

ARROYO VERDUGO TRANSPORTATION AREA STUDY



Arroyo Verdugo Transportation Coalition

**Burbank • Glendale • La Canada Flintridge
Pasadena • South Pasadena**

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EXECUTIVE SUMMARY

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PROJECT BACKGROUND AND PURPOSE

Transportation Management & Design (TMD), in association with Judith Norman, Manuel Padron & Associates, Nelson\Nygaard Consulting Associates, and Rose & Kindel, was retained by the Southern California Association of Governments (SCAG) in conjunction with the Arroyo Verdugo Transportation Coalition (AVTC), to prepare a transportation area plan for the Arroyo Verdugo sub-region. The purpose of this study is to develop an area transportation plan for the sub-region to serve as a framework for transportation planning and decision making in the member jurisdictions. This project commenced in July 1995.

The Arroyo Verdugo Transportation Coalition is the policy group for the Arroyo Verdugo sub-region, which includes government, business, community, and transportation management association representatives from the cities of Burbank, Glendale, La Cañada Flintridge, Pasadena, and South Pasadena. The purpose of the AVTC is to coordinate transportation planning and policy direction to increase mobility in the sub-region. The AVTC is governed by a 24-member Board of Directors. The AVTC represents a population of over 460,000 inhabitants living in an area of over 80 square miles.

PROJECT GOALS AND OBJECTIVES

During the initial stages of the project, two workshops were convened with the AVTC to establish goals and objectives to guide the preparation of this study. Presented below are the adopted study goals.

Overall Study Goal: *Identify a reliable, safe, and convenient service delivery system that provides for maximum effectiveness in the deployment of transit resources and serves to better coordinate transportation planning and increases mobility for the sub-region. Increase control over transportation system decisions by local communities. Have this project serve as a transferrable model for other sub-regions in the SCAG area.*

Ridership Goal: Increase the number of trips made by transit within the study area.

Economic Goal: Improve cost-efficiency and cost-effectiveness such that the study area transit system is affordable within available funding and newly identified funding.

Operational Goal: Develop a cost-effective multi-tiered system with an integrated hierarchy of transit services that provide for regional, sub-regional, community, and neighborhood needs.

Coordination Goal: Develop integrated transit service alternatives through an interactive, coordinated relationship with all study area stakeholders.

UNMET TRANSIT NEEDS ASSESSMENT

An unmet transit needs assessment was conducted for the Arroyo Verdugo sub-region. This assessment considered three transit needs categories including transit dependency, transit accessibility, and transit choice. The key findings and conclusions from this assessment are presented below.

1. A small number of lower income areas exist in the sub-region. These areas, where a significant portion of the population is below the poverty level, are in southeast Glendale and northwest Pasadena. These areas are presently served by public transit, but might benefit from an improvement in service levels and an increased orientation to community travel needs.
2. All five AVTC cities contain areas which are beyond a reasonable walking distance to a bus stop. The community with the most extensive coverage is Pasadena, with only 17 percent of the population beyond a reasonable one-quarter mile walking distance. Pasadena's grid-network of regional lines provides good coverage, but service frequencies are not adequate in all cases to support good on-street transfers. The community with the least coverage is La Cañada Flintridge, with 67 percent beyond a reasonable walking distance. Much of La Cañada Flintridge is characterized as affluent and hilly, which does not represent a good potential market for transit.
3. Several major conclusions can be highlighted from the travel analysis:
 - Work trip patterns are remarkably dispersed across the Los Angeles region for most cities in the study area. However, Downtown Los Angeles remains the strongest destination of work transit trips, with about 25 to 40 percent of all work trips in the sub-region traveling there.
 - Burbank, Glendale and Pasadena have large numbers of people who both work and live in the same city. Specifically, 27 percent of Burbank residents, 25 percent of Pasadena residents, and 17 percent of Glendale residents make work trips internal to each city.
 - Non-work trip patterns in the sub-region show that people make non-work trips either within their immediate community or to the one adjacent to it. Cities with strong short distance non-work trip patterns include: (a) Burbank with 35 percent internal non-work trips and 23 percent to adjacent areas of North Hollywood and Sun Valley; (b) Glendale with 35 percent of all non-work trips are internal; (c) Pasadena with 42 percent internal non-work trips; (d) South Pasadena with 16 percent of all non-work trips are internal, 19 percent to Pasadena, and 18 percent to the Foothill area; and (e) La Cañada Flintridge with 18 percent of all non-work trips internal, 18 percent to Glendale, and 17 percent to Pasadena.

- It was generally found that the communities of Burbank and Glendale are closely linked to one another for work and non-work trips and they tend to be oriented to the San Fernando Valley and downtown Los Angeles. Similarly, Pasadena and South Pasadena strongly interact with each other and their orientation tends to go in the direction of San Gabriel Valley, East Los Angeles, and downtown Los Angeles. La Cañada Flintridge's orientation tends to be split between the two groups and downtown Los Angeles. Surprisingly, the level of interaction for work and non-work trips between Glendale/Burbank and Pasadena/South Pasadena is not significant. These groupings of AVTC communities are also separated topographically by the San Rafael Hills and numerous arroyos.

PUBLIC PARTICIPATION

Two rounds of public participation were conducted with one prior to the development of service recommendations and the second following the development of service recommendations. The most frequently received comments from the initial round of public participation came from the three categories presented below.

1. Inability to make good connections and transfers to travel between regional, sub-regional, and community services (17.2 percent of all comments received)
2. Want increased service levels and new services (15.2 percent)
3. Want more flexible-type services (8.4 percent)

There are some interesting results that are substantiated by other quantitative work performed by the project team as well as by first hand knowledge and experience with the sub-region. Regarding the need for better connections and transfers, not surprisingly the two most isolated cities in the Arroyo Verdugo sub-region, La Cañada Flintridge and South Pasadena, expressed the highest need in this comment category. The other three cities in the sub-region benefit by having significantly higher number of regional, sub-regional, and community-based transit services. Glendale and Burbank also benefit by having Metrolink and Amtrak rail connections.

The second comment category, the need for more/new services, showed the City of Pasadena with the highest percentage of total comments received at its public meetings. The Needs Assessment noted that the City of Pasadena had among the highest level of intra-community trip making for both work and non-work trips of the five cities in the sub-region (25% work and 42% non-work). This finding tends to support the public meeting finding. The current grid network operated in Pasadena with service headways that generally do not support convenient un-timed on-street transfers is not primarily oriented around satisfying internal trip making in Pasadena. On the other side of the spectrum, the City of Glendale has the most developed and extensive community-based transit

services (Beeline) provided in the sub-region. Not surprisingly, it had the lowest level of comments received by this comment category.

The third comment category, the need for more flexible services, is supported by the access problems associated with the hilly terrain in much of the study area and the need for improved community transit opportunities (flexible service is most often associated with short distance community travel). This comment category generated significantly fewer comments than the two preceding comment categories.

CURRENT NETWORK CONFIGURATION REVIEW

The current network operated in the Arroyo Verdugo sub-region is largely grid-based for regional services with local circulation patterns for community/neighborhood services. Contrary to much of the rest of the Los Angeles region, the Arroyo Verdugo sub-region does not enjoy an extensive, clean grid street pattern. Only Pasadena's street pattern is largely grid-oriented with broken or irregular grid alignments in Glendale, Burbank, La Cañada Flintridge, and South Pasadena. Each of the five cities within the Arroyo Verdugo sub-region has distinct differences in terms of development, street network, travel patterns, topography, and traffic conditions.

The AVTC has adopted the hub-and-spoke as their preferred network configuration for the sub-region. The project team's analysis of the sub-region's transit needs supports this recommendation for the following reasons:

1. There is no prevailing grid street network in the sub-region other than in Pasadena. Instead, arterials tend to follow the topography with development taking place where the street network converges. This is especially noticeable in the central business districts of Burbank, Glendale, La Cañada Flintridge, and South Pasadena where the street network converges.
2. The sub-region is broken by many topographical barriers. These terrain barriers tend to confine travel to a few key streets and arterials. An effective grid pattern of routes is nearly impossible in such an environment. On the other hand, the hub-and-spoke pattern benefits from these concentrations of travel patterns, because it is easier to gather many kinds of trips together at a strategically located transfer point. For example, all travel from Glendale to Pasadena must travel on Highway 134 or Colorado Boulevard, which both flow into downtown Pasadena. All travel in this corridor can thus be easily routed through hubs in the downtowns of Pasadena and Glendale without taking passengers out of direction.
3. Much of the study area lacks the residential and employment densities to generate the level of transit demand needed to support the high service frequencies that grid networks require to be effective. Although a number of high-frequency regional lines are well patronized, much of the community-based services operates less frequently providing local circulation and

feeding into the regional network. These transfers between regional and community services can be timed at key hubs to provide convenient and reliable connections.

4. The initiation of rail service along the Pasadena Blue Line corridor and along the Glendale-Burbank-Los Angeles ART will result in a focus of regional, sub-regional, and community transit connections at key stations. These stations will serve as hubs for the transit network and will require a reorientation of the bus transit network in order to maximize access to the Metro Rail system.

RECOMMENDED SERVICE DESIGN

One of the issues in the development of the recommended service design was the focus of the transit system at varying levels: regional, sub-regional, community, neighborhood, and individual activity centers. Historically, the focus has been oriented around regional and, to a lesser degree, sub-regional concerns. This study sought to maintain the regional and sub-regional strengths, while re-focusing on the needs of community, neighborhood, and individual activity centers. This has resulted in a more integrated system of transit services in the Arroyo Verdugo sub-region that balances regional, sub-regional, and community transportation needs. One of the keys in re-focusing the current transit network in the Arroyo Verdugo sub-region is the establishment of transit hubs as a fundamental element in the recommended hub-and-spoke network for the study area.

Transit Hub Assessment

The AVTC identified ten (10) proposed transit hubs throughout the Arroyo Verdugo sub-region; two in Pasadena, one in South Pasadena, one in La Cañada Flintridge, three in Glendale, and three in Burbank. In an effort to rationalize the location of transit hubs, the project team developed a hierarchy of transfer locations. From this assessment four major transfer centers were identified including the Burbank Regional Intermodal Transportation Center (RITC), the new Town Center in downtown Glendale adjacent to the Galleria, the Del Mar Blue Line Station in west Pasadena, and the Sierra Madre Villa Blue Line Station in east Pasadena. Three of these four sites are located at rail stations. In addition to the four major transfer centers, six major (high volume) transfer locations were identified for bus stop enhancements (shelters, benches and passenger information aids).

PROPOSED SERVICE IMPROVEMENTS

The regional bus service is defined as those routes operated by regional carriers (MTA, Foothill Transit, and LADOT) that connect one or more of the five cities in the Arroyo Verdugo sub-region with regional destinations outside the sub-region such as downtown Los Angeles, the San Fernando Valley, San Gabriel Valley, among others. In developing the regional bus network, the following guidelines were used during the service design process:

- Regional bus service should provide connections between the Arroyo Verdugo sub-region and regional destinations outside the sub-region to the north, south, east, and west.
- The service design team recommendations for the regional bus network should take into consideration bus transit restructuring work already undertaken (i.e., San Fernando Valley and Foothill) and currently being performed on other sub-regional restructuring studies (i.e., Central/East/Northeast Los Angeles).
- The regional bus carriers (MTA, Foothill Transit, and LADOT) should concentrate their service on line haul routes operating on major arterials in heavy demand areas of the Arroyo Verdugo sub-region. The provision of specific community circulation service by regional operators has often resulted in the regional aspects of the service prevailing over community needs. In other cases the operation of large transit coaches in residential neighborhoods on narrow streets has been a public concern.

Based upon the above criteria, the primary changes to the regional bus network call for shifting some of the MTA regional bus service out of local community circulation and substituting appropriate community-based service. Improved community-based transit services in Burbank, Glendale, La Cañada Flintridge, and South Pasadena are being proposed. As well, there are opportunities to substantially improve the level and quality of community-based transit services in the City of Pasadena. A line-by-line assessment of MTA, Foothill Transit, and Pasadena ARTS is proposed for Pasadena as a next step to the conceptual transit plan developed in this study that calls for a much stronger focus on community-based services. In addition, improvements are called for in terms of the sub-regional connections between Glendale, La Cañada Flintridge, and Pasadena as a result of modifications to MTA Line 177. The proposed service improvements called for in this plan are summarized in the table that concludes the Executive Summary.

As noted above, the primary service improvements called for in this plan are new or enhanced community-based services in each of the five cities in the Arroyo Verdugo sub-region and a new sub-regional route to replace MTA Line 177 that links the communities of Glendale, La Cañada Flintridge, and Pasadena. The total annual estimated revenue service hours for these new services and the net increase for modified services amounts to 159,000 hours. The plan recommends that new vehicle purchases for community services consider 30-foot alternate-fuel transit coaches.

Regarding the operation of non-traditional transportation modes, this plan identified three potential applications in the Arroyo Verdugo sub-region. These proposed applications should be considered for implementation following the conclusion and assessment of the four current Smart Shuttle demonstration projects. The proposed non-traditional transportation applications for the Arroyo-Verdugo sub-region include:

- **Kenneth Road Area in Burbank and Northwest Glendale.** This area represents the segment of Line 183 that has been recommended for replacement by two community-based

shuttle routes that deploy 30-foot coaches and charge a reduced fare. This area is a candidate for a modified fixed-route Smart Shuttle service such as a point check deviation service.

- **South Pasadena Community Shuttle.** The Arroyo Verdugo sub-region plan recommends operation of a community shuttle in South Pasadena when the Pasadena Blue Line opens in 2001. This shuttle is proposed to link all of South Pasadena's key residential, retail, and commercial areas beginning in southeast South Pasadena (intersection of Huntington Drive, Garfield Avenue, and Atlantic Boulevard) and proceeding west on Huntington Drive, north on Fair Oaks Avenue, west on Mission Street (connects with Mission Street Blue Line Station), southwest on Pasadena Avenue continuing onto Monterey Road, northwest on Avenue 60, and southwest on Figueroa Street to the Avenue 57 Blue Line Station. This community service is a candidate for route deviation Smart Shuttle service along the proposed route alignment.
- **Employment-based Collection and Distribution System in Pasadena.** Following the Blue Line opening in 2001, the proposed employment-based collection and distribution system staged out of selected Blue Line stations is a candidate for a "many-to-one" Smart Shuttle service. This concept would build upon the results of the Westlake/McArthur Park Red Line Station Smart Shuttle demonstration.

SUB-REGIONAL DIAL-A-RIDE ASSESSMENT

An assessment of the sub-regional dial-a-ride services operated by the five cities in the sub-region was conducted. From this assessment, the following strategies were recommended as having the greatest potential for improving sub-regional paratransit services in the Arroyo Verdugo sub-region:

- Given the vast differences (fare policy, service spans, days of service, eligibility criteria, etc.) that exist among the city-administered paratransit programs operated in the sub-region, total consolidation of the five city paratransit programs does not appear to be a viable strategy to pursue at this time. While less complex, even the creation of two zonal systems (Glendale/La Cañada Flintridge/Burbank and Pasadena/South Pasadena) would be difficult to achieve given the considerable differences among the grouped programs. To date, considerable resistance to consolidate paratransit programs has been expressed within the sub-region.
- For those elderly and persons with disabilities that are currently not using fixed-route service and yet are capable, they should be targeted and educated on how to use fixed-route services. The introduction of new and expanded community fixed route transit within the cities will present new opportunities for convenient short distance travel without using the paratransit system.
- In an effort to improve sub-regional mobility for the elderly and disabled population, it is suggested to implement a test pilot program to coordinate transfers between city administered

paratransit programs primarily at the four major transit centers identified in this study (Burbank RITC, Glendale Town Center, and the Pasadena Blue Line Stations at Del Mar and Sierra Madre Villa).

EVALUATION OF SERVICE RECOMMENDATIONS

An evaluation of the proposed service improvements contained in this study was conducted. This evaluation combined all of the proposed service improvements into one single, preferred alternative plan. This plan was compared with the current transit system in operation in the Arroyo Verdugo sub-region. In essence the preferred alternative plan recommended in this study:

- Embraces the hub-and-spoke network configuration adopted previously by the Arroyo Verdugo Transportation Coalition;
- Refines the AVTC's proposed transit hub locations and develops a hierarchy of these transfer locations consisting of four categories (Major Transfer Centers, Major Transfer Locations, Rail Feeder/Distribution Point, and All Other Transfer Locations); and
- Recommends changing the regional bus network by shifting some of the MTA regional bus service from providing local community circulation and substituting dedicated community-based service. The plan also calls for improvements to the sub-regional bus connections between Glendale, La Cañada Flintridge and Pasadena as a result of proposed modifications to MTA Line 177, and improved community-based services.

All of the above elements will greatly enhance the integration of regional, sub-regional, and community-based services through the hub-and-spoke network incorporating the major transfer centers.

The proposed plan was evaluated relative to the existing system in terms of how well it achieves stated and implied project goals and objectives pertaining to increased mobility, increased ridership, cost effectiveness, equity, and financial feasibility.

In general, the preferred alternative plan compared more favorably to the status quo in two areas: meeting travel and mobility goals as well as community-acceptance and political support goals; and scored modest improvements in meeting financial/economic and environmental goals.

ORGANIZATIONAL MODELS AND OPERATIONAL OPTIONS

A number of organizational models and operational options were identified for the AVTC to consider regarding the provision of transportation services in the Arroyo Verdugo sub-region. These organizational models relate only to the provision of community-based services recommended in this

plan in addition to the new proposed sub-regional route connecting Glendale, La Cañada Flintridge, and Pasadena. No changes are being proposed in regional rail and bus services/operating responsibility.

The organizational models for the operation of the sub-region community-based services include:

- Formation of a Joint Powers Authority (JPA);
- Individual city-management (status-quo);
- Creation of a transit district; and
- Joining an existing JPA (such as the Foothill Transit District).

Once an organizational model has been agreed upon by the AVTC and the five participating cities, a number of operational options are available including direct operation by the organization, contract with a private provider to operate and manage the service, and purchase the service from an existing transit operator/agency.

The AVTC and five participating cities should start the process of considering these organizational models and operational options and take the appropriate next step. Issues identified that need to be considered by the AVTC and the five participating cities include full or partial consolidation, cost savings, decision making authority and control, and maintaining local identity of current community-based systems (Beeline, ARTS, La Cañada Shuttle, Burbank Local Transit).

FUNDING

In order to identify potential revenue sources which could be used to implement the proposed AVTC service recommendations, facility improvements, and vehicle purchases, an analysis of available transit funding sources was conducted.

Propositions A and C represent the most obvious funding source available to the five participating cities. All of the recommended service improvements in this plan, including operating, capital and equipment and administrative costs are eligible uses of both Proposition A and Proposition C funds.

Although current information was not available for all cities, the review of Propositions A and C expenditures for FY 94 and FY 95 showed that cities having carryover fund balances either: 1) spend in excess of their annual allocation for on-going projects and are gradually depleting reserves; or 2) are committed to reserving and/or expending funds for large-scale multi-year capital/multi-modal projects which will encompass all or a "lion's-share" of existing reserves in the future. This means that the availability of local sales tax revenues for additional community services and associated vehicle purchases will be limited for the next 2-4 years, unless individual city transportation priorities are changed to address the proposed service improvements.

Other funding sources were identified along with eligibility uses, project evaluation criteria, available funding, funding duration, and application process. The recommended funding sources include:

- AB2766 Local Funding
- MTA Mobility Allowance Call for Service Projects
- MTA Transportation Improvement Call for Projects
- SCAQMD Rule 2202 On-Road Vehicle Mitigation Operations Air Quality Investment Program
- SCAQMD AB2766 Discretionary Fund
- U.S. Department of Energy Financial Assistance Program for State and Municipal Governments for the Demonstration of Light- and Heavy-Duty Alternative Fuel Vehicles
- Local, State, and Federal Funding Sources Available under the “Included” Operator Program

For all of the AVTC cities, a combination of local and application-based transit funding sources should be used to fund new service improvements. At this time, near-term local funding for new transit projects is somewhat constrained among the five cities (current and planned Propositions A and C expenditures). Therefore, the cities will need to re-evaluate plans for expenditures of local funding and re-direct available additional revenues towards the implementation of new service. Even if local transit revenues are re-directed, additional outside revenue sources will be needed.

PHASED IMPLEMENTATION SCHEDULE

A phased implementation schedule was developed for the AVTC and five participating cities that addresses the AVTC Area Transportation Plan’s proposed service improvements, changes in sub-regional paratransit services, facility enhancements, vehicle purchases, and organizational models. This schedule is intended only as a guide. Future conditions and circumstances may dictate a departure from this schedule and adjustments will be required. Of primary importance is the need to ensure that adequate funding is available to implement the proposed service improvements, purchase vehicles and make the necessary facility enhancements. The phased implementation plan was divided into four time frames including near-term (next 1-2 years), pre-Blue Line/ART opening (3-4 years), Blue Line/ART startup (five years - 2001), and post-Blue Line/ART opening (6+ years). Because of the uncertainty over when the Los Angeles-Glendale-Burbank light rail/ART line will begin, it was assumed it would be operational around the same time as the Blue Line (in 2001).

Service Improvements. Most of the improvements are new community-based services and can be implemented in the near-term (Glendale, Burbank, and La Cañada Flintridge services). Subject to the outcome of the Pasadena transit service restructuring, the Pasadena community service concept implementation could potentially be implemented within a 3-5 year timeframe as a lead-in to the Pasadena Blue Line opening in 2001. The South Pasadena community shuttle could start concurrent with the Blue Line opening. The Glendale services that respond to the start of ART service are proposed for implementation at the start of those rail services.

Paratransit Service. Three sub-regional paratransit service recommendations are proposed. The first two should be scheduled for the near-term (next 1-2 years). These include the need for the five AVTC cities to decide if the creation of two zonal systems (Glendale/La Cañada Flintridge/Burbank and Pasadena/South Pasadena) is desirable in terms of consolidating sub-regional dial-a-ride systems and secondly, the elderly and disabled population capable of using fixed-route service should be targeted and educated on how to use fixed-route services. The third paratransit recommendation is slated for the post Blue Line/ART light rail service opening (6+ years). This recommendation calls for the need for the construction to be completed on the four major transfer centers in this plan. It is recommended that a test pilot program be implemented to coordinate transfers between city-administered paratransit programs primarily at these major transfer centers.

Facility Improvements and Vehicle Procurement. The Category 2: Major (high volume) Transfer Location bus stop enhancements are proposed for implementation in the near-term (next 1-2 years). Procurement of the 30-foot alternatively-fueled buses needs to take place in advance of implementation of the proposed service improvements. Procurement of the small buses should take place in years 1 through 4.

Organization/Operations. A critical decision needs to be made by the AVTC and five participating cities over the next year. Specifically, the AVTC and individual cities need to decide which organizational model to pursue for the operation of community-based services in the sub-region (formation of JPA, status quo-city management, creation of a transit district, or join an existing JPA).

Funding. Work on funding arrangements should begin immediately pending any decisions to implement the proposed service improvement, facility enhancement, and vehicle purchase recommendations in this study.

The Table detailing the proposed service changes follows:

TABLE E1

SUMMARY OF PROPOSED SERVICE IMPROVEMENTS

PROPOSED SERVICE IMPROVEMENT	SERVICE TYPE	REQUIRED MODIFICATION
GLENDALE		
NW Glendale Beeline 5 (replacement route)	Community	Replaces MTA Line 183 segment from NW Glendale to downtown Glendale. Weekday, Saturday, and Sunday headways to operate 30 minutes all day - an improvement over the current Line 183 segment on weekdays (ranges from 30-60 minutes in peak and 40-50 minutes mid-day), and on Saturday and Sunday (60 minutes). Spans of service are approximately the same.
Beeline Route 4 South (current route and replacement route)	Community	Current Beeline Route 4 (southern portion) to absorb MTA Line 183 segment from downtown Glendale to the Glendale Transportation Center in addition to improving current Beeline Route 4 weekday headways from 20 to 15 minutes all day and no headway changes on Saturday (20 minutes). Beeline Route 4 to operate on Sunday on 60 minute headway. Current Line 183 segment operates on weekdays (ranges from 30-60 minutes in peak and 40-50 minutes mid-day), and on Saturday and Sunday (60 minutes). Spans of service are approximately the same for new Beeline Route 4 and current Line 183.
Beeline 6 (replacement route)	Community	Replaces MTA Line 201 City of Glendale segment only. Weekday and Saturday headways to operate 30 minutes all day, and 60 minute headway on Sunday. Current Line 201 operates on weekdays only on 27-35 minute headways. Span of service on new Beeline 6 the same as current Line 201 on weekdays.
San Fernando Metrolink Express (extension to Disney and Burbank Metrolink Station)	Metrolink Shuttle	City of Glendale currently providing City of Burbank \$60,000 annually to defray costs of operating shuttle from Burbank Metrolink station to Disney Animation Studio in Glendale. City of Glendale to consider extending its current San Fernando Road Metrolink Shuttle to Disney and possibly to Burbank Metrolink station at a cost of approximately \$40,000 annually.
Beeline Crosstown via Colorado Street (new route)	Community	New crosstown route to be considered for implementation following opening of Los Angeles-Glendale-Burbank light rail/ART line.
Beeline Extensions to Doran and Grand Central ART stations	Community	Consider extending current Beeline routes to Los Angeles-Glendale-Burbank light rail/ART stations at Doran and Grand Central when new line opens.
BURBANK		
Kenneth Road Shuttle (replacement route)	Community	Replaces MTA Line 183 segment from NE Burbank to the Burbank RITC. Weekday and Saturday headways to operate 30 minutes all day - an improvement over the current Line 183 segment on weekdays (ranges from 30-60 minutes in peak and 40-50 minutes mid-day), and on Saturday (60 minutes). Kenneth Road Shuttle not proposed for Sunday operation (Line 183 operates on Sunday). Weekday and Saturday spans of service are slightly reduced compared to current Line 183.

TABLE E1

SUMMARY OF PROPOSED SERVICE IMPROVEMENTS

PROPOSED SERVICE IMPROVEMENT	SERVICE TYPE	REQUIRED MODIFICATION
Burbank/Media District/University City Shuttle (replacement route)	Community	Replaces Line 96 segment from Burbank RITC to Universal City. Recommend weekday headways of 10 minutes in peaks, 15 minutes in base, and 30 minutes in evenings; and 30 minute headways on weekends. Current Line 96 operates 30-40 minutes in peak and 60 minutes in base period and 60 minutes on Saturday and Sunday. Current Line 196 spans of service are weekdays (5:00 a.m.-10:30 p.m.), Saturday (5:30 a.m.-10:30 p.m.), and Sunday (6:44 a.m.-10:30 p.m.). Proposed shuttle spans of service are weekdays (5:00 a.m.-12:00 p.m.), Saturday (6:00 a.m.-9:00 p.m.), and Sunday (6:00 a.m.-9:00 p.m.).
Burbank CBD Shuttle (new route)	Community	New downtown circulator to operate on weekdays evenings and Saturday and Sunday.
PASADENA		
Pasadena Community Transit (new community services)	Community	A preliminary concept for a 4 route community-based system was developed that essentially operates on frequent headways seven days a week. This conceptual local system would in some cases replace existing regional lines and in other cases augment/supplement existing service. This locally-based system would need to be integrated with the opening of the Blue Line in 2001. A line-by-line analysis/service restructuring study needs to be conducted prior to any definitive line-by-line recommendations being provided.
LA CAÑADA FLINTRIDGE		
La Cañada Shuttle (minor extension and headway improvement)	Community	It is proposed to re-locate the current western terminal from a residential area to a commercial/retail area in Montrose. The other change calls for the weekday base period headway to be improved from 15 to 12 minutes.
SOUTH PASADENA		
South Pasadena Shuttle (new route)	Community	There is currently no community circulation route in South Pasadena. This is an entirely new service.
SUB-REGIONAL		
Glendale/La Cañada Flintridge/Pasadena Sub-regional route (route replacement)	Sub-regional	Replaces MTA Line 177 segment from Glendale to the Del Mar station in downtown Pasadena. Weekday headways to operate at 40 minutes in peak periods and 60 minutes in midday -- the same as current Line 177. No service would be operated on weekends on new sub-regional route. Currently, Line 177 does not operate on weekends. New sub-regional route would have slightly reduced span of service (6:40 a.m.-7:00 p.m.) compared to current Line 177 (5:40 a.m.-8:47 p.m.).

PHASE I: NEEDS ASSESSMENT

Section 1.0

Introduction

1.0 INTRODUCTION

1.1 PROJECT BACKGROUND AND PURPOSE

Transportation Management & Design (TMD), in association with DKS Associates, Judith Norman, Manuel Padron & Associates, Nelson\Nygaard Consulting Associates, and Rose & Kindel, was retained by the Southern California Association of Governments (SCAG) in conjunction with the Arroyo Verdugo Transportation Coalition (AVTC), to prepare a transportation area plan for the Arroyo Verdugo sub-region. The purpose of this study is to develop an area transportation plan for the sub-region to serve as a framework for transportation planning and decision making in the member jurisdictions. This project commenced in July 1995.

The Arroyo Verdugo Transportation Coalition is the policy group for the Arroyo Verdugo sub-region, which includes government, business, community, and transportation management association representatives from the cities of Burbank, Glendale, La Cañada Flintridge, Pasadena and South Pasadena. The purpose of the AVTC is to coordinate transportation planning and policy direction to increase mobility in the sub-region. The AVTC is governed by a 24-member Board of Directors. The AVTC represents a population of over 460,000 inhabitants living in an area of over 80 square miles.

1.2 PROJECT GOALS AND OBJECTIVES

During the initial stages of the project, two workshops were convened with the AVTC to establish goals and objectives to guide the preparation of this study. The detailed set of adopted goals and objectives is presented in the Technical Appendix. Presented below are the adopted study goals.

Overall Study Goal: *Identify a reliable, safe, and convenient service delivery system that provides for maximum effectiveness in the deployment of transit resources and serves to better coordinate transportation planning and increases mobility for the sub-region. Increase control over transportation system decisions by local communities. Have this project serve as a transferrable model for other sub-regions in the SCAG area.*

Ridership Goal: Increase the number of trips made by transit within the study area.

Economic Goal: Improve cost-efficiency and cost-effectiveness such that the study area transit system is affordable within available funding and newly identified funding.

Operational Goal: Develop a cost-effective multi-tiered system with an integrated hierarchy

of transit services that provide for regional, sub-regional, community, and neighborhood needs.

Coordination Goal: Develop integrated transit service alternatives through an interactive, coordinated relationship with all study area stakeholders.

1.3 REPORT ORGANIZATION

This report presents the Transportation Area Study for the Arroyo Verdugo sub-region and has been organized into three primary phases as shown below.

Phase I -- Needs Assessment

- 1.0 Introduction
- 2.0 Existing Transportation Facilities and Services
- 3.0 Unmet Transit Needs Assessment
- 4.0 Results of the Public Participation Process

Phase II -- System Design

- 5.0 Service Design Strategies
- 6.0 Recommended Service Design
- 7.0 Evaluation of Service Recommendations

Phase III -- Implementation

- 8.0 Organizational Models and Operations Options
- 9.0 Funding
- 10.0 Implementation Schedule

The following section presents a description of the existing transportation facilities and services in the Arroyo Verdugo sub-region.

PHASE I: NEEDS ASSESSMENT

Section 2.0

Existing Transportation Facilities and Services

2.0 EXISTING TRANSPORTATION FACILITIES AND SERVICES

2.1 BACKGROUND

The Arroyo Verdugo sub-region truly is a multi-modal environment, served by an airport, inter-city passenger rail, regional commuter rail and future light rail transit, along with regional and local bus transit, paratransit services, and, of course, automobile use. This section describes the existing transportation facilities and service within the Arroyo Verdugo sub-region.

2.2 AIRPORT FACILITIES

The Burbank-Glendale-Pasadena (BGP) Airport is located in the northwestern area of Burbank, adjacent to the Golden State Freeway. The airport serves about five million passengers a year, with an average of 6,000 passengers arriving per day. Currently, there are about 90 scheduled daily departures. Total operations (takeoffs and landings for helicopters, commercial, and general aviation) average about 500 per day. The majority of commercial flights operate between 7:00 a.m. and 10:00 p.m. daily.

In order to meet federal aviation safety requirements/guidelines, the airport's passenger terminal would need to be relocated farther from the runways, expanded, and updated. An Environmental Impact Report/Environmental Impact Statement for this project was certified in 1993, with supplemental documentation completed in 1994.

The airport is served by an Amtrak passenger rail station located adjacent to the terminal. Amtrak's San Diegan service and Metrolink's Ventura Line both stop at this station. Courtesy phones are located at the rail station and airport terminal to allow pick-up and drop-off between the rail station and the airport terminal. In addition, a subscription shuttle service is available for pick-up and drop-off service from the Metrolink station in downtown Burbank, referred to as the Regional Intermodal Transportation Center (RITC), to employment sites in a designated area referred to as the Golden State Area.

2.3 PASSENGER RAIL/RAIL TRANSIT FACILITIES

Amtrak San Diegan Service. Amtrak provides daily service along the San Diego-Los Angeles-Santa Barbara corridor. While the San Diegan concentrates service on the portion of the corridor between San Diego and Los Angeles, some of these trains extend the full route to Santa Barbara,

serving the BGP Airport Amtrak Station and the Glendale Transportation Center. Amtrak service along this route is summarized below.

Amtrak Service

San Diego-Los Angeles-Santa Barbara	1 morning, 1 afternoon and 1 evening train, with an additional mid-morning train on weekends and holidays
Santa Barbara-Los Angeles-San Diego	1 morning, 1 afternoon and 1 evening train, with an additional afternoon train on weekends and holidays

A round-trip ticket from Burbank or Glendale to San Diego is \$32.00. A round-trip ticket from Burbank or Glendale to Santa Barbara is \$26.00.

Metrolink. The Southern California Regional Rail Authority operates Metrolink, a five-county commuter rail network of over 400 miles. Metrolink's five commuter routes all connect with Union Station near downtown Los Angeles, where connections to other trains can be made or where riders may board buses, vans or the Metro Red Line subway to downtown Los Angeles locations. The Glendale Transportation Center and Burbank Regional Intermodal Transportation Center (RITC) are served along Metrolink's Santa Clarita Line and Ventura County Line, with additional "short line" Metrolink service between Burbank, Glendale, and Los Angeles. In addition, Metrolink service at the Amtrak station located near the BGP Airport has been added along the Ventura County Line. Service at this station currently is undergoing a demonstration period. If considered successful, Metrolink will continue to serve the airport station.

Metrolink Trains Serving Burbank and Glendale

Metrolink Line	Trains to Los Angeles			Trains from Los Angeles		
	a.m. peak	mid-day	p.m. peak	a.m. peak	mid-day	p.m. peak
Ventura County Line	4	2	0	0	2	4
Santa Clarita Line	5	2	2 (includes 1 late)	2	2	5 (includes 1 late)
Add'l Burbank-Glendale-Los Angeles Service	9	4	4	6	3	9 (includes 1 late)
Total Trains Serving Burbank & Glendale	18	8	6	8	7	18

Between the service on the Ventura County Line, Santa Clarita Line, and Burbank-Glendale “short lines”, a total of 65 Metrolink trains serve the Burbank and Glendale stations each weekday. Currently, Metrolink does not offer weekend service.

Metrolink fares vary according to how many zones are passed during a trip. A minimum fare of \$3.50 is charged for travel within one zone, adding \$1.00 for each successive zone for up to seven zones. Glendale falls within the same zone as Union Station; therefore, a one-way trip between Glendale and downtown Los Angeles is a single-zone fare of \$3.50. Burbank is considered a “split zone,” allowing it to be counted within a same zone depending on the direction of the trip. The following table summarizes typical travel times and fares between Burbank, Glendale, and selected destinations.

Selected Metrolink Travel Times and Fares from Burbank and Glendale

Selected Destinations	Glendale		Burbank (RITC)	
	Travel Time	Fare	Travel Time	Fare
L.A. Union Station	11 minutes	\$3.50	17 minutes	\$3.50
Santa Clarita (Saugus)	38 minutes	\$5.50	32 minutes	\$4.50
Chatsworth	32 minutes	\$5.50	26 minutes	\$4.50
Moorpark (Ventura County)	63 minutes	\$6.50	56 minutes	\$5.50

Pasadena-Los Angeles Blue Line. The MTA has begun construction of the Pasadena-Los Angeles Blue Line, a light rail project which extends from Union Station near downtown Los Angeles to Sierra Madre Villa Road in Pasadena, using the existing railroad right-of-way previously owned by the Atchison, Topeka & Santa Fe Railway. The line is expected to be completed by the year 2001. Transit stations in the study area include Mission Street in South Pasadena, and Fillmore, Del Mar Transportation Center, Holly, Lake, Allen, and Sierra Madre Villa in Pasadena. Travel times to Union Station are expected to be about 33 minutes from Pasadena's terminus at Sierra Madre Villa Road and about 18 minutes from South Pasadena's Mission Street station.

Similar to other light rail operations in Los Angeles County, the Pasadena Blue Line is expected to operate seven days a week, with 5-8 minute peak hour service and 12-15 minute off-peak/weekend service.

Currently, MTA's fare for its light rail lines is the same as a fare for an MTA bus -- a \$1.35 cash base fare. Consideration of distance- or zone-based fares may occur in the future.

Burbank-Glendale-Los Angeles Corridor. The MTA's 20-Year Plan has identified that a light rail project along this corridor be explored and modeled for lower cost options. This line, along with several others, could be constructed in the second decade if additional revenues are available. In addition to light rail, this corridor is being explored as a potential corridor for the application of an alternative rail technology (ART), a self-propelled rail vehicle operating on conventional railroad tracks. A feasibility study jointly commissioned by Burbank, Glendale, the Burbank-Glendale-Pasadena Airport Authority and MTA is expected to be completed later this year. Potential station locations include the BGP Airport, Buena Vista, and RITC in Burbank; and Northwest Glendale (Sonora/San Fernando Road), Ventura Freeway, Colorado and Glendale Transportation Center in Glendale.

2.4 REGIONAL TRANSIT SERVICES

Regional Fixed-Route Services. Major operators of public transit services include MTA, Foothill Transit, and LADOT. MTA operates about 35 bus routes which travel in the Arroyo Verdugo sub-region.. Foothill Transit operates three bus routes from the San Gabriel Valley which extend into Pasadena. LADOT operates two express bus routes from the San Fernando Valley which extend into Burbank, Glendale, and Pasadena. A summary of these bus routes and service characteristics is presented in the Technical Appendix. The following table summarizes routes that traverse each of the five cities in the Arroyo Verdugo sub-region, followed by a listing of cash fares for the three operators.

MTA, Foothill Transit and LADOT Routes by City

City in Arroyo Verdugo Subregion	MTA, Foothill Transit and LADOT Routes
Burbank	MTA 92, 93, 410, 94, 152, 154, 163, 164, 165, 169, 183; LADOT 549
Glendale	MTA 85, 90, 91, 92, 93, 410, 94, 96, 177, 180, 181, 183, 201; LADOT 409,549
La Cañada Flintridge	MTA 177, 268
Pasadena	MTA 177, 180, 181, 188, 256, 260, 264, 266, 267, 268, 401, 402, 483, 485, 487, 489; LADOT 549; FT 187, 690, 691
South Pasadena	MTA 79/379, 176, 483, 485

MTA, Foothill Transit and LADOT Fares

Operator	Cash Base Fare	Additional Zone Charge for Express Bus Service
MTA	\$1.35	\$0.50 per zone, up to 5 zones
Foothill Transit	\$0.85	\$0.35 per zone, up to 5 zones
LADOT	\$1.10 (Commuter Express services)	\$0.40 per zone, up to 4 zones

Private bus lines providing inter-city bus services include Continental Trailways (serving Pasadena and Glendale) and Greyhound Bus Lines (serving Pasadena).

Regional Paratransit (Dial-a-Ride) Services. Access Services, Inc. is Los Angeles County's regional provider responsible for assuring that the disabled population has access comparable to what is provided with fixed-route transit services, as mandated by the Americans with Disabilities Act. Access Services has implemented a phased program, expanding to various sub-regions of Los Angeles County over time. Pasadena and South Pasadena have been part of the service area for over two years; Glendale, Burbank, and La Cañada Flintridge are in a sub-region that has just begun to be served this past year.

2.5 LOCAL TRANSIT SERVICES

In addition to transit services provided by regional carriers, each of the cities in the Arroyo Verdugo sub-region has their own transit programs, funded mostly from their local share of Proposition A and C (Los Angeles County's transit-related sales tax measures). All cities in the Arroyo Verdugo sub-region fund a dial-a-ride program. In addition, many cities offer bus fare subsidy programs and recreational trip programs. Burbank, Glendale, La Cañada Flintridge, and Pasadena fund local fixed-route bus service to provide community circulation. Service characteristics for these fixed routes are summarized and presented in the Technical Appendix. A summary of key transportation-related services in each city with the exception of paratransit services is presented below. A description of each existing dial-a-ride program is presented in Section 6.10 - Sub-regional Dial-a-Ride Service Assessment.

2.5.1 Burbank

Burbank funds four-feeder bus shuttles from the Burbank Metrolink Station named "BLT" for "Burbank Local Transit." The shuttles are free to riders transferring from other transit; non-transferring riders are charged \$1.00. Each shuttle is described below.

Downtown Metrolink Shuttle: This shuttle meets Metrolink trains at the Burbank RITC and distributes passengers in downtown Burbank, with a service area bounded by Glenoaks Boulevard, Verdugo Avenue, the Golden State Freeway, and Cypress Avenue.

Golden State Area Shuttle: This shuttle meets Metrolink trains and distributes riders to employment destinations in the airport service area generally bounded by the Golden State Freeway, Cohasset Street, the airport passenger terminal, and the Southern Pacific Coast Line.

Media District Shuttle: Shuttles meet Metrolink trains at the Burbank RITC and serve employment sites in the Media District, including the Walt Disney Company, St. Joseph's Medical Center, NBC, and Warner Brothers. Express shuttles meeting a limited number of trains follow two different routes and provide limited-stop service to key destinations in the service area.

Burbank-Glendale Express: Service recently was initiated on August 14, 1995. This shuttle meets Metrolink trains at the Burbank station and proceeds along San Fernando Boulevard to serve

employment sites in eastern Burbank and northwest Glendale, with connections to Glendale's Beeline-San Fernando Route. This new service is currently funded from an AQMD AB2766 grant. The service will be continued a second year with funding shared by Burbank and Glendale.

Burbank also provides a dial-a-ride service for the elderly and disabled population of Burbank (see Section 6.10). Burbank also funds elderly and youth excursions and has a senior bus subsidy program.

2.5.2 Glendale

The Glendale Beeline is a locally-funded shuttle service operating three routes. Routes 1 and 2 follow the same loop in opposing directions, extending along the length of Central Avenue and Brand Boulevard to serve the Glendale Memorial Hospital and Glendale Transportation Center on the south end; the Glendale Galleria/City Center in the central portion; and residences on the north end. The north end of the loop extends westward along Stocker Street, Pacific Avenue, and Arden Avenue.

Route 4 offers service from Glendale Community College, extending southwest along Verdugo Road, using Harvard Street and Broadway to form a loop serving the Civic Center, City Center, and Glendale Galleria, then continuing on Broadway to head south on Chevy Chase Drive and west on Palmer Avenue, ending at Glendale Avenue.

Glendale also has tried other Beeline routes which were discontinued due to low ridership. These routes include the former Route 3 providing service to the Glendale Adventist Hospital and the former Route 5 providing service to the Montrose Shopping Park and Verdugo Hills Hospital.

Glendale also offers two Metrolink express shuttles, timed to meet Metrolink trains. The Brand Boulevard route extends from the Glendale Transportation Center north on Brand Boulevard to just north of the 134 Freeway, then looping back using Glendale Avenue to serve destinations near the Civic Center. The San Fernando Road route proceeds northward to serve industries along the corridor, ending in the northwestern corner of the City.

Glendale also funds a number of services targeted toward the elderly, including a dial-a-ride service, bus pass subsidy program, and a recreational transit program.

2.5.3 La Cañada Flintridge

La Cañada Flintridge introduced a fixed-route shuttle along Foothill Boulevard from Ocean View to Oak Grove Drive/Jet Propulsion Lab (JPL). The free service currently is offered on weekdays only and runs at 12-15 minute headways from 7:00 a.m. to 5:00 p.m. A Commuter Express Ride Home service begins at 5:10 p.m., utilized by JPL carpool employees and La Cañada High School students in the after-school sports program. The City contracts the service through the City of Glendale.

Initial response to the shuttle has been positive. The City has received requests to initiate weekend

service, and various requests to serve other areas such as Montrose, Descanso Gardens, residential areas (though actually establishing stop locations is generally difficult), and Palm, La Cañada and Paradise Canyon Elementary Schools.

The city also participates in a joint program with the County, which contracts bus service to the Santa Monica beach offered between June and September on Mondays, Tuesdays, Thursdays, Fridays and Saturdays. The City subsidizes residents, who are charged \$.50 (\$.25 for seniors).

The City also funds a dial-a-ride service administered by the City of Glendale, which operates a consolidated service area including La Cañada Flintridge, Glendale, and portions of Los Angeles County.

2.5.4 Pasadena

The Pasadena Area Rapid Transit System (ARTS) serves a six-mile route serving commercial activity along Colorado Boulevard and Green Street between Orange Grove and Lake Avenue, turning south on Lake Avenue to serve the Shoppers Lane area. The ARTS service is considered very successful.

Pasadena dial-a-ride provides curb-to-curb service for a consolidated service area which includes Altadena, San Marino, and other unincorporated Los Angeles County areas. Because it provides service to a consolidated area, the dial-a-ride program receives Subregional Incentive funds from the MTA.

Pasadena also funds several bus fare subsidy programs. Bus pass subsidies are available for seniors, disabled, and secondary school-age students. Tokens are available for the homeless and for pre-natal clinic patients.

Pasadena also funds special event shuttles and recreational trips in support of their school program. A holiday shuttle is provided between northwest Pasadena and east Pasadena, and between east Pasadena and the ARTS service area.

Much of Pasadena's transit program focuses on supporting the Blue Line light rail project from downtown Los Angeles to Pasadena which is expected to open in 2001.

2.5.5 South Pasadena

South Pasadena does not operate local community-based fixed route service. However, the City does operate Senior Ride, a dial-a-ride service for seniors (55 years or older) and the disabled.

South Pasadena also funds a bus pass subsidy program for seniors and the disabled; and recreational trips for seniors and youth (after school program). The recreational trips currently are free, but future fees are expected so that the farebox can recover half of the costs.

South Pasadena is in the process of completing its Mission Street Specific Plan, which establishes a pedestrian and transit-oriented shopping street in the area adjacent to the planned Blue Line station. A component of the plan is consideration of transit service serving the Mission Street area.

2.6 TRANSIT CENTER/PARK-AND-RIDE FACILITIES

Each of the five cities in the Arroyo Verdugo Sub-region have park-and-ride lots or transit centers where connections to transit can be made or ridesharing can be staged. The following Table 2-1 summarizes locations of these facilities in the Arroyo Verdugo sub-region.

TABLE 2-1

EXISTING TRANSIT CENTERS/PARK-AND-RIDES

City	Transit Center/Park-and-Ride Location	Connections
Burbank	Downtown Metrolink station (201 N. Front Street)	Metrolink, MTA 92, 93, 96, 152, 154, 164, 165, 183, Media District Shuttle, Downtown Area Shuttle, Golden State Area Shuttle, Burbank-Glendale Express
Burbank	Amtrak BGP Airport station (3750 Empire Avenue)	Amtrak, Metrolink, MTA 94, 165, 169, 419
Glendale	Glendale Transportation Center Cerritos Avenue	Amtrak, Metrolink, Amtrak buses, Greyhound Bus Lines, MTA 90, 91, 92, 93, 94, 180, 181, 183, Beeline 1 and 2, potential light rail (or alternative rail)
Glendale	Lowell Avenue/I-210	LADOT 409
La Cañada Flintridge	Foothill Boulevard/Route 2	Ridesharing
La Cañada Flintridge	Verdugo Road/Route 2 (expected completion Fall 1995; daytime weekday use only)	Ridesharing; potential LADOT 409
Pasadena	Ralph M. Parsons Company Pasadena Avenue and Union Street	MTA 180, 188, 256, 267, 402, 483; FTZ 187
Pasadena	Sierra Madre Boulevard and Route 210	MTA 487
South Pasadena	Fair Oaks and Mount (War Memorial)	MTA 483

New transit center/park-and-ride facilities will be developed as a result of the Pasadena Blue Line light rail project, and potentially a light rail or alternative rail project along the Burbank-Glendale-Los Angeles corridor. Station locations are listed below.

Planned or Proposed Transit Stations

Rail Line	Station Locations	Parking
Pasadena Blue Line	Mission Street/El Centro, South Pasadena Fillmore Avenue/Raymond, Pasadena Del Mar Avenue/Raymond, Pasadena Holly Street, Pasadena Allen Street/Route 210, Pasadena Sierra Madre Villa Road/Foothill, Pasadena	No Yes Yes No No Yes
Burbank-Glendale-Los Angeles Line	(lists proposed new station locations only) Colorado/San Fernando Road, Glendale Ventura Freeway, Glendale Sonora/San Fernando Road, Glendale Buena Vista, Burbank BGP Airport (Hollywood Way/San Fernando)	No Yes No Limited Yes

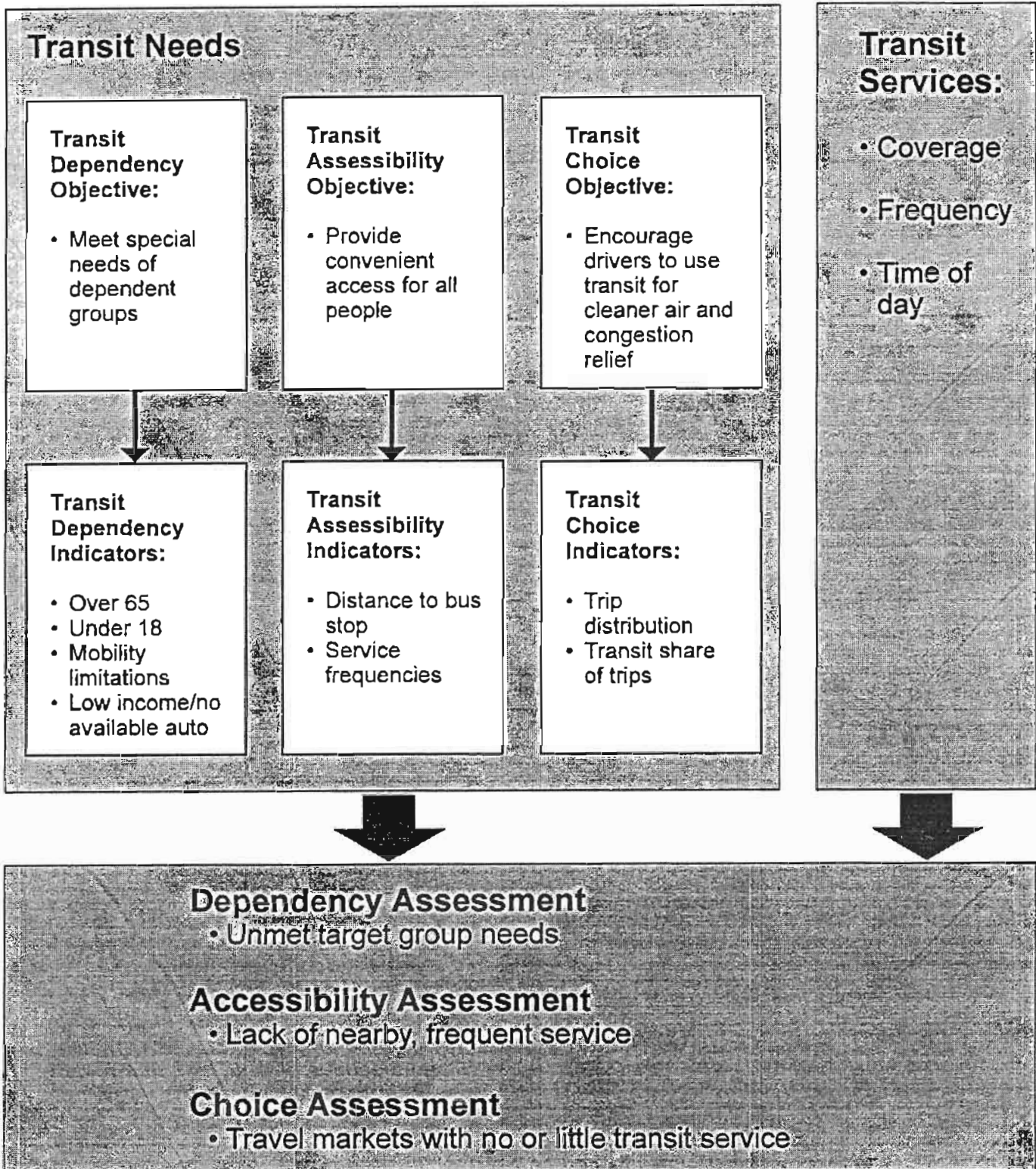
In the future, selected stations are likely to play an important role in providing inter-modal connections.

PHASE I: NEEDS ASSESSMENT

Section 3.0

Unmet Transit Needs Assessment

**Figure 3-1
UNMET NEEDS ASSESSMENT**



- **Transit Choice.** Many travelers have a conscious mode "choice" available each day. They are able to drive and own vehicles, so that driving is a choice as well as transit. The propensity to use one or the other becomes a matter of the economics of time "cost" and monetary "cost". Factors which create auto "costs" include travel time (including congestion), terminal walk time (such as walking to and from the vehicle at each end of the trip), parking costs, and auto operating costs (variable costs by distance such as fuel). Transit "costs" include in-vehicle travel time, the fare (adjusted for transit passes and special fares for elderly, handicapped and students), terminal walk time (walking to and from the bus at each end of the trip), wait time for transit (once a person gets to a transit stop), and terminal wait time (if a transfer is required).

The Metropolitan Transportation Authority (MTA) trip tables have provided this calibration in aggregate. The model has been set to regional factors, with special adjustment factors added to reflect actual trip patterns obtained from local home interview surveys.

Assessment is needed for both work and non-work trips. Because work trips tend to occur at peak hours and require longer distances, the propensity to use transit for work trips is usually higher. When there is a clear unmet trip need for work trips, this indicates that new or more frequent services are needed to facilitate this trip.

Fewer of the non-work trips are usually on transit, but those people who use transit for non-work trips are usually more dependent on it. Areas where unmet trip needs focus on non-work trips suggest that community-based services need improvement (such as neighborhood circulators) or that more local routes need more frequent service.

Unmet transit needs must be described in multiple ways because transit serves many different types of travel needs. The travel needs of persons over 65 are very different from those of workers traveling over 50 miles to reach their jobs.

Specific conclusions within this study identify where there are significant markets which do not have adequate transit service. These conclusions will provide a listing of additional transit service objectives which the development of service recommendations will need to address.

The study area is divided into seven districts. These districts include the participating cities -- Burbank, Glendale, Pasadena, South Pasadena and La Cañada Flintridge. In addition, other portions of Los Angeles County are also highlighted in certain places, including La Crescenta and Altadena.

3.2 SUMMARY OF STUDY AREA NEEDS

3.2.1 Transit Dependency

In general, the study area communities have residents of similar age distributions. Income distributions do vary by communities. For example, Glendale and Pasadena contain a higher proportion of low-income people. A summary of transit dependency characteristics by community is provided in Table 3-1.

The study area contains a number of smaller areas which have significant transit needs. These characteristics are noticeable:

- As shown in Figure 3-2, the proportion of persons under 18 within the study area is high in a few areas within Pasadena, Glendale and Burbank. The youth population is much lower in other tracts in the study area.

A comparison of these areas to MTA services suggests that many of the areas with a high youth population are well-served. One major exception is in the northwest Pasadena area, where bus headways are at least 20 minutes.

- As shown in Figure 3-3, the proportion of persons over 65 is generally very high throughout the study area. Four tracts in the study area (one in Glendale and three in Pasadena) have over 22 percent of the population over 65. The high presence of retirees is typically a result of residents purchasing single-family homes several decades ago.

The high presence of elderly across the study area suggests that this group requires special consideration in bus transit strategies. This age group typically needs medical and shopping trip service, and the need for service typically lasts throughout the day.

- As shown in Figure 3-4, a few lower income areas exist in the study area. These areas, where a significant portion of the population is below the poverty level, are in southeast Glendale and northwest Pasadena. (Please note that the poverty level definition changes depending on household size and age of household members.)

Many of the low income areas have good transit service. The headways of routes which serve this area vary between 15 and 30 minutes, which is reasonable but certainly not as frequent as is found in other low income neighborhoods in Los Angeles County.

3.2.2 Transit Accessibility

All communities contain areas which are beyond a reasonable walking distance to a bus stop. The

Figure 3-2
Percent 18 and Under

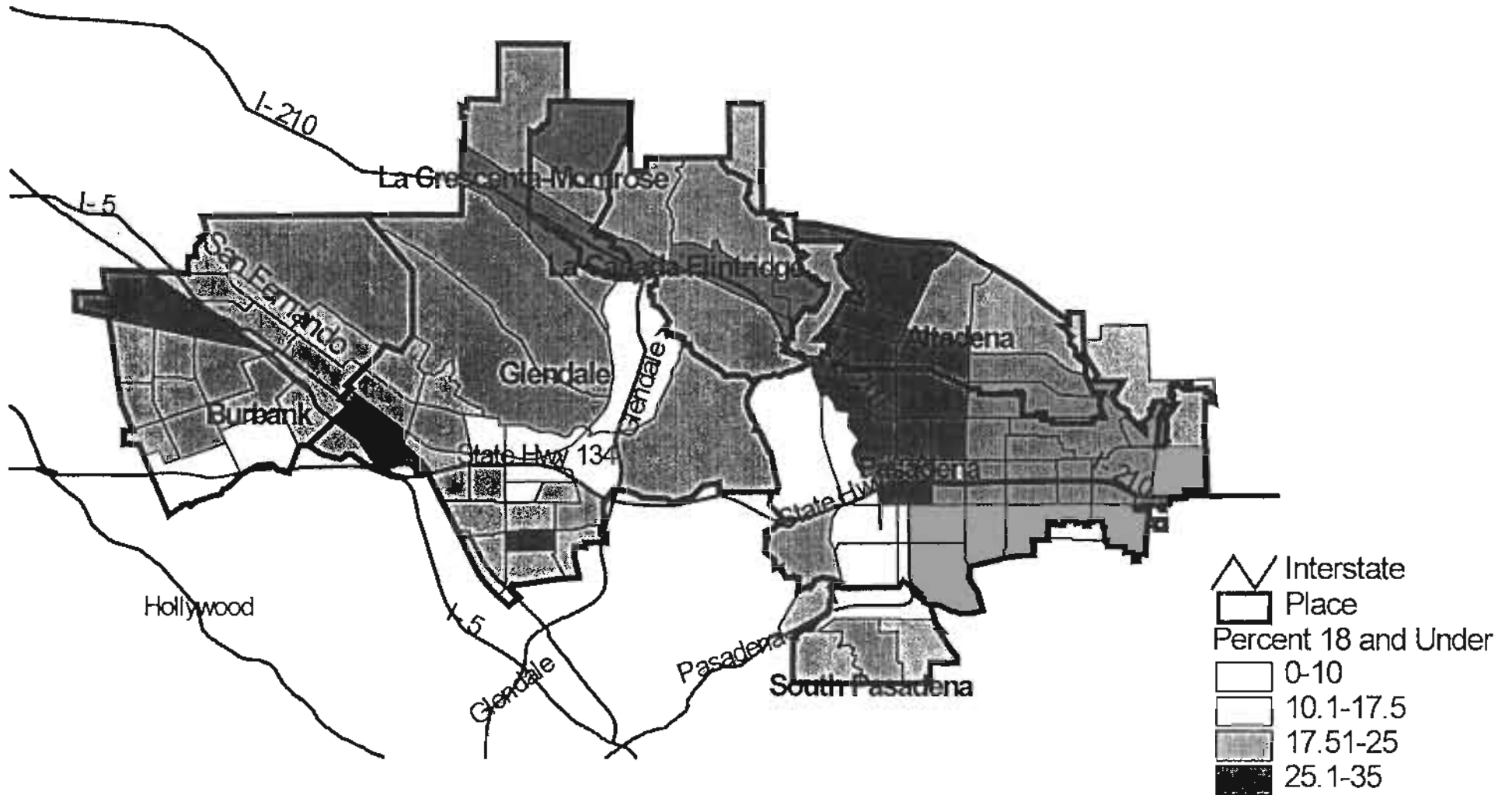
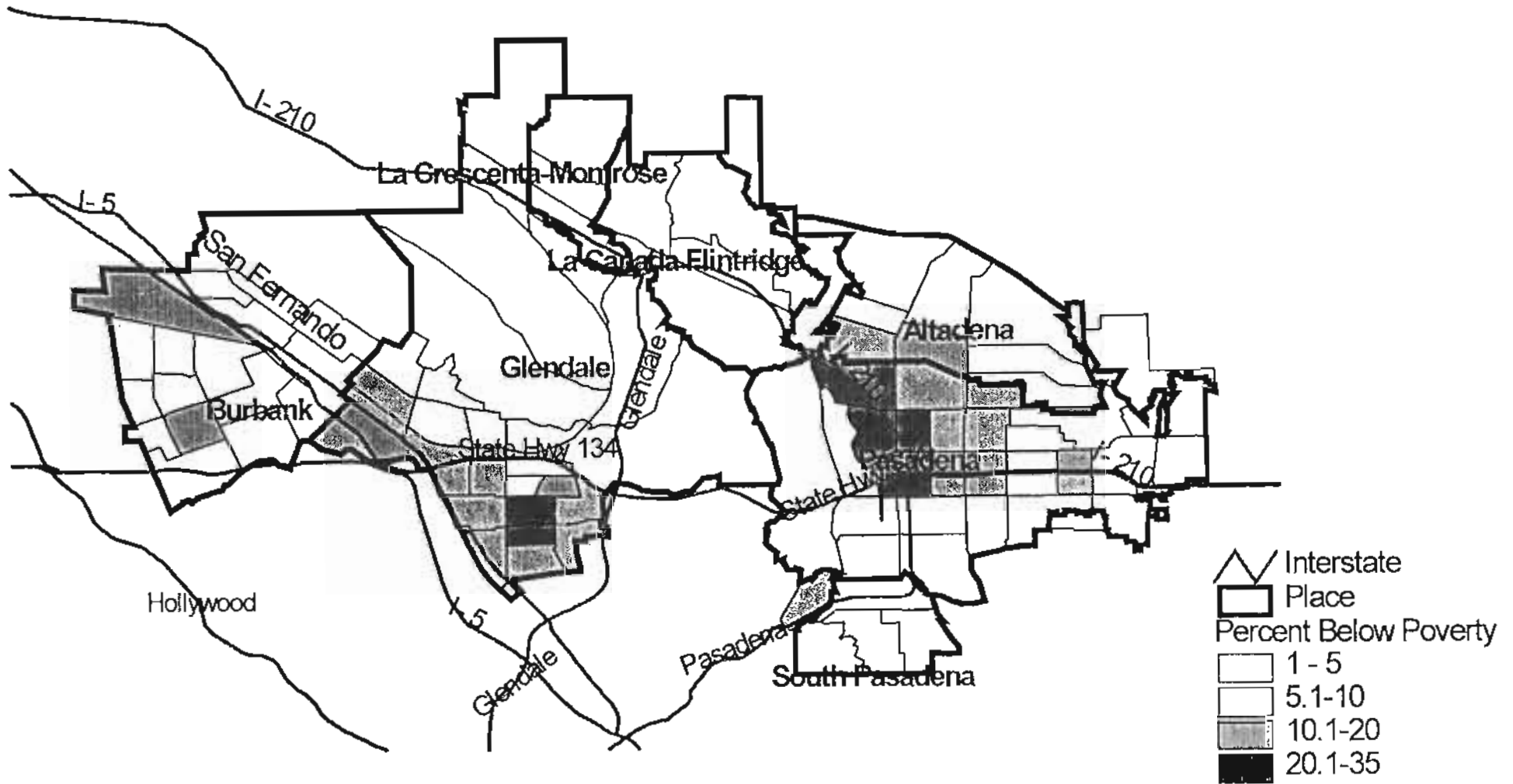


Figure 3-4
Percent Below Poverty



community with the most extensive coverage is Pasadena, with 17 percent of the population beyond a reasonable one-quarter mile walking distance. The community with the least coverage is La Cañada Flintridge, with 67 percent beyond a reasonable walking distance. Table 3-2 provides these breakdowns in more detail.

The more populated southern portions of the study area have a high level of transit service. Transit service is strongest in north-south radial corridors from Downtown Los Angeles, such as San Fernando Road, Central Avenue in Glendale and in Downtown Pasadena. Frequent crosstown service is also provided on the Colorado Boulevard corridor through Burbank, Glendale and Pasadena. Shuttles in the downtown areas further enhance transit access for local trips.

Many of the hilly portions of the study area lack easy access to transit. Large portions of the Verdugo Mountains, as well as neighborhoods more than a quarter of a mile away from Foothill Boulevard, do not have nearby transit service. Even when transit service is available in these areas, it operates infrequently. This is because the streets in hilly areas are difficult for standard buses to use; these lower density areas have fewer potential riders, and as a result, service is less utilized and more expensive to provide.

3.2.3 Transit Choice

The choice of transit varies depending on a number of factors, including travel and parking costs, walk access time to transit, level of traffic congestion and other "impedance" factors.

The MTA model provides a wealth of information on travel patterns. Summary tables for each community within the study area are provided in the Technical Appendix. Following these tables, a set of maps depicting the distribution of resident and work trips from the five major Arroyo Verdugo sub-region cities is also provided.

Several major conclusions can be highlighted from these tables. For example, work trip patterns are remarkably dispersed across the Los Angeles region for most locations in the study area. For example, the percentage of Arroyo Verdugo residents who work in Downtown Los Angeles is as follows:

- Glendale -- 17 percent
- South Pasadena -- 14 percent
- Pasadena -- 12 percent
- La Cañada Flintridge -- 11 percent
- Burbank -- 8 percent

Downtown Los Angeles remains the strongest destination of work transit trips, with about 25 to 40 percent of all work trips going there.

Other significant work trip patterns which could be the focus of enhanced transit services include:

- Burbank, Glendale and Pasadena have large numbers of people who both work and live in the same city. Specifically, 27 percent of Burbank residents, 25 percent of Pasadena residents and 17 percent of Glendale residents make work trips internal to each city.
- A large number of Burbank residents (29 percent) and Glendale residents (25 percent) work in the San Fernando Valley west of Burbank. Also, 39 percent of all Burbank workers come from the San Fernando Valley area.
- Many Burbank and Glendale residents work in western Los Angeles. Fifteen (15) percent of Glendale residents work there, while 14 percent of Burbank residents do. Commuter services to this area are thus important to provide.
- Foothill residents occupy many of the jobs in the Arroyo Verdugo sub-region. Twenty-eight (28) percent of Pasadena workers come from the Foothill area. Twelve (12) percent of Glendale workers come from this area.
- South Pasadena has strong connections to the Foothill area and East Los Angeles area. Fifteen (15) percent of residents work in the nearby area between the Foothill area and Downtown Los Angeles, and another 19 percent work in the Foothill Area. Twenty (20) percent of South Pasadena jobs are filled by Foothill residents, while 26 percent are filled by residents from the general East Los Angeles area.
- La Cañada Flintridge residents work across the region, so that no major work destination predominates. Major work locations for La Cañada Flintridge residents include the San Fernando Valley (17 percent), Pasadena (15) percent, Downtown Los Angeles (11 percent), the Westside (10 percent) and Glendale (9 percent). Only seven percent of these residents work locally.

Non-work trip distributions show that people prefer to either stay in their immediate community or travel to the one adjacent to it. Strong patterns include:

- Burbank -- 35 percent of all non-work trips are internal; 23 percent to adjacent areas of North Hollywood and Sun Valley.
- Glendale -- 35 percent of all non-work trips are internal.
- Pasadena -- 42 percent of all non-work trips are internal.
- South Pasadena -- 16 percent of all non-work trips are internal; 19 percent are to Pasadena; 18 percent are to the Foothill area.

- La Cañada Flintridge -- 18 percent of all non-work trips are internal; 18 percent are to Glendale and 17 percent are to Pasadena.

In sum, the role of transit in community-based trip making is critical for non-work trips. This service is important as an all-day service because these trips occur throughout the day.

Connections to other cities throughout the day are important considerations for residents of South Pasadena and La Cañada Flintridge. In particular, South Pasadena residents interact heavily with Pasadena, and La Cañada Flintridge residents interact heavily with both Glendale and Pasadena.

3.3 FUTURE GROWTH

Table 3-3 shows the future projected growth for each of the communities in the study area. These projections are the latest official 2015 projections available from the Southern California Association of Governments. (It should be noted that more current projections are under development between SCAG and the Arroyo Verdugo communities, and that more updated forecasts are due to be published within the next six months.)

In general, population and household growth is projected to be smaller than the growth in employment. A consequence of this will be an increased popularity among residents for working in the sub-region.

Employment growth is expected to be significant, ranging from 23 percent in La Cañada Flintridge to 92 percent in Burbank. Sizeable employment growth in Glendale (54 percent) is also expected. Much of this growth is expected to occur in redevelopment areas which are currently unutilized or under-utilized.

Population and household growth is projected to be gradual in most cities and nearby areas, with growth rates between 14 and 29 percent. A notable exception are the communities of La Cañada Flintridge and La Crescenta, where residential growth is expected to be much slower (less than five percent).

**Table 3-3
Arroyo Verdugo Sub-region Growth Projections**

City	Characteristic	1994	2015*	Percent Change
Altadena	Population	44,348	53,706	21%
	Households	14,983	18,627	24%
	Employment	6,037	8,877	47%
Burbank	Population	98,677	127,514	29%
	Households	40,884	51,918	27%
	Employment	79,796	153,217	92%
Glendale	Population	190,194	217,313	14%
	Households	70,829	81,242	15%
	Employment	75,495	115,936	54%
La Canada Flintridge	Population	19,705	20,776	5%
	Households	6,762	6,915	2%
	Employment	11,985	12,150	1%
La Crescenta	Population	17,621	18,388	4%
	Households	6,763	7,020	4%
	Employment	2,308	2,849	23%
Pasadena	Population	134,821	157,299	17%
	Households	50,787	57,475	13%
	Employment	92,490	124,000	34%
South Pasadena	Population	24,298	28,047	15%
	Households	10,336	11,735	14%
	Employment	7,365	12,025	63%

* 2015 forecasts are currently under revision by SCAG and the Arroyo Verdugo communities. This table contains 1994-issued SCAG forecasts for 2015 for Altadena, Burbank, Glendale, La Crescenta and South Pasadena. Local forecasts for La Canada Flintridge and Pasadena are included in this table.

PHASE I: NEEDS ASSESSMENT

Section 4.0

Results of Public Participation

4.0 PUBLIC PARTICIPATION RESULTS

One of the key tasks in the Phase I: Needs Assessment was the conduct of a public participation process. The purpose of the public participation process was to solicit input into the development of the transportation area plan for the Arroyo Verdugo sub-region.

Two rounds of public participation were conducted -- one prior to the development of service recommendations and the second following the development of service recommendations. The results of the initial round of public participation are presented below.

4.1 INITIAL ROUND OF PUBLIC PARTICIPATION

Input was solicited from a broad range of “stakeholders” and constituents in the sub-region. Specifically, a series of 10 public meetings were held to solicit ideas, suggestions, comments, concerns and issues on how transportation services in the sub-region might be improved. Two meetings, a daytime and an evening meeting were held in each of the five cities in the Arroyo Verdugo sub-region including Glendale, Burbank, La Cañada Flintridge, Pasadena, and South Pasadena. A comprehensive notification campaign was developed to notify the public of the meetings and the importance of their input. The key elements of the public meeting notification process included:

- Targeted mailings (over 1,000 letters) to area “stakeholders” (i.e., government officials, TMAs, homeowner associations, chambers of commerce, schools, etc.)
- General public notification through placement of media ads in sub-region newspapers
- Distribution of press releases to newspapers, daily wire press, weekly newspapers, cable TV, and radio
- Meeting notice placement at key locations (city hall and library bulletin boards) as well as placement on transit buses (Beeline, MTA, and Foothill Transit)

The detailed results of the initial round of public meetings are presented in the Technical Appendix. The comments received were broken down into 23 categories, and presented by city and comment type. The most frequently received comments came from the three categories presented below.

1. **Inability to make good connections and transfers to travel between regional, sub-regional, and community services (17.2% of all comments received)**
2. **Want increased service levels and new services (15.2%)**
3. **Want more flexible-type services (8.4%)**

These top three comment categories were displayed by individual city and the results shown in the table below.

Top Three Comments by Percentage by Community

Comment	Glendale	Burbank	La Cañada Flintridge	Pasadena	South Pasadena
Better Connections/transfers	15.8%	15.0%	21.6%	8.8%	24.2%
More/new service	8.8%	15.0%	13.5%	29.9%	14.5%
More flexible services	12.3%	5.0%	2.7%	8.8%	8.1%

Caution should be taken in analyzing these results as the comments received are not necessarily representative of all constituents and stakeholders in the sub-region -- only those that attended the public meetings and expressed an opinion. Nevertheless, there are some interesting results that are substantiated by other quantitative work performed by the project team as well as by first hand knowledge and experience with the sub-region.

Regarding the need for better connections and transfers, not surprisingly the two most isolated cities in the Arroyo Verdugo sub-region, La Cañada Flintridge and South Pasadena, expressed the highest need in this comment category. The other three cities in the sub-region benefit by having significantly higher number of regional, sub-regional, and community-based transit services. Glendale and Burbank also benefit by having Metrolink and Amtrak rail connections.

The second comment category, the need for more/new services, shows the City of Pasadena with the highest percentage of total comments received at its public meetings. The Needs Assessment noted that the City of Pasadena had among the highest level of intra-community trip making for both work and non-work trips of the five cities in the sub-region (25% - work and 42% non-work). This finding tends to support the public meeting finding. The current grid network operated in Pasadena with the inadequate headways provided is most likely not satisfying the amount of internal trip making in Pasadena. On the other side of the spectrum, the City of Glendale has the most developed and extensive community-based transit services (Beeline) provided in the sub-region. Not surprisingly, it had the lowest level of comments received by this comment category.

Regarding the third comment category, the need for more flexible services, it is difficult to identify any major conclusions or any that can be substantiated. This comment category generated

significantly fewer comments as expressed in terms of percentages than the two preceding comment categories.

The results of the initial round of public participation were reviewed by the service design team and considered in the development of service recommendations.

4.2 SECOND ROUND OF PUBLIC PARTICIPATION

Following the development of service recommendations, a second round of public participation was conducted that mirrored the initial round relative to the notification process. The comments from the second round of public meetings were minimal and are contained in the Technical Appendix.

PHASE II: SYSTEM DESIGN

Section 5.0

Service Design Review and Strategies

5.0 SERVICE DESIGN SYSTEM REVIEW AND STRATEGIES

This section presents a service design system review and strategies for the Arroyo Verdugo sub-region and includes the following:

- Review of the Current Network Configuration
- Review of Network Recommendations from Prior Restructuring Studies
- Review of the Recommended AVTC Hub-and-Spoke Configuration
- Identification of the Regional Rail Service

A review of the current network configuration provided in the Arroyo Verdugo sub-region follows.

5.1 REVIEW OF THE CURRENT NETWORK CONFIGURATION

This section presents a review of the current network configuration deployed in the Arroyo Verdugo sub-region. The current network is largely grid-based for regional services with local circulation patterns for community/neighborhood services. Contrary to much of the rest of the Los Angeles region, the Arroyo Verdugo sub-region does not enjoy an extensive, clean grid street pattern. Only Pasadena's street pattern is largely grid-oriented with broken or irregular grid alignments in Glendale and Burbank and little grid orientation in La Cañada Flintridge and South Pasadena. Each of the five cities within the Arroyo Verdugo sub-region is treated separately as a result of the differences in development, street network, travel patterns, topographic differences, and traffic conditions. The review by city below presents a description of the current network, followed by an identification of strengths and opportunities.

5.1.1 Glendale

Description: The City of Glendale has a hybrid route network consisting of a partial grid with a radial orientation that focuses both regional and local service on downtown Glendale and to a lesser extent, the Glendale Transportation Center, located on the very south side of Glendale. Several MTA frequent and infrequent lines fill in the gaps and portions of the grid as do Glendale Beeline Routes 1 and 2 operating along Brand Boulevard and Central Avenue. Beeline's Route 4 is part of the radial network emanating from downtown Glendale. The City of Glendale operates Metrolink shuttles out of its Transportation Center with connections to major employment locations north along Brand Boulevard and northwest along the San Fernando Boulevard corridor. Of the five cities in the Arroyo Verdugo sub-region, Glendale has the most developed local, community transit service.

Strengths: The strengths of the current Glendale network include:

- MTA Lines 92/93 and Beeline Routes 1 and 2 compliment one another to provide excellent level of service along Brand Boulevard and Central Avenue. In addition, MTA regional Lines 180/181 (Broadway) and 90/91 (Glendale Avenue) are frequent routes.
- The service coverage is exceptionally good with little developed area not within a reasonable walking distance to a route.
- Glendale residents have good sub-regional access to Burbank via MTA Lines 92/93 and 94, good access to Montrose via MTA Line 90/91, and good access to Pasadena via MTA Line 180/181. Glendale also has good access to downtown Los Angeles via several MTA lines (local and express), LADOT express line, and the Metrolink commuter rail service. Access to the Burbank-Glendale-Pasadena Airport is adequate via the Metrolink commuter rail line and MTA Line 94.
- The two employment shuttles provide an excellent distribution (a.m.) and collection (p.m.) system to employers and employees along the San Fernando Road corridor and north Brand Boulevard.

Opportunities: The opportunities identified with the current network operated in Glendale include:

- MTA operates a portion of Line 183 in Glendale that operates as a community circulator, inconsistent with its regional and sub-regional orientation.
- Glendale is lacking good sub-regional access to La Cañada Flintridge. MTA Line 177 connects downtown Glendale and La Cañada Flintridge on very poor frequencies (60 minutes during weekdays and no weekend service). Sub-regional access to South Pasadena requires at least one transfer to make the connection.
- MTA Line 410 and Metrolink were identified in the San Fernando Valley restructuring study as competing for the same market share in Glendale and Burbank.
- Commute service directly linking Glendale to the San Fernando Valley is slow with the current LADOT Route 549. This line is slated to be replaced with Line 411, which will operate to the San Fernando Valley via Burbank in limited-stop mode.
- The current focus of the network in downtown Glendale is somewhat undefined due to the lack of a strong physical street presence.

5.1.2 Burbank

Description: The City of Burbank's route network can best be described as a hybrid with both grid and a radial orientation as a result of MTA east/west regional lines terminating at the Burbank Regional Intermodal Transportation Center (RITC) due to the street confluence as the network

approaches downtown Burbank from the west. As well, Burbank's four feeder shuttles (Burbank Local Transit) operate in a radial manner from the Metrolink station, fanning out to the northwest to the Golden State area, northeast to downtown, southwest to the Media District, and southeast to serve the San Fernando Road corridor.

Strengths: The strengths of the current network operated in Burbank include:

- All MTA regional lines, Burbank's four employment shuttles, and the Metrolink commuter rail line all converge in downtown Burbank to provide excellent opportunities to connect with bus and rail services serving other destinations.
- The service coverage is generally good in Burbank.
- Access west to the San Fernando Valley and southeast to Glendale is excellent from Burbank via numerous MTA regional lines. At least one transfer is required to travel directly to the City of Pasadena and La Cañada Flintridge and two transfers to South Pasadena (unless through downtown Los Angeles). Access to downtown Los Angeles is very good as a result of the Metrolink commuter rail service and numerous MTA lines. In addition, access to the Burbank-Glendale-Pasadena Airport is excellent via the Metrolink commuter rail service and several MTA bus lines, including Line 94, Line 163 (Hollywood Way), and Line 165 (Vanowen).
- The four employment shuttles provide an excellent distribution (a.m.) and collection (p.m.) system for employers throughout the City of Burbank.

Opportunities: The opportunities identified with the current network operated in Burbank include:

- Historically, the productivity of MTA east/west lines drops significantly once buses pass east of Vineland Avenue due to the confluence of streets and the transition from residential/commercial development to industrial in some cases.
- Fourteen percent (14%) of Burbank residents work in western Los Angeles and the need for commuter services to this area is important. Currently it is not possible to travel directly from Burbank to west Los Angeles. At least one transfer is required (Line 163) in Hollywood.
- MTA Line 183 serves an area north and east of downtown Burbank along Kenneth Road. From downtown to approximately the intersection of Kenneth Road and Grandview Avenue, the line generates minimal ridership and serves a low density, affluent area of Burbank. Further contributing to its low productivity, is the route's close proximity in this rather narrow corridor to Glenoaks Boulevard (less than one-quarter mile). MTA operates frequent service along Glenoaks (Line 92/93) which competes with the service along Kenneth while providing a superior level of service.

- There are gaps in the service coverage in Burbank including the unserved portions of Buena Vista Avenue and Hollywood Way between Empire Avenue and Victory Boulevard and between Magnolia Boulevard and Olive Avenue.
- Evening and weekend internal circulation in downtown Burbank to serve shopping and attractions has been expressed as a need.
- Generally speaking, the MTA lines operating throughout Burbank provide reasonably good coverage and act in many ways like a local community circulation system. However, Burbank would benefit from some additional community services to address some of the deficiencies noted above.

5.1.3 La Cañada Flintridge

Description: Very minimal transit services are provided in La Cañada Flintridge. As such there is no true network in the area. The transit services that do exist conform to the linear nature of the development along Foothill Boulevard.

Strengths: The strengths of the current La Cañada Flintridge network include:

- The service coverage is adequate in La Cañada Flintridge. Those areas outside a reasonable walking distance can be characterized as hilly, low density, and affluent -- not strong potential markets for transit.
- The La Cañada Flintridge shuttle provides good connections to a large number of destinations along Foothill Boulevard on a frequent basis (12-15 minute frequencies).
- La Cañada Flintridge has good commute park-and-ride access to downtown Los Angeles via LADOT Route 409 at the Verdugo and Glendale Freeway.

Opportunities: The opportunities identified with the current network operated in La Cañada Flintridge include:

- La Cañada Flintridge is somewhat isolated regionally as a result of the topography.
- La Cañada Flintridge lacks good sub-regional access to Glendale and Pasadena. As noted in the Unmet Transit Needs Assessment, 18% and 17% of all La Cañada Flintridge non-work trips are made to Glendale and Pasadena, respectively. As noted in the Glendale write-up, MTA Line 177 connects La Cañada Flintridge with Glendale and Pasadena on very poor frequencies (60 minutes during weekdays and no weekend service). Sub-regional access to Burbank requires one transfer (MTA Line 92/93) and one transfer to South Pasadena (MTA Line 483). Generally, the connection to the

Burbank-Glendale-Pasadena Airport is poor involving multiple transfers from low-frequency routes, however, the demand for this connection is also very low.

- Jet Propulsion Lab (JPL) employees have expressed a desire to have connecting bus service from the Glendale Metrolink station to JPL. The current Line 177 terminates in downtown Glendale, north of the Metrolink station.
- The west end of the La Cañada Flintridge shuttle lacks a strong anchor. It currently terminates in a residential neighborhood north of Foothill Boulevard (Ocean View, Cross, Castle). Extending the western terminal to the Montrose shopping area would improve the overall attractiveness of the shuttle.
- Residents living along Alta Canyon and Verdugo Road want Line 177 buses prohibited from operating in their neighborhoods because of noise, vibration and safety concerns.

5.1.4 Pasadena

Description: Pasadena's streets are laid out in a grid pattern and consequently, its route network has the most grid-like pattern of the five Arroyo Verdugo sub-region cities. Pasadena's grid network has evolved over many years. Most of the routes operating north of Colorado Boulevard originate from the San Gabriel Valley (east) and Los Angeles (south). One MTA line actually originates in Long Beach (Line 260 on Los Robles Boulevard). Over the years, Pasadena and Altadena became convenient and logical end of the lines for many of MTA lines. The arroyo in west Pasadena and the San Gabriel Mountains to the north and east serve as topographical barriers to further extensions.

Strengths: The strengths of the current Pasadena network include:

- The service coverage is very good with few areas not within a reasonable walking distance to a route.
- From Pasadena's downtown, access to South Pasadena is via MTA Line 483 although somewhat infrequent (30 minutes); Glendale access is via the frequent MTA Line 180/181. Sub-regional access to Burbank involves one transfer from three fairly high frequency routes (MTA Lines 180/181 and connecting to either MTA Lines 92/93 or 94). Similarly, good access to the San Gabriel Valley and downtown Los Angeles is provided on a number of MTA and Foothill Transit routes. Access to downtown Los Angeles and South Pasadena will be further enhanced when the Pasadena Blue Line becomes operational in 2001.
- The Pasadena Area Rapid Transit System (ARTS) provides a high-quality downtown circulation system.

Opportunities: The opportunities identified with the current network operated in Pasadena include:

- The current grid network in Pasadena does not emphasize the core of downtown in west Pasadena which is a major focal point and activity center within the City, for both work and non-work trips, making transfers inevitable for many trips. Because of the grid network design in Pasadena, numerous north/south MTA lines intersect Colorado Boulevard beginning at Orange Grove on the westside and stretching to Rosemead Boulevard on the east side.
- The service frequencies associated with the grid network are not sufficient to support good on-street transfers, which an effective grid system requires. Frequencies on some of Pasadena's MTA lines are based on resources that originate far beyond Pasadena and their regionally-driven frequencies are often not appropriate for Pasadena's local needs.
- Because of the historical development of routes and service in Pasadena, there is some route duplication in the City -- some of which is warranted and some of which is probably not justified.
- Based on findings in the Unmet Transit Needs Assessment and comments received during the public participation process, the highly transit dependent area of northwest Pasadena is under-served.
- Sub-regional access to La Cañada Flintridge is less than adequate owing to the 60-minute frequencies and no weekend service operated on MTA Line 177. In addition, access to the Burbank-Glendale-Pasadena Airport involves at least two transfers, although significant demand has not been identified.
- Much of the service operated in Altadena serves low density, affluent neighborhoods with relatively low transit potential (MTA Line 264).

5.1.5 South Pasadena

Description: The City of South Pasadena has a limited transit service network consisting of mostly MTA lines that originate to the south and east. The opening of the Blue Line in 2001 will focus South Pasadena's services at the Mission Street Station.

Strengths: The strengths of the current South Pasadena network include:

- Service coverage is generally good except as noted below.
- From South Pasadena, access to Pasadena is adequate via MTA Route 483 although somewhat infrequent (30 minutes). Access to downtown Los Angeles and Pasadena will be greatly enhanced when the Blue Line becomes operational in 2001.

Opportunities: The opportunities identified with the current network operated in South Pasadena

include:

- Sub-regional access to Glendale and Burbank to the west is generally poor given the need to make transfers on routes with relatively infrequent service.
- With the exception of MTA lines operating along Huntington Drive (southern most part of the City), service on the remaining routes operating through South Pasadena are somewhat infrequent.
- No local community circulation services exist in South Pasadena, despite internal non-work travel needs.

5.2 REVIEW OF NETWORK RECOMMENDATIONS FROM PRIOR RESTRUCTURING STUDIES

The Arroyo Verdugo sub-region is bordered by the San Fernando Valley to the west, the San Gabriel Valley to the east and southeast, and central/east/northeast Los Angeles to the southeast and south. Transit restructuring studies have been completed in the San Fernando Valley and for Foothill Transit operating in much of the San Gabriel Valley. Recommendations from both studies have or are in the process of being implemented. The study to restructure transit services in central/east/northeast Los Angeles is currently underway and is expected to be completed in October 1996.

The Arroyo Verdugo sub-region is not isolated but rather is very much linked to the surrounding regions. As presented in the Unmet Needs Assessment, it was shown that both Burbank and Glendale are very much linked to the San Fernando Valley, particularly for work trips much in the same way as Pasadena and South Pasadena are linked to the cities and communities to the east in the San Gabriel Valley. The entire sub-region is very much linked to the south to downtown Los Angeles. As a result of these relationships and linkages, the recommendations resulting from these restructuring studies have implications for the Arroyo Verdugo sub-region. The key recommendations that are particularly relevant to the design of transportation services in the Arroyo Verdugo sub-region are summarized as follows:

- Both the San Fernando and Foothill studies called for the development of major transfer centers to accommodate a hub-and-spoke type system in both sub-regions. Hub-and-spoke systems have evolved as a response to the inability of transit systems to offer the frequencies necessary to support effective un-timed street transfers in either grid-based or radial/crosstown configurations. The "hub-and-spoke" system relies on provision of transfer connections between community and neighborhood services and inter-city and regional services at transit centers. To avoid the transfer "penalty" most systems now endeavor to operate coordinated timed-transfer schedules even between different service providers. The San Fernando Valley restructuring study recommended locations for six transfer centers (including one in downtown

Burbank) while the Foothill Study recommended eight transfer centers.

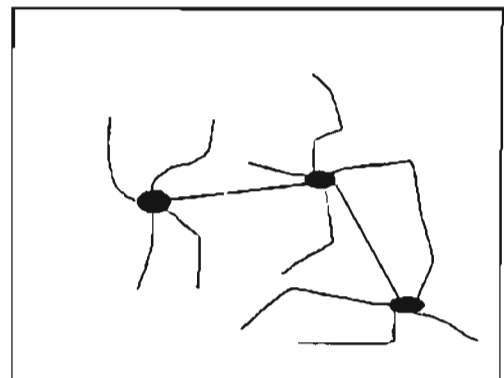
- Based on the Foothill Transit restructuring study, Foothill Transit has continued to upgrade service on Line 187, which now runs from Pasadena to Montclair on arterials paralleling I-210 and SR 30. This line is planned for 15-minute all-day service. This line currently enters Pasadena via Colorado Boulevard and proceeds westbound and terminates in west Pasadena (intersection of Colorado Boulevard and Fair Oaks Avenue). This line is recommended to continue in that configuration, but with a small deviation to serve Sierra Madre Villa LRT station when it opens in 2001. Because of its extreme length, Line 187 makes limited stops along Colorado Boulevard to speed its passengers to major destinations such as Pasadena City College and downtown Pasadena.
- The Foothill Transit restructuring study identified the current Line 177 and 188 segments in Arcadia/Monrovia/Duarte as being separable from the rest of those lines, especially once the Blue Line opens. West of Sierra Madre Villa, the present study envisions these lines being replaced by other services. The residual parts of these lines would run only from Sierra Madre Villa LRT station to the Duarte Transit Center, with Line 177 generally following Foothill Boulevard and Line 188 generally following Duarte Avenue. Since these small residual lines would exist exclusively to serve Foothill Transit member cities (Arcadia, Monrovia, and Duarte), operation of them by Foothill Transit appears to be logical. The Foothill Transit study further suggested combining residual Line 177 (Sierra Madre Villa to Duarte via Foothill) with Line 272, which runs from Duarte south to Baldwin Park and West Covina and which is planned to ultimately extend to Brea Mall. Combining these two lines would create a strong service extending from the end of the Blue Line south and east across the San Gabriel Valley, opening up many new travel markets to Pasadena.
- The Foothill Transit restructuring study proposed a new express route - Line 693. The new Foothill Transit proposed express route would run non-stop between Pasadena and San Dimas park and ride. In the morning peak period, southbound trips (from Pasadena) would operate via Cal Poly Trans Center, Valley Boulevard, Brea Canyon Road to Industry Metrolink. The express route would then return northbound via Diamond Bar Boulevard, serving the Diamond Bar park and ride before entering the freeway to San Dimas and Pasadena. Foothill Transit indicates that implementation of this line is approximately two years away.
- The San Fernando Valley Restructuring Study recommended a series of changes that affect the Arroyo Verdugo sub-region. These included:
 - Re-orientation of Line 163 Sherman Way from Burbank to Hollywood via Hollywood Way (reduce duplication as the street network converges on downtown Burbank);

- Institution of a new reverse commute limited-stop service along the San Fernando Road corridor (Line 394);
- Replacement of MTA Lines 96/97 and 152 between downtown Burbank, Burbank Media District, and Toluca Lake with a new higher frequency shuttle connecting these areas with a proposed Universal City Transit Center (at the planned Metro Red Line Station);
- Discontinuing Line 183 south and east of downtown Burbank with the portion in Glendale replaced with a new Beeline service (while no service was proposed for Kenneth Road a local option decision was noted);
- Route 201 was to be shortened and terminated in downtown Glendale with Beeline service covering the areas east of downtown as far as Adventist Hospital (Glenoaks Canyon service was not scheduled for replacement);
- Route 177 service west of JPL was to be replaced with an extension of Beeline 4 covering the Line 91 alignment through Montrose;
- Line 90/91 would be consolidated on Montrose and Pennsylvania Avenues; and
- LADOT Line 411 operating express and limited stop service between downtown Los Angeles and Warner Center (west San Fernando Valley) via Glendale and Burbank was to replace the current LADOT Line 549 between Pasadena and San Fernando Valley and MTA Line 410 in Glendale.

5.3 REVIEW RECOMMENDED AVTC HUB-AND-SPOKE CONFIGURATION

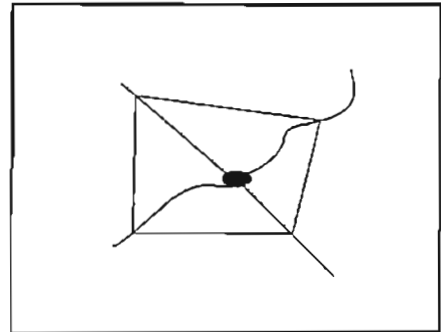
The Arroyo Verdugo Transportation Coalition (AVTC) has adopted the hub-and-spoke as their preferred network configuration for the sub-region. The project team’s analysis of the sub-region’s transit needs generally supports this recommendation.

The **hub-and-spoke** design for public transit follows the network model successfully established by the airline industry for cost-effective integration of regional and local services where service frequencies are not sufficient to ensure convenient transfers between services. For transit, the community and sub-regional services are arranged to feed into regional transit hubs, where convenient transfers can be made between any two routes. If routes are running infrequently (every 30 minutes or less), then timed connections may be scheduled to ensure that convenient and reliable transfers are available to passengers.

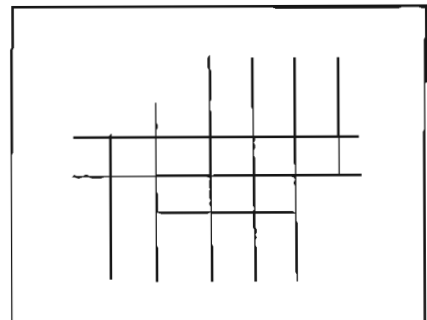


The principal alternatives to a "hub-and-spoke" design include radial/crosstown, grid, and hybrid networks. Each is described below.

- **Radial/crosstown networks** focus at only one hub (usually the CBD of the metropolitan region) with crosstown routes intersecting the radial lines emanating from the central hub. The principal shortcomings of this network approach are that it (a) fails to effectively respond to the growing decentralization and dispersal of regional activity centers out of the historic urban core, and (b) forces transfers between infrequent services on street corners resulting in convenience, reliability, and security concerns. The hub-and-spoke network builds on the historic strengths of the radial/crosstown structure through the establishment of an integrated service network emanating from multiple nodes, rather than a single centroid.



- **Grid networks** typically have routes aligned in a "criss-cross" fashion with lines running straight across the service area rather than converging on hubs. The grid network also typically follows the street corridors, rather than deliberately connecting key travel origins and destinations, often resulting in increased transferring, especially for shorter community-based travel. In a grid structure, transfer points normally occur on street corners wherever two routes cross. For frequent services (e.g., every 10-15 minutes or better), the grid is a cost-effective structure where transfer convenience, reliability, and security issues are mitigated by the very short waiting times. However, for infrequent services, especially those running every 30 to 60 minutes, the excessive wait times between connecting trips often deters all but the most dependent riders.



The grid network is the dominant, almost exclusive, historic route structure employed by MTA and its predecessor agency, SCRTD, largely in response to the street network. In those parts of the region where service demand is high and line services are frequent, the grid network is a cost-effective structure providing convenient, reliable regional and sub-regional mobility. However, in parts of the service area where service demand and line frequencies are lower (especially outside of the dominant regional lines), the hub-and-spoke network approach has been proposed (e.g., San Fernando Valley and Foothill

5.4 IDENTIFICATION OF THE REGIONAL RAIL SERVICE

The first element in the development of an integrated transportation system for the Arroyo Verdugo sub-region is the identification of the regional rail network. The regional service acts as the backbone of the system by providing important connections between the Arroyo Verdugo sub-region and the remainder of the Los Angeles region to the north, south, west and east. Presented below is the identified regional rail network. In addition, impacts are presented of the Pasadena-Los Angeles Blue Line and the Burbank-Glendale-Los Angeles Light Rail Line on other services and connections.

Section 2.0 - Existing Transportation Facilities and Services presented a discussion of the regional rail service currently provided and proposed rail services and alignments that are anticipated to come on line within the next five years. These current and planned rail services are depicted in Figure 5-1. The existing rail services and associated impacts on other services are noted below.

- Amtrak San Diegan Service: Amtrak currently provides daily service along the San Diego-Los Angeles-Santa Barbara corridor. For those connections that extend north of Los Angeles to Santa Barbara, daily stops are made at the Glendale Transportation Center and the Burbank-Glendale-Pasadena Airport Amtrak Station.

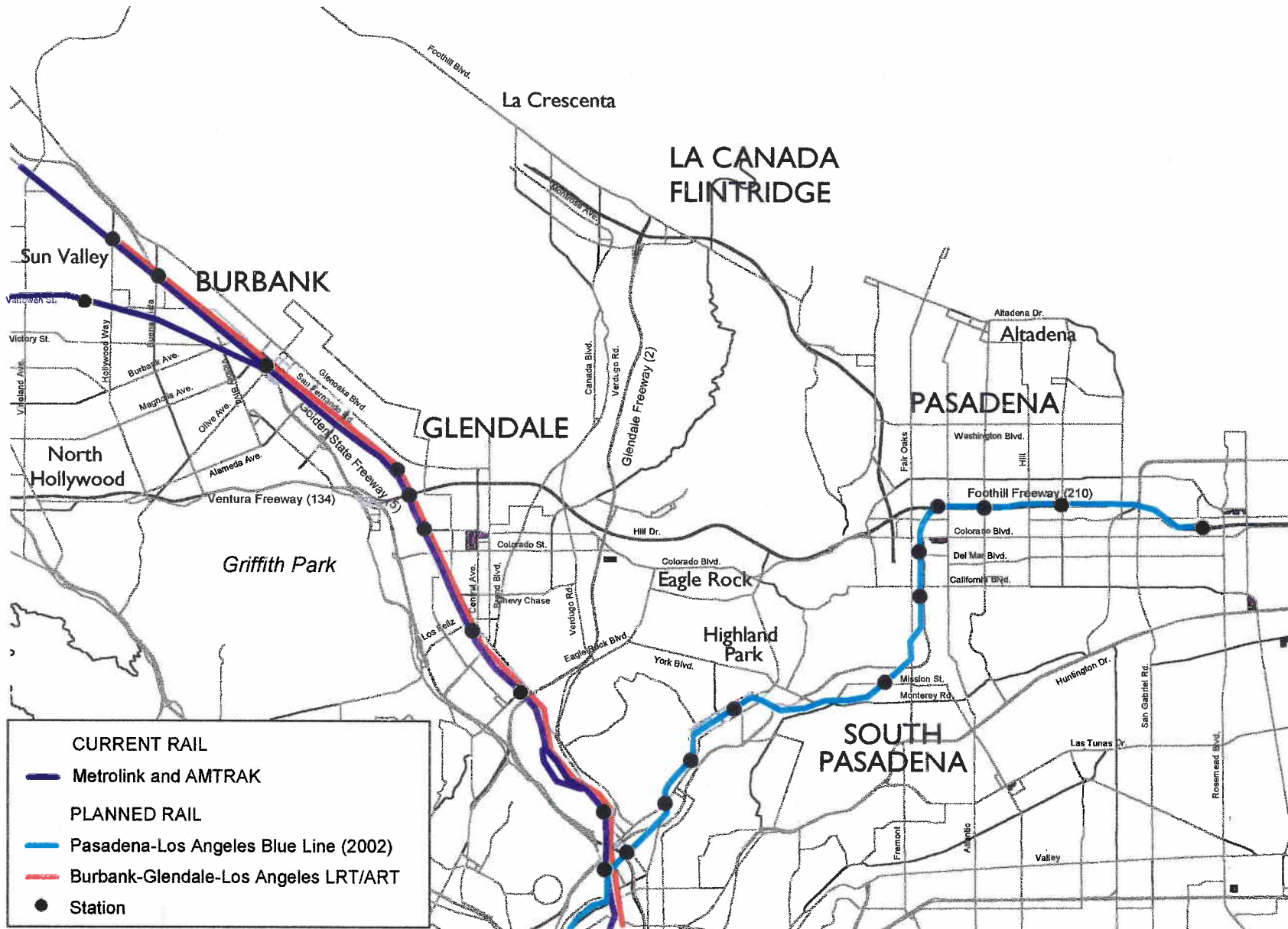
The Amtrak San Diegan service provides regional access between the Arroyo Verdugo sub-region and downtown Los Angeles, San Diego, and Santa Barbara.

- Metrolink: The Southern California Regional Rail Authority operates Metrolink, a commuter rail service encompassing a six-county area with over 400 miles of track. The Glendale Transportation Center and the Burbank Regional Intermodal Transportation Center are served along Metrolink's Santa Clarita Line and Ventura County Line, with an additional "short line" Metrolink service provided between Burbank, Glendale, and Los Angeles. In addition, Metrolink service at the Amtrak station located near the Burbank-Glendale-Pasadena Airport has been added along the Ventura County Line. Service at this station currently is undergoing a demonstration period. If successful, Metrolink will continue to service the Airport station.

The Metrolink rail service provides regional access between the Arroyo Verdugo sub-region, downtown Los Angeles, and the six counties including Los Angeles, Orange, Ventura, Riverside, San Bernardino, and San Diego.

Metrolink is considering plans to increase the number of reverse commute trips as well as mid-day service. This is in response to an increasing market for people traveling to intermediate rail stations such as the Glendale Transportation Center and the Burbank Regional Intermodal Transportation Center who deboard and proceed to employment sites. This has implications for the need to provide additional employment shuttles as the demand grows and the added Metrolink trips are provided.

Figure 5-1
Arroyo Verdugo Sub-Region Regional Rail Network
Current and Planned



There has been little success using feeder collection services for the residential end of the trip except in those circumstances where there is no parking available at the rail station. Consequently, the focus has been on providing feeder/circulation services at the employment end of the trip. This has resulted in the continued success of the Burbank and Glendale Metrolink shuttle service. There appears to be an opportunity to build off of the success for providing additional Metrolink shuttle services to employment sites not currently receiving service.

Planned regional rail service to operate in the Arroyo Verdugo sub-region includes:

- Pasadena-Los Angeles Blue Line: MTA has begun construction of the Pasadena-Los Angeles Blue Line, a light rail project which extends from Union Station in downtown Los Angeles to the vicinity of the Sierra Madre Villa Road and Colorado Boulevard in East Pasadena. The Blue Line is projected to become operational in 2001. The MTA 20 Year Plan calls for frequent, seven day a week service.

The Pasadena Blue Line will provide regional access between the Arroyo Verdugo sub-region (Pasadena and South Pasadena) and downtown Los Angeles.

The planned Blue Line stations in South Pasadena and Pasadena are depicted in Figure 5-1. These stations include Mission Street, Fillmore, Del Mar, Memorial Park, Lake, Allen, and Sierra Madre Villa. Their very existence automatically makes them a focal point of transit services or "hub". The operation of the Blue Line and its stations will necessitate the realignment of existing regional, sub-regional and community bus services to interface with these stations to take advantage of the new station access to faster regional connections provided by the Blue Line. MTA has drafted a plan to re-align MTA bus service in Pasadena to interface with the Blue Line stations. The Del Mar and the Sierra Madre Villa stations have been identified as major transit centers. These stations will be constructed with considerably more parking and spaces for buses compared to the other Blue Line stations. More of the regional bus service operated in Pasadena will interface at these two transit centers than the remaining Blue Line stations (Mission Street, Fillmore, Memorial Park, Lake, and Allen). The re-alignment of MTA bus service will serve a portion of the collection and distribution of riders using the rail stations. However, additional frequent transit connections will be necessary at the following locations.

- Del Mar: The Del Mar station is a major access point into Old Pasadena and employment, retail, entertainment and recreational destinations north, east, and west of the station.
- Allen: This station will likely be a key access point for the Pasadena Community College (PCC) which dominates the ridership on several bus lines currently. There will be a need to provide frequent community service with adequate capacity between

the Allen station and PCC. Ensuring adequate capacity on the community service should minimize disruptions (over-crowding) to the regional lines operating in the area.

- Sierra Madre Villa: The Sierra Madre Villa station will serve as the rail head and provide key access for reverse commute trips to east Pasadena employers and Foothill Transit service extending to the San Gabriel Valley.
- Mission Street: Park-and-ride space at the South Pasadena Mission Street station is not planned. Consequently, access to the Mission Street station will need to be made by other modes such as kiss and ride, shuttle, bicycle, and pedestrian. Unlike the Del Mar and Sierra Madre Villa stations, the need for local collection and distribution at the residential end of the trip is acute.
- Other Blue Line Stations: The remaining Blue Line stations (Fillmore, Memorial Park, and Lake) should receive a lesser amount of regional and community-based service connecting service because of their proximity to other stations, lack of nearby attractors/generators, and their overall importance in terms of Blue Line station hierarchy.
- Burbank-Glendale-Los Angeles Corridor: This corridor has been identified as a potential corridor for the application of an alternative rail technology (ART), a self-propelled rail vehicle operating on conventional railroad tracks. No dates have been firmly established as to when this service will be implemented. There is a considerable amount of work currently being conducted to make this service operational within the next three to five years. Like the Pasadena-Los Angeles Blue Line light rail project, this corridor would also receive frequent, seven day a week service.

If operational, regional access will be provided between the Arroyo Verdugo sub-region (Glendale and Burbank) and downtown Los Angeles. The key stations along this corridor in the Arroyo Verdugo sub-region include the Glendale Transportation Center, Broadway/Colorado station in Glendale, and the Burbank Regional Intermodal Transportation Center. These stations will function as regional nodes whereas the remaining stations (Ventura Freeway, northwest Glendale, Buena Vista, and the B-G-P Airport) will serve as community-based nodes.

When this service becomes operational, the Glendale Transportation Center becomes the access point from the south and west for San Fernando Valley passengers as well as for southern Glendale and La Cañada Flintridge bound passengers. The Broadway/Colorado station will become the new rail gateway into downtown Glendale with the development of a double node arrangement between the downtown Glendale transit center and the Broadway/Colorado station.

Implementation of light rail service along this corridor will make the Burbank Regional Transportation Center a stronger node with the new rail service replacing Line 94 as the major regional service operating along the San Fernando Road corridor. Current linkages to downtown Burbank and the Media District will need to be strengthened.

The regional rail network depicting the current and planned services is shown in Figure 5-1. This network represents an important layer of regional rail services that provides connections to and from the Arroyo Verdugo sub-region.

PHASE II: SYSTEM DESIGN

Section 6.0

Recommended Service Design

6.0 RECOMMENDED SERVICE DESIGN

One of the issues in the development of the recommended service design was the focus of the transit system at varying levels: regional, sub-regional, community, neighborhood, and individual activity centers. Historically, the focus has been oriented around regional and, to a lesser degree, sub-regional concerns. This study sought to maintain the regional and sub-regional strengths, while refocusing on the needs of community, neighborhood, and individual activity centers. This has resulted in a more integrated system of transit services in the Arroyo Verdugo sub-region that balances regional, sub-regional, and community transportation needs.

Included in this section is a series of recommendations on the overall service design for the Arroyo Verdugo sub-region. The following areas are presented:

- Transit Hub Assessment
- Identification of Recommended Regional Bus Service
- Identification of Recommended Sub-regional Transit Service
- Identification of Recommended Community-Based Transit Service
- Proposed Service, Vehicle, and Facility Requirements and Cost
- Non-traditional Transportation Modes
- Special Event Service Considerations
- Coordination with AVTC Bike Plan
- Plan Compatibility, Development, and Accessibility
- Sub-regional Dial-a-Ride Assessment

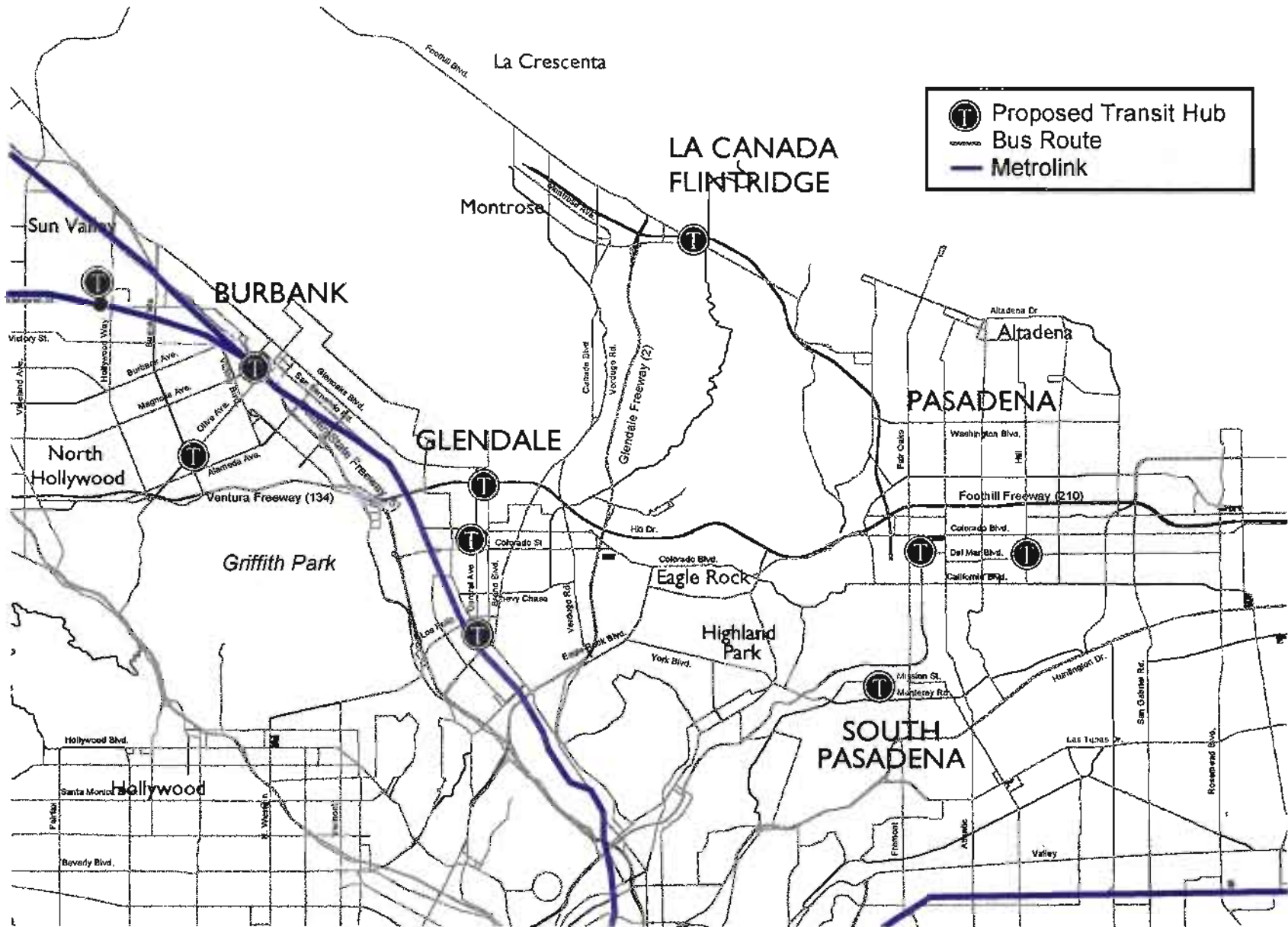
An assessment of proposed transit hubs in the Arroyo Verdugo sub-region is presented below.

6.1 TRANSIT HUB ASSESSMENT

As shown in Figure 6-1, the AVTC identified a number of proposed transit hubs throughout the Arroyo Verdugo sub-region. This effort was based on some very preliminary sketch planning by the group. The project team was requested to fine-tune this preliminary list of proposed transit hubs. The results of this work are presented below.

As shown in Figure 6-1, a total of 10 transit hubs have been identified in the Arroyo Verdugo sub-region; two in Pasadena, one in South Pasadena, one in La Cañada Flintridge, three in Glendale, and three in Burbank. In an effort to rationalize the location of transit hubs, the project team developed a hierarchy of transfer locations consisting of four categories as presented below.

Figure 6-1
Transit Hubs Proposed by AVTC



Category 1: Major Transfer Center

- This is a major facility that accommodates both timed-transfers among infrequent lines (vehicle dwell time space is required) and un-timed transfers among high frequency lines.
- This location is the focal point of numerous regional, sub-regional, and community transit services and routes.
- This location is typically close to a major activity center that is a significant trip destination or attraction such as a shopping mall, central business district, college/university, among others.
- Consideration of this location should take into account running times from other *Major Transfer Centers* in the development of efficient schedules constructed to facilitate timed-transfers.
- Typically this facility calls for a significant capital investment in waiting areas, supervisory and customer service facilities, passenger amenities (information kiosks, telephones), security systems, bus bays, bike racks, storage lockers, and other amenities. Such facilities should be constructed to accommodate a variety of transportation modes including public and private bus companies, taxis, jitneys, paratransit vehicles, among others. Consideration is usually given to include space for food and convenience vendors, dry cleaning, child care, etc. at these joint-use facilities.

Category 2: Major (High Volume) Transfer Location

- This location typically has numerous bus routes that pass by a particular point.
- Some facility improvements are desirable such as shelters, benches, kiosks, and phones.
- Timed-transfers may be scheduled at these locations.

Category 3: Rail Feeder/Distribution Point

- At this location, timed-transfers will occur around the trains' arrival and departure schedules.

Category 4: All Other Transfer Locations

- At these locations, low-volume transfers will typically occur on the street.
- Minimal if any facility improvements are required.

It should be noted that to the extent that timed-transfers between bus and rail are being developed around Metrolink train and/or the future Blue Line light rail schedules, consideration must be given to the fact that timed-connections cannot be adjusted in response to frequent rail schedule changes. The ramifications are significant. Changing a timed connection at one major transfer center would require changing the schedule of those routes impacted by the change, disrupting connections elsewhere at other major transfer centers. Three of the four proposed major transfer centers in the Arroyo Verdugo sub-region are located at rail stations (Burbank RITC, and the Del Mar and Sierra

Madre Villa Blue Line Stations). Efforts should be placed on maximizing timed connections but it may not be practical in all cases.

Using this hierarchy and complemented by significant field work, the project team developed a proposed set of transfer locations and hubs as identified in Figure 6-2. A discussion of this hierarchy by city is presented below.

6.1.1 Glendale

As shown in Figure 6-2, a total of four Category 1: Major Transfer Centers have been identified in the Arroyo Verdugo sub-region. As noted earlier, the current Glendale Transportation Center is located at the Metrolink station in the very southernmost part of the City and far from any major activity center or attraction. It is recommended that the Glendale Transportation Center be classified as a Category 3: Rail Feeder/Distribution Point. Glendale will continue to operate commuter shuttles from the Metrolink station to Brand Boulevard and San Fernando Road employment destinations.

It is recommended that the first of four Category 1 facilities be located in the heart of Glendale's downtown, within the square formed by Broadway, Central, Colorado, and Brand. This is consistent with the City's Downtown Strategic Plan which is proposing a new Town Center located in this area. Transit will be a key element in the City's Downtown Strategic Plan. This location meets all the criteria included in Category 1 locations.

Two Category 2: Major (High Volume) Transfer Locations have been identified in Glendale. One is at the intersection of Glendale Avenue and Broadway where a number of MTA and Glendale Beeline routes intersect one another and generate high passenger activity. The other Category 2 location is in south Glendale along San Fernando Road between Brand Boulevard and Central Avenue; the location of numerous MTA and Beeline routes.

6.1.2 Burbank

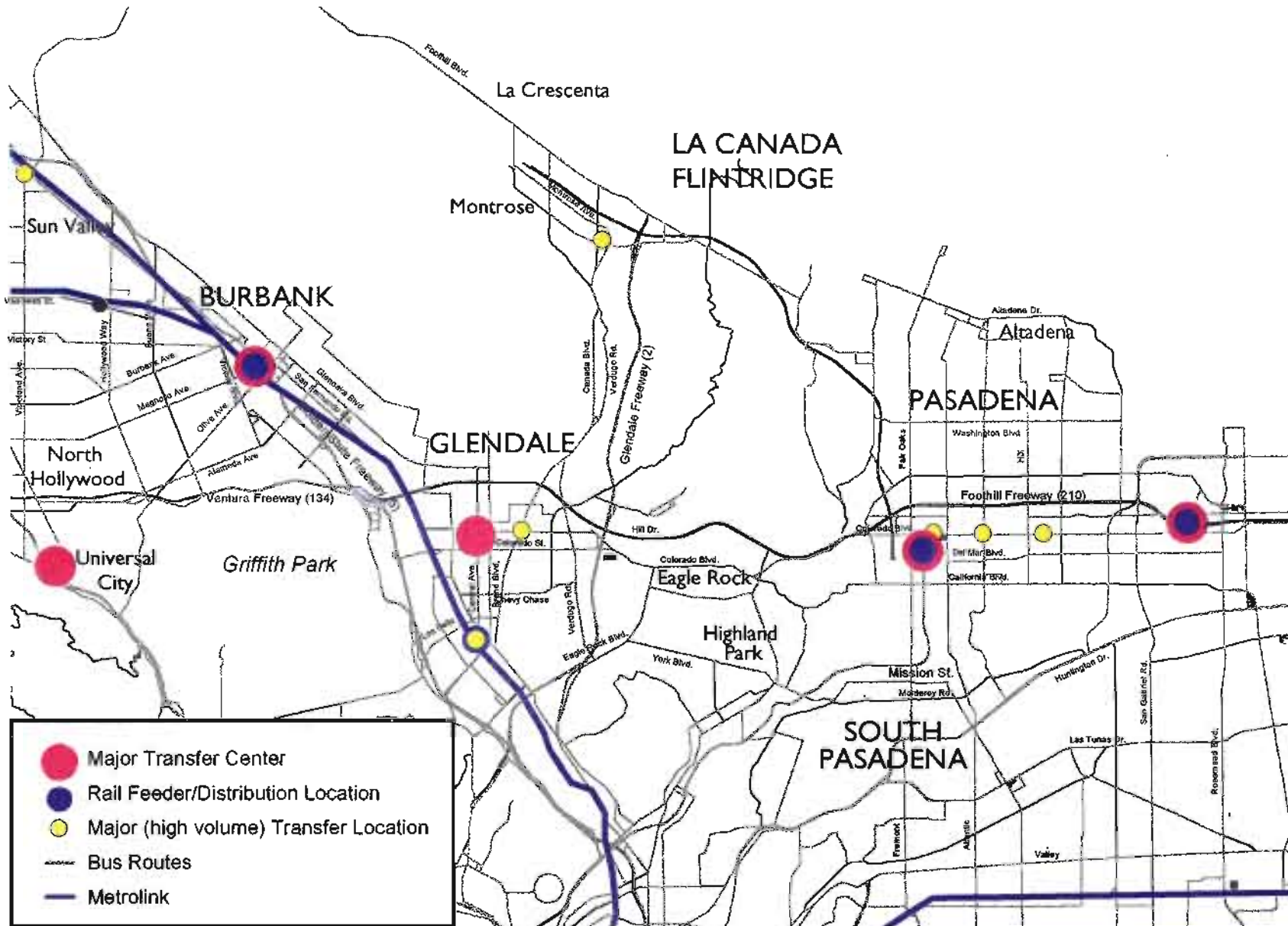
The current location of the Burbank Regional Intermodal Transportation Center (RITC) has been identified as a Category 1: Major Transfer Center. It meets all of the criteria as specified in Category 1 facilities. This location is and will be the focal point of the rail, shuttle, and MTA lines that converge on this location. It is the City of Burbank's intention to construct a pedestrian bridge over the Interstate 5 freeway, thereby providing a direct link to the adjacent downtown area on First Street from the RITC. The RITC also functions as a Category 3 location as it is a rail feeder/distribution location for Metrolink commuter rail service. The City of Burbank operates four shuttles throughout the City that distribute from and feed to this location.

6.1.3 Pasadena

Two Category 1 transfer centers are proposed in Pasadena; one in west Pasadena at the site of the Del Mar Blue Line Station and one in East Pasadena at the site of the Sierra Madre Villa Blue Line

Figure 6-2

Recommended AVTC Transit Hub Hierarchy



Station (terminal station for the Blue Line in this phase). Both locations would also be Category 3 Rail Feeder/Distribution points when the Blue Line becomes operational in 2001. The City of Pasadena has programmed major capital investments at each location that are generally consistent with Category 1 locations. There will be some rail-bus connections that will occur at Lake LRT, Allen LRT, and Fillmore LRT that are best categorized as Category 4 locations.

Three Category 2: Major (High Volume) Transfer Locations have been identified in Pasadena; all located at various key points along Colorado Boulevard. These locations include: 1) the intersection of Colorado Boulevard and Lake Avenue, 2) Pasadena City College, and 3) Old Town Pasadena between Fair Oaks and Los Robles. Numerous MTA, Foothill Transit, and Pasadena ARTS buses pass by these locations.

6.1.4 South Pasadena

There are no locations identified as Category 1, 2, or 3 in South Pasadena because the City has so few transit resources. Once the Blue Line becomes operational in 2001, South Pasadena's Mission Street station would most likely become a Category 3: Rail Feeder/Distribution location. It should be noted here that present plans for the Mission Street Station do not indicate a commitment to a significant amount of parking at this location. The lack of parking maybe a problem as the demand for parking is likely to be high from residential areas to the south, southeast and northwest of the Mission Street Station and transit feeder services will be needed to mitigate the situation.

6.1.5 La Cañada Flintridge

One location in the Montrose/La Cañada Flintridge/North Glendale area may warrant a Category 2 designation that would require some level of bus stop enhancements (benches, shelters, kiosks, etc.). This location near the intersection of Montrose Avenue and Verdugo Boulevard. Several routes (Line 90/91, the La Cañada shuttle, and the newly proposed sub-regional route (formerly Line 177) would pass by this location.

These proposed transfer locations coupled with the capital improvements are key to facilitating smooth connections between regional bus and rail service, sub-regional bus service, and community-based transit services; a key objective in this study.

The next section presents the identification of the recommended regional bus service in the Arroyo Verdugo sub-region.

6.2 IDENTIFICATION OF THE RECOMMENDED REGIONAL BUS SERVICE

With the regional rail network defined, the next layer of the regional network for the Arroyo Verdugo sub-region calls for the identification of the regional bus service network. The regional bus service is defined as those routes operated by regional carriers (MTA, Foothill Transit, and LADOT) that

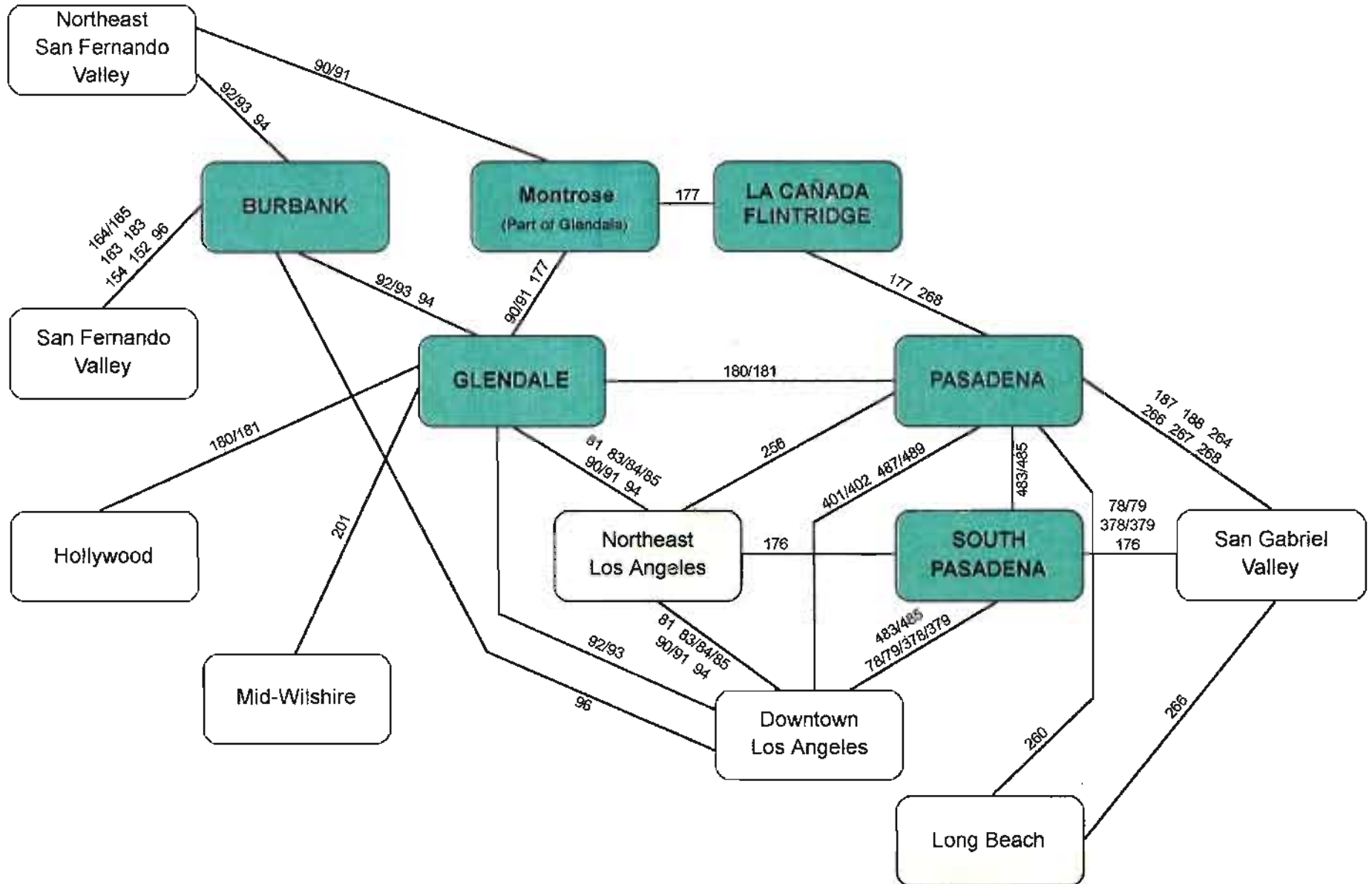
connect one or more of the five cities in the Arroyo Verdugo sub-region with regional destinations outside the sub-region such as downtown Los Angeles, the San Fernando Valley, San Gabriel Valley, among others. In developing the regional bus network, the following guidelines were used during the service design process:

- Regional bus service should provide connections between the Arroyo Verdugo sub-region and regional destinations outside the sub-region to the north, south, east, and west.
- The service design team recommendations for the regional bus network should take into consideration work already undertaken (San Fernando Valley and Foothill) and currently being performed (central/east/northeast Los Angeles) on other sub-regional restructuring studies.
- The regional bus carriers (MTA, Foothill Transit, and LADOT) should concentrate their service on line haul routes operating on major arterials in heavy demand areas of the Arroyo Verdugo sub-region. The provision of specific community circulation service by regional operators has often resulted in the regional aspects of the service over-riding the community needs. In other cases the operation of large transit coaches in residential neighborhoods on narrow streets has been a public concern.

Figure 6-3 presents a schematic of the current regional bus services operated in the Arroyo Verdugo sub-region. Between MTA, LADOT, and Foothill Transit, there is a very substantial amount of regional bus service that is operated in and out of the Arroyo Verdugo sub-region. A significant amount of service connects the communities of Glendale and Burbank to the San Fernando Valley to the west. Similarly, Pasadena and South Pasadena are linked very strongly to communities to the east and southeast in the San Gabriel Valley. The entire Arroyo Verdugo sub-region is connected by numerous routes to communities to the south with the Los Angeles central business district being the primary destination.

Based upon the above criteria, the primary changes to the regional bus network call for shifting some of the MTA regional bus service out of local community circulation and substituting it with appropriate community-based service. In addition, improvements are called for in terms of the sub-regional connections between Glendale, La Cañada Flintridge, and Pasadena as a result of modifications to MTA Line 177. As well, improved community-based transit services in Burbank, Glendale, and South Pasadena are being proposed. There appears to be opportunities to improve the level and quality of community-based transit services in the City of Pasadena. As noted in the Unmet Transit Needs Assessment, Pasadena has the highest level of intra-community trip making of the cities in the Arroyo Verdugo sub-region. Approximately, 42% of non-work trips and 27% of work trips are made internal to the City of Pasadena. Finally, the recommended plan calls for vastly enhanced integration of regional, sub-regional, and community-based services through the adoption of the hub-and-spoke network configuration which focuses connections at four major transfer centers throughout the Arroyo Verdugo sub-region -- the Burbank RITC, Glendale CBD (New Town Center

Figure 6-3
 Arroyo Verdugo Sub-Region
 Current Regional Bus Service



east of the Galleria), and the Del Mar and Sierra Madre Villa Blue Line stations in west and east Pasadena, respectively.

A summary of the proposed changes to the regional bus service network is presented in Table 6-1. These proposed changes will all require conversion from regional bus service to community-based service. The proposed modifications are a result of applying the previously noted criteria; coupled with the results of the needs assessment and public participation process; and conduct of significant field work.

It is recommended that a transit restructuring assessment of the transit services operated within the City of Pasadena be conducted. This assessment calls for the development and review of origin/destination data, conduct of a public participation process, and conduct of a line-by-line analysis of all MTA, Foothill Transit, and Pasadena ARTS service operated within the City of Pasadena. It will be important to ascertain the level of transferring that is currently taking place along Colorado Boulevard, the primary east/west regional corridor through the City of Pasadena. The purpose is to develop a coordinated transit system in Pasadena that takes into consideration the implementation of the Blue Line in 2001, and the appropriate mix of regional bus service complemented by a higher level of community-based services in Pasadena. This assessment is beyond the scope of this current AVTC project.

These proposed changes in the regional bus service network are described in more detail in the following two sections.

6.3 IDENTIFICATION OF RECOMMENDED SUB-REGIONAL BUS SERVICE

The next layer in the development of an integrated transportation system for the Arroyo Verdugo sub-region is the sub-regional system. The sub-regional system is defined as a series of routes that provide connections to and from each of the five cities in the sub-region including Burbank, Glendale, La Cañada Flintridge, Pasadena, and South Pasadena. To a very large degree, the regional network as described in the previous section provides most of these sub-regional connections. Presented below is an assessment of the sub-regional connections between the five cities in the Arroyo Verdugo sub-region.

6.3.1 Direct Connections Involving No Transfers

Burbank - Glendale

Excellent sub-regional connections are provided between Burbank and Glendale. The service alignments are direct and the service frequencies are very good. MTA Lines 92/93 (Brand Boulevard and Glenoaks Avenue) and 94 (San Fernando Road) link the two cities. Line 92/93 links the designated major transfer centers in downtown Glendale (near the new Town Center) and the RITC

**Table 6-1
Regional Service Changes**

Regional Route/Route Segment	Proposed Change
MTA Line 183 - Sherman Oaks to Burbank RITC Segment - Burbank RITC to Glendale Transportation Center Segment	<ul style="list-style-type: none"> - No change - Current Burbank RITC to Glendale Transp. Center segment replaced by a combination of Burbank and Glendale community-based routes and a revised alignment extending Route 183 from Burbank RITC via SF Rd. and Broadway/Colorado to Eagle Rock and Highland Park terminating at the upcoming Avenue 57 Blue Line Station
MTA Line 201 - Mid-Wilshire to Glendale - City of Glendale Segment	<ul style="list-style-type: none"> - No change - Replace with a Glendale community-based route
MTA Line 96 - Los Angeles CBD to Burbank Segment - Burbank to Universal City Segment - Universal City to Sherman Oaks Segment	<ul style="list-style-type: none"> - No change - Replace with a Burbank community-based shuttle - Replace with community-based shuttle
MTA Line 177 - Glendale/La Canada Flintridge/Pasadena Segment - Del Mar to Sierra Madre Villa Segment - Sierra Madre Villa to City of Hope Segment	<ul style="list-style-type: none"> - Line 177 transfer to Glendale/La Canada Flintridge/Pasadena - To be absorbed by some combination of restructured Pasadena service - MTA continue to operate or transfer line to Foothill Transit to operate
Pasadena Service	<ul style="list-style-type: none"> - Undertake transit restructuring study to identify regional and community-based service network that is integrated with the upcoming Pasadena Blue Line

in Burbank. The current Metrolink commuter rail and the future alternative rail technology (ART) application also provide good connections between the two cities.

Glendale - Pasadena

Although Glendale and Pasadena are separated geographically by north/south running hills and the arroyo, they have an excellent linkage as provided by MTA Line 180/181 over Colorado Boulevard. To further enhance sub-regional connections, consideration might be given to extending MTA Line 181 further east beyond the Pasadena City College to the end of the Blue Line located at the Sierra Madre Villa Blue Line Station. As noted above, the Sierra Madre Villa Station is one of the four designated major transfer centers located in the Arroyo Verdugo sub-region. The Line 180 branch along Lake Avenue north of Colorado Boulevard may or may not be continued pending the outcome of the City of Pasadena transit service assessment. With the proposal to extend Line 181 to the Sierra Madre Villa Blue Line station, passengers traveling eastbound to the end of the line would be afforded opportunities to transfer and continue their trip via several connections to destinations east, south and southwest of Pasadena.

Glendale - La Cañada Flintridge - Pasadena

The current sub-regional connection between Glendale, La Cañada Flintridge, and Pasadena can be improved. This connection is provided by MTA Line 177. Line 177 operates 40-minute service in the peak period and hourly service in the midday on weekdays and no service is provided on weekends. The Unmet Transit Needs Assessment identified that La Cañada Flintridge residents' non-work trips are evenly divided between Glendale (18%) and Pasadena (17%). It is recommended that Line 177's Glendale/La Cañada Flintridge/Pasadena segment be modified as follows:

- Maintain the current frequency levels on weekdays until such time as the increase in demand warrants an improvement.
- Extend the western end of the line to the Glendale Transportation Center during the a.m. and p.m. peak periods to provide connections for JPL employees between the Lab and Metrolink. This connection is questionable given the additional time to travel north to the JPL from the Glendale Metrolink Station. In any event, prior to the initiation of this service or commitment of additional resources, JPL employees should be surveyed to ascertain the level of demand.
- Terminate the eastern end of the line at the Del Mar Blue Line Station (designated major transfer center).
- Operate this service much like a community-based service using a smaller 30-foot bus and charging a lower fare.

This new sub-regional route is depicted in Figure 6-7, presented in the La Cañada Flintridge section on recommended community-based services. The Pasadena portion of Line 177 from Orange Grove

Boulevard (Del Mar Blue Line Station) to Sierra Madre Villa would potentially be discontinued and the abandoned portions of the route would be absorbed by some other regional or community-based alignment pending the outcome of the detailed City of Pasadena transit service assessment. The remaining portion of Line 177 would operate over its current alignment beginning at the Sierra Madre Villa Blue Line Station and continuing east to the City of Hope. The Foothill Transit Restructuring Study recommended this alignment would be a candidate to be operated by Foothill Transit.

The cities of Glendale, La Cañada Flintridge, and Pasadena are in the process of submitting a joint proposal in response to MTA Call for Projects regarding line transfers.

Pasadena - South Pasadena

Connections between Pasadena and South Pasadena are generally adequate. The primary connection between the two cities is provided by MTA Line 483. Line 483 connects the two cities via Fair Oaks Avenue. The two communities are also connected by MTA Line 260 via Los Robles. Once the Blue Line becomes operational in 2001, frequent light rail service will connect both cities to the Los Angeles CBD.

6.3.2 Connections Involving One or Two Transfers

Pasadena - Burbank

Generally speaking, the sub-regional connection between Pasadena and Burbank is quite good and involves one transfer. As an example, a Pasadena passenger bound for Burbank could take the modified Line 180/181 to the major transfer center in downtown Glendale and then transfer to MTA Line 92/93 or continue on Line 180/181 through downtown Glendale, then go south on Central Avenue to San Fernando Road where a transfer could be made to Line 94. For both Lines 92/93 and 94, direct service is provided to downtown Burbank where additional connections can be made at the Burbank RITC.

La Cañada Flintridge-South Pasadena, La Cañada Flintridge-Burbank, and South Pasadena-Burbank

The demand for these three connections is not appreciable as was discussed in the Unmet Transit Needs Assessment, however, it is possible to make connections generally involving one transfer and in some cases two transfers.

First, the La Cañada Flintridge-South Pasadena connection can be made with one transfer. As an example, a La Cañada Flintridge passenger traveling to South Pasadena could make this trip by proceeding southbound on the new sub-regional route to the Del Mar Blue Line Station (major transfer center), then transfer to Line 483 traveling southbound on Fair Oaks Avenue to South Pasadena or simply board the upcoming Blue Line when it becomes operational in 2001.

The second connection, La Cañada Flintridge-Burbank involves one transfer. As in the example above, the La Cañada Flintridge passenger traveling to Burbank would take the new sub-regional route (Line 177) south to the downtown Glendale transfer center, then transfer to either Line 94 (San Fernando Road) or Line 92/93 (Glen Oaks Boulevard) to connect to downtown Burbank.

The third connection, South Pasadena-Burbank involves a minimum of two transfers. Traveling from South Pasadena to Burbank a passenger would ride Line 483 or the Blue Line northbound to the Del Mar Blue Line Station, transfer to Line 180/181 and travel eastbound to the downtown Glendale transfer center, then transfer to either Line 94 (San Fernando Road) or Line 92/93 (Glen Oaks Boulevard) to connect to downtown Burbank. The greatest time penalty is imposed on riders desiring to make this connection because of the multiple transfers involved. However, only light demand has been identified for this connection.

6.4 IDENTIFICATION OF RECOMMENDED COMMUNITY-BASED TRANSIT SERVICE

As described above, the first two layers of the integrated Arroyo Verdugo sub-region, the regional and sub-regional systems, provide the basic foundation for improving mobility and access for riders traveling between the five cities in the sub-region and from the sub-region to destinations outside the sub-region to the north, south, east and west. The third and final layer in the integrated transportation system for the Arroyo Verdugo sub-region is the community-based transit services.

It is important that the community-based services enhance mobility and access within each community and address a multitude of trip types and needs, ranging from shopping to work trips. As discussed in the Unmet Transit Needs Assessment, each of the five communities within the Arroyo Verdugo sub-region has a considerable number of work and non-work trips that remain internal to each city, with the City of Pasadena having the highest level of intra-community trip making. Therefore, the importance of good community circulation and access cannot be overstated. In addition, the community-based services need to provide quality and convenient connections to the sub-regional (routes that connect cities within the Arroyo Verdugo sub-region) and regional transportation systems (routes that connect the Arroyo Verdugo sub-region to regional destinations outside of the sub-region) so that riders have the ability to continue their trips outside their communities. To this end, the project team has placed a considerable amount of importance on the establishment of the four major transfer centers in Burbank (RITC), Glendale (new Town Center), and Pasadena (Del Mar Blue Line Station and Sierra Madre Villa Blue Line Station). It is at these locations that all three layers of service will be linked and coordinated.

Presented below are the results of the assessment of community-based transportation needs and the recommended services for each of the five cities within the Arroyo Verdugo sub-region.

6.4.1 Glendale

Of the five cities in the sub-region, the City of Glendale's current level of community-based transportation services far surpasses the other four cities. Glendale currently operates a locally-funded shuttle service called the Beeline. The Beeline service consists of three routes that provide significant community circulation. In addition to the Beeline service, Glendale also provides two commuter shuttles that distribute Metrolink riders to employment destinations along Brand Boulevard to the north and San Fernando Road to the northwest. The City also funds a number of services targeted at the elderly (bus pass subsidy program and recreational transit program) as well as its paratransit service (dial-a-ride) which covers Glendale, La Cañada Flintridge, and portions of unincorporated Los Angeles County.

6.4.1.1 Evaluation of Current Services

MTA Regional Bus Service

Several MTA regional lines operating in Glendale provide excellent service and are heavily patronized. These include Lines 92/93, 94, and 180/181. No modifications to these routes are proposed. However, four MTA routes are being proposed for modification. These routes were addressed in the recently completed San Fernando Valley Transit Service Restructuring Study and the on-going Central/East/ Northeast Los Angeles Restructuring Study -- Lines 90/91, 177, 183, and 201.

Lines 90/91: A minor change is being proposed for Line 90/91. Line 90 would maintain its current alignment through Montrose. Line 91 would be modified to operate southbound via Foothill Boulevard, La Crescenta Avenue, where it would join the Line 90 alignment and operate over Montrose Avenue on its way south to Glendale. The new sub-regional route (Glendale, La Cañada Flintridge, Pasadena) would operate over the Line 91 segment of Honolulu Avenue in Montrose thereby eliminating duplication. In an effort to provide enhanced connectivity between La Cañada Flintridge, Montrose, and Glendale, consideration may be given to diverting Line 90/91 into the proposed Glendale transfer center in a manner similar to the current Beeline Route 4.

Line 177: As described in the section on the identification of the sub-regional bus system, Line 177 would be broken into three segments: 1) the western segment connecting Glendale, La Cañada Flintridge, and Pasadena would become a new sub-regional route with the Glendale transfer center serving as the western terminal and the Del Mar Blue Line station in Pasadena serving as the eastern terminal, 2) the middle segment between the Del Mar Blue Line station and the Sierra Madre Villa Blue Line station in east Pasadena, and 3) the eastern segment from the Sierra Madre Villa Blue Line station to the City of Hope. The western segment is currently being considered as part of MTA's Call for Projects to be operated by the cities of Glendale, La Cañada Flintridge, and Pasadena. The middle segment of Line 177 would most likely be absorbed by a combination of regional and community-based routes operating in Pasadena. The eastern segment could continue to be operated by MTA or transferred to Foothill Transit to operate.

Line 183: Line 183 is an MTA regional line that originates in Sherman Oaks (where it interlines with Line 234) and travels through Van Nuys, North Hollywood, and Burbank before terminating in Glendale at the Glendale Transportation Center. The current Burbank to Glendale segment is best characterized as a community-based transit service because it operates through several neighborhoods with frequent stops on fairly narrow streets. This is not the case for the remaining Sherman Oaks to Burbank segment which serves the Magnolia corridor. The project team concurs with the San Fernando Valley recommendation to retain this segment. Two options are being presented for the Burbank to Glendale segment as discussed below. Under either scenario, this service should be operated as a community-based service and not an MTA regional service.

The first option calls for the deletion of the Burbank portion of this segment -- from downtown Burbank to approximately the intersection of Kenneth Road and Grandview Drive. This segment is not heavily patronized as riders have the option of using MTA Line 92/93 on Glenoaks Boulevard to travel to Glendale, which is within reasonable walking distance (less than 1/4 mile). The remaining portion of the route from northwest Glendale to the Glendale Transportation Center would become a Beeline type shuttle route, utilizing a smaller vehicle and lower fare. A description of the new community-based route is presented in the Glendale section on sub-regional and community-based service below.

The option described above calls for the Burbank portion of the route to be discontinued and the remaining Line 183 to become a City of Glendale community-based shuttle route. Another option is available should the City of Burbank decide to retain the Burbank portion of Line 183 northeast of the RITC. The City of Burbank could operate this service as a local community-based shuttle route. There is no compelling reason to link the Burbank and Glendale community-based shuttle routes as there are two existing direct and frequent connections between Glendale and Burbank provided on Lines 92/93 (Glenoaks Avenue) and 94 (San Fernando Road). The Burbank shuttle could be operated as a flexible service on 30- minute frequencies on weekdays.

Under this proposal Line 183 would terminate at the Burbank RITC. The restructuring study currently underway for Central/East/Northeast Los Angeles is considering extending Line 183 from the Burbank RITC east to the community of Eagle Rock with the eastern terminal located at the proposed Blue Line Station at Avenue 57. This re-aligned portion of Line 183 would travel from Olive Street in Burbank into Glendale via San Fernando Road, east on Broadway, south on Central Avenue and east on Colorado Street, leaving Glendale and continuing via Colorado Boulevard, Eagle Rock Boulevard, and York Boulevard to the Highland Park hub at York and Figueroa. The eventual eastern terminus of Line 183 will be the Avenue 57 Blue Line station.

Line 201: Line 201 is an MTA regional line that originates in the mid-Wilshire District and travels north to terminate in northeast Glendale. MTA included Line 201 on the list of routes in the MTA Call for Projects regarding the transfer of lines. Line 201 within Glendale is an excellent candidate for transfer to Beeline type community-based service in future years. The proposed routing of the new Beeline shuttle calls for discontinuing service to the residential area east of Chevy Chase Drive, an area characterized by low density and upper-middle incomes. The new Glendale community-based

route would loop around the Glendale Adventist Medical Center (via Chevy Chase Drive, Glenoaks Boulevard, Merrill Avenue, Holly Drive, Wilson Terrace, and Richland Avenue) and follow the current Line 201 alignment to downtown Glendale. The routing would then turn south on Central Avenue, west on Colorado Street, and south on Pacific Avenue (traveling through the “model neighborhood” in the area of Edison School and Pacific Park), then continue via San Fernando Road and Central Avenue to a proposed terminus at the Glendale Transportation Center. This proposal does not address the segment of Line 201 in Los Angeles, although the City of Glendale might consider operating the line along its current routing through Atwater Village as far as Glendale Boulevard or even Fletcher Drive if suitable arrangements could be made.

Sub-regional and Community-Based Services

The following recommendations are presented regarding sub-regional and community-based services in the City of Glendale.

New Sub-regional Route: A revised sub-regional route would be created to replace the MTA Line 177 segment that linked Glendale, La Cañada Flintridge, and Pasadena. This service would operate on 40-minute headways during the weekday peak periods and 60 minutes during the midday. It is proposed that this new sub-regional line charge a lower fare compared to the current Line 177 fare (the Beeline service is \$.25, the La Cañada Shuttle is free, and MTA Line 177 is \$1.35). This new sub-regional route would replace the Beeline Route 4 north of the downtown Glendale and it is proposed to interline the new sub-regional route with the southern segment of Beeline Route 4. As part of this proposal, the City of Glendale is planning to increase the weekday frequency on Beeline Route 4 from every 20 minutes to every 15 minutes during weekdays only. No headway adjustment is proposed for Saturday. As a result of this change, the new sub-regional route would operate 15 minute service on weekdays between downtown Glendale and the Glendale Community College and 40-60 minute frequencies over the remainder of the alignment to Montrose, La Cañada Flintridge, and Pasadena.

New Beeline Route (Northwest Glendale): As noted above, the City of Glendale would assume responsibility for the replacement of Line 183 service in northwest Glendale with a community-based Beeline route. This service would begin at the downtown Glendale transfer center and operate west on Broadway, north on Pacific Avenue, west on Glenwood Road, and north on Grandview Avenue to Kenneth Road, utilizing Kenneth Road and Highland Avenue to complete the end-of-the line turnaround.

Beeline Route 4 (South): The recommendation above concerning replacement of Line 183 also entails revisions to the southern portion of the Beeline Route 4. Beeline Route 4 would remain on Chevy Chase Drive between Broadway and Glendale Avenue, no longer utilizing Palmer Avenue between Adams Street and Glendale Avenue. Route 4 would turn left onto Glendale Avenue from Chevy Chase Drive and proceed via Laurel Street and Central Avenue to its new terminus at GTC. Thus, the Beeline Route 4 extension would replace Line 183 service to Glendale Transportation

Center, but would operate via Chevy Chase Drive instead of Verdugo Road. This would leave only the two block segment of Line 183 along Acacia Avenue without a bus route.

The southern portion of Beeline Route 4 is proposed to be interlined with the new sub-regional route (former Line 177) to maintain the connectivity between route segments. The City of Glendale noted that a recent on-board survey revealed relatively little through-riding between the segments. The possibility of interlining the southern portion of Beeline Route 4 with the new community-based route serving northwest Glendale should be left open as a future scheduling option.

Metrolink Shuttle (San Fernando Road): The City of Glendale is considering changes to its Metrolink service operated along the San Fernando Road corridor with a possible extension to Burbank. The Disney Animation Studio in Glendale near its border with Burbank is actually closer to the Burbank Metrolink station and is served by a Metrolink Shuttle from the Burbank station. The City of Glendale pays the City of Burbank \$60,000 annually to defray the cost of operating this shuttle. The current Glendale Metrolink Express Shuttle via San Fernando Road comes close to the Disney Animation location without serving it directly. This proposal would extend the current routing to serve Disney from the Glendale Metrolink station, and potentially continue past the Animation Studio directly to the Burbank Metrolink station. The latter option would preserve employees' current link to the closest station, and could be operated at less expense than the existing \$60,000 annual payment to the City of Burbank.

Colorado Street Crosstown Route: Consideration should be given to implementing a crosstown route on Colorado Street only after the opening of a light rail or ART line in the San Fernando Road corridor. The route would begin at the proposed light rail station in the vicinity of Broadway/Colorado Street and travel eastbound along Colorado Street, with a detour to serve the downtown Glendale transfer center. A possible eastern terminus could be along the loop via Verdugo Road, Broadway, and Eagle Dale Avenue with service provided to Glendale High School.

Beeline Route Extensions to ART Stations: Consideration should be given to providing Beeline service to the proposed Doran and Grand Central light rail/ART stations only after the opening of this fixed-guideway service in the San Fernando corridor. Along with the Glendale Transportation Center and Broadway/Colorado Street, stations are proposed in the vicinity of Doran/Freeway 134 and the Grand Central area. Beeline routes would be appropriate at both stations. Consideration should be given to extending current Beeline route to these stations.

Beeline Routes 1 and 2: No changes are proposed in the operation of the current Beeline Routes 1 and 2. Routes 1 and 2 are very productive north/south spines that compliment MTA regional lines extremely well.

As noted earlier, the proposed transfer center is recommended in the vicinity of the new Town Center, to be located just east of the Galleria (bounded by Broadway, Brand, Colorado, and Central). Most of the current and modified regional, sub-regional, and community-based services operated in the City of Glendale will operate either through or within one-block of the proposed transfer facility.

This convergence of lines and the ability to make convenient transfers will greatly enhance mobility for area transit users.

A map depicting the proposed service changes in Glendale is presented in Figure 6-4.

6.4.2 Burbank

The City of Burbank operates four feeder-bus shuttles from the Burbank Metrolink Station. These four shuttles are called “BLT” -- Burbank Local Transit. The shuttles are free to riders transferring from other transit modes (bus and rail); non-transferring riders are charged \$1.00. The BLT serves four primary areas including downtown Burbank, the Golden State area, the Media District, and employment destinations along the San Fernando Road corridor. These commuter shuttles are very effective. The City also funds a dial-a-ride service for the elderly and disabled population.

The City of Burbank does not operate any other community-based transit service such as the Beeline in Glendale.

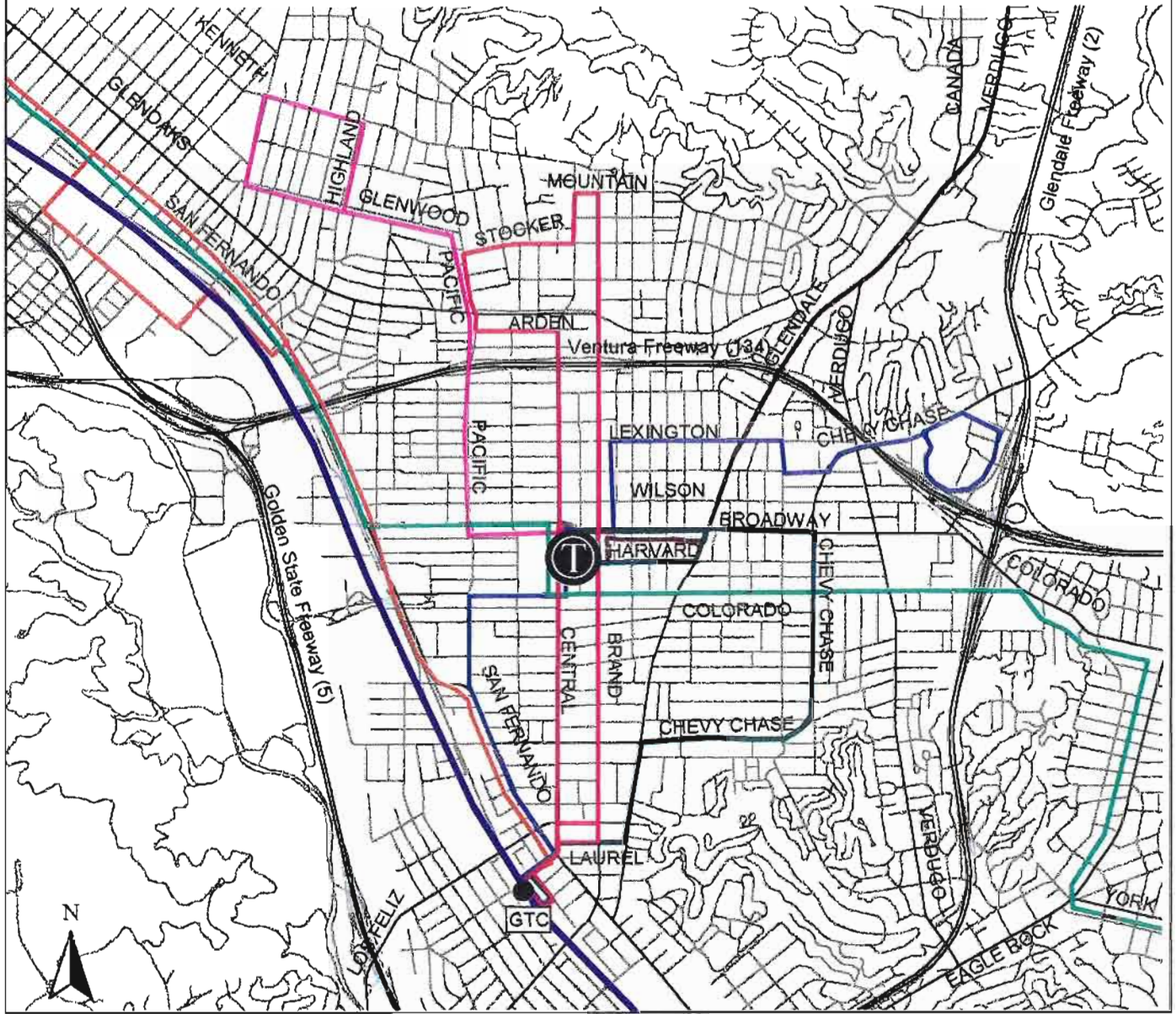
6.4.2.1 Evaluation of Current Services

MTA Regional Bus Service

A significant amount of MTA service is operated in the City of Burbank. Most of the lines that operate to the west of Burbank converge and terminate at the Burbank RITC. These lines generally operate at lower frequencies than the northwest/southeast lines that operate along Glenoaks Boulevard (92/93) and San Fernando Road (94). All of Burbank MTA service was analyzed as part of the San Fernando Valley Transit Restructuring Study. The proposed modifications for MTA lines operating in Burbank are noted below.

Line 183: The proposal to re-design MTA Line 183 was described in some detail in the preceding Glendale section. Briefly summarized, Line 183 is an MTA regional line that originates in Sherman Oaks and travels through Van Nuys, North Hollywood, and Burbank before terminating in Glendale at the Glendale Transportation Center. The project team recommends the Magnolia segment be retained. Two options are being presented for the Burbank to Glendale segment. The first option calls for eliminating the Burbank portion of the line from the RITC to the vicinity of Kenneth Road and Grand View Avenue in its entirety. The second option calls for this Burbank segment to be retained and operated with a smaller vehicle as a community-based flexible service at a lower fare than the current Line 183 fare. As part of the on-going Central/East/ Northeast Restructuring Study, consideration is being given to extending Line 183 from the Burbank RITC to the community of Eagle Rock. The proposed alignment would travel from Olive Street in Burbank into Glendale via San Fernando Road, east on Broadway, south on Central Avenue and east on Colorado Street, leaving Glendale and continuing via Colorado Boulevard, Eagle Rock Boulevard, and York

Figure 6-4
 City of Glendale
 Proposed Transit Network



Boulevard to the Highland Park hub at York and Figueroa. The eventual eastern terminus of Line 183 will be the Avenue 57 Blue Line station.

Line 411: Consistent with the San Fernando Valley Transit Restructuring Study, it is recommended to implement a new limited stop service along Victory Boulevard between Burbank and Warner Center in the west San Fernando Valley. The line continues south on the Golden State Freeway to east on Highway 134 to south on Brand Boulevard through downtown Glendale before turning east via Broadway to an east Glendale park-and-ride facility. The line then enters the Glendale Freeway traveling south to downtown Los Angeles. This line replaces Line 410 in both Burbank and Glendale.

Sub-regional and Community-Based Services

As noted above, the City of Burbank operates minimal community-based services beyond the four commuter shuttles. In addition to the conversion of the Burbank portion (Kenneth Road) of Line 183 from an MTA regional line to a community-based service, the following local transit services are being proposed in Burbank.

Downtown Shuttle: With the revitalization of downtown Burbank, a need has been demonstrated to link parking facilities in downtown Burbank to numerous downtown destinations with a shuttle service during evenings and on weekends. The service concept being proposed is called a “park once” strategy. This concept provides for one stop parking with a connection to a shuttle bus that circulates in the downtown serving a variety of destinations: restaurants, shopping, movies, etc. It is proposed to use Burbank’s new fleet of electric vehicles to provide this service. The use of these vehicles will substantially reduce ambient noise levels, important in pedestrian areas like downtown Burbank. The shuttles would operate in the Burbank downtown bounded by Verdugo Avenue to the southeast, Third Street to the northeast, Grinnell Drive to the northwest, and First Street to the southwest. Connections to MTA stops along First Street will be important. It is envisioned the Media City Center and San Fernando Road shops and restaurants would be major activity centers for passengers using this service. It is proposed that this service would operate on weekday evenings from 7:00 p.m. to 11:00 p.m. On weekends, service would begin at 9:00 a.m. and end at 11:00 p.m. on Saturdays and begin at 11:00 a.m. and terminate at 6:00 p.m. on Sundays.

Olive Avenue Community Shuttle: The MTA currently operates Line 96 on Olive Avenue. Line 96 operates from downtown Los Angeles to the Burbank RITC where it continues on to Sherman Oaks with intermediate stops in Universal City and Studio City. The MTA is considering discontinuing the Burbank to Sherman Oaks segment of the line and maintaining the Los Angeles CBD to Burbank segment. The San Fernando Valley Transit Restructuring Study recommended that this segment be retained by MTA with the Burbank to Universal City and Universal City to Sherman Oaks segments be operated with lower cost community shuttles. The San Fernando Valley Study further recommended that Burbank operate the Burbank to Universal City segment via the Media District and Toluca Lake on a 10-15 minute frequency. This frequency would support the critical link between two very large spines that operate along Glenoaks Boulevard (Line 92/93) and San Fernando Road (Line 94) at the Burbank RITC through the Media District to Ventura Boulevard and the

upcoming Metro Red Line Station in Universal City, as well as the short community trips along the alignment. Universal City is a major destination for the entire Valley. The San Fernando Valley Restructuring Study recommended that a major transit center be located in Universal City. This transit center location also happens to be the site of a future Red Line Station. Burbank may want to consider implementing this service in two phases. The first phase would be to operate service from the Burbank RITC to the Burbank Media District. The second phase would be to extend the line to the Universal City transit center once the transit center is completed. If Burbank operates this community shuttle service, the suggested fare should be less than that charged by MTA. The City of Burbank has indicated a desire to absorb the vacated portion of Line 152 (Alameda Avenue) from Burbank to Universal City and combine it with the Olive Avenue shuttle as part of a flexible service concept.

Glendale-Burbank-Pasadena Airport and Media District Connection: The City of Burbank has identified a potential need to provide some type of additional service between the Glendale-Burbank-Pasadena Airport and the Media District via Hollywood Way (MTA Line 163) although no specific proposals are provided here.

Figure 6-5 presents a map of proposed transit service in Burbank.

6.4.3 Pasadena

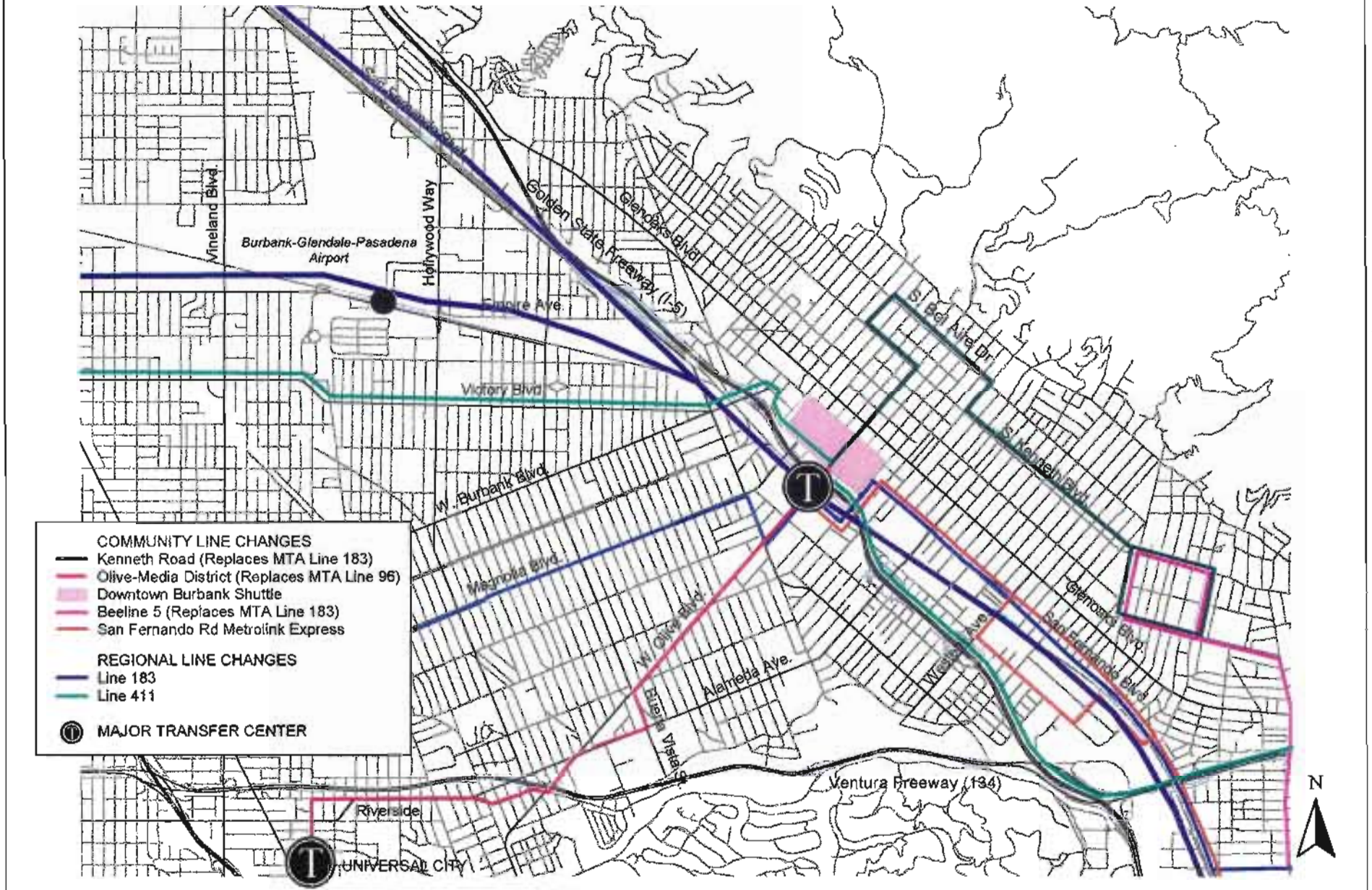
The City of Pasadena currently operates the successful Pasadena Area Rapid Transit System (ARTS) that provides circulation within central Pasadena to museum, shopping, and university destinations. The City also provides dial-a-ride service, funds several bus subsidy programs, and special event shuttles. Much of Pasadena's transit program has focused on supporting the Metro Blue Line rail project from downtown Los Angeles to Pasadena. The Blue Line is projected to become operational in 2001.

Pasadena had a seven route community-based transit system until 1968 when the *Pasadena City Lines* was purchased by SCRTD. Pasadena City Lines provided extensive local service throughout Pasadena and Altadena with the principal focus on providing community circulation. The system was comprised of:

- Two principal crosstown services on Colorado Boulevard and Washington Boulevard;
- Two "U-shaped" routes that connected the Fair Oaks Avenue/Lake Avenue and Lincoln Avenue/Hill Avenue north corridors via Colorado Boulevard through Old Town;
- Three diagonal routes connecting Los Robles Avenue (north) with South Lake Avenue and Caltech, Fair Oaks Avenue (south) with Allen Avenue (north), and La Cañada Flintridge with Los Robles Avenue (south) all via Colorado Boulevard; and

Figure 6-5

City of Burbank Proposed Transit Network



- Branches off the Colorado Boulevard crosstown route providing connections to the neighboring communities of Highland Park, Rosemead, Arcadia, and Monrovia.

Six of the seven lines intersected in a hub-and-spoke route structure at Colorado Boulevard and Los Robles Avenue, just six blocks from the upcoming downtown Pasadena hub at the Del Mar Blue Line Station. Service frequencies ranged from very frequent along Colorado Boulevard and the “U-shaped” lines (10-minutes) to hourly for the sub-regional connections to adjacent communities. Since SCRTD (now MTA) took over the Pasadena City Lines, the community-based system in Pasadena has been gradually converted to the current grid network through the integration of numerous long regional bus routes.

6.4.3.1 Evaluation of Current Services

As discussed in the Unmet Needs Assessment, the City of Pasadena has the highest level of intra-community trip making of the five cities in the Arroyo Verdugo sub-region. For work trips, 25 percent of the total trips are made internal to Pasadena while 42 percent of non-work trips are community-based. This is not surprising given the level of development and number of employment, retail, educational, cultural, government, and recreation activity centers available in Pasadena. As noted earlier, the only current community-based service operated in Pasadena is Pasadena ARTS. The remainder of the service provided in Pasadena is dominated by long-distance regional bus service (MTA and Foothill Transit) that serves a dual purpose of providing community as well as regional mobility.

The Needs Assessment also found that the communities of Pasadena, Altadena, and South Pasadena have strong inter-community trip-making, with regional orientation to the south (Los Angeles downtown), East Los Angeles, and the San Gabriel Valley communities to the east. Other key findings and observations concerning transit services in Pasadena are:

- Most of the MTA and Foothill Transit service in Pasadena and Altadena represents the end of the line (route “tails”) for long distance regional lines that originate as far away as Long Beach (MTA Line 260) and Claremont (Foothill Line 187). Most of the north/south lines terminate at the base of the San Gabriel Mountains in Altadena (MTA) and at the west end of downtown Pasadena (Foothill).
- The service levels on MTA and Foothill Transit regional lines are established based on regional travel needs, as opposed to local community needs. *As a result, the less frequent regional services are generally not attractive for short community-based travel.* There is an inherent conflict in optimizing service levels on regional lines for long distance regional travel and short distance community travel simultaneously. For longer inter-urban travel, customers often catch a particular trip due to the lengthy travel time and less frequent service. On the other hand, customers making short distance community trips typically catch the “next bus”

rather than wait for a particular trip, as evidenced by the successful Glendale Beeline, MTA Boyle Heights Shuttle, and LADOT DASH. This is also the case with frequent regional bus lines where the level of ridership for regional, sub-regional, and community travel supports high service levels, such as on the westside of Los Angeles. Pasadena's location at the northern and western "tails" of regional service and the higher than usual propensity to make shorter community-based trips does not allow for the successful integration of long regional and short community service into single high frequency routes. *Consequently, a community-based transit network needs to be developed to meet the short distance travel markets in Pasadena and Altadena and should consider supplementing and, in certain cases, replacing the existing regional services.*

- Colorado Boulevard is the major corridor for regional bus service extending west to Glendale and Hollywood (MTA Line 180/181) and east to the I-210 cities as far as Claremont (Foothill Transit Line 187). South of I-210, MTA lines enter the City on various streets intersecting Colorado Boulevard, providing important local coverage while also linking Pasadena to cities to the south. In addition, nearly all major Pasadena destinations are along or within a short walk of Colorado Boulevard, except at the east end of the City. *As a result, any restructuring of community-based service needs to focus on providing direct connections to key Colorado Boulevard destinations, as did the successful original Pasadena City Line system.*
- Approval was recently given for the funding and construction of the Metro Blue Line light rail system to Pasadena with a service opening date in 2001. MTA has already developed initial plans to re-align its bus lines to interface with the Pasadena Blue Line stations in order to maximize access to the new regional rail system. MTA's preliminary ideas call for making direct connection between the regional bus network and the Blue Line at principally the key Pasadena stations at Del Mar and Sierra Madre Villa. Certain MTA regional lines that are too distant from these hubs will connect at the Lake and Allen Blue Line Stations. *This reorientation of the regional service to interface with the Blue Line in two principal hubs presents a clear opportunity to develop a complementary community-based system in Pasadena.*
- As discussed previously, the MTA and Foothill Transit regional lines are currently serving a mix of regional, sub-regional, and community travel needs in Pasadena. A review of activity centers in Pasadena found that regional and sub-regional destinations are mostly located south of I-210 with community destinations and the residential watershed to the north, a condition that has remained relatively unchanged since the takeover of the Pasadena City Lines by SCRTD in 1968. While the preliminary conclusion indicates community-based service should be considered north of I-210 or Colorado Boulevard, care must be exercised to protect the significant current ridership markets (generally residential trip origins) that are using the regional service for regional trips. At the same time, many of these same riders will find that use of community services connecting to the Metro Blue Line will provide faster, more reliable service depending on their final destinations.

A review was conducted of the available limited sample of MTA passenger boarding and alighting data by bus stop in order to identify the potential extent of direct regional demand north of I-210. Data was available and analyzed for two MTA regional lines: Line 180/181 connecting Pasadena/Altadena with Hollywood via Glendale and Line 260 connecting Pasadena/Altadena with Long Beach via East Los Angeles. The data was examined to identify the number of riders who rode north of I-210 and were not boarding and alighting north of Colorado Boulevard (these are riders who *might* be required to transfer if the regional service is terminated at Blue Line stations and replaced with community-based transit north of Colorado Boulevard). Preliminary findings indicate:

- Regional travel demand on Line 180 north of I-210 is less than 5 percent of the overall route (Line 181 does not operate north of Colorado Boulevard). The data indicates that at most only 367 northbound and 388 southbound riders may use Line 180 for regional trip-making.¹ As a result, replacement of MTA Line 180 service along Lake Avenue with community-based service connecting with Colorado Boulevard should be considered in the development of a community-based network.
- Regional travel demand on Line 260 (which only intersects Colorado) north of I-210 is less than 6 percent of the overall route. The data indicates that some 452 northbound and 359 southbound riders may use Line 260 for regional trip-making. Like Line 180, there appears to be an opportunity to replace MTA Line 260 service along Los Robles with community-based service as part of the development of a community-based network.
- The existing no-fare *ARTS shuttle system* currently operates along portions of Colorado Boulevard and Green Street between Ambassador Auditorium and the Pasadena City College, with a deviation south on Lake Avenue to service the South Lake shopping area. The service will soon operate seven days a week, but is limited to hours when intense pedestrian activity within the downtown is expected. Thus it begins running much later than other services (11:00 a.m. weekdays and noon on weekends), and has a special Friday-only schedule of late-evening service. The ARTS shuttle is fundamentally different from the other local services proposed in this study. It operates along a corridor where heavy local transit service is provided by regional operators, but where those operators charge fares that are high for very short trips. The frequencies of ARTS and the regional lines are similar on this one corridor; it is the free fare and possibly the civic identity of the ARTS buses that separates the ARTS market. Expansion of this successful service should be considered as part of a detailed line-by-line restructuring of transit service in Pasadena to develop a community-based network.

¹ The number of these riders who board and alight along Colorado Boulevard could not be factored out of the data. Consequently, the actual number of riders who use Line 180 for regional travel will be less, particularly in light of the significant boarding and alighting activity along Colorado Boulevard.

6.4.3.2 Recommended City of Pasadena Service Assessment and Service Concept Strategy

Pasadena Service Restructuring Study

The need to interface with the upcoming Pasadena Blue Line necessitates making changes to the regional and sub-regional bus network operated by MTA and Foothill Transit. This need to update the regional network presents a timely opportunity to consider addressing community transit needs as well. For the reasons noted above, the project team recommends a reorientation of transit in the City of Pasadena from the nearly exclusive regional network to an integrated system of regional, sub-regional, and community services. It is recommended that a detailed restructuring of the transit network in the City of Pasadena be undertaken. This restructuring would involve some level of community input and participation, collection and analysis of origin/destination data, and a line-by-line analysis of all Foothill Transit, MTA and Pasadena ARTS service operated within the City. This service restructuring should consider the transit system both before and after the opening of the Pasadena Blue Line in 2001.

In the absence of this detailed restructuring, which is beyond the scope of this project, the project team is proposing a preliminary service concept as a starting point for consideration of a City of Pasadena community transit network. This is just an initial service concept and does not reflect the level of detailed analysis needed to prepare actual recommendations for implementation. The conduct of a detailed service analysis and restructuring must take place first before any of the service proposals presented here should be considered for implementation.

This detailed service restructuring analysis would build on the strengths of the current regional, sub-regional, and ARTS network; consider the community service alignment strategies in the former Pasadena City Lines; and integrate the regional, sub-regional, and community bus network with the upcoming Pasadena Blue Line.

Regional and Sub-regional Blue Line Interface

The restructuring of the Pasadena route network should develop a regional and sub-regional interface with the Pasadena Blue Line which opens in 2001. The project team believes the need for a community-based transit system in Pasadena is compelling enough to warrant restructuring of the regional and sub-regional network prior to and consistent with that required for the Blue Line interface.

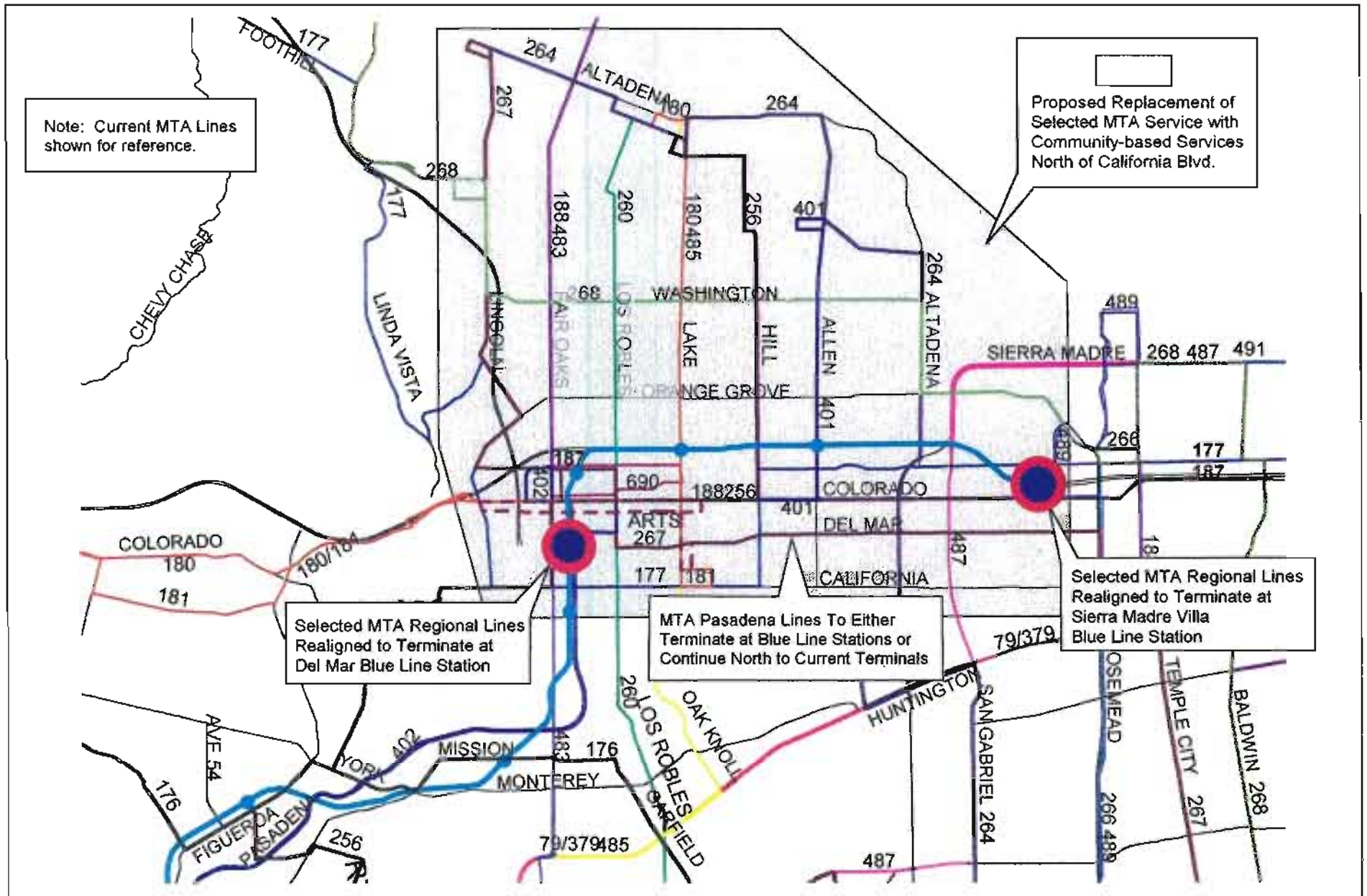
The following key service concepts and issues are proposed for the interfacing of regional and sub-regional transit services with the Pasadena Blue Line. All concepts and issues will need to be considered as part of the detailed City of Pasadena service restructuring.

- As noted earlier, of the seven City of Pasadena Blue Line stations, two have been designated as major transit centers where a significant amount of interconnection between the light rail system and other transit modes will occur. The Del Mar station located in downtown

Pasadena and the Sierra Madre Villa station located in developing East Pasadena will both have space designated for passenger pick-ups and drop-offs as well as off-site space for bus layovers and staging. Consistent with MTA's preliminary MTA bus and Pasadena Blue Line station interface plan, it is recommended the vast majority of MTA bus lines would be diverted into either the Del Mar or Sierra Madre Villa stations. See Figure 6-6. As well, diversion and/or truncation of Foothill Transit regional lines at the Sierra Madre Villa station should be considered.

- The draft MTA interface plan also calls for all of the current MTA's lines once diverted to the Blue Line stations to return to their alignments and to proceed to their current end-of-the-line terminals. This draft plan was based on the current bus transit network and has not yet considered the development of a strong community-based transit network in the City of Pasadena. As shown in Figure 6-6, the majority of the proposed Pasadena community-based transit network service area is located north of I-210 where mostly community destinations are located. Consequently, it is recommended that MTA's next draft of the Blue Line-bus interface plan consider the development of a community-based transit network within the City of Pasadena.
- Those MTA lines identified as having a significant number of riders north of I-210 that use the MTA lines for regional as opposed to community-based trip making would need to be preserved. This would be achieved through an assessment of both passenger boarding/alighting data and passenger origins/destinations. It is anticipated that some number of MTA lines would continue north of I-210 to the end-of-the-line terminals after diverting to serve the Metro Blue Line. One of the key considerations in identifying which lines to truncate at Blue Line stations involves the importance of minimizing transfers and accommodating regional trip making. The added time penalty and inconvenience associated with making a transfer (timed or untimed) can have a negative impact on ridership by discouraging trip making.
- Despite the introduction of Blue Line rail service through downtown Pasadena, Colorado Boulevard will continue as a prime transit corridor due to the multitude of major destinations located on or within walking distance of the corridor. Balancing frequencies with capacity along this corridor is important. Regarding the extension of MTA Line 181, Foothill Transit Route 187, and/or a Pasadena community service to connect the two transit major transfer centers at the Del Mar and Sierra Madre Villa Blue Line Stations along Colorado Boulevard, high frequency, integrated bus service should be investigated.
- As noted earlier in the discussion of sub-regional bus service, this study recommends that MTA Line 177 segment west of Fair Oaks Boulevard become a new sub-regional route connecting Glendale, Montrose, La Cañada Flintridge, and Pasadena. This sub-regional route's eastern terminal would be located at the Del Mar Blue Line station. It would operate similar to a community-based service at a reduced fare using smaller vehicles (much like the Glendale Beeline service) due to neighborhood considerations. The segment of Line 177

Figure 6-6
 City of Pasadena
 Proposed Service Concept



from the Del Mar to the Sierra Madre Villa station would either be absorbed by some combination of restructured Pasadena community-based service and/or MTA regional bus service. This determination would be made as part of a transit service restructuring study for the City of Pasadena. It is assumed that the segment of Line 177 from the Sierra Madre Villa Blue Line station east to the City of Hope would continue to operate as either an MTA line or transferred to Foothill Transit to operate. The western and eastern segments of Line 177 are currently under evaluation by MTA as part of the MTA Call for Projects regarding line transfers.

- With the implementation of the Pasadena Blue Line, MTA Line 401/402 would cease operation as this Pasadena - downtown Los Angeles connection would be provided by the new light rail service.
- The development of employment “shuttles” operating from the City of Pasadena Blue Line stations to key employment destinations throughout Pasadena should be considered as well. These should supplement the proposed Pasadena community-based service and the MTA and Foothill Transit regional bus service connecting with the Blue Line which also provide timely employment travel collection and distribution. Consideration should be given to designing these shuttles in a manner similar to the Metrolink shuttles operated by Burbank and Glendale from their respective Metrolink stations.
- A major component of the regional and sub-regional Blue line interface plan will be the importance of coordinating and integrating the development of the Pasadena community-based transit network and operation. The three levels of service (regional, sub-regional, and community-based) need to operate and coordinate in a seamless manner and facilitate simple and convenient connections between the various services.

Pasadena Community-based Service Concept

It is recommended that as part of the service restructuring of the City of Pasadena’s route network that a more community-oriented network be developed in Pasadena that is cost effectively integrated into the regional and sub-regional transit system based on the following:

- Pasadena’s development patterns have focused on regional destinations along Colorado Boulevard with mostly community origins and destinations occurring north of I-210. As noted earlier, the level of internal trip making for both work and non-work trips is high in Pasadena.
- Preliminary analysis of MTA boarding and alighting data seems to indicate that currently a high percentage of ridership north of I-210 may be using regional service for community-based travel.

- Pasadena has previously supported a successful community-based transit system (Pasadena City Lines) and there is no evidence that development patterns in Pasadena and Altadena have changed dramatically since that time. With the focusing of travel at the upcoming Blue Line Station hubs, a transition from the current grid-based network to a community-based hub-and-spoke network integrated with the multi-modal sub-regional and regional hubs is appropriate.

A preliminary community-based service concept is being proposed for Pasadena. As part of the required service restructuring the following strategies and issues will need consideration:

- The development of the community-based transit network should continue to build upon the success of the current ARTS service. Compared to the MTA and Foothill Transit regional bus service, the Pasadena community-based service should be designed to cater to much shorter trip-making by customers while maintaining convenient connections into the regional and sub-regional network. Consequently, the use of smaller vehicles operating at a reduced fare is appropriate for this type of service based on the successful models elsewhere in the region like Glendale's Beeline, MTA's Boyle Heights shuttle, and LADOT's DASH service.
- Figure 6-6 shows the preliminary boundary for the consideration of Pasadena community-based services. As shown, the majority of the Pasadena community-based system service area is north of Colorado Boulevard. Nevertheless, the community-based system needs to provide direct service to the numerous origins and destinations located along and south of Colorado Boulevard to California Avenue. Preliminary concepts of the Pasadena community-based system are comprised of some 3-4 routes serving the key north/south corridors and east/west crosstowns and connecting along Colorado Boulevard with the Del Mar, Lake, Allen, and possibly Sierra Madre Villa Blue Line stations. A key design criteria would be to directly connect the key intra-community origins and destinations in the City of Pasadena without requiring passenger transfers.
- Route configuration strategies for consideration in the service restructuring include some combination of "U-shaped" or "L-shaped", bi-directional loops, "Figure 8-shaped" and/or diagonal routes. Many of these configurations were successfully deployed in the former Pasadena City Line system.
- These community-based routes should provide a frequent level of service. It is proposed that 10-20 minute headways be operated on these routes during the principal travel periods with 20-30 minute service levels at nights and on weekends. These frequencies should be closely coordinated with all MTA and Foothill Transit regional and sub-regional service operated in the City of Pasadena such that coordinated corridor service levels are provided. Service should operate seven days a week and service spans should initially reflect current conditions with future expansion possible based on demand.

- The development of community-based service alignments and frequencies should maintain service to current transit markets served by regional service (i.e., protect existing ridership base). In particular, high-ridership transit-oriented neighborhoods (e.g., northwest Pasadena) should receive special attention.
- Current MTA regional service transports a significant number of students. The substitution of small-bus community-based service for MTA regional services (currently operated with large 40-foot transit coaches) may require extra capacity at school times. The most cost-effective solution will likely be to continue operation of large bus off-line tripper service, potentially with a separate operator.

Implementation

As noted earlier, there is adequate justification at the present time to warrant the development of a community-based transit network in Pasadena prior to the opening of the Blue Line in 2001. It is recommended that a two-step program to restructure the City of Pasadena transit network and services be undertaken. The initial step calls for conduct of a detailed service restructuring study to develop a stronger community-based Pasadena transit network integrated with the regional and sub-regional services. The recommendations could be implemented following the conclusion of the study possibly as early as 1998. This service could be allowed to operate for some three years before the Blue Line opens in 2001. Any final service adjustments to respond to the opening of the Blue Line can be made just prior to the rail start-up.

6.4.4 La Cañada Flintridge

The community of La Cañada Flintridge is somewhat isolated from the rest of the cities in the Arroyo Verdugo sub-region. It is situated north of the other four cities and is separated by the San Rafael Hills, and north/south running arroyos on both sides of the San Rafael Hills. The City operates a free fixed-route shuttle along Foothill Boulevard from Ocean View to Oak Grove Drive/Jet Propulsion Laboratory (JPL). This is a weekday service that operates on 15-20 minute frequencies. The City also operates a Commuter Express Ride Home service utilized by JPL carpool employees and La Cañada High School students. The City also funds a dial-a-ride service, which is coordinated with the City of Glendale.

6.4.1 Evaluation of Current Services

MTA and LADOT Regional Bus Service

There is a limited amount of MTA and LADOT bus service operating in the La Cañada Flintridge service area. Only MTA Line 177 operates within the City and its alignment duplicates most of the La Cañada Shuttle along Foothill Boulevard. LADOT operates an express route (Route 409) to downtown Los Angeles that makes a stop at the newly constructed park-and-ride lot located on Verdugo Boulevard directly below the Glendale Freeway. To the south and west of La Cañada

would proceed to Pasadena to terminate at the proposed Del Mar Blue Line Station via Oak Grove Drive, Linda Vista Avenue, West Holly Street, Orange Grove Boulevard and Del Mar Boulevard. There have been several complaints regarding MTA buses operating over the current Alta Canyon Road and Verdugo Boulevard alignments. One option to avoid this problem on the new sub-regional route would be to not serve Verdugo Hills Hospital (20-40 boardings daily). This would be accomplished by having buses proceed eastbound on Montrose Avenue turn north on Ocean View Boulevard and right on Foothill Boulevard to continue the trip.

The portion of Line 177 from the Del Mar to the Sierra Madre Villa station would be absorbed by a revised City of Pasadena community-based and regional service network. The portion of Line 177 from the Sierra Madre Villa station to the City of Hope would continue to be operated by a regional carrier (either MTA continues to operate or the line could be transferred to Foothill Transit to operate).

Headways on this new sub-regional route would be maintained at current levels (40 minutes in the peak period and 60 minutes in the base). As discussed in the City of Glendale section, it is proposed that this new sub-regional line charge a reduced fare compared to the current MTA Line 177 fare (the Beeline service is \$.25, the La Cañada Shuttle is free, and MTA Line 177 is \$1.35).

Figure 6-7 presents a map of the proposed services in La Cañada Flintridge.

6.4.5 South Pasadena

The City of South Pasadena does not operate any community-based services and is served by only MTA regional lines. The City is preparing for the start of Blue Line service in 2001 which will focus on the Mission Street Station at the eastern perimeter of the South Pasadena central business district. Minimal parking is planned at this Blue Line station. To provide access to this station and minimize illegal transit park and ride activities in this critical business area, high-quality feeder service will be essential.

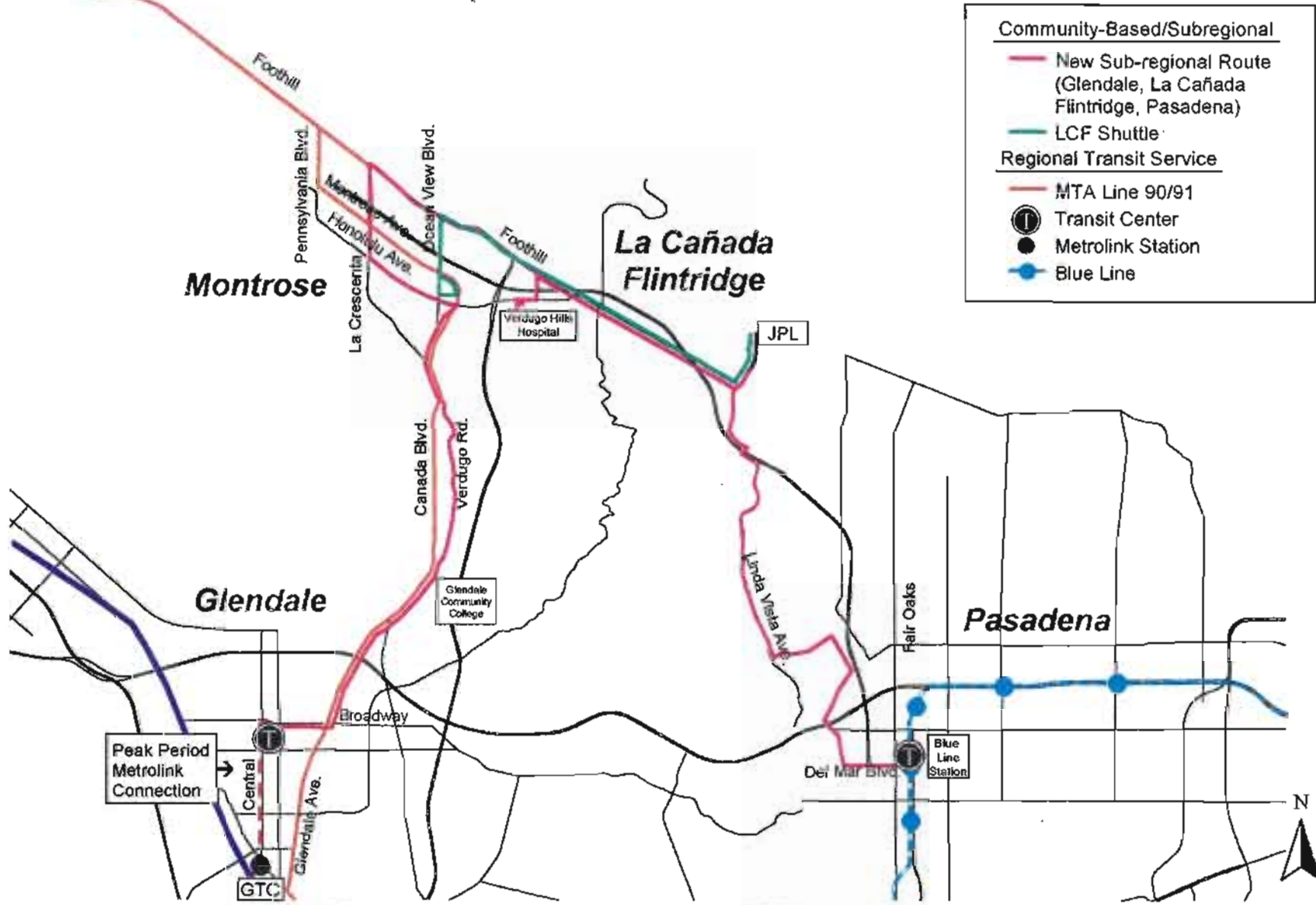
6.4.5.1 Evaluation of Current Service

MTA Regional Bus Service

The MTA lines in South Pasadena lack the frequency and/or the orientation to perform this function (high quality feeder service) effectively. Line 483 on Fair Oaks Avenue runs on headways of 40 minutes, while the east-west Line 176 is hourly. Line 79/379 on Huntington Drive is the most frequent line in the City, but does not serve the downtown area.

The Central/East/Northeast Los Angeles restructuring study has identified the portion of Line 176 east of Highland Park through South Pasadena as a poor performer. This segment could be eliminated and replaced by a municipal shuttle that would provide high-frequency local service to

Figure 6-7
 City of La Cañada Flintridge
 Proposed Transit Network



meet the Blue Line trains. The shuttle is recommended, however, regardless of what is done with Line 176, since Line 176 is far too infrequent to be useful for South Pasadena's local needs.

Community-Based Services

A single municipal shuttle line is proposed, running at headways of 15 minutes during peak hours and 30 minutes at other times. From the intersection of Huntington Drive, Garfield Avenue, and Atlantic Boulevard (a major sub-regional transfer point), the line would run west on Huntington Drive, north on Fair Oaks Avenue, west on Mission Street (serving the South Pasadena Blue Line station), southwest on Pasadena Avenue continuing onto Monterey Road, northwest on Avenue 60, southwest on Figueroa Street to the Avenue 57 Blue Line station. The line links all of South Pasadena's areas of commercial development and/or significant residential density.

Although the line runs for a mile or so into the City of Los Angeles, this routing will offer major mobility benefits for South Pasadena residents, because it will provide access to major local transit connections available in Highland Park, likely including direct service to both downtown Glendale and Los Angeles' westside. As discussed in the Glendale and Burbank sections, a proposal is being considered that would extend Line 183 from the Burbank RITC to the Avenue 57 Blue Line station in Highland Park. This re-aligned route would provide a one transfer connection for South Pasadena residents to travel to downtown Burbank. Providing access to a second Blue Line station at the west end also makes the service more attractive for residents of western South Pasadena, since they will not have to ride in a reverse direction to access the Mission Street Blue Line station for trips to Los Angeles.

The proposed transit service changes in South Pasadena are presented in Figure 6-8.

6.5 PROPOSED SERVICE, VEHICLES, AND FACILITIES REQUIREMENTS AND COST

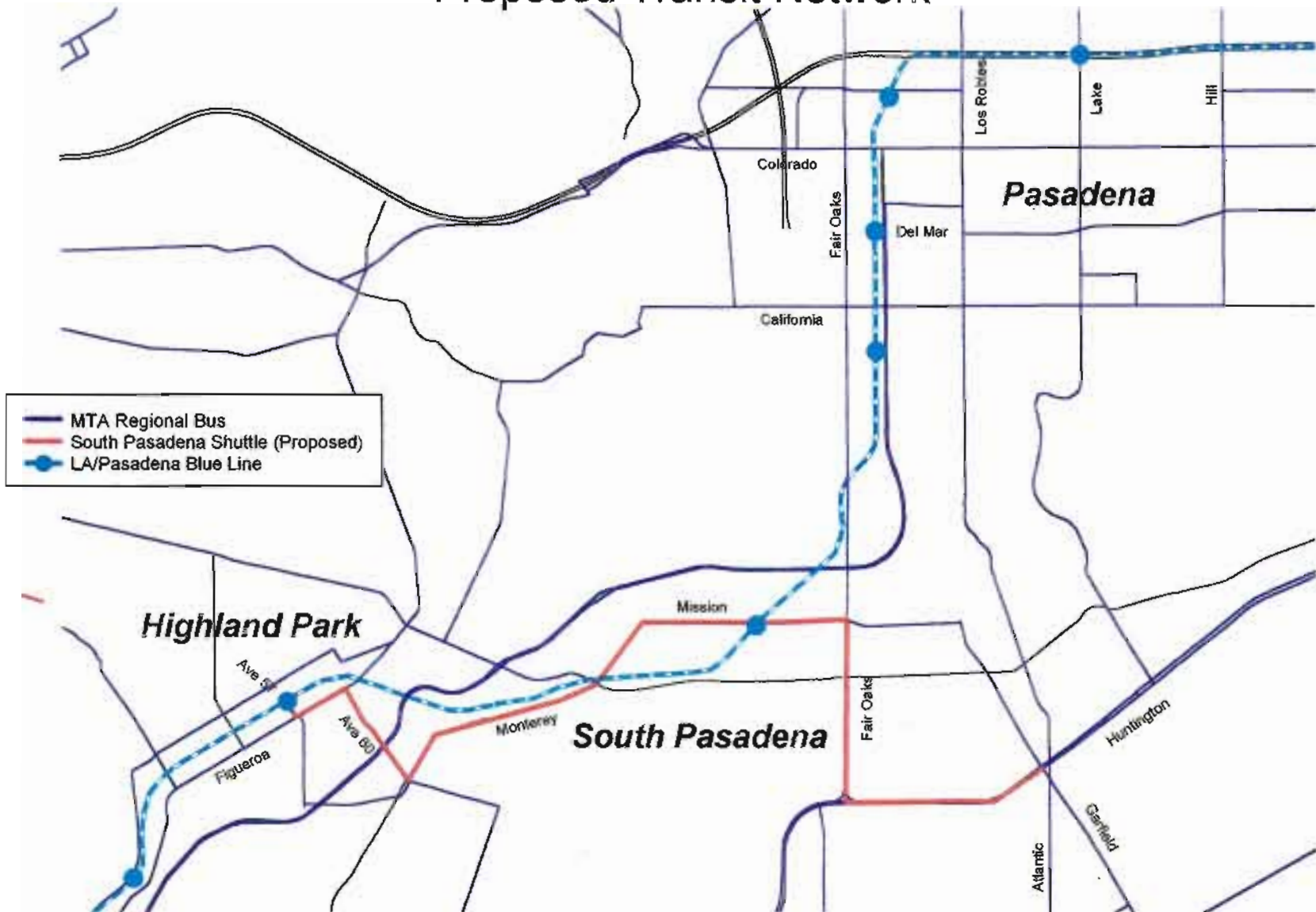
This section presents the proposed AVTC service improvement service parameters (service spans, service frequencies, and vehicle requirements), net annualized service hours and operating cost, vehicle acquisition and capital costs, facility requirements and capital costs, and service implementation schedule. Each is discussed and presented below.

6.5.1 Service Parameters

Tables 6-2, 6-3, and 6-4 present the service parameters for the proposed service improvements. Table 6-5 summarizes the proposed modifications.

- Spans of Service. Where regional service is being replaced with community-based service the current regional span of service is proposed initially.

Figure 6-8
City of South Pasadena
Proposed Transit Network



**Table 6-2
Proposed AVTC Service Spans**

Route	Service Type	WEEKDAY		SATURDAY		SUNDAY	
		Start	Finish	Start	Finish	Start	Finish
COMMUNITY-BASED							
Glendale							
NW Glendale Beeline 5 (Replace Line 183)	Community	5:15 a.m.	7:15 p.m.	6:20 a.m.	7:20 p.m.	7:20 a.m.	7:20 p.m.
Beeline Route 4 South (Replace Line 183)	Community	5:15 a.m.	7:15 p.m.	6:20 a.m.	7:20 p.m.	7:20 a.m.	7:20 p.m.
Beeline Route 6 (Replace Line 201)	Community	5:00 a.m.	7:45 p.m.	6:00 a.m.	7:15 p.m.	9:00 a.m.	7:20 p.m.
MetroLink San Fern. Express (Burbank Extension)	MetroLink Shuttle	6:10 a.m.	6:08 p.m.				
Beeline Route (Colorado Crosstown)	Community	TBD	TBD	TBD	TBD	TBD	TBD
Beeline Ext. to Doran/Grand Cent ART Stations	Community	TBD	TBD	TBD	TBD	TBD	TBD
Burbank							
Kenneth Road Shuttle (Replace Line 183)	Community	6:00 a.m.	6:00 p.m.	9:00 a.m.	5:00 p.m.		
Burbank/Media Dist/Univ City Shuttle	Community	5:00 a.m.	12:00 p.m.	6:00 a.m.	9:00 p.m.	6:00 a.m.	9:00 p.m.
Burbank CBD Electric Shuttle	Community	7:00 p.m.	11:00 p.m.	9:00 a.m.	11:00 p.m.	11:00 a.m.	6:00 p.m.
Pasadena							
Pasadena Shuttle Concept A	Community	5:00 a.m.	9:00 p.m.	6:00 a.m.	9:00 p.m.	6:00 a.m.	9:00 p.m.
Pasadena Shuttle Concept B	Community	5:00 a.m.	9:00 p.m.	6:00 a.m.	9:00 p.m.	6:00 a.m.	9:00 p.m.
Pasadena Shuttle Concept C	Community	5:00 a.m.	12:00 a.m.	6:00 a.m.	12:00 a.m.	6:00 a.m.	12:00 a.m.
Pasadena Shuttle Concept D	Community	5:00 a.m.	12:00 a.m.	6:00 a.m.	12:00 a.m.	6:00 a.m.	12:00 a.m.
La Canada Flintridge							
La Canada Shuttle	Community	7:00 a.m.	5:00 p.m.				
South Pasadena							
South Pasadena Shuttle	Community	5:00 a.m.	8:00 p.m.	9:00 a.m.	6:00 p.m.	9:00 a.m.	6:00 p.m.
SUB-REGIONAL							
Glendale/La Canada Flintridge/Pasadena Sub-regional Route (Line 177 Transfer) (1)	Sub-Regional	6:40 a.m.	7:00 p.m.				

(1) Assumes new sub-regional route to absorb Beeline Route 4 north of Glendale downtown

**Table 6-3
Proposed AVTC Service Frequencies**

Route	Service Type	WEEKDAY (Min)				SATURDAY (Min)		SUNDAY (Min)	
		AM Peak	Midday	PM Peak	Evening	Day	Evening	Day	Evening
COMMUNITY-BASED									
Glendale (1)									
NW Glendale Beeline 5 (Replace Line 183)	Community	30	30	30		30		30	
Beeline Route 4 South (Replace Line 183)	Community	15	15	15		20		60	
Beeline Route 6 (Replace Line 201)	Community	30	30	30		30		60	
Metrolink San Fern. Express (Burbank Extension)	Metrolink Shuttle	11 trips		13 trips					
Beeline Route (Colorado Crosstown)	Community	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Beeline Ext. to Doran/Grand Cent ART Stations	Community	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Burbank									
Kenneth Road Shuttle (Replace Line 183)	Community	30	30	30		30			
Burbank/Media Dist/Univ City Shuttle	Community	10	15	10	30	30	30	30	30
Burbank CBD Electric Shuttle	Community				5-10	5-10	5-10	5-10	
Pasadena									
Pasadena Shuttle Concept A	Community	15	15	15	30	30	30	30	30
Pasadena Shuttle Concept B	Community	15	15	15	30	30	30	30	30
Pasadena Shuttle Concept C	Community	15	15	15	30	30	30	30	30
Pasadena Shuttle Concept D	Community	15	15	15	30	30	30	30	30
La Canada Flintridge									
La Canada Shuttle	Community	12	12	12					
South Pasadena									
South Pasadena Shuttle	Community	15	15	15	15	30		30	
SUB-REGIONAL									
Glendale/La Canada Flintridge/Pasadena	Sub-Regional	40	60	40					
Sub-regional Route (Line 177 Transfer) (1)									

(1) Assumes new sub-regional route to absorb Beeline Route 4 north of Glendale downtown.

Assumes Beeline Route 4 increase from 20 to 15 minutes on weekdays and no change on Saturdays.

**TABLE 6-5
SUMMARY OF PROPOSED SERVICE IMPROVEMENTS**

PROPOSED SERVICE IMPROVEMENT	SERVICE TYPE	REQUIRED MODIFICATION
Glendale		
<ul style="list-style-type: none"> NW Glendale Beeline 5 (replacement route) 	Community	Replaces MTA Line 183 segment from NW Glendale to downtown Glendale. Weekday, Saturday, and Sunday headways to operate 30 minutes all day - an improvement over the current Line 183 segment on weekdays (ranges from 30-60 minutes in peak and 40-50 minutes mid-day), and on Saturday and Sunday (60 minutes). Spans of service are approximately the same.
<ul style="list-style-type: none"> Beeline Route 4 South (current route and replacement route) 	Community	Current Beeline Route 4 (southern portion) to absorb MTA Line 183 segment from downtown Glendale to the Glendale Transportation Center in addition to improving current Beeline Route 4 weekday headways from 20 to 15 minutes all day and no headway changes on Saturday (20 minutes). Beeline Route 4 to operate on Sunday on 60 minute headway. Current Line 183 segment operates on weekdays (ranges from 30-60 minutes in peak and 40-50 minutes mid-day), and on Saturday and Sunday (60 minutes). Spans of service are approximately the same for new Beeline Route 4 and current Line 183.
<ul style="list-style-type: none"> Beeline 6 (replacement route) 	Community	Replaces MTA Line 201 City of Glendale segment only. Weekday and Saturday headways to operate 30 minutes all day, and 60 minute headway on Sunday. Current Line 201 operates on weekdays only on 27-35 minute headways. Span of service on new Beeline 6 the same as current Line 201 on weekdays.
<ul style="list-style-type: none"> San Fernando Metrolink Express (extension to Disney and Burbank Metrolink Station) 	Metrolink Shuttle	City of Glendale currently providing City of Burbank \$60,000 annually to defray costs of operating shuttle from Burbank Metrolink station to Disney Animation Studio in Glendale. City of Glendale to consider extending its current San Fernando Road Metrolink Shuttle to Disney and possibly to Burbank Metrolink station at a cost of approximately \$40,000 annually.
<ul style="list-style-type: none"> Beeline Crosstown -Colorado Street (new route) 	Community	New crosstown route to be considered for implementation following opening of Los Angeles-Glendale-Burbank light rail/ART line.
<ul style="list-style-type: none"> Beeline Extensions to Doran and Grand Central ART stations 	Community	Consider extending current Beeline routes to Los Angeles-Glendale-Burbank light rail/ART stations at Doran and Grand Central when new line opens.
Burbank		
<ul style="list-style-type: none"> Kenneth Road Shuttle (replacement route) 	Community	Replaces MTA Line 183 segment from NE Burbank to the Burbank RITC. Weekday and Saturday headways to operate 30 minutes all day - an improvement over the current Line 183 segment on weekdays (ranges from 30-60 minutes in peak and 40-50 minutes mid-day), and on Saturday (60 minutes). Kenneth Road Shuttle not proposed for Sunday operation (Line 183 operates on Sunday). Weekday and Saturday spans of service are slightly reduced compared to current Line 183.

PROPOSED SERVICE IMPROVEMENT	SERVICE TYPE	REQUIRED MODIFICATION
<ul style="list-style-type: none"> Burbank/Media District/University City Shuttle (replacement route) 	Community	<p>Replaces Line 96 segment from Burbank RITC to Universal City. Recommend weekday headways of 10 minutes in peaks, 15 minutes in base, and 30 minutes in evenings; and 30 minute headways on weekends. Current Line 96 operates 30-40 minutes in peak and 60 minutes in base period and 60 minutes on Saturday and Sunday. Current Line 196 spans of service are weekdays (5:00 a.m.-10:30 p.m.), Saturday (5:30 a.m.-10:30 p.m.), and Sunday (6:44 a.m.-10:30 p.m.). Proposed shuttle spans of service are weekdays (5:00 a.m.-12:00 p.m.), Saturday (6:00 a.m.-9:00 p.m.), and Sunday (6:00 a.m.-9:00 p.m.).</p>
<ul style="list-style-type: none"> Burbank CBD Shuttle (new route) 	Community	<p>New downtown circulator to operate on weekdays evenings and Saturday and Sunday.</p>
Pasadena	Community	<p>A preliminary concept for a 4 route community-based system was developed that essentially operates on frequent headways seven days a week. This conceptual local system would in some cases replace existing regional lines and in other cases augment/supplement existing service. This locally-based system would need to be integrated with the opening of the Blue Line in 2001. A line-by-line analysis/service restructuring study needs to be conducted prior to any definitive line-by-line recommendations being provided.</p>
La Cañada Flintridge		
<ul style="list-style-type: none"> La Cañada Shuttle (minor extension and headway improvement) 	Community	<p>It is proposed to re-locate the current western terminal from a residential area to a commercial/retail area in Montrose. The other change calls for the weekday base period headway to be improved from 15 to 12 minutes.</p>
South Pasadena		
<ul style="list-style-type: none"> South Pasadena Shuttle (new route) 	Community	<p>There is currently no community circulation route in South Pasadena. This is an entirely new service.</p>
Sub-regional		
<ul style="list-style-type: none"> Glendale/La Cañada Flintridge/Pasadena Sub-regional route (route replacement) 	Sub-regional	<p>Replaces MTA Line 177 segment from Glendale to the Del Mar station in downtown Pasadena. Weekday headways to operate at 40 minutes in peak periods and 60 minutes in midday -- the same as current Line 177. No service would be operated on weekends on new sub-regional route. Currently, Line 177 does not operate on weekends. New sub-regional route would have slightly reduced span of service (6:40 a.m.-7:00 p.m.) compared to current Line 177 (5:40 a.m.-8:47 p.m.).</p>

- Service Frequencies. Community services are generally proposed at initial frequencies of 15 minutes in the weekday peak, 15-30 minutes during midday periods, and 30 minutes during evenings and on weekends. Sub-regional service frequencies are maintained at current levels.
- Vehicle Requirements. Community and sub-regional services proposed with 30-foot vehicles as a balance between capacity and neighborhood impacts.

6.5.2 Net Annualized Service Hours and Operating Cost

Table 6-6 presents the net annualized service hours and cost associated with the proposed service improvements in this transportation area plan. The hours are total revenue service hours for new services and the net increase for modified services for a net annual total of approximately 159,000 revenue service hours.

The operating costs have been estimated based on a prevailing practice of contracting service operations with a current rate of \$40 per revenue hour. For Pasadena two cost estimates are provided for the operation of the proposed community-based service concept: (1) contracting the service operation to a private provider at \$40 per revenue hour; and (2) MTA operation at \$66.10 per revenue hour. The net total operating costs for the entire proposed AVTC service improvements ranges from \$6.34 million to \$8.35 million depending on the Pasadena service provider choice.

6.5.3 Planned Vehicle Acquisitions and Associated Capital Costs

Table 6-7 presents the planned vehicle acquisitions and associated capital costs.

A number of considerations regarding vehicle type and procurement are presented below. The principal vehicle considerations related to the Arroyo Verdugo sub-region include:

- Topography - Much of the topography in the Arroyo Verdugo sub-region is hilly (Verdugo Mountains, San Rafael Hills, and San Gabriel Mountains). Consequently, buses must be able to negotiate steeper grades, and narrow and winding community streets. Smaller appropriately-powered buses are better suited in these operating environments than the standard, large 40-foot coach.
- Public Acceptance of Large Buses Operating in Residential Areas - Residents throughout the Arroyo Verdugo sub-region have complained over the years about their dissatisfaction with large buses operating in residential neighborhoods. This complaint was expressed throughout the public input process. For example, the residents in La Cañada Flintridge have voiced their dissatisfaction over the operation of large buses on Line 177 on Alta Canyon Road and Verdugo Boulevard. Residents have complained about the noise, vibration, pollution (diesel coaches), and safety associated with operation of MTA's large buses in residential neighborhoods.

**Table 6-6
Proposed AVTC Net Annual Vehicle Service Hours and Operating Cost**

Route	Service Type	Net Annual Service Hours	Net Annual Operating Cost (1)	
			Contracted	MTA Provided
COMMUNITY-BASED				
Glendale				
			<u>Contracted</u>	<u>Contracted</u>
NW Glendale Beeline 5 (Replace Line 183)	Community	4,922	\$196,880	\$196,880
Beeline Route 4 South (Replace Line 183)	Community	5,442	\$217,662	\$217,662
Beeline Route 6 (Replace Line 201)	Community	7,259	\$290,360	\$290,360
MetroLink San Fern. Express (Burbank Extension)	MetroLink Shuttle	1,020	\$40,800	\$40,800
Beeline Route (Colorado Crosstown)	Community	TBD	TBD	TBD
Beeline Ext. to Doran/Grand Cent ART Stations	Community	TBD	TBD	TBD
Total		18,643	\$745,702	\$745,702
Burbank				
			<u>Contracted</u>	<u>Contracted</u>
Kenneth Road Shuttle (Replace Line 183)	Community	4,635	\$185,400	\$185,400
Burbank/Media Dist/Univ City Shuttle	Community	27,780	\$1,111,200	\$1,111,200
Burbank CBD Electric Shuttle	Community	4,308	\$172,320	\$172,320
Total		36,723	\$1,468,920	\$1,468,920
Pasadena				
			<u>Contracted</u>	<u>MTA Provision</u>
Pasadena Shuttle Concept A	Community	18,100	\$724,000	\$1,196,410
Pasadena Shuttle Concept B	Community	18,100	\$724,000	\$1,196,410
Pasadena Shuttle Concept C	Community	20,300	\$812,000	\$1,341,830
Pasadena Shuttle Concept D	Community	20,300	\$812,000	\$1,341,830
Total		76,800	\$3,072,000	\$5,076,480
La Canada Flintridge				
			<u>Contracted</u>	<u>Contracted</u>
La Canada Shuttle	Community	1,658	\$66,300	\$66,300
South Pasadena				
			<u>Contracted</u>	<u>Contracted</u>
South Pasadena Shuttle	Community	11,445	\$457,800	\$457,800
SUB-REGIONAL				
			<u>Contracted</u>	<u>Contracted</u>
Glendale/ La Canada Flintridge/Pasadena Sub-regional Route (Line 177 Transfer)	Sub-Regional	13,515	\$540,600	\$540,600
TOTAL AVTC SERVICE IMPROVEMENTS		158,783	\$6,351,322	\$8,355,802

(1) Operating cost per hour assumptions are \$40 per revenue hour for all services contracted to private operators; MTA provided services at the FY 97 operating cost per revenue vehicle hour of \$66.10.

**Table 6-7
AVTC Planned Vehicle Acquisitions**

Service Type	Number of Vehicles	Type	Unit Cost	Total Cost
COMMUNITY-BASED				
Glendale				
NW Glendale Beeline 5 (Replace Line 183)	1	30' bus	\$150,000	\$150,000
Beeline Route 4 South (Replace Line 183)	1	30' bus	\$150,000	\$150,000
Beeline Route 6 (Replace Line 201)	2	30' bus	\$150,000	\$300,000
Metrolink San Fern. Express (Burbank Extension)	0			
Beeline Route (Colorado Crosstown)	TBD			
Beeline Ext. to Doran/Grand Cent ART Stations	TBD			
Spares	1	30' bus	\$150,000	\$150,000
Total	5			\$750,000
Burbank				
Kenneth Road Shuttle (Replace Line 183)	1	30' bus	\$150,000	\$150,000
Burbank/Media Dist/Univ City Shuttle	7	30' bus	\$150,000	\$1,050,000
Burbank CBD Electric Shuttle	0			
Spares	2	30' bus	\$150,000	\$300,000
Total	10			\$1,500,000
Pasadena				
Pasadena Shuttle Concept A	4	30' bus	\$150,000	\$600,000
Pasadena Shuttle Concept B	4	30' bus	\$150,000	\$600,000
Pasadena Shuttle Concept C	4	30' bus	\$150,000	\$600,000
Pasadena Shuttle Concept D	4	30' bus	\$150,000	\$600,000
Spares	3	30' bus	\$150,000	\$450,000
Total	19			\$2,850,000
La Canada Flintridge				
La Canada Shuttle	0			
South Pasadena				
South Pasadena Shuttle	3	30' bus	\$150,000	\$450,000
Spares	1	30' bus	\$150,000	\$150,000
Total	4			\$600,000
SUB-REGIONAL				
New sub-regional route (Glendale, LCF, Pasadena)	4	30' bus	\$150,000	\$600,000
Spare	1	30' bus	\$150,000	\$150,000
Total	5			\$750,000

- **Seat Turnover** - In general, seat turnover tends to be higher on community-based services as compared to regional services due to shorter length individual trips. Consequently, the higher levels of seat turnover require less seat capacity per total ridership and can be better accommodated with a smaller vehicle in most cases.² As discussed in the Unmet Transit Needs Assessment, the level of intra-community trip making for both work and non-work trip making is high throughout the study area, particularly in Pasadena, Glendale, and Burbank. The City of Glendale's Beeline is a good example of a community-based service operating small vehicles to accommodate a high level of intra-community trip making. The Beeline routes are relatively short and seat turnover is very high. Operating on mostly 10-20 minute headways, the smaller propane-fueled 30-foot buses seating 23 passengers work extremely well in cost-effectively meeting the community-based trip making in Glendale.
- **Clean Air** - Not only in Southern California but throughout the U.S., a shift toward burning cleaner fuels is being made in the transit industry. Examples of this shift are evident in the Arroyo Verdugo sub-region including MTA's historic leadership in deploying alternative fueled coaches (e.g., methanol and CNG), LADOT's CNG and upcoming electric DASH fleet, Burbank's recent purchase of a fleet of electric-powered vehicles, City of Glendale's use of mostly propane-fueled small buses, among others.

The proposed transit improvement plan for the AVTC sub-region calls for the procurement of smaller vehicles to be deployed in community-based services compared to the current standard 40-foot transit coach operated by most of the regional carriers. It is assumed that no standard 40-foot transit buses will need to be procured as a result of this study's recommendations, only smaller 30-foot sub-regional and community-based service coaches.

A discussion of vehicle type considerations and strategies by regional, sub-regional and community-based services is presented below.

Regional

As noted above this study is not recommending procurement of any large, standard coaches by regional operators. Regional operators (MTA and Foothill Transit) should continue their current plans to convert to cleaner burning fuels. Both regional providers have made significant strides in this area.

Sub-regional

A new sub-regional route is being proposed to replace the current Route 177 segment connecting Glendale, La Cañada Flintridge, and Pasadena. Thirty-foot buses are proposed for this new sub-

² School trippers are usually the single exception and can be cost-effectively provided with off-line services.

regional route as they are more appropriate for community-orientation of this line. As noted earlier, La Cañada Flintridge has received complaints regarding 40-foot buses traveling in residential areas; the smaller 30-foot buses will be more acceptable in these neighborhoods. The City of Glendale's experience with 30-foot buses in Beeline service supports the attractiveness of smaller vehicles to the general public as well as those who ride regularly. An application prepared jointly by the cities of Glendale, La Cañada Flintridge, and Pasadena in response to an MTA Call for Projects regarding line transfers calls for the operation of 30-foot buses for this new sub-regional route. Every effort should be made to purchase or utilize buses burning cleaner fuels, such as the propane-fueled coaches currently used in the Glendale Beeline fleet.

Community-based

All of the proposed community-based service improvements in the area plan call operation of smaller 30-foot vehicles. Where new vehicles are required, every attempt should be made to procure buses that burn cleaner fuels. Consideration should also be given to utilizing electric vehicles where the application makes sense. Issues to consider when evaluating the appropriateness of electric vehicles in revenue service are presented below.

- There are many benefits to electric vehicles as well as significant challenges. Among the primary benefits of using electric vehicles are zero tailpipe emissions, low ambient noise levels, generally low energy costs (electricity), high public acceptance, and low maintenance costs. The primary challenges include limited range (55-75 miles per battery pack), high initial costs, high battery replacement cost, specialized training required, and the durability of buses (most have 7 year life cycles). In addition, electric bus operating ranges are maximized when deployed in relatively flat areas, although the maximum noise abatement benefits occur in steep grade climbs. The City of Burbank is the only AVTC city to have a current fleet of electric vehicles. These electrics are to be deployed in the "BLT" (Burbank Local Transit), which is primarily weekday peak-hour only service with relatively low mileage requirements.
- The biggest challenge in the deployment of electric vehicles in the study area relates to this issue of limited range. With the exception of the proposed Burbank CBD shuttle, the remaining recommended community-based routes would exceed this range and in some cases significantly. This would require midday battery replacement or vehicle change out to maintain service. Therefore, it is recommended that any purchases of new buses for community-based service consider a 30-foot vehicle that operates on alternative fuels, unless there are mitigating factors or the electric vehicle range improves significantly.

Presented below is a suggested strategy by city regarding equipment considerations.

Glendale should continue its strategy of purchasing 30-foot vehicles that burn alternative fuels (currently using propane-fueled Escort RE buses). Additional small buses will be required to operate the recommended Line 183 replacement, Line 201 replacement, and a future crosstown (Colorado Street) route and route extensions to selected ART stations.

Burbank should proceed with its plan to deploy the new electric buses on the proposed Burbank CBD shuttle that operates on weekday evenings, Saturday and Sunday (2 vehicles required). The recommended community-based services (Line 183 Kenneth Road replacement and the Olive Road Shuttle) should consider deployment of 30-foot alternate-fuel buses for revenue service.

Pasadena should likewise consider procurement of small 30-foot buses that use clean fuels to deploy in a system of community-based routes that are integrated with the regional service and upcoming opening of the Blue Line (pending outcome of restructuring study recommendations). Pasadena should build upon the success of the current ARTS service that deploys smaller buses for internal community circulation.

La Cañada Flintridge currently operates the La Cañada shuttle which uses small buses. Any future vehicle procurements or private contractor contract renewals should place requirements on using alternate-fuel vehicles.

South Pasadena does not currently operate any community-based service. However, this plan recommends the initiation of a community shuttle route in South Pasadena. Consistent with the other cities, consideration should be given to procurement of smaller buses that burn clean fuels.

With respect to purchasing new vehicles, it should be noted that all new vehicle purchases must be fully accessible and comply with with 49 CFR Part 37, and Subparts D and Part 38 (Acquisition of Accessible Vehicles).

6.5.4 Planned Facility Requirements and Associated Capital Costs

Table 6-8 presents the facility cost estimates associated with this transportation area plan. Facilities are an important component in the overall service delivery strategy. The design, construction, and installation of enhanced facilities address such issues as passenger comfort, convenience, and safety/security. Transit facilities are a key means for communicating information about the transit operation (schedules, maps, events, etc.) as well as presenting a certain image to the public. This section presents a discussion of transit facilities associated with the recommendations contained in this transportation area plan for the Arroyo Verdugo sub-region.

The facility improvements called for in the Arroyo Verdugo sub-region are largely passenger-oriented. This is in large measure due to the following:

- There is no requirement to build new operations and maintenance (O&M) facilities as a result of the recommendations provided in this area plan. It is assumed that each of the five cities in the sub-region will contract for transportation services in which case it becomes the responsibility of MTA, Foothill Transit, or the private operator to provide the O&M facility.

should be given to providing some form of on-site security at single use sites. A joint use site, like Glendale's Town Center, will often mitigate this need.

Major (High Volume) Transfer Locations

In the recommended hierarchy of transfer locations for the Arroyo Verdugo sub-region, a number of locations throughout the sub-region were identified where several regional and community-based routes converge and higher passenger volumes were noted. While these locations were not recommended as Category 1 transfer centers, they nevertheless serve a large number of passengers on a daily basis. Because most connections at these locations are not timed, making their waits more uncertain, the facility amenity needs at these locations are important. Customer needs at these locations are little different from those at Category 1 major transfer centers, and as a result, similar amenity enhancements are proposed. Currently, in the MTA service area each individual city is responsible for the provision of bus stop amenities. AVTC should consider taking a lead role in improving coordination among the five cities regarding design, construction, and installation, funding, and ongoing maintenance of these bus stop enhancements. The proposed stop enhancements should be considered for implementation in the short-term (next 1-2 years).

Table 6-8 identifies six major (high volume) transfer locations recommended for on-street bus stop enhancements with estimated capital costs. The proposed improvements include enhanced shelters and information aids, other miscellaneous amenities, and providing full accessibility under ADA. The estimated budget per site is \$50,000 for a six-site total of \$300,000.

6.5.5 Proposed Service Implementation Schedule

Table 6-9 presents an implementation schedule associated with the proposed service improvements. Most of the improvements are new community-based services and can be implemented in the near-term. The Pasadena community service concept implementation is anticipated at 3-5 years as a lead-in to the Pasadena Blue Line opening with the South Pasadena community shuttle starting concurrent with the Blue Line. The Glendale services that respond to the start of ART service are proposed for implementation at the start of those rail services.

6.6 NON-TRADITIONAL TRANSPORTATION MODES

Non-traditional transportation modes are those not operating traditional fixed-route, fixed-schedule transit services. These modes range from taxi to paratransit to Smart shuttle services. The need to study non-traditional transportation options in the Los Angeles metropolitan area was recognized through the initiation of two studies administered by the Southern California Association of Governments (SCAG) in cooperation with LACMTA and the City of Los Angeles DOT. The first study was an assessment of the operational feasibility of Smart shuttles. The second study identified Smart shuttle concepts for testing in three demonstration tests in Los Angeles. Each of these studies is discussed below.

**Table 6-9
Proposed AVTC Service Implementation Schedule**

Route	Service Type	Implementation Schedule			
		Near-Term	Pre-Blue Line/ ART	Blue Line/ART Start-up	Post Blue Line/ ART
		(1-2 yrs)	(3-4 yrs)	(5 yrs)	(8+ yrs)
COMMUNITY-BASED					
Glendale					
NW Glendale Beeline 5 (Replace Line 183)	Community	X			
Beeline Route 4 South (Replace Line 183)	Community	X			
Beeline Route 6 (Replace Line 201)	Community		X		
Metrolink San Fern. Express (Burbank Extension)	Metrolink Shuttle	X			
Beeline Route (Colorado Crosstown)	Community			X	
Beeline Ext. to Doran/Grand Cent ART Stations	Community			X	
Burbank					
Kenneth Road Shuttle (Replace Line 183)	Community	X			
Burbank/Media Dist/Univ City Shuttle	Community	X			
Burbank CBD Electric Shuttle	Community	X			
Pasadena					
Pasadena Shuttle Concept A	Community		X		
Pasadena Shuttle Concept B	Community		X		
Pasadena Shuttle Concept C	Community		X		
Pasadena Shuttle Concept D	Community		X		
La Canada Flintridge					
La Canada Shuttle	Community	X			
South Pasadena					
South Pasadena Shuttle	Community			X	
SUB-REGIONAL					
Glendale/La Canada Flintridge/Pasadena Sub-regional Route (Line 177 Transfer)	Sub-Regional	X			

Smart Shuttle Operational Feasibility Study. This study concluded that Smart shuttles were operationally feasible with support of advanced “Smart” technologies including:

- Automated scheduling and dispatching systems
- Automated vehicle location systems (AVL)
- Advanced fare collection systems
- Smart traveler systems

Several organizational concepts were developed, all attempting to emulate the cost-effective structures of the taxi and airport shuttle industry. Several potential application strategies were identified within two principal service concepts as presented below.

- 1) The **Demand Responsive Service Concept** included the “many-to-many,” “many-to-few,” and “many-to-one” destinations different options. The study notes that this option represents a shared-ride service operating from any point to one or more points within a single demonstration area with enhanced connections to points outside of the demonstration areas. The concept was most applicable to a single or limited number of key destinations or hubs that were not oriented around corridors or in a linear arrangement.
- 2) The **Modified Fixed-Route Service Concept** included both route deviation and point deviation services. The study found that route or point deviation service can replace or augment fixed-route service, especially where the fixed route is poorly patronized and service access is a key deficiency. Route or point deviation service may work in conjunction with other fixed route services in a corridor (e.g., higher speed limited-stop fixed-route services) by providing the local community-based service. This concept can be applied in a variety of configurations ranging from linear end-to-end lines to community-based circulation loop services.

Smart Shuttle Demonstration Study. Three areas were studied for Smart shuttle demonstration tests. These demonstration areas included western San Fernando Valley, Sylmar/San Fernando in the northeast portion of the San Fernando Valley, and south/central Los Angeles. Subsequent to the study, a fourth area was identified as a test site. The concept of a many-to-one collection and distribution system around the McArthur Park Metro Red Line Station will be demonstrated.

The current status of the Smart shuttle demonstrations is that the Los Angeles Department of Transportation is proceeding with a solicitation of interested private contractors to undertake Smart shuttle demonstrations. The second study referenced above did not identify any demonstration sites in the Arroyo Verdugo sub-region.. However, depending upon the success of these Smart shuttle demonstrations, there are the following potential applications in the Arroyo Verdugo sub-region:

- **Kenneth Road Area in Burbank and Northwest Glendale.** This area represents the segment of Line 183 that has been recommended for replacement by two community-based shuttle routes that deploy 30-foot coaches and charge a reduced fare. This area is a candidate for a modified fixed-route Smart Shuttle service such as a point check deviation service.
- **South Pasadena Community Shuttle.** The Arroyo Verdugo Sub-region plan recommends operation of a community shuttle in South Pasadena when the Pasadena Blue Line opens in 2001. This shuttle is proposed to link all of south Pasadena's key residential, retail, and commercial areas beginning in southeast South Pasadena (intersection of Huntington Drive, Garfield Avenue, and Atlantic Boulevard) and proceeding west on Huntington Drive, north on Fair Oaks Avenue, west on Mission Street (connects with Mission Street Blue Line Station), southwest on Pasadena Avenue continuing onto Monterey Road, northwest on Avenue 60, and southwest on Figueroa Street to the Avenue 57 Blue Line Station. This community service is a candidate for route deviation Smart Shuttle service along the proposed route alignment.
- **Employment-based Collection and Distribution System in Pasadena.** Following the Blue Line opening in 2001, the proposed employment-based collection and distribution system staged out of selected Blue Line stations is a candidate for a "many-to-one" Smart Shuttle service. This concept would build upon the results of the McArthur Park Red Line Station Smart Shuttle demonstration.

The Burbank and Glendale fixed route shuttle services are proposed for short term implementation, but could be easily transitioned to Smart Shuttle operation depending on the (a) results of the Smart Shuttle demonstration and (b) the success of the fixed route shuttles. The South Pasadena and Pasadena services are not scheduled for implementation until following the results of the Smart Shuttle demonstrations. It is recommended that the currently proposed fixed route shuttle services be reconsidered based on the results of the Smart Shuttle demonstrations.

6.7 SPECIAL EVENT SERVICE CONSIDERATIONS

The project team investigated transportation services to a number of venues operated in the Arroyo Verdugo sub-region including the Rose Bowl, Dodger Stadium, and the Los Angeles Zoo. Based on a review of the transportation services provided and expressed needs, strategies were developed for AVTC to pursue to improve overall sub-regional mobility.

6.7.1 Rose Bowl

The agency responsible for the Rose Bowl shuttle services depends on the event. For the annual Rose Bowl game on New Year's Day, the Tournament of Roses handles contracting of shuttle services, which typically provides shuttles from the Parsons lot following the Parade. Shuttle services to other off-site park-and-rides in Glendale and Burbank are also provided.

For UCLA football games (six events from September to November), the Rose Bowl Operating Company (RBOC -- a separate "enterprise account" of the City of Pasadena with an appointed committee) handles contracting of shuttle services between the Parsons lot and the Rose Bowl. The service is funded from Rose Bowl profits which are shared between UCLA and RBOC. For the past few years, Foothill Transit has been the contracted operator. While the Parsons lot has been the only off-site parking location with shuttle service, RBOC has tried to identify other off-site lots. Pasadena City College has been discussed, but is considered too far for UCLA patrons, who generally come from the west. Glendale Community College is considered too far. Parsons lot is becoming to be too expensive to use, plus the growth in Old Pasadena is causing increasing problems with congestion. Besides handling the UCLA games, the RBOC also handles one or two concerts per year. For other major special events such as the World Cup or Super Bowl, these events use their own coordinators and contacts to make transportation service arrangements.

Recommended Strategy: The Tournament of Roses and the RBOC/UCLA should consider staging shuttle services to the Rose Bowl and UCLA games from the Del Mar Blue Line Station when the Blue Line begins operation in 2002. The inter-modal, major transfer facility/location has been designed for a large amount of parking spaces. Being one of four designated major transfer centers located in the Arroyo Verdugo sub-region, a significant number of MTA, Foothill Transit, and local Pasadena lines and services will converge on this location, not to mention the Blue Line when revenue service initiates. The Parsons lot could continue to be used as an off-site lot, depending on the ability of the Del Mar lot to accommodate the demand for shuttle services. Given these events tend to be held on weekends, they will not conflict with the high demand for parking on weekdays.

6.7.2 Dodger Stadium

Currently there is no transit service to Dodger Stadium. MTA discontinued Line 781 in Spring 1995, which was the only bus service serving the Stadium. The Stadium does not have the means to fund a private shuttle. The Dodgers typically play 81 regular season games, two exhibition games, and put on two-three concerts a year.

With regard to transit services, the Dodgers want to target a convenient connection between the Stadium and Union Station. A significant segment of the Dodgers' game attendance comes from within a 10-mile radius of the Stadium -- including the communities of Glendale, Pasadena, Eagle Rock, West San Gabriel Valley, San Fernando Valley, and the beach cities (the Westside is not among the higher-use communities).

Recommended Strategy: The Dodgers' desire to provide shuttle services from Union Station is a sound one, finances permitting. The implementation of the Blue Line will provide excellent connections for Pasadena and South Pasadena residents to Union Station. The initiation of the ART along the Burbank-Glendale-Los Angeles corridor will also provide excellent connections for Burbank and Glendale residents to Union Station.

6.7.3 Los Angeles Zoo

The Los Angeles Zoo is served by MTA Line 96. MTA staff indicate that there is low demand for transit to this destination, and there have been no requests to increase or expand service.

Recommended Strategy: The City of Glendale may want to consider operating a shuttle demonstration project from the downtown transfer center to the Los Angeles Zoo on weekends only, pending funding availability.

6.8 COORDINATION WITH AVTC BIKE PLAN

The AVTC Non-Motorized Transportation Plan completed in 1995 was undertaken in three phases including a needs assessment, coordination with the MTA Regional Bikeway Master Plan, and an implementation plan.

The initial phase identified the Los Angeles River as a barrier to the Griffith Park trails or future Los Angeles River trail. The Colorado Boulevard Bridge is considered a vital link between Pasadena and Eagle Rock, but difficult for bikers. The Los Angeles River crossing at the end of the Arroyo Seco is considered critical in developing a bicycle commuter route from Pasadena to downtown Los Angeles.

While train stations generally will make a provision for bicycle parking or storage, bicyclists are concerned about allowing bicycles on Metrolink trains and MTA Blue Line vehicles. Metrolink allows two bicycles per rail car, which may already be occupied by the time the trains reach the Arroyo Verdugo sub-region. MTA allows only folding bicycles on buses, prohibits bicycles on the Red Line, and only permits bicycles on the Long Beach Blue Line during off-peak hours.

It should be noted that during the public participation phase of this project, several comments were received requesting bike racks on MTA buses and community-based shuttles.

Recommended Bicycle Strategies

Presented below are a number of strategies that should be considered by AVTC in addition to those contained in the Non-Motorized Plan:

- The re-design of current bikeways and the design of planned and future bikeways should take into consideration the location of the four designated major transfer centers in Burbank (RITC), Glendale (new Town Center), and Pasadena (Del Mar and Sierra Madre Villa Blue Line Stations). These facilities are and will be inter-modal and access to these stations will enhance community, sub-regional, and regional mobility for bike riders.

- Bicycles are an important mode to be considered in the design and construction of the four designated major transfer centers. These inter-modal stations should be designed with a complement of bicycle amenities including racks, storage lockers and security precautions to avoid theft and vandalism. Similarly, the cities of La Cañada Flintridge and South Pasadena should take bicyclists needs into consideration in the design and construction of any future transit facilities, especially the Mission Street Blue Line Station.
- MTA and each of the five cities operating local community transit should be encouraged to construct bike racks on buses. Front-mounted racks tend to have minimal problems associated with transit operations. In an effort to enhance regional and sub-regional mobility, MTA should consider the establishment of a demonstration program to place bicycle racks on MTA buses on the following selected MTA regional lines. These MTA lines were selected because they present the greatest opportunity to enhance mobility throughout the entire Los Angeles region for Arroyo Verdugo sub-region bicycle riders. It should be noted that Foothill Transit’s buses presently have bike racks installed.

TARGETED MTA REGIONAL LINES FOR BIKE RACK INSTALLATION

Line	Sub-Regional and Regional Connections
Line 180	Hollywood, Glendale, Pasadena
Line 177	Glendale, La Cañada Flintridge, Pasadena
Line 92/93	LACBD, Glendale, Burbank, San Fernando
Line 90/91	LACBD, Glendale, La Cañada Flintridge, Sunland, Sylmar
Line 164	Canoga Park, Reseda, Van Nuys, Burbank
Line 260	Long Beach, Pasadena, Altadena

6.9 PLAN COMPATIBILITY, DEVELOPMENT, AND ACCESSIBILITY

This section presents a discussion of this study’s compatibility with regional and local planning efforts; land use issues and right-of-way requirements; impact of the study recommendations on sub-regional economic development; and accessibility issues.

6.9.1 Regional and Local Planning Efforts

This section reviews regional, sub-regional and local plans (by city) to analyze whether the recommendations in this study are consistent and compatible with various long-range planning efforts at different jurisdictional levels.

Regional and Sub-regional Plans. The Southern California Association of Governments (SCAG) 1994 Regional Mobility Element (RME) outlines the Southern California region's 20-year strategy for meeting mobility goals. Its Regional Transit (Bus and Rail) Program promotes a "centers-based transit network (CBTN)," a multi-modal transit system that connects regional activity centers with sub-regional and local access. Local jurisdictions are encouraged to determine the types and levels of local transit services to tie into the intra-, inter- and sub-regional transit services provided by Amtrak, Metrolink, MetroRail, and long-haul transit services. Clearly, the recommended hub-and-spoke transit network configuration, with identification of major transit centers, is wholly consistent with the RME's CBTN concept. The AVTC's transit planning process in fact satisfies many of the transit program actions and policies outlined in the RME, and can be used as an example of how local jurisdictions within a sub-region are able to aggressively pursue implementing SCAG's desired transit program.

The Los Angeles County Metropolitan Transportation Authority (MTA) 1995 Transportation Plan for the 21st Century is also a 20-year strategy which focuses on transportation improvements in Los Angeles County. Consistent with SCAG's RME, the plan develops a multi-modal approach to establishing a regional transportation network, with key transit centers facilitating transfers between modes. This study's identification of major transit centers is consistent with MTA's understanding of major intermodal centers for Metrolink, Pasadena Blue Line, and the Los Angeles-Glendale-Burbank light rail line.

The Arroyo Verdugo Transportation Coalition 20-Year Intermodal Plan (July 1994) is a sub-regional vision of the transportation network to be developed over the long term. Like the regional plans, it stresses a multi-modal system of roads, transit, bikeways, airport facilities, and other modes. Bus and local circulator elements of the AVTC 20-Year Plan which relate to this study include bus route restructuring; establishing a five-city shuttle system; creating a sub-regional dial-a-ride system; establishing express bus service from Metrolink to Pasadena; and identifying bus transit centers in each central business district. The current study recommendations relate to these objectives as follows:

- For route restructuring, this study recommends a number of route modifications and service concepts that directly respond to the AVTC's objective of re-designing bus service to increase effectiveness, and to create a better balance between regional service and local community-based service. This study endorses the AVTC's adoption of the hub-and-spoke network as an appropriate network configuration for the Arroyo Verdugo sub-region.
- Regarding bus transit centers in each city's downtown area, this study identifies major transit centers in the central business districts of Burbank, Glendale and Pasadena; major transit centers are not envisioned for South Pasadena or La Cañada Flintridge.

- In terms of creating an Arroyo Verdugo five-city shuttle system, this study presents the option of forming a five-city Joint Powers Authority (JPA) to operate community-based services, and discusses advantages and disadvantages. Other organizational options are identified for consideration by AVTC, such as continuing the status quo-city management model, joining an existing JPA, or forming two JPAs that combine Pasadena and South Pasadena as one JPA and Burbank and Glendale as another JPA, with La Cañada Flintridge joining either one.
- Regarding express bus service between Pasadena and Glendale, this study did not identify the need for this service based on the findings in the Unmet Needs Assessment that showed that Glendale was more closely linked to Burbank, the San Fernando Valley, and Los Angeles, while Pasadena was more closely linked to the San Gabriel Valley, Los Angeles and East Los Angeles for work trips.
- In terms of considering a sub-regional dial-a-ride system, this study identified a variety of alternatives, including maintaining city-based programs with added demand-responsive, door-to-door or sub-regional taxi components; improving coordination between programs by providing standard transfer locations; consolidating existing programs into one or two broader service areas; and improving coordination between paratransit and fixed-route services. Recommendations suggest that total consolidation of local programs is not viable at this time, and a pilot program should be pursued which would increase coordination of sub-regional trips by using the four major transit centers as standardized transfer points.

Glendale. The study recommendations for Glendale include route-specific recommendations and the identification of one Category 1-Major Transit Center serving the new Town Center; three Category 2-Major Transfer Locations (Glendale Avenue/Broadway; San Fernando Road/Central-Brand; and Verdugo Boulevard/Honolulu Avenue/Montrose Avenue in Montrose); and one Category 3-Rail Feeder hub at the Glendale Transportation Center (GTC) at the south end of the city.

Since the initiation of Metrolink service, the GTC has been considered as the main intermodal transit hub. This study recommends that while the GTC continue to serve a key role as an intermodal transfer point, the key transfer activity for bus transit services should be shifted to Glendale's central business district, focused on a block bounded by Central, Broadway, Brand, and either Colorado or Harvard (just east of the Galleria).

This concept is consistent with the City's Greater Downtown Strategic Plan Draft Master Environmental Impact Report issued April 1996 ("GDSP"). The GDSP explores alternate strategies for development primarily within a Redevelopment Project Area that generally follows a corridor formed by Central and Brand from just north of the 134 Freeway to Colorado Boulevard. A vital aspect of the GDSP is the definition of a "Town Center" which provides a focal point for civic activity in the greater downtown area. The GDSP defines a "transit square" serving the Town Center which corresponds with this study's identification of the streets involved in the major transfer center.

Thus, the recommended major transit center location is consistent with Glendale's current planning efforts.

The study's recommendations do not conflict with any recommendations in the City's Land Use Element (1986) or its Circulation and Scenic Highways Elements (1976; currently under revision). These elements support the development of an effective public transit system and the land use forms that facilitate transit.

Burbank. The study recommendations for Burbank include route-specific recommendations and the identification of the Burbank Regional Intermodal Transportation Center (RITC) as a Category 1-Major Transit Center. This location is not only consistent with Burbank's general plan, but the RITC already functions as an intermodal transit hub linking Metrolink commuter rail service with MTA and Santa Clarita Transit bus service as well as local employment shuttles (Burbank Local Transit).

This study also addresses some of the transit policies identified in Burbank's transportation element, including encouraging the restructuring of regional and local bus services and providing adequate intermodal ground access for the BGP Airport.

Pasadena. This study's recommendations for Pasadena call for a major re-thinking of how to structure services to better balance long-haul regional routes with more municipal-type, community-based routes. While such a line-by-line analysis of all MTA, Foothill Transit, and ARTS routes are beyond the scope of this study, a number of transit hubs are identified: two Category 1-Major Transfer Centers at the Del Mar and Sierra Madre Villa Blue Line stations; three Category 2-Major Transfer Points at Colorado Boulevard/Lake Avenue, Colorado Boulevard/Pasadena Community College, and Colorado Boulevard/Old Pasadena area; and several Category 3-Rail Feeder locations at remaining Blue Line stations (Fillmore, Civic Center, Lake and Allen).

Pasadena's general plan includes a vision statement that Pasadena will be a city where people can circulate without cars. Its approach includes identifying six Specific Plan areas, where each area establishes a linkage to transit. Transit- and pedestrian-oriented development is targeted near each of the Blue Line stations and along the major transportation corridors (primarily Colorado Boulevard and Lake Avenue).

This study's identification of the Del Mar and Sierra Madre Villa Blue Line stations as major transit centers is compatible with Pasadena's general plan and on-going planning efforts. The plan already notes the Del Mar Blue Line Station as a regionally-significant intermodal facility in its mobility element. The Sierra Madre Villa Station is also highlighted as the only other station in Pasadena with significant parking, making it a logical candidate for another major transit center located at the eastern end of the City.

The study's identification of other major transfer points at Colorado Boulevard/Lake Avenue, Colorado Boulevard/Pasadena Community College area, and Colorado Boulevard/Old Pasadena area

is also consistent with Pasadena's planning efforts, since these locations are targeted in areas trying to promote transit-friendly environments.

South Pasadena. Recommendations for South Pasadena identify a Category 3-Rail Feeder location at Mission Street, and discuss initiating a municipal shuttle route linking both the Avenue 57 and Mission Street Blue Line stations to a major transfer point at Huntington Drive/Garfield/Atlantic.

The proposed transit hub location at Mission Street is consistent with the City's general plan. The City's circulation element acknowledges the current lack of comprehensive public rapid transportation and indicates that the light rail station provides a focal point for coordination of public transit.

Subsequently, the City has prepared the Mission Street Specific Plan, recently adopted in April 1996. The specific plan further explores how the Blue Line station impacts can be handled and how the Blue Line can be used as a catalyst for appropriately-scaled economic development. A key objective is to encourage and provide alternate means of access to the Mission Street area other than the automobile. The Mission Street area is envisioned as a pedestrian-scaled environment with a mix of retail and commercial uses complementary to transit. The Specific Plan acknowledges this study's recommended municipal shuttle route which provides important transit access to this area. Thus, this study's recommendations are fully consistent and compatible with the Specific Plan and the City's planning efforts.

La Cañada Flintridge. Recommendations for La Cañada Flintridge are limited to re-routing the western end of their local shuttle to the Montrose shopping area, and establishing a sub-regional bus route linking the City with major transfer hubs in Glendale and Pasadena. These recommendations do not pose any incompatibilities with the City's general plan.

6.9.2 Land Use/Right-of-Way Requirements

This section identifies any land use or right-of-way requirements for carrying out the study recommendations. In general, the study recommendations do not require any changes in land use designations. As analyzed in the previous section, major transit centers and major transfer points all are located in areas where transit service is considered a complementary component to adjacent land uses.

In terms of right-of-way requirements, the study recommendations all can work within existing public rights-of-way. All four major transit centers (Category 1) either have already been constructed or are under design, with adequate provisions for transit interface. Major transfer points (Category 2) also fall within existing rights-of-way since bus activity can be accommodated with basic curbside passenger drop-off and boarding. However, opportunities should be actively pursued to enhance passenger waiting amenities (such as providing shelters), in which case design elements such as wider sidewalks may be desirable. Consideration of additional elements for major transit centers and transfer points is discussed in Section 6.5.4 regarding planned facility requirements.

The following provides more specific discussion by city.

Glendale. For the City of Glendale, the major transit center in downtown Glendale is actually a loop along Brand, Broadway, Central, and either Harvard or Colorado. Buses will be able to stop along the curb to board and alight passengers. Currently, most bus stops have adequate passenger seating but generally no shelters are provided. The transit environment along Brand is particularly user-friendly. As the new Town Center is developed, the City has the opportunity to upgrade other segments to provide improved passenger waiting amenities.

For all Category 2-Major Transfer Point locations in Glendale, many of the bus stops already have benches, though none are sheltered. As funding and opportunity permits, the City should consider providing improved passenger amenities at these locations.

Glendale's Category 3-Rail Feeder at the GTC is fully functional for transit interface, and no additional bus facilities are needed.

Burbank. The sole major transit center at the RITC is already adequately developed with parking and transit interface facilities, and no additional right-of-way is needed. While pedestrian access is provided from the station area to the Olive Avenue overpass, an additional pedestrian linkage to First Street would be valuable in providing needed pedestrian access to Burbank's city center area.

Pasadena. The City of Pasadena's two major transfer centers are being designed concurrently with the Blue Line project. The City has been very proactive in assuring adequate transit facilities are incorporated at these and other Blue Line stations. The recommendations in this study do not call for increased facility requirements.

For the three major transfer points identified along Colorado Boulevard serving Old Pasadena, Lake Avenue and PCC, most of these segments have benches, and some locations have shelters. Along the segment from Fair Oaks to Los Robles, better passenger waiting amenities and bus pull-outs are adjacent to the Plaza Pasadena where more room is available. At Colorado/Lake, shelters are available on Colorado Boulevard; Lake Avenue has bus pull-out areas but no shelters. Adjacent to the PCC, sheltered benches along Colorado Boulevard near Hill Street are available, with adequate seating provided at other stops serving the college. Thus, for Pasadena's major transfer point locations, many of the existing amenities can be used to full advantage and other locations (especially in Old Pasadena) should be investigated to see whether improved passenger waiting amenities can be provided.

South Pasadena. A single Category 3 (Rail Feeder) location at Mission Street is identified for South Pasadena. Efforts being made under the Blue Line station design and the Mission Street Specific Plan allow adequate provision for the transit feeder needs identified under this recommended plan. The Specific Plan also encourages complementary street furniture which would provide a pleasant environment for patrons waiting for transit.

La Cañada Flintridge. No transit hubs are recommended in La Cañada Flintridge. The rerouting of the west end of the shuttle to the Montrose Shopping Center does not entail additional right-of-way requirements.

6.9.3 Economic Development

A strong transit network providing convenient and frequent access is considered a positive (and in some cases critical) attribute for economic development efforts. Generally speaking, the largest influence for economic development is the presence of a rail station, since it calls for a capital-intensive public investment that is unlikely to be abandoned. While bus transit has a more limited effect on economic development, it can still play a major role in creating desirability and accessibility for development. This study's identification of major transit hubs often strengthens transit at existing rail station locations, and establishes other focal points where major bus transfer activity occurs. These focal points can be effective in supporting development efforts. The following summarizes the most salient locations for economic opportunity by each city.

Glendale. The study's recommendation to provide a major transfer center in Glendale's central business district creates a strong transit link for the Galleria, new Town Center, and the businesses along Brand Boulevard. This strong transit accessibility is expected to be beneficial to the economic viability of the area.

Burbank. Burbank's successful Media City Center and adjacent development along the First Street corridor is across from the RITC, which the study confirms is an appropriate major transportation center (Category 1). The location of the RITC can be a barrier, since it is located on the other side of the Golden State Freeway at a lower elevation, requiring pedestrian structures to meet up with major roadways crossing the freeway. One such pedestrian structure links to the Olive Avenue overpass at the south end of the station. A pedestrian structure linking to First Street at the north end of the station would significantly improve access to the Media City Center area, allowing the RITC to take more advantage of its adjacency to its thriving City Center area.

Pasadena. Study recommendations reinforce the City's pursuit of promoting development at transit hubs. The City has been extensively involved in designing a mixed-use development at the Del Mar Blue Line Station. The City also has an active interest in economic opportunities at the Sierra Madre Villa site. The study's identified major transfer points (Category 2) in Old Pasadena, PCC and Colorado/Lake district ensure the provision of strong transit service, which in turn should reinforce the viability of retail and commercial uses in these areas. In addition, the transition to a more community-based transit network in Pasadena will place more emphasis on meeting the high level of work and non-work intra-community trip making which should be beneficial to the City's economic development.

South Pasadena. Study recommendations support the City's efforts to revitalize the Mission Street area. The City's Mission Street Specific Plan uses transit as a catalyst to establish transit-compatible retail and commercial uses in a historic, pedestrian-friendly setting. This study's recommendations

to add a municipal shuttle along Mission Street provides both feeder service to the Blue Line station and improved transit access to retail uses along Mission Street.

La Cañada Flintridge. Study recommendations are unlikely to affect any economic development in La Cañada Flintridge although the relocation of the La Cañada Shuttle's western terminal into Montrose may have a positive impact on increased retail activity in the Montrose shopping area.

6.9.4 Handicapped Accessibility

The following handicapped accessibility recommendations are provided with respect to vehicle and facility accessibility. Each is discussed below.

Vehicle Accessibility - Titles II and III of the Americans with Disabilities Act of 1990 provide that no entity shall discriminate against an individual with a disability in connection with the provision of transportation service. This law sets forth specific requirements for vehicle accessibility. With respect to new vehicle purchases, all new buses purchased or leased must be fully accessible and comply with 49 CFR Part 37, and Subparts D and Part 38 (Acquisition of Accessible Vehicles). In general, all *new* vehicles acquired after August 25, 1990 by public entities operating fixed-route service must be accessible. The agencies/entity responsible for the purchase of the 30-foot coaches described in Section 6.5.3 - Planned Vehicle Acquisitions, should comply with these stated regulations.

Facility Accessibility- Facilities must also be accessible to the disabled population. Since January 26, 1992, all newly constructed facilities or alteration of existing facilities used for providing designated public transportation must be made fully accessible to the disabled population pursuant to standards set forth in 49 CFR 37, Appendix A (Transportation Facility Accessibility). The construction of major transportation facilities such as the four major transfer centers in the Arroyo Verdugo sub-region must comply with these regulations. In addition, care should be taken to ensure all bus stops and bus stop enhancements are likewise accessible to the disabled population. Bus stop enhancements in the Arroyo Verdugo sub-region are currently the responsibility of the individual cities.

In addition to vehicle and facility accessibility considerations in the sub-region, the issue of expansion of the complimentary paratransit service area is discussed. Currently, all five AVTC cities operate complimentary paratransit service. This study is not recommending expansion of the fixed-route service area. As a result, there is no required change in the complementary paratransit service change requirement. One of the major recommendations to result from this study is the creation and focus on more community-based transportation services. The development of stronger, convenient, community-based fixed-route services in the Arroyo Verdugo sub-region may actually divert some ridership from the complimentary paratransit systems, possibly reducing the paratransit costs. If in fact this were to occur, the shift is likely to be minimal.

6.10 SUB-REGIONAL DIAL-A-RIDE SERVICE ASSESSMENT

Paratransit programs provide specialized transportation to target populations especially elders and persons with disabilities. The Arroyo Verdugo sub-region is served by a variety of paratransit programs, including a number of programs that are related to social service organizations and several that are administered by cities in the Arroyo Verdugo sub-region. These city-administered programs include:

- City of Glendale, which administers a sub-regional program serving the cities of Glendale, La Cañada Flintridge, and an area of unincorporated Los Angeles County.
- City of Burbank, which administers and directly operates a program serving the City area, with limited medical trips outside of the City.
- City of Pasadena, which administers a sub-regional program serving the City of Pasadena, San Marino, Altadena, and unincorporated areas of Los Angeles County.
- City of South Pasadena, which administers and directly operates a program serving the City of South Pasadena and portions of Pasadena.
- City of La Cañada Flintridge whose dial-a-ride service is administered by the City of Glendale, with enrollment and marketing assistance for the program provided locally.

In addition to the city-based programs, METRO ACCESS provides ADA complementary service throughout Los Angeles County for persons with disabilities meeting the ADA definition for eligibility. This region-wide service is relatively new in the Arroyo Verdugo sub-region, and provides persons with disabilities the opportunity to travel beyond the traditional dial-a-ride service areas.

Each of these programs is currently operated independently, with little opportunity for participants to transfer between programs.

This section describes each of the city-based paratransit programs, including a comparison of operating statistics and characteristics. Previous studies including the recent effort to evaluate a more consolidated system are reviewed and alternatives to the existing system are presented. For each of the possible alternatives, qualitative advantages and disadvantages are presented.

6.10.1 Existing Services

Service characteristics and operating statistics for each of the city-based paratransit systems are summarized in Tables 6-10 and 6-11. The following section describes each of the paratransit programs, based on the most currently available data.

Table 6-10

Paratransit Service Characteristics
Arroyo Verdugo Sub-Region

City	Service Days/Hrs	No. Vehicles	Service Area	Contract/ In-House	Fares	Target Riders
Burbank	7:15A-7:45P M-F; 8:15A-5:45P Sat-Sun	7 vans	City of Burbank; limited out of area medical trips	In-house	\$.50 donation	Elders 55+; persons with disabilities. Primarily nutrition and medical trips.
Glendale	8A-6P M-F; 9A-4P Sat; 9A-2P Sun	4 vans, plus taxis	Glendale, La Cañada, Montrose, La Crescenta	Contract	\$1.00	Elders 60+; persons with disabilities.
Pasadena	7A-9P M-F; 9A-7P Sat; 7A-7P Sun	7 plus 4 leased vehicles	Pasadena, San Marino, LA County, Altadena	Contract	\$0.50	Elders 60+; persons with disabilities.
South Pasadena	8A-4P M-F;	3 vans	South Pasadena and Huntington Hosp. area	In-house	Free	Elders 55+; persons with disabilities. School children for after school program.
La Cañada Flintridge	8A-6P M-F; 9A-4P Sat; 9A-2P Sun	4 vans, plus taxis (program admin. by Glendale)	La Cañada, Glendale, Montrose, La Crescenta, west Altadena, Huntington Hosp. area	Admin. by Glendale	\$1.00	Elders 60+; persons with disabilities. Priority for medical trips.

Table 6-11

Paratransit Operating Statistics
Arroyo Verdugo Sub-Region

City	Annual Rev. Hr.	Annual Rev. Mi.	Annual Riders	Annual Op. Cost	Pass/Hr	Cost/Pass
Burbank	11,361	139,642	63,903	\$542,897	5.6	\$8.50
Glendale ^{1,3}	15,178	185,575	68,608	\$569,850	4.52	\$8.31
Pasadena	17,561	239,549	79,612	\$763,000	4.53	\$9.58
South Pasadena	1,743	27,521	9,044	\$152,000	5.2	\$16.80
La Cañada Flintridge ²	789	17,959	3,285	\$85,383	4.16	\$25.99

1. This information does not include the months of July-September 1994, which were not reported by the contractor. Figures are annualized based on 9 month totals.
2. Estimated totals to be updated.
3. Glendale statistics are Tri-City totals (Glendale, La Cañada Flintridge, Los Angeles County).

6.10.1.1 Glendale Paratransit Program

The City of Glendale operates a curb to curb paratransit program for seniors age 60 and over and for persons with disabilities of all ages. The service operates from 8 a.m. to 6 p.m., Monday through Friday, with newly introduced weekend service operating from 9 a.m. to 4 p.m. on Saturdays and from 9 a.m. to 2 p.m. on Sundays.

This sub-regional system is operated as a tri-agency agreement between the City of Glendale, the City of La Cañada Flintridge, and Los Angeles County. The service area includes Glendale, La Cañada Flintridge, Montrose, and La Crescenta, with La Cañada Flintridge riders being offered a slightly larger service area, including service to Altadena and parts of Pasadena, including the Huntington Hospital area.

Reservations for this system are made 24 hours in advance and require advance registration into the program. A contract operator, San Gabriel Valley Transit, provides the service which operates four dedicated vans plus taxi service, primarily as a back-up to the vans. The contractor owns the vehicles for the program and includes depreciation in their fee to the City of Glendale. Medical trips are given a higher priority for service than other trip purposes and there are no restrictions on the number of trips any one rider may take.

Fares for riders living in Glendale and the County area are \$1.00 per trip. La Cañada Flintridge riders use the system without paying a fare.

Although the service area of this program is extensive, there are riders who would like to travel outside of the current dial-a-ride service area. This can be accommodated using the taxi vendor which provides a subsidized trip to the service area boundary and then charges full taxi fare beyond the boundary. While this program can result in a more costly trip, it does afford riders the opportunity to make a longer distance trip at a subsidized price and without transferring between vehicles.

Detailed operating statistics for the Glendale Dial-a-Ride for FY 1993 are shown in Table 6-12. While this data is two years old, it does provide a breakdown between agency participants and service mode. The table shows that the cost of each mode varies by agency. Van service in the County area is very economical, with the cost per boarding averaging under \$5.00. This compares to a very high cost per boarding for van trips in La Cañada Flintridge where the service area is characterized by low density and fewer shared rides. In La Cañada Flintridge, the cost of taxi trips is substantially lower, with average cost per boarding of \$14.60. Overall, the system carries a relatively high 4.5 passengers per hour (prior to weekend service implementation) at a total cost per trip of \$8.31.

Table 6-12

Glendale Dial-A-Ride 1993 Statistics
Arroyo Verdugo Sub-Region

Characteristic	Dedicated Van Service			Supplemental Taxi Service			Total/ Average
	Glendale	La Cañada Flintridge	Los Angeles County	Glendale	La Cañada Flintridge	Los Angeles County	
Total Boardings	28,925	2,328	7,369	7,895	957	2,329	49,803
Percent by City and Type	58%	5%	15%	16%	2%	5%	100%
Service Hours	5,916	613	2,599	1,087	176	556	10,946
Service Miles	134,730	13,959	59,195	24,749	4,000	12,655	249,288
Boardings per Service Hour	4.9	3.8	2.8	7.3	5.4	4.2	4.5
Boardings per Service Mile	0.21	0.17	0.12	0.32	0.24	0.18	0.20
Boardings per Day	123	10	31	33	4	10	211
Total Cost	\$298,239	\$71,409	\$36,379	\$52,350	\$13,974	\$7,579	\$479,930
Total Farebox Revenue	\$17,837	\$0	\$3,843	\$4,868	\$0	\$1,214	\$27,762
Total Subsidy	\$280,402	\$71,409	\$32,536	\$47,482	\$13,974	\$6,365	\$452,168
Total Cost per Boarding	\$10.31	\$30.67	\$4.94	\$6.63	\$14.60	\$3.25	\$9.64
Total Subsidy per Boarding	\$9.69	\$30.67	\$4.42	\$6.01	\$14.60	\$2.73	\$9.08
Farebox Recovery Ratio	6%	0%	11%	9%	0%	16%	6%

Source: Glendale Short Range Transit Plan, April 1994

The cost per trip for La Cañada Flintridge riders is higher than the system average and the highest in the area, with costs averaging over \$25.00 per rider in FY 93-94. Productivity is lower there than elsewhere in the region.

6.10.1.2 Burbank Dial-A-Ride

The City of Burbank's Park and Recreation Department administers and directly operates its own dial-a-ride program, for elders, aged 55 and over and for persons with disabilities of all ages. The service area is generally within the City limits, with limited trips out of the area for medical purposes only. The City owns 7 vans which are all lift-equipped and carry between 9 and 15 passengers.

Service is offered from 7:15 a.m. until approximately 7:45 p.m. with later service provided for a variety of community activities. Saturday and Sunday service operates from 8:15 a.m. to 5:45 p.m.. Twenty-four hour reservations and pre-registration in the program are required.

No fare is charged to ride, but a donation of \$.50 per round trip is requested. Donations are received by mail and no rider is penalized for lack of payment. Donations average about \$0.24 per trip.

The 1994-95 operating cost for this service was \$542,897. The system carried approximately 64,000 trips in 11,361 service hours during that period, for a total cost per rider of \$8.50 and a productivity of approximately 5.6 passengers per service hour. This high productivity reflects the relationship of the Burbank program to its senior center, with between 25 and 30% of all trips identified as nutrition trips in a 1992 survey. Medical trips are also important to the system, with those trips comprising over 20% of all trip purposes.

The City of Burbank conducted a study of transit needs in 1992 that identified the need for travel outside of the City as a key unmet need for paratransit users. Since that time, the Metro Access program has been implemented, providing inter-city service to persons with disabilities who are registered as ADA eligible.

6.10.1.3 Pasadena Dial-A-Ride

The City of Pasadena administers a dial-a-ride service to seniors over age 60 and persons with disabilities of all ages within a consolidated service area that includes Pasadena, Altadena, San Marino and other unincorporated portions of Los Angeles County. The service operates the most extensive hours of any of the city-based programs, offering service from 7 a.m. to 9 p.m. Monday through Friday and from 9 a.m. to 7 p.m. on Saturday and 7 a.m. to 7 p.m. on Sunday. This system is considered a sub-regional system and receives sub-regional incentive funds based on its service area and productivity factors.

The service is provided by a contractor, Mayflower, using a combination of City-owned and contractor-owned vehicles. Approximately 10 vans are used in service at one time, with the City providing 7 vans, the contractor providing a back-up vehicle and additional leased vehicles to accommodate capacity needs.

Rides are scheduled 24 hours in advance and pre-registration in the program is required. A fare of \$0.50 is charged for each trip, regardless of trip length.

In 1994-95 the system's operating budget was \$763,000. The system carried nearly 80,000 riders in approximately 17,500 hours. Total cost per passenger was \$9.58 and the total productivity, measured in passengers per hour was, 4.53.

6.10.1.4 South Pasadena Senior Ride

The City of South Pasadena administers and operates its own dial-a-ride program through its Senior Center. The program serves seniors over age 55 and persons with disabilities of all ages. Rides are requested 24 hours in advance and pre-registration is required. Service is provided throughout South Pasadena with travel provided into parts of Pasadena, including the Huntington Hospital area. Service is offered Monday through Friday from 8 a.m. to 4 p.m.. No weekend service is offered.

The service is provided with 3 vans that are owned by the City. The same vehicles and drivers are also used for an after-school transportation program that takes students to after school activities in local parks.

The transportation program is closely tied to other activities at the senior center. Approximately one-third of all trips on this system are traveling to and from the senior center, with most of those trips being related to the nutrition program. Nearly all of the staff positions partially funded by this program are also responsible for other activities at the senior center and the two programs are seen as dependent on each other for survival.

South Pasadena does not charge a fare for its service, and feels that the majority of the system users are low-income seniors. The City is currently spending 100% of its Measure A funds on transit programs, with the Senior Ride program being the largest of those funded by Measure A.

The program manager indicated that there may be an unmet need for more extensive service into Pasadena.

Based on available information, the South Pasadena service is very productive, carrying over 5 passengers per service hour. This reflects the emphasis on nutrition and other group trips. Although the service area is relatively small and rides are often shared, the cost per trip at over \$16.00 is relatively high for systems in the sub-region.

6.10.1.5 Metro Access

Metro Access is the ADA complementary paratransit service offered throughout the MTA service area. Metro Access became available in the Arroyo Verdugo sub-region only during the past year. The service is provided through accessible taxi, taxi, and van services assigned by a central office.

To receive Metro Access service, a rider must first be registered as ADA eligible. Eligibility screening is a relatively complex process that determines if the applicant is unable to use regular, fixed-route service. There is no simple age or disability qualification.

The full impact of Metro Access service on the city-based programs is not known. It is generally believed that the impact will be small, since all of the city programs report that the majority of their users are elders without specific ADA qualifying disabilities. Even those riders who qualify for Metro Access service are likely to use their local program for local trips, and this preference is assumed in demand estimates for Metro Access service. The Metro Access program is seen as filling the need for inter-city and regional paratransit services within MTA's ADA required service area.

6.10.2 Potential Service Improvements

Several of the city-based programs have sponsored recent studies designed to improve their operation or study potential unmet needs. This section incorporates relevant information from the following sources:

1. Burbank Transportation Service Needs Assessment and Technical Evaluation, Korve Engineering, 1992.
2. Community Transportation Study for La Cañada Flintridge, DAVE Transportation Services, September, 1993.
3. Arroyo Verdugo Transportation Coalition, Dial-a-Ride Task Force, various reports, 1994.
4. Arroyo Verdugo Transportation Transit Study, Working Papers 1 and 2.
5. Interviews with all city-based program managers, conducted in October, 1995 for this study.

6.10.2.1 Desired System Improvements

Previous studies have identified potential unmet transit needs for dial-a-ride users in the Arroyo Verdugo sub-region. In previous studies, three service improvements have been commonly requested, regardless of the system:

- True demand-responsive service, eliminating the need for 24-hour advance reservations. A related perceived service need is for "time certain" pick-ups rather than the pick-up windows typically used by the city-based programs.
- Door to door service, providing more assistance than is currently offered by the "curb to curb" operations.
- Broader service areas, or the ability to travel between programs.

A variety of studies, and discussions with current program managers have confirmed that these are the top three requests from passengers. However, none of the recent studies have suggested service improvements that would meet all of these requests. Studies done for Pasadena, Burbank, Glendale, and La Cañada Flintridge have suggested marginal operational improvements that may make the systems more responsive to user needs. However, there has been no agreement on a program to enlarge service areas, either through consolidation or better service coordination.

Discussions with program managers have revealed an additional program concern. With costs increasing and the demand for service also increasing, program managers are concerned that there may not be enough funds available to continue to meet all of the needs for transportation services in their community. They recognize that in the future it may be necessary to further limit their programs unless additional funding sources can be developed.

Any recommended improvements or alternatives to the existing city-based paratransit programs will be evaluated on their relative ability to address these identified needs.

6.10.2.2 Travel Behavior

It is often difficult to assess the extent to which a regional or sub-regional transportation program would be used for longer distance trips, since passengers may request service they would use only occasionally as a "back-up" for other alternatives they may use. The Unmet Transit Needs Assessment presented in Section 3.0 provides preliminary estimates of demographics and travel behavior in the Arroyo Verdugo sub-region. This assessment suggests that a large percentage of non-work trips are local trips within the same city or immediately adjacent city. This would be especially true for trips made by seniors and persons with disabilities who are less likely to prefer longer distance trips over shorter trips.

The assessment shows several interesting non-work trip travel patterns which involve travel between cities either within or outside of the Arroyo Verdugo sub-region:

- More than 35% of all non-work trips originating in Burbank, Glendale or Pasadena are internal to those cities. In Pasadena, 42% of all non-work trips are internal trips.

- Twenty three percent (23%) of non-work trips originating in Burbank are to North Hollywood and Sun Valley areas outside of the Arroyo Verdugo sub-region.
- Trips originating in South Pasadena are least likely to be internal trips, with trips wholly within that city accounting for 16% of all non-work trips. Interestingly, while 19% of all South Pasadena trips travel to Pasadena, almost the same number travel to the Foothill Transit District, outside of the Arroyo Verdugo sub-region.
- Trips from La Cañada Flintridge are almost evenly divided between internal trips, trips to Glendale and to Pasadena. Most of these trips would be served by the current sub-regional service which covers a broad service area.

Based on the high proportion of travel that can already be accommodated on the city-based systems, any consolidation or significant changes to the existing programs should be made with caution. Each of the previous studies emphasized the high level of satisfaction that exists with current services, and while there is always room for improvement, it is important that current satisfaction not be compromised to meet an as yet undetermined market.

6.10.3 Service Alternatives

A variety of alternatives exist for improving paratransit service in the Arroyo Verdugo sub-region that include:

1. **Maintain city-based programs as they are now, add demand responsive component.** This alternative would add a true demand responsive component to the existing city-based programs. This could be done either by allowing same-day reservations on a space available basis or by adding or augmenting a taxi component which would provide demand-responsive dispatch for program calls.
2. **Maintain city-based programs adding a door to door component for persons needing more assistance.** This has surfaced as a need in surveys of existing program riders. Most of the city-based programs now allow escorts to ride without cost to provide additional assistance to riders. This improvement would provide more direct rider assistance.
3. **Maintain city-based programs as they are now, adding a sub-regional taxi component that would serve longer distance trips in the Arroyo Verdugo sub-region.** This component would either be purchased through Metro Access or directly through a taxi company and would "overlay" a longer distance service on top of the local paratransit operations.
4. **Coordinate programs better, providing standard transfer locations and "timed" transfers between programs** This would involve establishing specific

locations for transfers between paratransit programs, presumably at known fixed locations where multi-modal transfers already occur and safety considerations are generally minimized, such as at Metrolink stations and/or newly proposed major timed-transfer centers/hubs.

5. **Further consolidate existing paratransit programs into one or two zonal programs serving broader service areas.** Specifically, the Glendale and La Cañada Flintridge program, which is already a sub-regional program could consolidate with the Burbank program and the Pasadena and South Pasadena programs could be merged forming two sub-regional operators. These two zones are separated by topographical barriers (mountains) and the cities within each zone are linked with one another based on travel patterns.
6. **Coordinate all city-based paratransit programs with existing and proposed sub-regional, fixed-route services.** This would include providing senior "peer guides" or travel training to encourage able riders to use the fixed-route services for their longer distance trips.

These potential improvements are not all mutually exclusive. For example, it would be possible to improve coordination and improve the programs in other ways at the same time.

The opportunities and risks associated with each alternative are presented below.

6.10.3.1 Maintain City-Based Programs with Added Demand-Responsive Component

Demand-responsive service, available without 24-hour notice was suggested as a need in studies done for Burbank, Glendale and La Cañada Flintridge. Demand-responsive service can be added in several ways, including on a space available basis on existing systems without substantial change to existing systems. A more fully developed demand-responsive component would utilize taxi services that could dispatch cabs on an as needed basis.

Opportunities

Adding demand-responsive service to the existing programs would fill a need identified by passengers who can not always schedule their trips in advance. Allowing demand-responsive service on a space-available basis would provide limited capacity but would improve productivity by allowing dispatchers to "sell" seats that would otherwise go unused.

Small additions in ridership could be expected as riders who are unable to reserve in advance would have another chance at making their trip. In addition, no shows should decrease as riders now must reserve a space even if they are not 100% certain if they will use the ride, and may forget to make a cancellation.

Risks

Care is needed if a demand-responsive option is implemented to ensure that reservations are not discouraged. Through the 24-hour reservation system currently in place at all city-based programs, productivity is maximized by grouping individual trips. Grouping trips or sharing rides for demand-responsive calls is more difficult and may require more complex dispatching techniques and equipment. At a minimum, radio contact must be maintained at all times, and drivers must be reachable to receive a demand-responsive assignment.

To encourage riders to call in advance, a fare differential may be required. For example, systems that charge a \$.50 fare for pre-reserved trips may charge \$1.00 for demand-responsive trips. If a taxi component is added or augmented, demand-responsive calls may be charged a higher rate by simply subsidizing those trips at a lower rate. Even with a fare differential there is the risk that riders preferring not to reserve trips in advance would stop reserving trips, reducing the overall productivity of the system.

Without adding new capacity - more vehicles - the actual availability of demand-responsive service will be very limited. Most systems are fully utilized during peak periods and would have space for demand-responsive callers only to replace "no shows". For demand-responsive service to be dependable, new capacity must be added, at an increased cost.

6.10.3.2 Maintain Programs with a Door to Door Component

This alternative would provide a more fully assisted program for those that need extra attention. Door to door service could be limited to the most frail riders or could be restricted in some other way to minimize costs and to ensure that the program was properly used.

Opportunities

This is a frequently requested service improvement for all systems. The current curb to curb service does not provide for assistance into the door with packages, or with assistance from the door for those who have problems accessing the vehicle. In some cases, capacity would be increased by eliminating attendants who now ride to provide the assistance to and from the door.

Risks

Door to door service is less efficient because the driver is required to provide a higher level of assistance, taking more time for each passenger requiring assistance. Less efficiency translates directly into higher costs and/or less available capacity for all riders.

Limiting the eligibility for door to door service is a possibility, but passengers would then be aware of a "two tiered" service and may not be comfortable with the level of service they are individually

trained to serve a frailer population, problems with vehicles, etc. Further, the accessibility of the current taxi fleet is questionable.

It is important that any new program not compete with existing services and that it not compete with Metro Access. A specific niche for this service would need to be explored. It is likely that the unique niche for inter-city trips by seniors is relatively small and individual trips would likely be relatively costly.

A final problem would be the development of an inter-agency agreement and/or management plan for implementation. A lead city could be chosen to administer the program, but the costs of administration would presumably be shared among participants.

6.10.3.4 Coordinate Programs Better, Providing for Transfers at Fixed Locations

This alternative would establish fixed locations for paratransit transfers. Out of area trips would be made by having the dispatcher of the originating service call the dispatcher of the transferring service and arranging for a timed transfer at a specific location. Locations would be selected where multi-modal transfers routinely occur. Metrolink stations, for example, have lighting and amenities for transferring passengers such as benches, etc. which would make transfers more acceptable and comfortable. The four major transit centers identified in this transportation area plan are ideal locations to coordinate both sub-regional and fixed-route and paratransit trip making. These four major transit centers include the Burbank Regional Intermodal Transportation Center, the proposed downtown Glendale transit center (located in the new Town Center east of the Galleria), and the two City of Pasadena transit centers located at the Del Mar and Sierra Madre Villa Blue Line Stations. In addition to these four multi-modal major transit centers located in Burbank, Glendale, and Pasadena, it is recommended that transfer locations be designated in South Pasadena at the Mission Street Blue Line Station and in the Montrose/La Cañada Flintridge area (near intersection of Montrose Avenue and Verdugo Boulevard where several regional, sub-regional and community-based routes converge).

This alternative would require a transfer agreement to determine what, if any, fare is to be paid for the transfer, and may require programs to occasionally go beyond their normal boundary to a transfer location.

Transfers could be limited to fixed times during the day, with "timed" connections scheduled to minimize wait time at transfer points.

Opportunities

This alternative has the advantage of formalizing transfer agreements and allowing for a "test" program for broader inter-agency travel without otherwise disrupting existing programs. This alternative would also allow paratransit passengers who are physically able to utilize fixed-route service to transfer to fixed-route services at these key points.

This service would not replace Metro Access service for ADA eligible users since the Metro Access trip would likely not require a transfer and would be seen as more desirable from that standpoint.

This can be seen as a small step toward allowing broader sub-regional travel without giving up the autonomy of the current programs.

Risks

As was previously presented, each of the city-based programs operates differently including different hours of operation, eligibility (age) criteria, and fare policy. Allowing transfers will require an understanding and agreement about each of those issues as part of a transfer agreement between agencies.

Allowing transfers does provide a small step forward, but does not really meet riders' perceived need for expanded inter-city travel opportunities. Many riders are relatively frail and making transfers would be difficult if not impossible. Those that can transfer can probably do so more conveniently by transferring to a fixed-route. There may be some liability for leaving some riders outside waiting for a transfer, and riders may become confused and unable to advocate for themselves if a connection is missed. Current programs do not have the capacity to spend a great deal of time "looking" for riders or waiting with a rider for a connecting service.

6.10.3.5 Further Consolidate Paratransit Programs into One or Two Zonal Programs Serving Broader Service Areas

This concept was evaluated by the Arroyo Verdugo Task Force this past year. Under this concept one or two sub-regional operators would provide service to a broader consolidated service area. Vehicles would be deployed based on demand, and riders would have broader opportunities for travel than they do now.

Any consolidation would require a review and change in operating procedures over current programs. For example, service spans and days of service, eligibility criteria and fare policy would need to be determined and coordinated for the new expanded program.

The zonal programs could be operated by a lead city either by inter-agency agreement or joint powers authority with a policy board made up of the agencies participating in the authority. If two zones are maintained, the Glendale program would likely be consolidated with the Burbank and La Cañada Flintridge programs and the Pasadena program would consolidate with the South Pasadena program. In a single zone concept, all existing programs would be merged into a single service, covering all of the Arroyo Verdugo sub-region.

to use the fixed-route service and/or a stipend for their teaching. A "graduated" rider may also receive a transit pass as a graduation present.

Another element of the program would be identifying safe transfer locations between paratransit and fixed-route services and scheduling pick-ups at fixed-route stops where needed. Paratransit could be used for access and egress from a line haul transit route, especially when the rider needed to travel across program boundaries.

Opportunities

No matter how good a paratransit service may be, it can not provide the mobility of fixed-route service. Fixed-route services do not require advance notice or advance registration. They are not limited to single cities. Generally, all major destinations including medical facilities are served on fixed-routes. By training riders to improve their own mobility, riders take the "highest" form of transit available. At the same time, trips made on fixed-route generally cost substantially less than paratransit, freeing the paratransit capacity for those that are truly unable to use fixed-route transit.

By providing a connection between paratransit and fixed-route services, many riders who reject fixed-route service because they cannot get to and from a bus stop would now be able to more fully utilize available services.

Risks

A transfer program is not for everyone. As with the paratransit transfer alternative, riders must be physically and intellectually able to transfer. Although training would be provided, at some cost to the cities, the actual number who would be willing to take training is unknown and the graduation rate can not be predicted. Riders may feel they are being "kicked out" of the paratransit system, and may not appreciate the opportunity offered.

This alternative has many of the risks described in the paratransit transfer alternative which dealt with transfers between paratransit systems. Any new service proposed for Arroyo Verdugo sub-region must be designed with ease of transfer in mind for the service to succeed.

6.10.4 Recommended Strategies

Based on the assessment of paratransit service alternatives' risks and opportunities presented above, the following strategies offer the most promise in terms of improving sub-regional paratransit services in the Arroyo Verdugo sub-region.

- Given the vast differences (fare policy, service spans, days of service, eligibility criteria, etc.) that exist among the city-administered paratransit programs operated in the sub-region, total consolidation of the programs does not appear to be a viable strategy to pursue at this time. While less complex, even the creation of two zonal

systems (Glendale/La Cañada Flintridge/Burbank and Pasadena/South Pasadena) would be difficult to achieve given the considerable differences among the grouped programs. To date, considerable resistance to consolidate paratransit programs has been expressed within the sub-region.

- For those elderly and persons with disabilities that are currently not using fixed-route service and yet are capable, they should be targeted and educated on how to use fixed-route services.
- In an effort to improve sub-regional mobility for the elderly and disabled population, it is suggested to implement a test pilot program to coordinate transfers between city administered paratransit programs primarily at the four major transit centers identified in this study (Burbank RITC, Glendale Town Center, Pasadena Blue Line Del Mar and Sierra Madre Villa stations).
- Paratransit planning should be done concurrently with fixed-route planning and fixed-routes should be designed with the needs of paratransit riders in mind.
- Any change in the paratransit programs should address identified service needs and the need for program solvency over the long term.
- Because paratransit riders are particularly change averse it is important to take care to ensure that any change will be well received over the long term.

PHASE II: SYSTEM DESIGN

Section 7.0

Evaluation of Service Recommendations

7.0 EVALUATION OF SERVICE RECOMMENDATIONS

The preceding two sections presented the recommended service improvements for the Arroyo Verdugo sub-region. Based on the assessed needs, the project team developed a single, preferred alternative transit plan. In essence the plan:

- Embraces the hub-and-spoke network configuration adopted previously by the Arroyo Verdugo Transportation Coalition;
- Refines the AVTC's proposed transit hub locations and develops a hierarchy of these transfer locations consisting of four categories (Major Transfer Centers, Major Transfer Locations, Rail Feeder/Distribution Point, and All Other Transfer Locations); and
- Recommends changing the regional bus network by shifting some of the MTA regional bus service from providing local community circulation and substituting dedicated community-based service. The plan also calls for improvements to the sub-regional bus connections between Glendale, La Cañada Flintridge and Pasadena as a result of proposed modifications to MTA Line 177, and improved community-based services.

All of the above elements will greatly enhance the integration of regional, sub-regional, and community-based services through the hub-and-spoke network incorporating the transfer centers.

7.1 EVALUATION METHODOLOGY

The proposed plan was evaluated relative to the existing system in terms of how well it achieves stated and implied project goals and objectives pertaining to increased mobility, increased ridership, cost effectiveness, equity, and financial feasibility.

Framework

The evaluation framework consists of five major categories. These are:

- **Effectiveness (Goals Attainment):** How well do the recommended transportation changes achieve the project goals.
- **Efficiency (Cost Effectiveness):** How effectively do the proposed transportation changes attract additional ridership relative to capital and operating costs.
- **Equity:** How are the benefits and costs of proposed transportation improvements distributed

among various segments of the population.

- **Financial Feasibility:** The degree to which the recommended transportation changes/improvements can be financed considering all potential funding sources and all capital and operating costs.

Effectiveness (Goal Achievement)

This section addresses how well the proposed transportation plan meets the project goals. For this particular study there are some stated goals and some implied goals (inherent in any transportation improvement project). Objectives have been established for each goal. The goals and objectives are:

1. **Travel and Mobility.** Provide a transportation system which is safe, efficient, and coordinated among modes, and which offers the best possible regional, sub-regional, and community mobility. This includes integration with Metrolink, the future Pasadena Blue Line and the proposed Burbank-Glendale-Los Angeles light rail or railbus corridor. Objectives under this goal include:
 - Developing a comprehensive regional transit network;
 - Facilitating transfers and minimizing transfer times;
 - Expanding the fixed-guideway systems and coordinating with feeder systems;
 - Optimizing service frequency;
 - Increasing safety, comfort, and reliability;
 - Improving accessibility;
 - Reducing transit travel times; and, as a result,
 - *Increasing transit ridership; and*
 - *Reducing roadway congestion.*
2. **Financial and Economic.** Develop a transportation system which provides for the most efficient use of financial resources. Objectives include:
 - Maximizing transit operating efficiency;
 - Minimizing capital and operating costs; and

- Maintaining or increasing farebox revenue.
3. **Environmental.** Provide a transportation system which enhances and preserves the social and physical environment and minimizes potential impacts to sensitive resources. Objectives include:
- Minimizing air pollution;
 - Mitigating noise pollution; and
 - Conserving energy.
4. **Community Acceptance and Political Support.** Provide a transportation system which is consistent with the needs and desires of the residents of the region, and which thereby maximizes community acceptance and political support. Objectives include:
- Maximize the service to, and mobility of, the transit-dependent and transportation disadvantaged;
 - Encourage community economic revitalization; and
 - Seek a fair distribution of costs and benefits among different population groups.

7.2 EVALUATION

For each goal/objective, performance ratings were qualitatively assigned to the proposed plan relative to the existing system. These performance ratings indicate the extent to which the proposed plan is an improvement over the existing system. The performance ratings are **High**, **Medium**, or **Low**, with **High** being the "best/most favorable". The results of the evaluation are summarized in Table 7-1 at the end of this section.

1. Travel and Mobility Goals

Developing a comprehensive regional transit network: Regional transit access is quite good with the existing system for most parts of the study area, and will be vastly improved with the addition of the Blue Line in 2001 in terms of frequency and travel times. The proposed hub and spoke configuration, which focuses service around transit transfer centers will further facilitate regional transit trip-making by providing much better integration with regional transit facilities (including Metrolink). Accordingly, we have assigned the proposed plan a rating of **MEDIUM** improvement over the status quo.

Facilitating transfers and minimizing transfer times: Again, the definition of the transit

transfer centers and the recommendation of more frequent service on a number of community-based routes and/or timed transfers will help meet this objective. At the same time in certain areas, like Pasadena (pending the outcome of the service restructuring study), some portion of the regional service will possibly be truncated at selected Blue Line stations and replaced by community-based services, resulting in a number of riders having to transfer for the first time. It is envisioned that this number of riders will be less than those who benefit from the hub-and-spoke network, more community-oriented services, improved frequencies, and timed transfers. As a result, we have given the new plan a rating of **MEDIUM** versus the existing one.

Expanding the fixed-guideway systems and coordinating with feeder systems: Regional fixed guideway service is currently provided to the study area by Amtrak San Diegan Service and Metrolink. Additional regional access will be provided between the Arroyo Verdugo sub-region (Pasadena and South Pasadena), Highland Park, and downtown Los Angeles by the Pasadena-Los Angeles Blue Line light rail line in 2001, and at some time in the future by high speed service on the Burbank-Glendale-Los Angeles Corridor (ART). By designating three rail stations in the study area as “Category 1: Major Transfer Centers,” the recommended transit plan calls for greatly increased coordination of the more flexible bus system with the fixed rail systems. The recommended improvements receive a rating of **HIGH** compared to the status quo.

Optimization of service frequency: While significant changes in service frequencies are not proposed for regional and sub-regional service, community-based services as proposed will provide the increased frequencies which are required to make this service attractive and useful. The use of the hub-and-spoke configuration and the transit transfer centers will also serve to optimize existing frequencies. We have ascribed a rating of **HIGH** for meeting this objective with the proposed improvements.

Increasing safety, comfort, and reliability: Reliability has not been noted as an existing problem, nor have safety and comfort. However, the incorporation of service at transfer centers will increase reliability, safety and comfort as a by-product. The availability of time for schedule recovery at the centers and the replacement of regional line segments with community-based service will both increase reliability. As well, the presence of more people at the transfer locations, as well as customer service and supervisory staff at the transfer centers will provide additional safety and a sense of well being. In addition, the availability of information at these centers will increase the comfort level as will other amenities at the six designated Category 2: Major (High Volume) Transfer Locations (shelters, benches, and information aids). The plan proposed in this study received a rating of **MEDIUM** vs. the status quo.

Maximizing accessibility: The recommendation to increase service in the communities by shifting some of the regional bus service currently provided as well as adding some new community based service, accessibility will be increased. Also, the hub-and-spoke configuration will serve to increase regional access to additional transit modes. Thus, the proposed plan was given a rating of **MEDIUM** over the status quo.

Minimizing travel times: In several cases suggested improvements to regional routes involve more direct routing by removing these routes from community streets. Also the use of hub-and-spoke system and transfer centers/locations will serve to minimize travel times for many travelers through the use of timed transfers. As stated earlier, the introduction of the Pasadena Blue Line in 2001 will greatly reduce travel times for those served by it. However, while the increased accessibility to faster transit modes (light and commuter rail) decreases travel times, the requirement of transfers to get through the system may mitigate some of those time savings. Thus, the improved system received a MEDIUM rating.

Maximizing ridership: By addressing all the objectives mentioned above, the numbers of riders that may use transit by choice will be increased because transit has become more attractive. As congestion increases in downtown Los Angeles, transit work trips are expected to also increase. Non-work trips are expected to increase within communities because of the improvements to community-based transit service. Some of the routing changes that are suggested will provide more access to the transit dependents (those in lower income levels, 65 or older, and 18 and younger) and consequently increase ridership. The proposed plan received a rating of HIGH in meeting this objective.

Minimizing roadway congestion: Whenever transit ridership is increased, roadway congestion is naturally decreased. Often, it is not recognizable because of the diverse destinations a given population might have, but, nevertheless, it occurs to some degree. It must also be taken into account that growth in the metropolitan region continues, adding additional traffic. The study plan received a LOW rating in meeting this objective, although it is an improvement over the status quo.

2. Financial and Economic Goal

Maximizing transit operating efficiency: It is proposed to eliminate a few unproductive line segments of selected regional bus routes now serving the study area as well as re-configuring some route segments to serve additional trips. In other cases it is being suggested to replace regional bus service operating on narrow, winding streets with smaller, less expensive community-based services operating with smaller, 30-foot buses. These proposed changes along with the integration of transit modes through the hub-and-spoke configuration will serve to maximize operating efficiency. The proposed plan received a HIGH rating for this objective.

Minimizing capital and operating costs: The proposed bus system changes in the study area are expected to optimize capital and operating costs. Currently, MTA operating costs per vehicle hour for regional bus service average around \$66, while contract rates are averaging between \$35-\$45 for regional and community services. Decisions will be required of some of the Arroyo Verdugo municipalities concerning selecting an operator for services planned for their locale. Depending upon their choice of operators there is an opportunity to increase services within available funding. The study plan was given a rating of MEDIUM improvement over the current service in this category.

Maintaining or increasing farebox revenues: Any increase in ridership would naturally produce additional farebox receipts. As the proposed services are designed to offer service to more people, an increase in farebox revenue will follow for constant fare levels. However, the hub-and-spoke configuration will produce more linked trips because of transferring between transit lines and modes (likely generating additional transfer revenue). At the same time, lower fares are proposed for community-based services (25¢ is typical compared with regional fares averaging 60¢-65¢ per unlinked passenger). But, the lower community fares will generate increased ridership. Thus, the overall net effect should result in a modest increase in farebox receipts. The proposed plan received a rating of LOW improvement over the existing service.

3. Environmental Goals

Minimizing air pollution: Every person trip that is attracted to transit from an automobile serves to decrease air pollution by even a small amount. As this proposed system is designed to attract choice riders as well as better serve the transit dependent, air pollution should be reduced. In some cases, it is being suggested that larger regional buses be removed from community streets and be replaced by smaller, alternatively-fueled vehicles. While increased frequencies are planned, the smaller vehicles are generally more fuel efficient. Further, Burbank is proposing to use their new fleet of electric vehicles to provide additional community service. While some improvement will be experienced as a result of the proposed plan, a rating of LOW was given in this area.

Mitigating noise pollution: The factors mentioned above will aid in the mitigation of noise pollution in addition to minimizing air pollution. The replacement of full-size transit coaches with smaller community buses (in some cases, electric vehicles) will have a greater noise abatement than pollution impact for neighborhood residents. These factors are particularly important in making communities more pleasant for pedestrians and residents. The proposed plan also received a LOW improvement rating over the existing system.

Conserving energy: Many of the above factors such as increased transit operating efficiency and increasing ridership ultimately promote the conservation of energy. More and more operators are considering alternatively fueled vehicles including electric buses like those in Burbank. The municipalities in the Arroyo Verdugo study area have taken a leadership role in introducing alternative fueled transit vehicles. The recommendations call a continuation of this aggressive deployment strategy. The recommendations calling for bicycle racks on selected regional transit lines in the region will also encourage energy conservation. However, due to the increasing growth in the region, net energy savings may be only slight. Thus, a rating of LOW was ascribed in this area.

4. Community Acceptance and Political Support Goals

Maximize service to, and mobility of the transit-dependent and transportation disadvantaged: This was an important consideration in suggesting the changes to bus service contained in this study. Areas with concentrations of transit-dependent and transportation disadvantaged (lower

income, 65 and older, 18 and younger) residents were derived from census information, plotted on maps and evaluated in terms of transit service. And, recommendations were made to maximize service to this population segment (e.g., southwest/southeast Glendale and northwest Pasadena). The proposed plan received a MEDIUM rate of improvement over the existing system.

Encourage community economic revitalization: Cities such as Glendale and Burbank have already undertaken planning for revitalization. As well, the introduction of Blue Line service in both Pasadena and South Pasadena will result in changes in their respective urban cores. The recommendation for transit hubs in these strategic areas will support and further encourage economic growth. Other transit improvements recommended in this study, such as the emphasis on community-oriented service replacing regional routes on select community streets, are consistent with this philosophy. As much of the transit planning that will encourage revitalization was underway, the study plan received a MEDIUM improvement rating over the status quo.

Seek a fair distribution of costs and benefits among different population groups: Transit funding is provided in large part from the regional sales tax, even those who are not transit users reap the benefits (from decreased traffic congestion, the ability of transit dependents to get to work and pay taxes in the community, the ability of transit dependents to patronize area businesses, etc.). While no significant change in the areas provided with service is recommended, an increased emphasis on serving shorter distance community transit travel needs (disproportionately needed by the transit-dependent and transportation disadvantaged) will provide a better balance between regional, sub-regional, and community services. Thus, the proposed plan received a MEDIUM rating in this category.

The following Table 7-1 summarizes the above evaluation of the changes proposed by this study.

Table 7-1

**EVALUATION OF PROPOSED IMPROVEMENTS
Ranking Compared to Status Quo**

System Goal	HIGH	MEDIUM	LOW
I. Travel and Mobility Goals			
Developing a comprehensive regional network		X	
Facilitating transfers and minimizing transfer times		X	
Expanding fixed guideway systems and coordinating feeders	X		
Optimizing service frequency	X		
Increasing safety, comfort, and reliability		X	
Maximizing accessibility		X	
Minimizing travel times		X	
Maximizing ridership	X		
Minimizing roadway congestion			X
2. Financial and Economic Goals			
Maximizing transit operating efficiency	X		
Minimizing capital and operating costs		X	
Maintaining or increasing farebox revenues			X
3. Environmental Goals			
Minimizing air pollution			X
Mitigating noise pollution			X
Conserving energy			X
4. Community Acceptance and Political Support			
Maximize mobility of transit dependent/disadvantaged		X	
Encourage community economic revitalization		X	
Seek fair distribution of costs and benefits		X	

PHASE III: IMPLEMENTATION

Section 8.0

Organizational Models and Operational Options

8.0 AVTC ORGANIZATIONAL MODELS AND OPERATIONAL OPTIONS

Presented below is an identification of organizational models and operational options for the AVTC to consider regarding the provision of transportation services in the Arroyo Verdugo sub-region.

8.1 ORGANIZATIONAL MODELS

Presented below is a list of organizational models available to the AVTC to consider.

Joint Powers Authority (JPA): Under this model, multiple cities enter into an agreement to create a separately constituted legal entity. An example of a JPA is Foothill Transit. It should be noted that a Zone such as how Foothill Transit was formed, may only be created in those areas where MTA determines that the MTA (Operator) or municipal operator(s) cannot otherwise provide adequate and responsive local transportation in a cost-effective manner. The creation of a Zone also requires an application and approval by the MTA in accordance with adopted Zone Guidelines.

City Management: This model calls for the city to assume responsibility for management and establishment of transit service policy. An example of the city-management model is the City of Glendale and its daily management and operation of its community-based service called the Beeline.

Transit District: Another model to consider is the creation of a transit district. Transit districts typically are established over a large metropolitan area. The creation of a transit district requires state enabling legislation. An example of a transit district is the former Southern California Rapid Transit District.

Piggyback: The piggy back organizational model calls for one or more cities to join an existing JPA or transit district. One or more of the five AVTC cities could consider joining or becoming member(s) of the current Foothill Transit District (JPA) as an example of this model.

8.2 OPERATIONAL OPTIONS

Presented below is a list of operational options for the AVTC to consider regarding the actual provision of transit services in the Arroyo Verdugo sub-region.

Direct Operation: Under this operational option, the agency or municipality takes responsibility for all facets of the operation including personnel recruitment and hiring and operation and management of all operations, maintenance, and administrative support functions. An example of this option

would be the Santa Monica Municipal Bus Lines.

Contract Operations: Under this operational option, the agency, municipality, or organization contracts with a private company to undertake recruitment, hiring, and all operational and daily management functions. Examples of this option include the City of Glendale contracts with Mayflower (Laidlaw) Transit Service to operate the Beeline service. Foothill Transit contracts with Forsythe & Associates to operate and manage the daily service.

Purchase of Service: This operational option call for an organization to purchase service from another organization that is responsible for all recruitment, hiring, and all operational and daily management functions. Currently, the City of La Cañada Flintridge purchases services from the City of Glendale for the operation of the La Cañada Shuttle.

8.3 ISSUES

A number of issues need to be considered by the AVTC regarding which organizational models and operational options to pursue. These issues are presented below.

AVTC Authority: The AVTC as presently constituted has no authority to set policy, manage and operate transit services. To do so, AVTC would need to consider one of the organizational models: formation of a JPA and/or transit district and either directly be responsible for operating the services, contract the operation and management of services to a private operator, or purchase services from an existing entity.

Regional Rail and Bus Service Responsibility: It is recommended that no changes be made in regional rail and bus services/operating responsibility. Changes have been proposed in this transportation area plan to convert a limited number of MTA route segments (Line 183, 201, 96, and 177) to community-based routes. These segments pass through areas better suited to be served by a smaller vehicle (30-foot coach) that charges a lower fare, where the trips are short in length and community-oriented. These community-based routes would then become the responsibility of the individual city or most likely a newly created JPA.

Sub-Regional and Community-Based Service Responsibility: The AVTC and the participating cities need to decide which organizational model and operational option best suits their needs. Two options are noted below that highlight the primary considerations.

- Option 1 -- Under the first option, the five cities might consider formation of a JPA or transit district to operate all sub-regional (new sub-regional route connecting Glendale, La Cañada Flintridge, and Pasadena) and community-based services and contract out this entire package to a private operator. Under this option it is not clear whether there would be significant cost savings. This is due to the fact that the current staff resources responsible for managing the service and contracts in the four

cities that operate community-based services are very minimal. Consolidating these functions would necessitate formation of oversight committees and a governing board. This would involve numerous meetings to decide sub-regional transportation issues. It is not clear that the individual cities would be willing to sacrifice local decision making authority and control for the good of the sub-region, particularly if there are no overriding financial benefits. The one advantage to this arrangement is that sub-regional needs and coordination would receive more attention and focus. However, the cities can still make sub-regional coordination a priority without formation of a JPA or transit district as evidenced by the creation of the AVTC.

- Option 2 -- The second option is similar to the current situation in that each city is responsible for the management and operation of their respective community-based transit services. The primary benefit of this option is greater local control over decision-making. The disadvantage of this option is that sub-regional considerations are likely to have a lower priority than individual city considerations. As a result, sub-regional coordination of services may suffer. However, this is the role of the AVTC to coordinate sub-regional issues among the five participating cities. The recent joint application by the cities of Glendale, La Cañada Flintridge, and Pasadena for the MTA Call for Projects regarding transfer of Line 177, is an excellent example of the AVTC cities working together to address sub-regional transportation issues.

Two other issues are noted for consideration. The Needs Assessment highlighted the orientation of the five cities in the Arroyo Verdugo sub-region. Burbank and Glendale's orientation is primarily to the San Fernando Valley to the west and Pasadena and South Pasadena's orientation is to the east to the San Gabriel Valley. La Cañada Flintridge's orientation is split among areas to the south, east and west. Therefore, in addition to the natural barriers separating the east and west portions of the Arroyo Verdugo sub-region, the work and non-work trip making patterns may not favor combining all five cities into one entity. Opportunities may be available for Burbank and Glendale to combine forces while Pasadena and South Pasadena combine resources. La Cañada Flintridge could join either group. Lastly, each of the four cities that operates local community-based services has begun to develop a local identity with their respective services (Beeline, Burbank Local Transit, La Cañada Shuttle, and Pasadena ARTS) that highlights their individual communities.

Implementation. These important organizational issues should be decided by the AVTC and the five cities over the next one-year period.

PHASE III: IMPLEMENTATION

Section 9.0 Funding

9.0 FUNDING

9.1 BACKGROUND

In order to identify potential revenue sources which could be used to implement the proposed AVTC service recommendations, facility improvements, and vehicle purchases, an analysis of available transit funding sources was conducted. The following transit and transportation-related financial and funding source documents were reviewed relative to this study:

- LACMTA Proposition A and C Local Return Guidelines
- LACMTA Transit Operator Proposition A Formula Funding Guidelines
- LACMTA Fiscal Year 1995-96 Mobility Allowance - Call for Service Projects
- LACMTA FY96 through FY1998-99 TIP Call for Projects Application
- LACMTA Funding Matrix
- SCAQMD Rule 2202 - On-Road Motor Vehicle Mitigation Options Air Quality Investment Program (AQIP)
- SCAQMD AB2766 Discretionary Fund Applications and Guidelines
- U.S. Department of Energy Financial Assistance Program for State and Municipal Governments for the Demonstration of Light- and Heavy-Duty Alternative-Fuel Vehicles
- Federal Highway Administration Revised Guidance on the Congestion Mitigation and Air Quality Improvement (CMAQ) Program

In addition, Propositions A and C, and local AB 2766 funding balances and expenditures were obtained from each of the five cities for fiscal years 1994, 1995 and 1996. This was done in order to "profile" city expenditures and commitments to assess ability to fund additional services.

9.2 VIABLE LOCAL, REGIONAL, STATE, AND FEDERAL FUNDING SOURCES

A discussion of viable local, regional, state and federal sources of transit funding which can be used to fund the recommended service improvements is presented below.

9.2.1 Propositions A and C Local Return

9.2.1.1 Propositions A and C Local Return Allocation and Expenditure Guidelines

In 1980 and 1990, Propositions A and C, respectively, were passed by the voters of Los Angeles County. Both ordinances enacted a one-half cent sales and use tax to be used solely for public transit purposes within the County. Each Proposition includes provisions for the allocation of a portion of the total sales tax receipts to be returned to local jurisdictions within the County on a population-share basis (Prop. A-25% and Prop. C-20%). Each city within the Arroyo Verdugo sub-region receives an annual allocation of local return funds which they currently expend on local transit projects.

In order to expend funds, cities must comply with the Local Return Program Guidelines which detail eligible, conditionally eligible, and ineligible projects. Cities must annually submit project descriptions, which include a description of the project and the budget. These project descriptions must be approved by the MTA and the city must receive a project approval notification before expending funds. Eligible transit projects under Prop. A and C include, but are not limited to:

Operating

- Shuttle service between city activity centers
- Extension or augmentation of existing bus lines
- Commuter bus service
- Operating subsidies
- New fixed-route or demand responsive services
- Expansion of existing demand-responsive service
- Shared-ride taxi service
- General public demand-responsive service

Capital

- Transit vehicles
- Vehicle parts and supplies
- Non-revenue transit support vehicles

Equipment

- Maintenance or operating facilities

In addition, street and road maintenance, repair and construction are eligible expenditures under Prop. C and ineligible under Prop. A.

Conditionally eligible projects are reviewed on a case-by-case basis, and MTA approves only those projects which meet specific conditions according to project category as detailed in the guidelines. Examples of conditionally eligible projects include:

- Ridesharing projects
- Right-of-way improvements
- Facilities
- Recreational transit
- Park-and-ride lots

Ineligible uses of Prop. A and C primarily include non-transit related projects. In addition, cities are not allowed to trade funds under Prop. C. However, fund trading is allowed under Prop. A.

The recommended AVTC service improvements, including operating, capital and equipment and administrative costs are all eligible uses of both Prop. A and C funds.

9.2.1.2 AVTC Proposition A and C Local Return Allocations and Fund Balances

Each city within the Arroyo Verdugo sub-region is allocated their share of Propositions A and C by the County Auditor. In FY 1995, the five cities expended \$13.8 million in Props. A and C revenues for operation of approved transit projects. Each city operates a local dial-a-ride service, and with the exception of South Pasadena all cities operate some form of fixed-route community-based service. The expenditures associated with the operation of transit and paratransit services represent from 22 percent to almost 45 percent of local transit funding budgets. The cities spent a total of \$1,148,044 (8.29% of the total of \$13.8 million expended in the study area) on planning and administrative costs. It was not determined what amount of planning and administration costs were needed to oversee and operate individual city services.

Each city has on-going projects which generally include local funding for the following:

- Project planning and administrative expenses
- Dial-a-ride operations
- Bus pass subsidies
- Transit subsidies to operators
- Elderly and youth excursions
- AVTC membership expenses
- Fixed-route services - local circulation and rail feeder services
- Specialized/social service transit

Other periodic or multi-year project expenditures by some cities include:

- Design and construction of transit facilities
- Vehicle replacement
- Planning studies and audit expenses

Based upon information provided by city staff, the following is a brief outline of individual city expenditures of local return revenues.

Burbank

- Props. A and C allocations for FY 96 amount to \$1,748,400.
- Projected Prop. A and C allocations for FY 97 total \$1,783,368 (2% increase).
- In FY 94-95 Burbank spent over 40% or \$1,309,793 of the local transit budget on operating projects including dial-a-ride service and Metrolink Shuttles.
- Burbank has not exhausted local return reserves and currently has a Prop. A and C fund balance (surplus) in excess of \$200,000. However, there is already a planned use for a major portion of the surplus which will include funding of the Regional Intermodal Transportation Center and the procurement of four (4) electric shuttle vehicles in Summer 1996.

Glendale

- In FY 94-95, Glendale expended almost \$2.5 million or almost 39% of the local transit budget for operating projects including the Beeline, Metrolink Shuttle, dial-a-ride, and LADOT bus service.
- No FY 96 expenditure information is available at this time.

Pasadena

- In FY 95, Pasadena expended \$1,972,919 or 55% of the local transit budget on operating projects, including dial-a-ride, fixed-route local circulation services, social service transit and fare-free zone subsidies.
- No FY 96 expenditure information is available at this time.

South Pasadena

- In the five-city AVTC study area, South Pasadena expends the highest percentage of the local budget (\$240,000 or 43.8% in FY 94-95) for dial-a-ride operations.
- The City's Prop. A fund balance at the end of FY 95 was \$75,000; a balance of \$94,000 for FY 96 is projected. The City's Prop. A fund balances have decreased in the last two fiscal years because on-going project expenses exceed the City's annual allocation. South Pasadena now balances expenditures between Prop. A and C.

La Cañada Flintridge

- The City receives the smallest allocations of Props. A and C in the five-city area.

- In FY 94-95, La Cañada Flintridge expended 17% of the local budget of \$270,225 on dial-a-ride; 66.6% or \$180,000 of local sales tax revenues were used for the Verdugo Park-N-Ride.
- In FY 95-96 the City has projected Prop. A and C undesignated fund balances of \$696,625 (Prop. A - \$562,400; Prop. C - \$134,225). Although the City has a projected funding surplus, on-going expenditures exceed the annual allocation. This will result in a gradual decrease in fund balance if the current expenditure level is maintained.

Future Proposition A and C Funding Constraints

Although current information was not available for all cities, the review of Prop. A and C expenditures for FY 94 and FY 95 showed that cities having carryover fund balances either: 1) spend in excess of their annual allocation for on-going projects and are gradually depleting reserves; or 2) are committed to reserving and/or expending funds for large-scale multi-year capital/multi-modal projects which will encompass all or a "lion's-share" of existing reserves in the future. This means that the availability of local sales tax revenues for additional community services and associated vehicle purchases will be limited for the next 2-4 years, unless individual city transportation priorities shift and service improvements are agreed upon.

9.2.2 AB2766 Local Funding

This source of revenue is provided to cities and counties in the South Coast Basin through collection of the \$4 motor vehicle registration fee. Fees are collected by the State Department of Motor Vehicles (DMV), and forty cents of every dollar collected is distributed quarterly by the South Coast Air Quality Management District (SCAQMD). The program is administered by the Mobile Source Reduction Committee (MSRC) to be used for local projects designed to reduce air pollution from mobile sources.

Information regarding the amount and disposition of local AB2766 funding was solicited from all of the five cities, as follows:

City	FY 1995 Amount Received	How Funds Spent
South Pasadena	\$24,800	City-Specific Planning
Pasadena	\$146,287	City Rideshare Program
Glendale	No information available	
Burbank	\$110,783	City Rideshare Program; City currently uses more than allocation for this program
La Cañada Flintridge	\$21,775	No definite plans for funding; building reserves for capital procurement

**FIGURE 10-1
AVTC PHASED IMPLEMENTATION SCHEDULE**

Recommendation	Near-Term	Pre-Blue Line/ART	Blue Line/ART Start-up	Post-Blue Line/ART
	1-2 Years	3-4 Years	5 Years	6+ Years
FIXED-ROUTE SERVICE				
Glendale (Community-based)				
NW Glendale Beeline 5 (Replace Line 183)	X			
Beeline Route 4 (Replace Line 183)	X			
Beeline Route 6 (Replace Line 201)		X		
Metrolink San Fern. Express (Burbank Extension)	X			
Beeline Crosstown Route (Colorado Blvd.)			X	
Beeline Ext. to Doran/Grand Cent ART Stations			X	
Burbank (Community-based)				
Kenneth Road Shuttle (Replace Line 183)	X			
Burbank/Media Dist/Univ City Shuttle	X			
Burbank CBD Electric Shuttle	X			
Pasadena (Community-based)				
Conduct Transit Service Restructuring	X			
Implement Revised Pasadena Transit Network		X		
Make Additional Restructuring Changes to Network In Anticipation of Blue Line Start-up		X		
La Cañada Flintridge (Community-based)				
La Cañada Shuttle	X			
South Pasadena (Community-based)				
South Pasadena Shuttle			X	
Sub-regional				
Glendale/LCF/Pasadena Sub-regional route (Line 177 transfer)	X			

FIGURE 10-1

AVTC PHASED IMPLEMENTATION SCHEDULE

Recommendation	Near-Term	Pre-Blue Line/ART	Blue Line/ART Start-up	Post-Blue Line/ART
	1-2 Years	3-4 Years	5 Years	6+ Years
PARATRANSIT SERVICE				
The five AVTC cities need to decide if the creation of two zonal systems (Glendale/La Cañada Flintridge/Burbank and Pasadena/South Pasadena) is desirable in terms of consolidating sub-regional dial-a-ride systems.	X			
The elderly and disabled population capable of using fixed-route service should be targeted and educated on how to use fixed-route services.	X			
Implement a test pilot program to coordinate transfers between city- administered paratransit programs primarily at the four major transit centers identified in this study.				X
FACILITIES				
Initiate bus stop enhancements at the six Category 2 - Major (High Volume) Transfer Locations	X			
VEHICLES				
Procure 30-foot buses for NW Glendale Beeline 5 (Line 183 replacement), Beeline 4 South (Line 183 replacement), Glendale Metrolink San Fern. Express, Kenneth Rd. Shuttle (Line 183 replacement), Burbank/Media Dist./Univ. City Shuttle, and new sub-regional route	X			
Procure 30-foot buses for Beeline Route 6 (Line 201 replacement) and Pasadena community-based system pending outcome of service restructuring		X		
Procure 30-foot buses for South Pasadena Shuttle		X		
ORGANIZATION/OPERATIONS				
The AVTC and individual cities need to decide which organizational model to pursue for the operation of community-based services in the sub-region (formation of JPA, status quo-city	X			