or an event, which is staged in a special place each year.

5. A sense of place in a shared past which gives people a sense of belonging.

C. Community Design Vocabulary. In an effort to provide a unique community image for the Foothill Boulevard Corridor, a variety of existing or proposed image enhancement elements will be provided or enhanced and designed to increase corridor identity. Vocabulary of these image giving elements include the following:

1. Activity Centers. Activity Centers are points of intersection at major streets or landmarks along the Foothill Boulevard Corridor. As such, they are points of concentrated activity, which give identity to individual subareas. Major Activity Centers located contiguous to the Foothill Boulevard Corridor include the areas surrounding the following intersections:

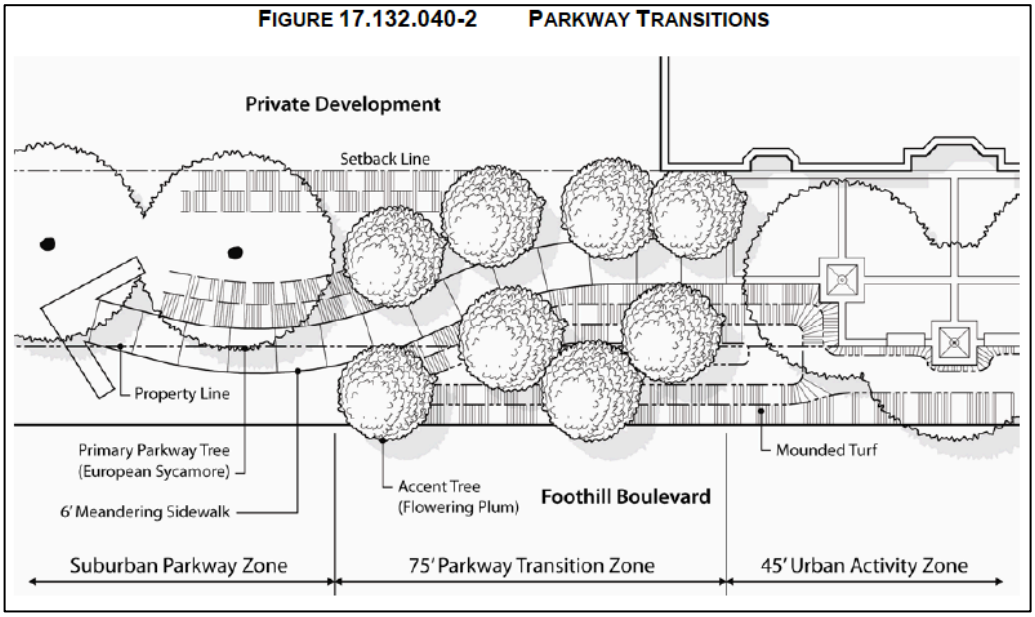
i. Foothill Boulevard at San Bernardino Road
ii. Foothill Boulevard at Vineyard Avenue
iii. Foothill Boulevard at Archibald Avenue
iv. Foothill Boulevard at Hermosa Avenue
v. Foothill Boulevard at Haven Avenue
vi. Foothill Boulevard at Milliken Avenue
vii. Foothill Boulevard at Rochester Avenue
viii. Foothill Boulevard at Day Creek Boulevard
ix. Foothill Boulevard at Etiwanda Avenue
x. The Activity Center at Foothill Boulevard and San Bernardino Road is a more rural, informal, village design concept. The specific design of the intersections for the Activity Centers between Vineyard and Etiwanda Avenues is within the Foothill Boulevard/Route 66 Visual Improvement Plan.

Comment: This section is emblematic of the weakness of the Development Code in setting forth and defining and illustrating the terms that will create the desired “boulevard" effect. It is not enough to simply state that the desired effect is "activity centers". These need to be conceptualized, characterized and described.

Recommendation: The first step is to define and densify the intersections so that there is some activity that in fact can be “centered" upon. What the Code implies here is the intersection and the related mixed-use development around it. But what is not stated is that in addition to the buildings and businesses, a “CENTER” of activity needs to be created that is recognizable, memorable, alive, and connected. This section of the Code should take a stab at identifying the distinctive stylistic elements, color, material, or other element that makes one such center different from another. As a pictorial example, imagine that the colors of identifiable and regularly applied elements from east to west go from yellow, green, blue, and violet. Each element within the complex of that area has the color as an underlying theme – you say to your friend I’ll meet you at Foothill and Vineyard, you know it’s the one with blue buildings or banners (the blue district). While this is an example that may be too bold for RC, it illustrates how such a concept would add to the festive character and color code location along the corridor.

2. Suburban Parkway Transitions. It is recognized that the Foothill Boulevard Corridor will not become a totally pedestrian-oriented environment. Therefore, the five pedestrian-oriented activity centers listed above, will be linked together by "suburban parkway" transition areas. These parkway transition sections will consist of informal landscape treatments dominated by drifts of London Planes, California Sycamore, and Purple Plum trees. Other parkway characteristics include rolling turf berms and meandering/undulating sidewalks, which are designed, to complement informal landscape treatments. The parkway transitions will include enhancement areas that have special treatments with accent pavement in the travel lanes, median island, and sidewalks; street furniture, and accent trees. The specific design of the parkway transitions and enhancement areas is within the Foothill Boulevard/Route 66 Visual Improvement Plan.

FIGURE 17.132.040-2 PARKWAY TRANSITIONS



Comment: This statement gives the wrong impression, one that implies that there will be discontinuity of sidewalks or other pedestrian paths. The net available area for sidewalk and landscaping appears to be the same. The schematic indicates that the sidewalk and parkway landscaping encroaches into private property, thereby requiring an easement on private land to secure adequate area for the pubic realm. Presumably, this issue is not universal but occurs in certain areas of the corridor. Also please see our comments on the Visual Improvement Plan.

Code Pages 17.132-49

2. Building
Orientation. Placement of the buildings shall be done in a manner compatible with surrounding existing and planned uses and buildings. The setback from streets and adjacent properties is directly proportionate to the scale of the proposed building and those around it. Larger buildings will require more setback area for a balance of scale and for the protection of solar access to the proposed building and adjacent sites. Lastly, placement of the building should provide the most aesthetic public views.

i. Orient/screen all auto-related facilities (i.e., working bays, storage, etc.) from public view.
ii. Buildings shall orient their public entrances toward Foothill Boulevard as much as possible.

Comment: This approach or directive in many cases may not be realistic and may be misleading to regulators and the development community. These directives can establish a front-back dilemma that in many cases will not be satisfactory to the tenant or the shopper. This is where entry drive orientation or public plaza orientation should be explored on a case-by-case basis both in terms of the proposed site plan and use.

3. Access/Circulation. The access and circulation of a development should be designed to provide a safe and efficient system, both on and off the site. Points of access shall be designed in conformance with the City's access regulations. The circulation system shall be designed to reduce conflicts between vehicular and pedestrian traffic, minimize impacts on adjacent properties, combine circulation and access areas where possible, and provide adequate maneuvering areas. Points of access shall not conflict with other planned or existing access points. Pedestrian walkways shall connect every building with public sidewalks.

4. Parking Areas. Parking areas should not be the dominant element in the overall design of a project and should be designed to minimize visual disruption. Parking areas should be screened from streets through combinations of mounding, landscaping, low profile walls, and grade separations. The design of parking areas should also minimize auto noise, lights and glare, and ambient air temperature. This can be accomplished through the use of sound walls, general location, use of well-designed lights, and landscaping throughout the parking lot. Utilize the concept of "tuck under" parking where it is not visible from Foothill Boulevard or from any other side street.

i. Whenever possible, locate site entries on side streets in order to minimize pedestrian/vehicular conflicts. When this is not possible, design the Foothill Boulevard site entry with appropriately patterned concrete or pavers to differentiate it from sidewalks.

ii. Parking access points, whether located on Foothill Boulevard or side streets, should be located as far as possible from street intersections.

iii. Design parking areas so that pedestrians walk parallel to moving cars. Minimize the need for the pedestrian to cross parking aisles.

iv. Driveways and parking areas should be separated from adjacent sidewalks or landscaped areas by a curb not less than 4 inches high.

v. All parking spaces shall be clearly outlined on the surface of the parking facility. In activity center locations, locate parking areas to the rear of the buildings.

vii. Link individual project parking areas with on-site driveways, which are clearly identified and easily recognized as connectors.

viii. New development projects shall delineate on all submittal plans where the vehicular connection to adjacent sites are located. The applicant must also demonstrate provisions for access easement for such vehicular movements to adjacent properties consistent with an approved master plan.

ix. As a condition of approval, the applicant may be required to combine parking facilities and access to serve more than one individual project.

x. Within suburban parkways, parking areas should be designed in a manner, which links the building to the street sidewalk system as an extension of the pedestrian environment. This can be accomplished by using design features such as walkways with enhanced paving, trellis structures, and/or landscape treatments.

9. Transit Improvements. Transit improvements such as bus shelters, bus pullouts, and bus pads shall be provided if determined necessary by the Director of Engineering Services and Planning Director in consultation with the local transit provider.
Comment: This is the only reference to transit or bus shelters in the entire Code. While the General Plan clearly anticipates the need for such facilities, the Development Code does not and should provide both standards and design guidelines for these facilities.
Recommendation: Specific to the sbX BRT plans developed and being further elaborated by Omnitrans and SANBAG, we will provide concrete siting criteria, design standards and development concepts for the future BRT facilities along the corridor. These will be developed in consultation with Omnitrans and the City Public Works Department and should set the standard for future BRT station development.

K Building Design

2. Scale. The mass and scale of the building needs to be proportionate to the site, open spaces, street locations, and surrounding developments. No matter what the scale of a building, setbacks and overall height should provide an element of openness and human scale. Multi-story buildings should be set back toward the center of the site or be designed in a stepped style.

Comment & Recommendation: This is a very important issue as it relates to the creation of an urban space along at least portions of the Foothill corridor. The balancing of scale and openness is always a difficult passage and one that cannot be adequate addressed through a single, monolithic standard or guideline. There is a fundamental disconnect between what we consider "human scale" and what is "urban scale." The human scale is measured by how a single individual relates to a single building. In the prevailing low-building ethos of SoCal suburbia, we are wrongly concerned that a tall building is evil and not human scale. This is primarily a function of tall buildings being stand-alone anomalies, as opposed to a tall-building composition (think downtown Orange) where the taller buildings (3-stories is tall?) define a public realm that is definitely pedestrian-scale, and the pedestrian realm (12'w x 12-16'high) is interesting.

Generally, regulations want to limit height because height doesn't or is preconceived to not fit into an overall "district" or public realm, so we are concerned that the building will overwhelm the person. However, in order to create the "pedestrian experience" and the "urban setting", the buildings must be designed at a "roadway scale" or a "plaza scale." When buildings are designed along a major street or within a commercial center if the emphasis is on the parity of man-to-building (as suggested in "human scale") is the criterion, the buildings will be too diminutive to define the space of the roadway or plaza. The sensibilities of "human scale" need to be adapted to the urban corridor to emerge along the Foothill corridor.

To address this need for a broader perspective, there needs to be three scales used to define the appropriate massing for buildings to create the desired "pedestrian experience." These three scales are, from large to small:

Roadway Scale: the person in a vehicle, or on foot for that matter, needs to recognize that a significant vertical mass is creating both the destination and the boundaries to the roadway. In this circumstance, the typical, conventional commercial development is composed of a few pads along the roadway with parking behind, and extending to the core of the development comprised of 26 – 36 foot high commercial boxes at the rear of the development. The height and mass of the pad buildings provide no sense of "scale" to the roadway; there is no sense of a "public realm". Rather the spatial experience as viewed from the street and sidewalk is an amorphous and porous bubble that weaves in and out of the center, punctuated by an "entry statement" then a "pad" then a stretch of parking, then another "pad". There is no single or collective element that can hold its own with the typically broad roadway, which continues to dominate the space in a characterless, amorphous manner.

The vertical-to-horizontal ratio of the typical arterial (120' ROW) is 1:8. This is sometimes improved by street trees, but overall the "corridor" is really a broad river of space on a mildly undulating plain. Roadway scale requires buildings that are three to four stories tall (40 to 50 feet) within 25' of the ROW. They can be "softened" with arcades, step-backs, and ins-and-outs (articulation) of the façade. But there must be a substantial architectural statement, a gravitas to the buildings being asked to create a sense of "corridor".

What is important about these fronting buildings is that the rhythm and pattern of wall-to-window communicate an implied "place" within the building for the pedestrian that extends the outside into the structure in an organic way. The buildings need to tell a "story" of human activity whether the story is of an office worker, a teacher, a patient, a shopper, a resident – the important aspect is a sense that a person can project him/herself into the building and occupy it. This is one "downshift" in scale that is necessary.

Entry/Arrival/Destination Scale: the entry is not a sign! It does not matter if it is one a pole or a "monument". A sign is not an entry statement. A sense of arrival is created by a sequence of forms squeezing down the vehicular speed and increasing the complexity at the ground plane for motorists and others moving along the public realm. This type of scale is defined by buildings on both sides of the road, probably in most cases without direct front door access (though this does not necessarily need to be the case). The street trees follow the road, there are sidewalks on both sides, and the buildings have display windows. This is an entry that could serve pedestrians, but unless the BRT is highly used and at the intersection, it is less likely to be used by pedestrians.

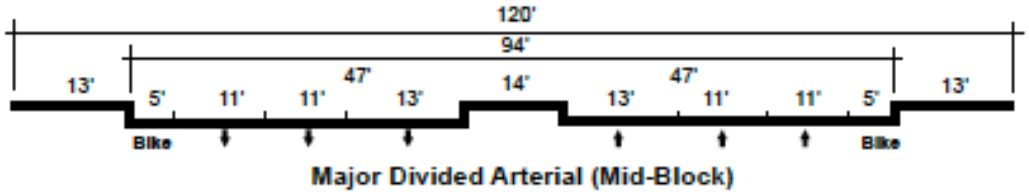
Connection Scale: this is what is commonly called the "pedestrian scale" but it cannot exist without the other scales that distinguishes it from roadway scale/activity, arrival scale/activity, and strolling scale/activity. This is the string that connects the pearls and needs to have an organic, scalar relationship to the other two levels of scale.

8. The Pedestrian Experience. Architecture and outdoor space along Foothill Boulevard shall be integrally designed and oriented toward the pedestrian experience. The experience should be visually diverse, stimulating, and include activities that create a sense of variety and excitement.

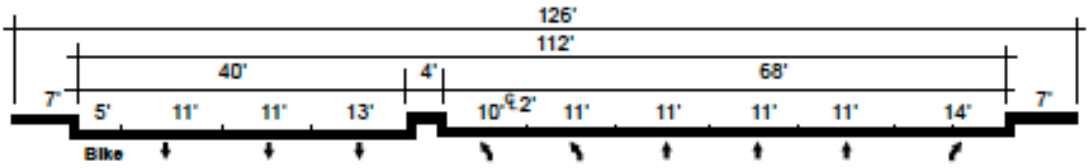
i. Site buildings to create new pedestrian spaces that complement and expand the existing pedestrian rights-of-way along Foothill Boulevard. This is accomplished by creating plazas and allowing wider sidewalks on Foothill Boulevard.

ii. Site and design buildings to minimize pedestrian/vehicle conflicts and avoid locating driveways and service areas which interfere with the flow of Foothill Boulevard pedestrian movements.

iii. Site and design structures to facilitate public access across sites where important pedestrian connections occur. Mid-block passageways from rear parking lots can be created through a fully developed internal paseo system.



Major Divided Arterial (Mid-Block)



Major Divided Arterial (Dual Left-Turn Lanes and Right-Turn Lane)

Visual Improvement Plan

Introduction & Critique

Rancho Cucamonga is a rapidly diversifying community and an emerging center for corporate headquarters, while hosting world-class regional commercial, major industrial and institutional development. So, RC is a business town, but it is also a "home town", a "college town", a "baseball town" and much more. With the push to unify the Foothill Boulevard corridor via BRT and an evolution as an urban center, it can now become the sophisticated and dynamic "The Downtown" place to be in the region!

The Foothill Boulevard Visual Improvement Plan was developed in the late 1990s and was adopted by the City Council in early 2002, following adoption of the Foothill Boulevard Specific Plan in 1997. The Visual Improvement Plan (VIP) takes a culturally and aesthetically monolithic view of the public realm created by the Foothill Boulevard right of way, based on the Historic Route 66 theme, stating that "it was known for its unique car culture of the mid-century, its creative highway signage, motels, trading posts, tourist traps, and service stations." With all due respect to history and America's car culture, these identifying elements alone will not "activate" the creation of a modern, 21st century urban downtown along Foothill that can support and optimize a BRT transit system.

The VIP states:

> "The purpose of the Foothill Boulevard/Historic Route 66 Visual Improvement Plan is to develop a design specification plan that will set forth design concepts for the streetscape improvements within the public rights-of-way and entry areas along the entire length of Route 66 in Rancho Cucamonga."

To the extent the VIP establishes the basis for subsequent design refinements and implementation, this Plan serves it's purpose. Fortunately, the VIP recognizes that the designs are "concepts", thereby not meant to be a straight jacket but a guiding document for subsequent design and implementation.

There is no future for urban design that is stuck on nostalgia. This is an essential point in that the VIP appears to only really recognize the mid-20th century culture and aesthetic, which continues to have a cultural recognition but at a level that is substantially less than the Plan would imply. To limit the aesthetic development of the Foothill corridor to Rt. 66 themes, icons and artwork risks stunting the type of creativity and innovation that is transforming cities in Southern California and across the country.

Our appeal, therefore, is for a more open and inclusive approach to improving the visual character of the corridor, one that invites diversity and sensitivity to a modern urban lifestyle that goes beyond the 1950s car culture.

An Expanded Aesthetic

The Visual Improvement Plan for Foothill Boulevard does not set forth aesthetic principles that have guided its development. Rather, it has latched onto vague notions of what Historic Route 66 has meant for older generations, which are the primary market for this theme. It is more an "engineered" concept that sets forth hard design specifics such as pavement widths and tree well dimensions, paving materials and plant type prescriptions that are slavishly applied to the gateways and activity centers. The effect is more one of an interior designer applying a limited element and color palette, but in this case to a variety of development opportunities along a seven-mile stretch of roadway corridor. To the extent it espouses any aesthetic at all, it promotes highly conventional "design concepts" that have been done and over done throughout Southern California. More sliced white bread is not what is needed to create a vibrant and dynamic down town along the Foothill corridor.

Rather, the best aspects of the past can be married with the new and emerging concepts of urban life and urban transportation, which area especially applicable to the subject Foothill BRT transit and urban planning effort. The dominance of the car has had a disastrous effect on the downtown, and while our love affair with automobiles will be with us for a long time to come, urban development necessarily must harken back to clean and efficient transit and offer other alternative modes of travel.

Babies and Bath Water

Our team will further assess the design opportunities at the two gateway locations and associated planning subareas, as well as at the other subareas and opportunities sites located along Foothill Boulevard. We will extract and extend the best elements set forth in the VIP and will expand the aesthetic perspective based upon a vision of BRT and multi-mode transportation, and on the City's stated intent to provide a true urban, mixed-use downtown environment. The following represents a brief "critique and recommend approach to the specific elements discussed in the VIP.

Entry Gateways

The City is already distinctly different from it neighbors to the west and east, and overt statements of a shift in character should reflect the rich heritage and broadened aesthetic of the new RC, with less emphasis on the old and progressively more dated Route 66 theme. The Western Gateway (Bear Gulch Area) provides an important opportunity to taken holistic approach to identifying the City's entry and the concepts we will develop can also be applied to the East Avenue gateway area as well.

The Western gateway area is ready for major redevelopment, with old and inappropriate land uses for such an important and high profile location. The substantial vacant and underutilized lands provide important opportunities of scale to do more than paste on a few conventional improvements to enhance the appearance of this city gateway. Our team will explore opportunities to develop a land use concept that makes the gateway appearance integral to a district-wide plan.

East Avenue has limited constraints and better "bones" on which to design an entry statement that complements existing and future development, and that takes advantage of the long-term open spaces areas, including the drainages and utility corridors, that should be integral parts of the overall gateway design concept.

Activity Centers

The VIP references the eight activity centers identified in the Foothill Boulevard Specific Plan, and again indicates that each (and apparently every one) is to serve as a focal point emphasizing the Historic Route 66 character, although that "character" is never really described in the VIP. This idea should simply be dropped or substantially diminished as a part of the aesthetic treatment of these important development nodes.

While beyond the scope of this assessment, it should be noted that the landscape concepts for intersections and the associated plans have the potential to create line of sight problems or traffic accessing Foothill from side streets. Landscape planning should take into account required minimum sight distances and assure that adequate visibility is preserved.

As a case study, the *Foothill @ Vineyard* intersection, with four different corner treatments, undermines the sense that the crossing is what is important as opposed to the individual developments. VIP treatments should emphasize the parts making a coherent, identifiable whole. All four corners share the same basic underlying elements and order but have not (perhaps yet) executed the VIP concept. Future probably redevelopment at northeast corner should reflect building and corner treatment on the northwest corner using similar trees and walls.

It should be noted that the prescribed treatments are very much typical of suburban, low-level retail "center" development that is pervasive across Southern California. This approach does not create the type of urban environment that attracts pedestrians or creates sidewalk activity. While many cars are seen at the intersection, there are few pedestrians and fewer bicyclists.

Suburban Parkways

The VIP is very much entrenched in the suburban parkway concept that dominates the region, and again emphasizes the Route 66 theme to the determent of all other opportunities. It is uncertain whether the very limited landscape palette is to be applied along the entire length of the Foothill corridor If so, it will further homogenize its appearance, result in monolithic character and may frustrate wayfinding for drivers and BRT users. As a general role, thoughtful diversification of the streetscape creates distinct and identifiable districts and planning areas that allow residents and businesses to identify with a unique locale along the corridor.

The use of on-street Rt. 66 signage is expensive, will soon become discolored and does little to distinguish the area unless ione is flying over the street. Serious consideration should be given to limiting this type of pavement treatment to that already constructed.

Foothill BRT and the VIP

It should be kept in mind that Route 66 was built as part of the system of trans-continental linkages. Whereas the railroad and telegraph linked east and west coasts on a common/public system, Route 66 introduced privacy to the linkage. Private motor cars (and motels) and private conversations (phone booths) made the linkage more fine-grained. Personal, individual mobility was king and was considered an outward sign of freedom and individuality.

Today the perspective for new generations of Americans is rapidly changing. The next generation of linkages is not hardwired in rail lines, roads or even airports, but rather in wireless mobile devices, broadband, social media and free-choice. Cars are less useful and even burdensome in an urban environment where land is valued for living space, commercial enterprise and parks and other open space.

Therefore, the Foothill BRT system has to offer privacy along with common/public space. In a word, the BRT has to be personal and intimate at the same time. The physical elements of the BRT system have match up with contemporary needs and expectations, to be "modern", obvious, and convey the sense that one is physically and conveniently “connected.” This “connectivity” (linkage) includes transponders for the bus driver to game the signal times, Wi-Fi GPS access for a rider to know exact place and time of the bus (how much time do I have?), linkage to useful services nearby (secure bike storage, nearby NEV parking, coffee and donuts), and a rewarding public realm surrounding the BRT (the experience from house to BRT has to be better than car commute.)

Comments on VIP:
Of course the VIP is limited to the elements in the ROW, but I think the recommendations are relatively meaningless unless there is a commensurate effort to define the role of the private elements: buildings. Unless the role of buildings to define the “corridor” and the “intersections” or “nodes” is clearly articulated and regulated, all the pretty street scape stuff will be lost in the amorphous and “soft” edges created by the small-scale pad buildings, the street trees, and the icons. All these are too wimpy to achieve the sense of identity sought by the GP and VIP. Furthermore, the VIP is trying to dress up the parts of the corridor that do not have an impact on the economic success of the Foothill Boulevard.

Foothill has the opportunity to actually achieve the goals of identity, vibrancy, relevancy but the real tools are the FAR, the “build-to” lines, the urban scale definition for intersections and secondary entry roads.

TECHNICAL MEMORANDUM

GUIDANCE DOCUMENT FOR THE PREPARATION OF A TRANSIT-ORIENTED DEVELOPMENT ORDINANCE

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS AND CITY OF RANCHO CUCAMONGA

SCAG COMPASS BLUEPRINT DEMONSTRATION PROJECT CONTRACT NO. 12-001-B02

Terra Nova Planning & Research, Inc.®
42635 Melanie Place, Suite 101
Palm Desert, CA 92211
Phone: 760-341-4800

In Association with:
Interactive Design Corporation
Urban Crossroads
VisionScape Imagery

July 2, 2013

TECHNICAL MEMORANDUM

GUIDANCE DOCUMENT FOR THE PREPARATION OF A TRANSIT-ORIENTED DEVELOPMENT ORDINANCE

COMPASS BLUE PRINT DEMONSTRATION PROJECT
FOOTHILL BOULEVARD BRT CORRIDOR STUDY
CONTRACT NO. 12-001-B02

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City of Rancho Cucamonga

Introduction

This technical memorandum has been prepared in conformance with approved scope of work for the SCAG Compass Blueprint Demonstration Project (Contract No. 12-001-B02). It satisfies Task 3.2 of the scope of work for this project, including and is based on the final *"Development Code/Specific Plan Change Analysis and Recommendations"* document in August of last year and updated in June of 2013. It provides clear and concise language that City staff can use to revise and update the City Development Code. Example graphics and illustrations that support the revised language are to be found in the final project report presented to the City Council on June 19, 2013.

In addition to providing guidance for the addition of TOD-related development standards and guidelines, this memorandum also provides suggestions regarding street profiles and roadway and parkway design concepts that accommodate BRT, pedestrian and bicycle use.

A working title for this discussion may be *"TOD Land Use and Design Standards and Guidelines"* In conjunction and concurrent with the development of the land use plans that explore the potential for mixed-use projects, research will yield clear constraints and opportunities that will help to shape alternative plans. Design standards and guidelines will be developed to address specific impacts associated with the implementation of mixed-use development. These and other recommendations from Omnitrans should ultimately be incorporated into the Development Code as mandated design and implementation programs to be required of specific TOD projects.

Finally, the memorandum provides development and design concepts that are consistent with and implement the policies and implementation measures of the General Plan and the other relevant regulatory documents.

City Regulatory Document Focus

An important part of this project has been an assessment of the City's regulatory documents that may affect the implementation of a BRT route and stations along Foothill Boulevard in Rancho Cucamonga. The results of this analysis can be found in Appendix A of the Foothill Boulevard BRT Corridor Study prepared for the City and SCAG. Based upon this assessment, we feel that the Development Code is the prime vehicle for facilitating BRT and associated transit-oriented development along the corridor. Therefore, recommendations are herein provided for the development of a TOD overlay district as a part of the City Development Code.

Document Format

The following sample ordinance outline and recommendations follow the format generally used by the current City Development Code. The code numbering system used in the now superceded Section 17.32 is used herein, with the last two digits represented as "XX" implying that these subsections are to be codified consist with the Code current format. Of course, the City may chose to codify its TOD code sections in another manner.

In an effort to effectively integrate TOD-related development standards and guidelines into the City Development Code, a hybrid approach is recommended, one that melds the conventional Euclidian Zoning approach with that of a Form-Based Code. This approach seems essential if effective and responsive TOD land uses and design are to be realized. It is essential if TOD-related transit-oriented development is to be realized at and around future BRT station along Foothill Boulevard, and perhaps elsewhere in the City.

The recommendations in this memorandum are a direct outgrowth of Section VI and other portions of the Foothill Boulevard BRT Corridor Study report. They are specific to prospective TOD development sites located at future BRT stations along Foothill Boulevard and would require modification for application within other community contexts. The goal is to clarify the role various design principles have in realizing effective, efficient and attractive TOD development. Design principles addressed include: *connectedness or connectivity, development density and intensity, diversity of use, and quality design.* The interactive roles of land use and transportation are essential to the success of TOD developments.

One of the most important concepts of TOD design is that of the “public realm”, where social interaction takes place and where the sense of neighborhood or community is forged. The public realm is the shared space or community commons, which should be created at an intimate scale and enhanced to provide a pleasant and comfortable environment for sitting, talking and dining. It is this public realm that creates the coherent and cohesive nature of successful TOD design.

Transit-Oriented Development Overlay Zone

We have preliminarily titled the anticipated future code section "Transit-Oriented Development Overlay Zone". It is envisioned that the overlay zone will be applied to an area around future BRT stations located on Foothill Boulevard. They are specific to a particular type of existing or desired urban environment, which is a discrete "nodal" urban village centered around the future BRT stations.

The TOD-Oriented Urban Village

The TOD-oriented "Urban Village" overlay zone is designed to provide the equivalent of a discrete "Main Street" development within and in close proximity to complementary mixed-use neighborhoods. These should include and be comprised predominately attached 3 to 6 story building types that accommodate socially activating ground floor commercial retail and services, ground floor (and possibly second floor) offices, and residential townhouses and apartments above. Models such as Village Square at Foothill Boulevard and Haven Avenue, which include freestanding residential blocks, may also be applicable. While fronting on or near Foothill Boulevard and adjoining arterial roadways such as Haven Avenue, these TOD "urban villages" also incorporate and rely on a network of narrow streets with wide sidewalks, street trees and buildings set close to the frontages at delineated "build to" lines.

There is substantial pedestrian activity and civic spaces can be parks, plazas, and squares that support the activities needed by people who use the BRT (coffee shops, incidental shopping, food, retail and entertainment, as well as parking). A synergy of uses in a fine-grain, walkable neighborhood of stores, services, and workplaces is provided.

Section 17.39.XX - Purposes and General Plan Consistency

Authority

The City has determined that Transit Oriented Development associated with bus rapid transit development along the Foothill Boulevard corridor serves the mobility, livability and economic diversity of the City, as well as the general health and welfare of its residents, employees and businesses. Therefore, the City hereby implements ordinance and designates certain lands surrounding future BRT stations as BRT-based Transit Oriented Development areas to encourage furtherance of transit oriented development.

Purpose and Intent

The purpose of this ordinance is to facilitate transit-oriented development that brings a critical mass of people and activities close to well-served bus rapid transit (BRT) stations, and encourages or incentivizes BRT ridership through complementary land uses and their proximity to BRT station. This is accomplished by:

1. Encouraging a mix of medium and especially high density residential development within walking distance of BRT stations to increase transit ridership;
2. Creating a pedestrian-friendly environment that encourages walking, bicycling and transit use to accomplish all or a major portion of resident, employee and shopping needs;
3. Providing an alternative to traditional development by emphasizing an urban village environment at and in proximity to the BRT stations with mixed-use, pedestrian oriented development;
4. Creating individual neighborhood identities for each BRT-based urban village node that promotes pedestrian activity, human interactions, safety and livability;
5. Encouraging building reuse and infill to create higher residential densities that supports BRT use;
6. Reducing auto dependency and roadway congestion by locating multiple destinations and trip purposes within walking distance of one another;
7. Providing a range of residential options, including ownership and rental housing for people of different income levels and at different stages of life.

The ordinance is also meant to accommodate future residents, employees, shoppers and business owners who want or need an efficient alternative to the private car. Several fundamental conditions are necessary for a successful TOD project:

- **Connectivity** – providing easy and convenient bus, pedestrian and bicycle access to home, work, shopping and social activity centers located at BRT stations that are connected by a network of sidewalks, paths, lanes, and streets;

- **Density** – that places higher densities of residents, employees, shoppers and other "users" at and in proximity to BRT stations, providing high density ownership and rental housing choices that fit the needs and desires of a variety of people in the community;

- **Intensity** – of non-residential uses that meet the everyday shopping and services needs of the BRT neighborhood and create destination activity centers (urban villages) along the corridor;

- **Design** – qualities that address practical, aesthetic and social needs of the neighborhood, providing spaces that embrace and form a cohesive social environment with sidewalks, plazas, landscaping and buildings that contribute to a whole that is stimulating and dynamic. The design should reward the pedestrian for spending time in the public realm.

The intent of the TOD overlay district is to:

- Improve existing and long-term traffic operations along the entire length of Foothill Boulevard through the development and implementation of a bus rapid transit route and associated stations. Connect the locals and intercity visitors to the "urban villages" and major corridor destinations, including Victoria Gardens and the Epicenter complex;

- Facilitate the development of a TOD-supporting mix of land uses at and surrounding future BRT stations along the Foothill Boulevard corridor;

- Set forth development standards and guidelines specific to TOD-supporting land uses, commensurate with the scale and intensity of residential, commercial and other development that directly and indirectly supports use of bus rapid transit;

- Develop a multi-modal system of auto, bus, bicycle and pedestrian facilities that follows and implements "Complete Streets" concepts of infrastructure development and accessibility.

Comment: The intent section may warrant additional points that further reinforce the principles that will make TOD urban villages successful.

Applicability

The BRT-based TOD Overlay District is applicable to those areas shown on Exhibit XX: BRT-Based TOD Districts.

Comment: As noted in the City BRT Corridor Study, opportunities for TOD mixed-use development will differ with each BRT station location. Typically these areas are approximately within one-quarter mile of a BRT station. Not all areas or lands designated for BRT-based TOD development must be contiguous to the BRT station or to one another. Therefore, while contiguous compact development is the ideal, other parcels in functional proximity to the BRT station may also be included in the designated BRT-based TOD District.

General Plan Consistency

The following goals from the General Plan Land Use and Mobility Elements are directly addressed in the Foothill Boulevard BRT Corridor Study and the revised Development Code should point to the direct and strong relationship between the General Plan and the City's forthcoming "Transit-Oriented Development Overlay Zone" or its equivalent. The following goals have been cited as particularly relevant to the TOD overlay zone. These are not meant to be exhaustive but serve as a starting point for the development of this section of the overlay zone.

GOAL LU-2: Facilitate sustainable and attractive infill development that complements surrounding neighborhoods and is accessible to pedestrians, bicycles, transit, and automobiles.

GOAL LU-3: Encourage sustainable development patterns that link transportation improvements and planned growth, create a healthy balance of jobs and housing, and protect the natural environment.

GOAL LU-4: Establish a pedestrian-friendly Foothill Boulevard corridor that facilitates transit use and provides a range of commercial destinations to serve both local and regional needs.

GOAL CM-1: Provide an integrated and balanced multi-modal transportation network of Complete Streets to meet the needs of all users and transportation modes.

GOAL CM-2: Plan, implement, and operate transportation facilities to support healthy and sustainable community objectives.

GOAL CM-3: Provide a transportation system that includes connected transit, bicycle, and pedestrian networks.

GOAL CM-4: Maximize the operational efficiency of the street system.

GOAL CM-6: Coordinate with other jurisdictions on regional transportation issues.

Comment: The current Development Code is exhaustive in citing General Plan goals and policies. For the TOD overlay district this level of General Plan citations should not be necessary. Those cited by staff in presentations to the City Council are more than adequate in showing how the TOD ordinance is sanctioned by and implements the intent of the General Plan.

Optimize Mixed-Use Land Uses

Not all commercial uses or services are appropriate for TOD urban villages, where intensity and diversity of commercial uses and services are important, but where type and scale are especially important. With a higher density of close-in customers, commercial services in these urban villages can and should generally be smaller in scale with direct access from within or adjacent to residential and employment centers in the TOD urban village.

The goals is to provide a complete spectrum of work, shopping and living opportunities that are easily accessible by bus, NEV, walking or bicycle. This fine grained integration serves the community with grocery stores, a variety of retail outlets, commercial services, as well as personal services such as dry cleaners, drugstores, restaurants/cafes/bakeries, gourmet food and wine shops, child and senior daycare, offices (finance and banking, insurance, accounting, etc.), immediate/urgent care medical, and other commercial services that work on a "local" scale. In plaza areas around the BRT station, "mobile retail" in the form of food vendors, sunglass sales, ice cream vendors and the like should also be accommodated.

Inappropriate commercial uses are those that undermine the connectedness and ease of pedestrian access; these include large-scale grocery stores, big box outlets and other retailers that are not of "village scale". Other uses that do not reinforce the principles of connectivity, density, and diversity include low-density residential, service stations, industrial uses, and service commercial uses (auto repair, car washes, etc.)

Residential Densities and Integration

High density residential is an essential and integral part of a successful TOD-anchored urban village and can be accommodated in a couple of ways. One approach that also optimizes the developer's return on investment in land and infrastructure is multi-family residential above ground floor retail or office development. Building heights should range from three to six stories with the upper four or five stories being residential. This type of housing broadens the choices within the City for people at stages in their lives when home ownership is not the best fit.

There will also be instances, such as at Village Square, where high density residential can work as free-standing residential blocks that are in easy walking or biking distance of the BRT station and associated urban village commercial services. A good example of such potential is vacant land located west of Village Square and immediately east of the Deer Creek Channel, where TOD-supporting high density residential could complement BRT station use at Foothill Boulevard and Haven Avenue. This same residential development would also further support commercial business as Village Square.

Section 17.39.XX - Permitted and Conditionally Permitted Uses

Uses listed in Table 17.39.XX shall be allowable in one or more of the Foothill Boulevard TOD Development Overlay District as indicated in the columns beneath each BRT urban village location. Where indicated with the letter "P," the use shall be a permitted use in that district. Where indicated with the letter "C," the use shall be a conditionally permitted use subject to the Conditional Use Permit process. In the event there is difficulty in categorizing a given use in one of the districts, the procedure outlined in Section 17.02.XX shall be followed.

A. Permitted Uses: Permitted uses are those land uses allowed in a given subarea subject to the development regulations of the Development Code.

B. Conditionally Permitted Uses: Conditionally permitted uses, because of their unusual site development requirements or unique operating characteristics, are subject to the granting of a Conditional Use Permit by the Planning Commission or City Planner. Projects requiring a Conditional Use Permit shall be required to comply with the regulations of Section 17.04.XX.

Table 17.39.XX - Use Regulations for Foothill Boulevard TOD Development Overlay District Summary Table of Permitted (P) and Conditionally Permitted (C) Uses

Comment: It is essential that this table be specific and circumscribed. Appropriate uses for the BRT-based TOD urban villages are very specific and should be strictly adhered to in order to prevent uses that undermine the functional relationships that will make TOD urban villages a success. Many of the uses set forth in current Development Code are not appropriate for TOD urban village development and need not be explicitly listed. While major office development may be a valuable adjunct to urban village residential and commercial development by providing BRT ridership and demand for commercial and other services, major (versus incidental) office development should be peripheral to the urban village area itself. Mercury Insurance is a good example of how this scale of office development would fit.

Section 17.39.XX - Transit-Oriented Development Overlay Zone Design Standards

Section 19.39.XX: Parking Requirements

Parking requirements within the TOD Overlay District are as follows:

1. A maximum of 1 parking space per multi-family unit, plus 1 guest/auxiliary space per 5 units, is permitted.
2. Parking for non-residential uses shall be provided at not more than 3 per 1,000 square feet (gross) and not less than less than 1 per 500 square feet (gross) for uses covering less than 1,000 square feet.
3. Further reduction in the number of required parking spaces may be permitted by a Special Permit granted by the Planning Commission after a finding by the Commission that the development will be adequately served by users of public transportation, joint-use parking, on-street parking, etc.
4. Shared parking is strongly encouraged. Within developments serving more than one use, the total number of spaces required may be reduced, provided that the applicant submits credible evidence to the satisfaction of the City that the peak parking demand of the uses do not coincide, and that the accumulated parking demand at any one time shall not exceed the total capacity of the facility. Such evidence must take into account the parking demand of residents, employees, customers, visitors, and any other users of the development. It must also take into account parking demand on both weekends and weekdays, and both during the daytime and overnight.
5. Where feasible, connectivity to adjacent parcel parking should be established, arguing that such an arrangement will create synergies for uses on both parcels.
6. Where feasible, parking area ingress and egress shall be from side streets or alleys.
7. Surface parking lots must be internal to the development, and shall not exceed one acre in size. Surface lots are prohibited in front of businesses located along major or secondary roadways serving the development.
8 Surface parking lots with more than thirty spaces shall be divided into separate areas by landscaped areas of at least 10 feet in width. A minimum of 15 percent of all surface lots shall be landscaped. No row of parking shall be more than 10 spaces wide without being interrupted by a landscaped area. Each landscaped area shall have at least one tree per eight spaces. Landscaped areas should be planted with low-maintenance, drought-tolerant species capable of withstanding extreme conditions.
9. Surface lots shall be screened along all sidewalks by a landscaped buffer of not less than six feet, or three-foot walls or fencing compatible with the adjacent architecture.
10. Surface parking lots shall be configured to provide convenient and safe pedestrian walkways and connections to the sidewalk system.
11. On-street parking on the secondary streets is permitted and encouraged and should be considered in light of overly wide streets and the application of "Complete Streets" design principles.
12. Parking structures, including ground floor podium parking, shall have well-designed and marked pedestrian walkways and connections to the sidewalk system.
13. Parking structures must include ground level retail along all streets and sidewalks that articulate the building facade and activate the public realm. Where such structures turn the corner into the interior they should also be articulated and enhanced with landscaping.
14. The public faces of parking structures shall be designed to be compatible with adjacent buildings and architecture.
15. Bicycle racks shall be provided on site at a ratio of 1 space for every 15 automobile parking spaces or portion thereof.

Comment: As noted in the BRT Corridor Study, numerous factors affect residential and commercial parking demand, including residential types and densities, employee demographics, retail sales volumes, employee densities, and types of adjacent land use. Some of the TOD-style developments that have been analyzed indicate that convenient access to transit can substantially reduce residential, office and retail parking demand. While mentioned above, parking structures are expected to be rare in TOD development along the corridor.

A balanced and complementary mix of residential, office and commercial uses can be optimally integrated in a TOD to make shared or reciprocal parking possible, and can reduce overall parking demand for such developments. For example, if the deli envisaged for Haven Avenue @ Civic Center Drive will draw workers for lunch from City Hall and other nearby offices, then parking for the deli need not meet the high standard of stand-alone, single purpose use. This sharing of parking by different land uses is possible because peak activity and parking demand periods can differ between land uses. This integrated land use and parking approach generates parking demand that is substantially less than that typically called for by each of the individual land uses. This frees up valuable land for other revenue-generating on-site uses.

As implied above, there are important issues of land use management that must be addressed to make shared parking effective and adequate to serve all users. First, it is critical that the various mix of TOD land uses have differing peak activity periods and associated parking demand. Such complementary land uses might include offices (a daytime use) adjacent to a dinner house, nightclub or movie theater (evening uses) which share parking but during different times of the day.

Furthermore, connections between adjacent developments should provide vehicular and pedestrian connectivity, which will allow ad hoc parking sharing, and with appropriate connectivity promote park-once visit multiple-destinations.

Building Setbacks

Introduction

Building placement, scale and design are the essential elements that define the public realm and create the pleasant and interesting pedestrian experience along and throughout the TOD development. Buildings within transit-oriented developments and within close proximity of the BRT stations should follow these principles:

- Place buildings at the back edge of sidewalks ("build-to" the sidewalk as opposed to "setback" from the sidewalk)
- Have a regular rhythm of storefront piers (multiples of 6' works well; 12', 18', 24', and 30' are all workable store widths in creating a dense and diverse pedestrian commercial area)
- Have a horizontal element at between 12 – 14 feet above the sidewalk to suggest the "pedestrian scale." A "belt cornice" is the traditional means of creating vertical scale. Also to provide adequate volume for ground level retail, the second floor should be at about 14' so the cornice lends legibility to the façade.
- Extend over the sidewalk with awnings, canopies or arcades.

Building Setback Standards

a. Along streets with commercial activity and sidewalks of at least 12' in width, a building shall have a minimum front yard setback of 0 feet and a maximum setback of five feet from the front property line. A setback may be increased to 25 feet from the front property line if a courtyard, plaza or seating area is incorporated into the development adjacent to the public street.

Limited setbacks help to create a pedestrian-friendly environment. Buildings with windows located close to the sidewalk provide a visually stimulating environment for pedestrians, connecting the public realm with the private interior space and enlivening both. Conversely, buildings set back too far from the pedestrian walkway result in a less pedestrian-inviting environment.

b. Along entry drives where there are sidewalks but no immediate pedestrian access, the building shall be located with the sidewalk immediately adjacent to the sidewalk, but with a six foot wide planter for street trees between the back of curb and the building. Where deemed appropriate by the Planning Commission, alleys between buildings may be encouraged for the provision of beneficial public connections between buildings, open spaces and streets. The maximum side setback shall be determined by the Planning Commission consistent withe these standards, and shall not exceed 25 feet.

Comment: In lower density areas along the corridor, it may be more appropriate to have side yard setbacks of up to 15 feet. In more urban areas with substantial vehicle traffic, side setbacks may need to be up to 30 feet to accommodate two-way traffic to rear parking and loading areas.

c. The minimum setback for a rear yard that does not back onto parking shall be 15 feet. The backs of buildings that face parking shall be separated from the parking by a minimum of six feet for a planter specifically for trees or other appropriate landscape buffer.

d. The setback provisions may be waived with a Special Permit issued by the Planning Commission where such waiver would further the purposes of this ordinance as listed in Section 2.0.

LAND USE AND DESIGN

Introduction

Transit-oriented developments are based upon land use policies that promote diverse uses and higher densities combined with high design standards for the public realm. More people and more diverse uses in close proximity are essential for successful transit oriented development.

- **Land use:** The immediate area around a transit station supports the activities needed by people who use the BRT (coffee shops, incidental shopping, food, retail and entertainment, as well as parking). A synergy of uses in a fine-grain, walkable neighborhood of stores, services, and workplaces is essential.
- **Land use:** The allowable density and floor area ratio should be increased compared to other areas within the community. This brings more density and intensity, and is an economic incentive for developers to undertake the costlier buildings typical of TOD.
- **Design:** The public realm should be beautiful and rewarding to the pedestrian; a place where one is glad to spend time.
- **Design:** The buildings should be “active” at the ground level and the walls more or less transparent. This enhances safety (eyes on the street), it evokes pedestrian/building interaction, and it offers service/food businesses a window to prospective customers.
- **Design:** The ground floor of buildings should be adaptable to changes in use over time so the framework of the neighborhood remains, but the businesses can adapt and evolve.

Building Massing and Lot Coverage

a. Minimum lot coverage is 60 percent of the net lot area. This minimum may be reduced if a minimum of 40 percent of the lot is developed as improved public open space or if ingress, egress or other building code requirements would otherwise make the development infeasible. The Planning Commission shall have final discretion in deciding if land constitutes improved open space for the purposes of this provision.

b. Maximum lot coverage is limited to 85 percent. This lot coverage may be increased to 100 percent for mixed-use buildings, or for renovated historic structures. The 100 percent lot coverage is not appropriate for small town centers and rural settings.

c. The maximum by-right floor-to-area ratio (FAR) is 1.5. The maximum FAR shall be 2.5, upon the discretion of the Planning Commission. The Planning Commission may issue a Special Permit to grant additional FAR beyond 1.5 up to 2.5 for affordable housing or for mixed-use developments if it finds that such an increase furthers the purposes of this ordinance.

Comment: The use of FAR allows flexibility in design while controlling for overall building size. The FAR is used in conjunction with height limits, setbacks, and lot coverage to arrive at acceptable densities and design of a development.

The City must adopt an FAR that is suitable for the character of the neighborhood in which the TOD is located. In rural areas, a 2.5 FAR will be too high, and even the 1.5 FAR may need to be reduced to conform to the surrounding built environment. In more urbanized areas of the corridor, the acceptable FAR may conceivably be higher than 2.5.

The primary goal of TOD is to concentrate development in the area around the BRT station, and to create a pedestrian-friendly environment. Higher density allowed by a higher FAR helps to achieve these goals. It is important to ensure that the provisions for minimum lot coverage coupled with minimum height are within the by-right FAR when implemented.

Building Height Requirements

a. The minimum allowable building height, as measured to the height of the cornice or parapet, is 28 feet above immediate adjacent grade. For buildings with roof slopes greater than 3:12, and for mechanical screens a minimum of eight feet from the edge of the building, the maximum height to the ridge or mechanical screen shall be 32 feet.)

Comment: The minimum height is meant to encourage density and create an aesthetic appeal throughout the TOD area. When determining minimum height, City staff and the Planning Commission must require a height that allows for at least two stories.

b. The maximum building height is 78 feet above grade and shall not exceed six stories.

Comment: Building height is very important for effective TOD development, which realizes critical densities and intensities of use while preserving lot area for parking, open space and the public realm. Nonetheless, there may be areas where the maximum building height may more appropriately be less than the cited maximum, and should be determined on a case-by-case basis.

c. Notwithstanding the building height provisions noted above, no building shall exceed by more than two stories or thirty feet, whichever is less, the height of the tallest building or buildings that front on the same street and are located within 150 feet of such building.

Comment: This standard can be relaxed in more dense portions of the corridor. The allowed building heights should reflect the context in which the TOD is located. In areas with buildings exceeding 78 feet, the maximum height should be set to reflect the height of surrounding buildings.

d. No portion of a building locate within 50 feet of an existing one or two family dwelling in a residential zoning district shall be permitted to exceed three stories or 45 feet, whichever is less.

Driveways

a. The creation of new sidewalk curb cuts shall be avoided whenever an alternative point of access is available or can be created. Shared access agreements are encouraged.

b. The minimum width for one-way traffic is 12 feet, and the maximum 18 feet.

c. The minimum width for two-way traffic is 22 feet and the maximum is 26 feet.

Sidewalks

a. Along the primary commercial/retail streets with immediate pedestrian access to front doors, sidewalks shall be designed to create three zones: a two - three foot "safety zone immediately adjacent to the curb, a five - eight foot wide pedestrian zone, and a six - eight foot wide linger/eating zone. The width shall be commensurate with the pedestrian activity along the street. Along any street with buildings at the sidewalk, the minimum width shall be 8 to allow tree planters at the curb and a minimum unobstructed width of five feet for foot traffic. Sidewalk width can be up to 20 feet, and is dependent on expected level of activity.

b. Sidewalks shall be constructed along the frontage of all public streets.

c. Street lights along the primary shopping streets shall have pedestrian scale lighting fixtures with the lamps no higher than 12 feet above the sidewalk, and lamps over the street no higher than 18 feet.

d. All sidewalks and walkways shall meet ADA requirements.

Transit-Oriented Development Overlay Zone Design Guidelines

Introduction

The draft design guidelines set forth below are meant to guide the City in its development of the Transit-Oriented Development ordinance applicable to the BRT station overlay zone. They are intended to create a pedestrian friendly environment within the public realm as described in the Foothill Boulevard BRT Corridor Study. In this regard, landscaping along streets is intended to help create the pedestrian zone, separate the sidewalk from the street, provide shade and create a rhythm and framework for the linear public realm – the complete street. The pedestrian environment is further enhanced by locating building facades close to the sidewalk, and by ensuring the facades are architecturally interesting and adequately transparent, allowing the exterior public realm to connect with the private interior of street-level businesses.

To make the street a desirable shared space, the sidewalk, street trees, street furniture and building facades should work as an integrated whole. Street widths should be kept to a minimum width as a traffic-calming technique, and to ensure a visual connection one side to the other. The sidewalks should be adequate width to accommodate street trees at the back of the curb, street light standards, street furniture such as benches, kiosks, and trash receptacles, and outdoor eating. The building façade must make its contribution to the composition by being mostly transparent, organized to create scale and legibility. Street level windows add to the interest of a pedestrian way, while street furniture provides opportunities for pedestrians to rest, relax and socialize. Well-designed and located trash receptacles will help keep the pedestrian ways and public realm clean and attractive. Lighting will help increase the safety of the area in the evening.

Project design review should be guided by the goal of creating an interesting, safe and enjoyable public realm, evaluating each element in terms of contributing to the whole. To insure that the street sustains its continuity and rhythm, new projects should be evaluated within the context of adjacent properties. The Planning Commission should consider who will be using the area around the transit station and when the station area will be used when evaluating the design components of plans. Questions to be asked may include:

- Will the area have a lot of daytime or nighttime activity, or both?
- Will the area be a destination for work or entertainment?
- What types of activities does the community want to encourage in the BRT station area?

If a TOD is located in a primarily residential area, the Planning Commission may require fewer benches than would be required in an area with heavy daytime pedestrian traffic. The Planning Commission should also consider how projects at and around the BRT the station tie into the surrounding neighborhoods and existing built environment.

Buildings should be designed and materials chosen to fit into the existing built environment, or to create a new sense of place. Considerations will differ based on the existing characteristics of an area. If a prospective BRT-based TOD is to be located with or near a building with important historic character, the Planning Commission may wish (but is not obligated) to encourage design that will "blend" with the surroundings. Conversely, in an area characterized by strip mall development as along the western portion of the Foothill Boulevard corridor, the Planning Commission may wish to encourage design elements that will create a new identity for the area.

Street-Scale Design

Introduction

To link the BRT and TOD to the greater neighborhood, and to accommodate a range of mobility choices, the street should be viewed as a linear space that is enlivened and defined by flanking buildings, sidewalks, trees, lights and signs. The street section (from building to building) is critical in creating the scale that brings pedestrians and vehicles in parity. Current standard engineering practice in street design emphasizes efficiency and safety based upon the needs of vehicles, and is often “driven” by fire and trash trucks.

The unintended consequence is that the street becomes intimidating to the pedestrian and bicyclist. The recent movement toward “Complete Streets” is an effort to define the public realm to include a desirable pedestrian experience.

In TOD the street design itself should follow these principles:

- be as narrow as possible. This is a traffic calming strategy as well as an aesthetic consideration
- provide parallel parking. The parked cars protect pedestrians from traffic and provide dispersed parking.
- accommodate bicycles
- be framed by vertical elements - street trees, lights, banners
- sidewalks wide enough for protection, movement and seating
- be lined by buildings with storefronts
- provide enhanced pedestrian street-crossing to encourage flowing movement and enliven both sides of a street

Streetscapes

Introduction

To emphasize the pedestrian scale, retail should be focused at and extend from the corners by having the buildings create plazas. The retail uses then wrap around the corner to create more pedestrian-scale streetscapes. The buildings along Foothill Boulevard will define the "highway scale" of this TOD. The buildings will have pedestrian access at the corners; however, the street length may have parking for the residences above. This type of building, called “podium” is typical of mid-rise mixed-use buildings and may be appropriate along the Foothill Boulevard (highway) frontage. Given this “highway” scale, direct pedestrian access is less likely. Regardless of the use, whether residential podium parking or retail, the design of the ground level façade should express the rhythm and pattern of commercial activity. The true pedestrian scale will begin at the corner plazas and extend northward along the streets.

Trees are crucial in the driveways and courtyards between buildings; they provide privacy between facing units, shade, visual relief, and add value to the marketing efforts of the developer. Where possible, large “urban” street trees that have stout trunks and large shade canopies should be placed as part of the overall TOD and BRT station design. Specific species that are distinctive and majestic are a symbol of sustainability within the urban fabric, and reinforce the continuity of the rich pedestrian realm all the way to stepping on the bus. The trees must be setback from the curb so branches do not interfere with buses and trucks. A mix of evergreen and deciduous trees are recommended to provide shade in the summer and solar access in the winter.

a. Street trees should be planted along all public rights-of-way. Street trees should be planted at intervals of no more than 40 feet. Tree species shall be selected that require minimal maintenance and are of native origin; non-native, non-invasive trees may also be permitted.

b. Pedestrian amenities such as benches, public art, planters, trash receptacles, etc. are encouraged and shall be located along sidewalks, and in landscaped areas, open spaces and plazas.

c. All new utilities shall be placed underground

Building Facades

Introduction

Architectural design should animate facades to express life and variety within. The building and its siting should serve to create plazas or other “people places” at the BRT station, at corners and elsewhere in the TOD development. These outdoor rooms are both functional and symbolic - they convey “importance” and people-oriented activity at the highway and street scales. As previously mentioned in this ordinance and again reiterated, the TOD development buildings should:

- Place buildings at the back edge of sidewalks ("build-to" the sidewalk as opposed to "setback" from the sidewalk)
- Have a regular rhythm of storefront piers (multiples of 6' works well; 12', 18', 24', and 30' are all workable store widths in creating a dense and diverse pedestrian commercial area)
- Have a horizontal element at between 12 – 14 feet above the sidewalk to suggest the "pedestrian scale." A "belt cornice" is the traditional means of creating vertical scale.
- Provide adequate volume for ground level retail, the second floor should be at about 14' so the cornice lends legibility to the façade.
- Extend over the sidewalk with awnings, canopies or arcades.

In addition, the following are recommended:

a. Buildings with facades facing the BRT station or streets leading to the station are critical to shaping the public realm that BRT riders and pedestrians will experience. As such, the street-level design of the façade should reflect the principles of "pedestrian friendly" design: regular storefront rhythm, transparency, vertical definition. An exception to this recommendation may be entrances to residences, which warrant more private and intimate entrance treatments.

b. The main entrance of any building should face the street. The main entrance should not be set back more than five feet from the front property line, unless a public seating area or plaza is provided in front of the building.

c. Facades should be divided into shorter, modular segments by means of façade modulation, repeating window patterns, changes in materials, canopies or awnings, varying rooflines and/or other architectural treatments.

d. The ground floor of a front commercial façade shall contain a minimum of 50 percent glass. The purpose of specifying glass is to allow for views into the interior of the building, providing interest for pedestrians. Reflective and heavily tinted glass shall not be allowed along sidewalks.

e. Architectural materials shall not be prescribed but should be compatible with the surrounding area; facades must provide and add to a visually interesting built environment.

f. All buildings shall articulate the line between the ground and upper levels with a cornice, canopy, balcony, arcade, or other visual device.

g. All structured parking must be designed so that the only openings at street level are those to accommodate vehicle ingress and egress, ventilation and pedestrian access. All openings must be designed so that vehicles are not visible from the sidewalk. The remainder of the street frontage should be available for retail or commercial usage.

Signage

Introduction

Signage in TOD developments can be especially important in BRT station wayfinding, business identification, and efficient movement. A unified and themed signage program is recommended to further enhance placemaking and identification that is distinct from the surrounding area. The following guidelines are recommended for application in TOD developments.

a. Height: No signs should extend higher than the height of the ground story.

b. Size: No façade sign should exceed 25 percent of the ground floor wall area. No other sign should exceed 25 square feet in size. Signs may be double sided.

c. Design: All signs within a given district shall be complimentary in their use of color, shape, and material.

d. Live/Work: Home offices and live/work components of a TOD shall have opportunities for business signage in a manner compatible with the overall signage program. Such regulated signage may be permitted in second floor home office and other live/work office windows.