City of SANTA CLARITA

Transportation Development Plan

2006-2015

Santa Clarita Transit

November 2006

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City of Santa Clarita

Transportation Development Plan
2006-2015

City of Santa Clarita
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Federal transportation statutes require that the Southern California Association of Governments (SCAG) and the Los Angeles Metropolitan Transportation Authority (LAMTA), in partnership with state and local agencies, develop and periodically update a long-range Regional Transportation Plan (RTP), and a Transportation Improvement Program (TRIP), which implements the RTP by programming federal funds to transportation projects contained in the RTP. This Transportation Development Plan (TDP) supports development of these regional plans.

The preparation of this Transportation Development Plan (TDP) has been funded in part by a grant from the United States Department of Transportation (USDOT), through Section 5303 of the Federal Transit Act. The contents of this SRTP reflect the views of *Santa Clarita Transit,* and are not necessarily those of USDOT, the Federal Transit Administration (FTA), the Southern California Association of Goverments, or the Los Angeles County Metropolitan Transportation Authority. *Santa Clarita Transit* is solely responsible for the accuracy of information presented here.

In compliance with Title VI regulations of the Civil Rights Act of 1964, no person in the United States of America shall, on grounds of race, color, or national origin, be excluded from participating in, or denied the benefits of, or be subject to discrimination under any program or activity receiving federal financial assistance. *Santa Clarita Transit* must ensure that federally supported transit service and related benefits are distributed in an equitable manner. The City of Santa Clarita has certified that it is in compliance with Title VI regulations.

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Executive Summary
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Background – Population and Employment

The City of Santa Clarita was incorporated in 1987. City boundaries encompass more than 51 square miles in the Santa Clarita Valley, about 35 miles northwest of downtown Los Angeles. The City is triangular in shape, straddling I-5 and Route 14, spreading west and northeast of the junction mostly between those two major freeways. The City is composed of a series of distinct communities, including Canyon Country, Newhall, Saugus and Valencia. Development is predominantly residential, with areas of industrial and retail uses along major streets. "Valencia Town Center" contains a regional mall with surrounding retail, office and residential uses. The Six Flags Magic Mountain amusement park is also located in the unincorporated area west of I-5.

1. SCAG planning forecasts and those in the *One Valley One Vision Technical Background Report* make it clear that the Santa Clarita Valley Planning Area will continue to grow rapidly during and beyond the 10-year planning period. Although the percentage of growth will diminish as the base population expands, the absolute amount of population growth will not diminish. Santa Clarita had a population of 110,000 at its 1987 incorporation and grew to approximately 165,000 in 2005. By the year 2015, the City's population is expected to exceed 210,000, a growth rate among the fastest for communities within Los Angeles County.

   The surrounding unincorporated areas and rural fringes, including Stevenson Ranch, Castaic, and other new development along Route 14, exceeded 75,000 people in 2005 and are also growing rapidly. The combined Santa Clarita Valley population (City plus unincorporated) is anticipated to grow to more than 300,000 residents by 2010 based on existing development entitlements and current growth trends. The SCAG 2015 forecast of 336,000 residents in the valley represents a 34 percent increase from the 2005 population. Other development proposals under consideration or anticipated by Los Angeles County could raise the Santa Clarita Valley build-out population to more than 400,000 after 2025, including 60,000–65,000 additional residents in the proposed Newhall Ranch project west of I-5 and south of Route 126.

Table ES-1 Population and Employment Projections

	2000	2005	2015	2020	2005-15 Growth	
					%	amount
Total SCV Planning Area Pop.	212,611	243,000	336,000	368,000	38%	93,000
Total SCV Planning Area employment	60,511	68,500	96,400	105,470	41%	27,900

Source: Southern California Association of Governments

2. Extensive information is available regarding development approvals and plans, but it is difficult to anticipate build-out rates with any accuracy. For example, the *1997 Transit Development Plan* anticipated completion of the Porta Bella/Whitaker and Newhall Ranch developments, but neither project was in development by mid 2006. Given the shortcomings in available information, this TDP has opted to use overall growth rates combined with specific information about major developments. Areas projected to produce significant job growth include Gate King, Centre Pointe, and expansion of the Valencia Industrial Center. Large new residential developments are expected to include River Park Village, Whitaker-Bermite, specific plans for Downtown Newhall and North Newhall, Stevenson Ranch, and Newhall Ranch.

3. The rate of forecast employment growth in the Santa Clarita Valley is slightly higher than forecasts for housing and population growth, meaning that over time, a somewhat higher proportion of local residents will work locally than currently is the case. However, in absolutely terms, these growth trends are likely to still result in 20-25,000 additional residents commuting out of Santa Clarita over the next two decades. Thus, continued expansion of Metrolink commuter rail service and regional bus connections will be needed in addition to expansion of local transit service.

4. Santa Clarita has a relatively young population, with a lower proportion of elderly residents than most similar suburban cities. While only three percent of households do not have access to an automobile, there are neighborhoods where income levels are substantially below the average for the City and the proportion of households without access to a motor vehicle is well above the community average.

Thus, it appears likely that expanded transit service will be required to serve projected community growth; however, the projected geographic expansion of the community will not make provision of efficient and effective transit service any easier.

Santa Clarita Transit History

The City of Santa Clarita assumed responsibility for local transit in 1991 from Los Angeles County, which had developed an embryonic transit network. A small City staff provides supervision over a contract operator. Over time, the local fixed route network and dial-a-ride service was expanded. Under City management, a number of new regional express services to various points in the San Fernando Valley, West Los Angeles, and downtown Los Angeles were added or improved. A *1997 Transit Development Plan (TDP)* analyzed the transit service at that time and made recommendations for improvements and modifications. Since the previous TDP, total transit system ridership has more than doubled.

Metrolink commuter rail service was established in 1992, with one station, Santa Clarita. A second station, Via Princessa, is located in the Canyon Country area and opened in 1994 in the wake of the San Fernando Valley earthquake. The Newhall Station, the third one in Santa Clarita, opened in 2000. There are now twelve daily trains in each direction, with five trains departing Santa Clarita to Union Station before 8 a.m. Three of the twelve daily trains in each direction do not extend to the Antelope Valley, and SCT provides connecting express buses for those trips. Express buses operate to and from the Antelope Valley, Olive View Hospital in Sylmar, downtown Los Angeles, Van Nuys, Westwood/Century City, and Woodland Hills. The number of buses used in this service has increased from 18 in 1996 to 28 in 2006.

1. A new state-of-the-art Transit Maintenance Facility opened in April 2006, replacing scattered facilities rented from the private sector.

2. All regular local bus routes operate every 30 minutes seven days a week over most route segments, with additional peak period trips to Metrolink and schools. Excellent transit access is provided to the Valencia Town Center, the Newhall area, and the core areas of Canyon Country. The route structure has evolved logically, reflecting growth patterns, and the opening of new transit centers such as the McBean Transfer Station (MTS) adjacent to the Valencia Town Center, and Newhall Metrolink Station adjacent to the Newhall business district.

3. In the past ten years, annual ridership on the local fixed route network grew from 1.1 million annual riders to 3.3 million annual riders, while annual ridership on the express buses increased from 107,000 to 352,000 annual riders before declining to 303,000 riders in FY 2004-05. It increased back to 314,000 in FY 2005-06. In contrast, dial-a-ride annual patronage only increased from 60,000 riders to a peak of 85,000 riders before decreasing to 68,800 passengers during FY 2005-06.

4. Santa Clarita provides a challenging environment for transit service and in fact all forms of mobility. Terrain, watercourses, and utility corridors interrupt travel corridors and a limited number of arterials channel traffic down canyons and along riverbeds. Walled communities and steep hills make it difficult for many residents to conveniently access buses operating on arterials. Pedestrian "paseos" in Valencia provide access to arterials in some neighborhoods.

Transit Performance

Regional Express Routes

1. Most peak direction service on the regional express routes is well utilized, with the exception of Route 798-Van Nuys and midday Route 790-Olive View Hospital/Sylmar. Review of ridership and discussions with SCT's "Commuter Ambassadors" suggests some schedule changes are warranted, particularly earlier morning and later afternoon trips to and from downtown Los Angeles. As Metrolink service expands, route 795 schedules to and from Antelope Valley may need to be adjusted to be more complementary to rail schedules, particularly to coordinate with rail trips that turn back in Santa Clarita, not extending to Lancaster.

2. Extensions of HOV lanes on the I-5 and I-405 will improve on-time reliability for express services, which are subject to typical freeway delays.

3. The busiest boarding locations for express buses include the Santa Clarita Metrolink Station, the Cinema park-and-ride lot, the Newhall Metrolink Station, and at informal park-and-ride facilities at San Fernando Road and Sierra Highway, adjacent to where the buses enter the Route 14 freeway. The route along McBean Parkway, Orchard Village, and Lyons Avenue increases travel time within the community, reduces productivity, and suggests rerouting of most express trips along San Fernando Road north of the Newhall Metrolink station.

Local Fixed Route

4. Since the last TDP, the number of weekday and Saturday service hours has increased markedly; Sunday service was initiated; and ridership increased by a greater degree. Overall transit system productivity increased – the number of passengers per vehicle service hour increased from 21.8 in 1995-96 to 30.2 in 2004-05 for the fixed route local service. A maximum of 34 buses operate in local fixed route service during peak periods when school is in session.

5. The on-time performance of local fixed route service is a significant problem for Santa Clarita Transit, particularly from mid-afternoon to 7:00 p.m. Initial observations were verified and quantified in a comprehensive line-by-line analysis performed as part of the TDP Update. Routes 1/2 and 5/6 have the most difficulty maintaining on-time performance, with delays throughout the system but most focused within a few miles of the MTS. For example, Route 1 averaged 13-16 minutes behind printed schedule times; Route 2 averaged 6-11 minutes behind schedule; and Route 5 ran 8-28 minutes behind schedule.

6. Delays experienced at major intersections due to long traffic signal cycle times have a major negative impact on schedule reliability. The City has installed a sophisticated traffic control network. It is recommended that Santa Clarita Transit and the City's Traffic Engineering Department work together to identify critical intersections where traffic signal priority (TSP) for buses could improve transit performance. One location where benefits could immediately be obtained is the Santa Clarita Metrolink Station exit onto Soledad Canyon Road where 5 to 10 minutes delays are common for buses and autos leaving the station after p.m. peak period train arrivals.

7. During the past 10 years, The William S. Hart School District has gradually eliminated school buses to junior high and high schools. SCT has provided services to the schools, and productivity on the "600" series has been excellent. As student enrollment continues to grow rapidly and the school district regularly opens new schools, SCT school-oriented routes and schedules are adjusted annually.

8. The highest transit ridership areas in Santa Clarita include the Newhall community, the Canyon Country area focused on the Soledad Canyon/Sierra Highway intersection, and by students traveling to and from school over the entire community.

9. While a portion of new development is projected to be "infill" in currently developed areas, much anticipated development in the Santa Clarita Valley will continue to be low density housing on the fringes of the existing developed area. In most cases, this type of development generates a low proportion of transit riders compared to older, established areas.

10. The completion of the "cross-valley connection" within the next two years – e.g., extension of Newhall Ranch Roach east of Bouquet Canyon Road connecting with Golden Valley Road - will significantly reduce congestion on Soledad Canyon Road and the Soledad/Bouquet Canyon intersection. However, there will be added traffic and congestion at Newhall Ranch Road intersections with Bouquet and McBean. This will help on-time performance on Routes 5 and 6 but may adversely affect the performance of Routes 1/ 2, 3/7 and 4.

Dial-a-Ride Service

11. DAR service is highly concentrated, 25% of trips serve the Adult Day Care Center and an additional 15% serve the Senior Center in Newhall.

12. Despite an increasing population, ridership and productivity has declined on the DAR service. The 275-300 DAR passengers represent only two percent of daily patronage but almost 20 percent of the transit budget.

13. It is not clear that the $29 compensation per trip from Access Services Inc. (ASI) for ADA-eligible trips covers actual costs incurred by SCT.

14. The DAR dispatchers are not sufficiently geographically oriented or well trained with the installed Route Match AVL software.

15. Both the dispatch and call taking functions have been understaffed, resulting in long telephone wait times and client dissatisfaction. The level of staff training could also be considerably better.

Recommendations

Regional Express Routes

1. Development of a major (500+ spaces) park-and-ride lot at the intersection of San Fernando Road and Sierra Highway should be the highest priority capital improvement for enhancing the regional service. By diverting some bus riders from parking at the Metrolink stations, this also would represent a cost-effective way of increasing parking capacity at the Newhall and Santa Clarita Metrolink Stations. A second park-and-ride lot should be considered on the parcel behind the McBean Transfer Station; this would require some restructuring of routes to serve this location.

2. SCT should consider substituting a route to the Red Line/Orange Line North Hollywood and Universal City Red Line Stations for the existing 798/793 Van Nuys route. This could operate initially as an all day 60 minute headway service, increasing to every 30 minutes during the day depending on ridership trends. This route would also provide the maximum number of transfer opportunities to San Fernando Valley bus routes connecting to most areas of northern Los Angeles, as well as to/from the Burbank shuttles, the Red Line subway, and the Orange Line busway.

3. With the increasing success of the new Route 8 Sylmar service, SCT should consider eliminating the Route 790 service to Olive View Medical Center.

4. Regional service should take a more direct route through the community; trips starting at the Santa Clarita Metrolink Station on Soledad Canyon should operate to/from Newhall via San Fernando Road.

5. Schedules should be modified to increase productivity of regional buses. Reverse commute trips for buses making second trips should operate in express mode to the MTS, and then start their second trip there and operate via San Fernando to Newhall and Sierra/San Fernando. Reverse commute buses returning to the Transit Maintenance Facility should operate in service to the MTS and VIC.

6. If regional express ridership increases substantially, SCT should consider new routes to downtown Los Angeles from Canyon Country and Castaic (if a park-and-ride lot can be developed at the latter).

Table ES-2 Projections of Annual Operating Hours for Regional Service

Route	Existing weekday revenue hours	Existing total Revenue hours	Short-term weekday revenue hours	Short-term total revenue hours	Medium-term weekday revenue hours	Medium-term total revenue hours
790 Olive View	893	893	0	0	0	0
795 Antelope Valley	2,500	2,500	1,500	1,500	0	0
796-791 Warner Center	6,000	6,000	6,000	6,000	6,600	6,600
797-792 UCLA/ Century City	6,828	6,828	7,850	7,850	8,240	8,240
798-793 Van Nuys Red Line/Orange Line	7,006	7,006	7,500	10,000	10,000	13,000
799-794 downtown LA	9,420	9,420	9,890	9,890	10,365	10,365
Subtotal	32,647	32,647	32,740	35,240	35,205	38,205
8 Sylmar	6,940	9,400	6,940	9,400	7,290	9,870
Total	39,587	42,047	39,680	44,640	42,495	48,075

Source: Michael Fajans & Associates

Local Fixed Route

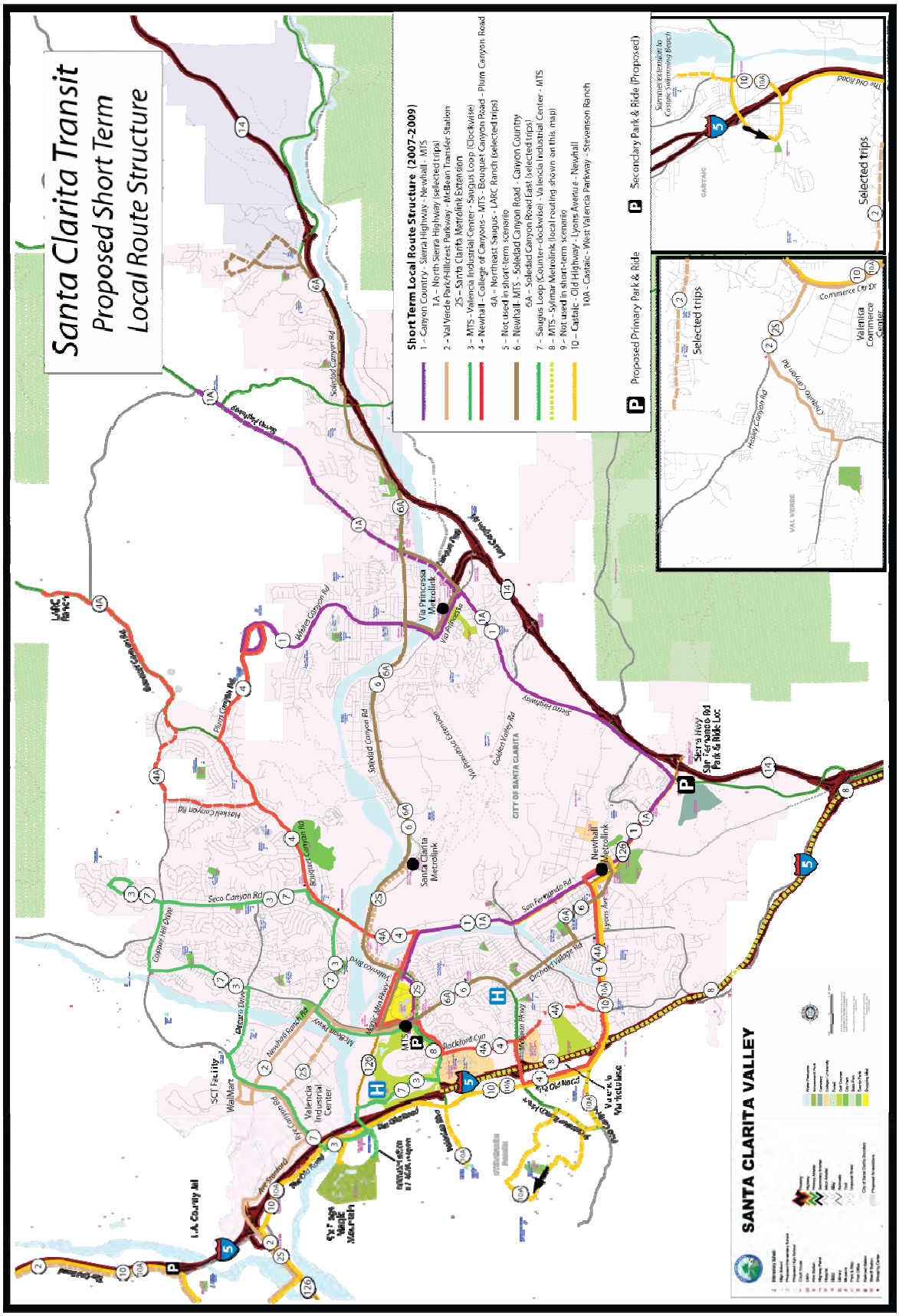
7. As an immediate action, schedules need to be made more realistic, with recovery time built-in. Alternatively, some trips on low ridership "tails" can be eliminated or reduced, which should assist in developing more realistic schedules without adding too many buses. When the CAD/AVL software is in place, some tails can be considered for route deviation "hybrid" services as well.

8. Some routes are very long, with one-way distances approaching 20 miles or more in one direction, and round trip "cycle times" of nearly three hours. Local routes such as the 1 or 6 should begin or end at the MTS or Newhall, rather than operating extraordinarily long routes all the way "across town." Depending on how run cuts actually work out, the option remains for buses to interline multiple routes, but separating route numbers for long legs provides the option for designing a schedule that works more efficiently.
9. As the system expands, bus meeting points should be strengthened at Newhall and Via Princessa Metrolink Stations, as it will not be practical to focus all transfers at the MTS.

10. The following route modifications, illustrated in figure 1, are recommended for relatively short-term implementation:

- Route 1. This should operate to Whites Canyon via Via Princessa rather than Soledad Canyon. The Whites Canyon end should be extended to Heller Court, providing new service further up Whites Canyon but eliminating a long turn-around loop on neighborhood streets. The Sierra Highway end of Route 5 should become a 1A branch that either alternatives with the Whites Canyon service, or acts as a local feeder to Route 1 within the Canyon Country area.
- Route 2. This should become a route connecting Castaic, Val Verde, the Commerce Center, and Valencia Industrial Center (VIC) to the MTS. During peak periods, it should use Avenue Scott in the VIC; during non-peak periods it should serve the Rye Canyon and new Wal-Mart shopping area, traveling via Newhall Ranch Boulevard.
- Route 3/7. Consideration should be given to converting these to clockwise and counter-clockwise loops as shown on figure 1, with a small deviation to serve Magic Mountain when the park is open.
- Route 4. There should be two branches at the ends of this line. Besides the existing LARC branch on Bouquet Canyon, an alternating branch should go up Plum Canyon to Heller Circle, providing a cross town link with Route 1. To the south, one branch would follow the existing route; the other would use the Old Road between McBean and Lyons, serving the retail area along The Old Road and western portions of Lyons.
- Route 5. This route would be eliminated.
- Route 6. This would operate between the Newhall Metrolink Station and its current eastern terminus, with some trips truncated at the Via Princessa Stations and others continuing to Shadow Pines.
- Route 10. This is a new route that would operate between Castaic and Newhall via The Old Road and Lyons Avenue. A route 10A would provide the service to the schools at the end of Valencia Boulevard and also provide service to the Stevenson Ranch area in-lieu of routes 5 and 6.

Figure ES-1 SCT Local Routes: Proposed Short-Term Route Structure



11. These modifications, with schedules adjusted to reflect existing travel times, would require approximately 20 percent more bus hours than the current fixed route schedule.

12. A new high school in Castaic is planned for 2009 and will necessitate additional school-oriented routes. Additional development of both junior highs and high schools is anticipated for the Sierra/Vasquez area in 2010-11 and Newhall Ranch in 2011-13.

13. The CAD/AVL Request for Proposal (RFP) should provide a database for post processing of information, and the project should be designed to include the capability of operating hybrid or "flex-routes" in low productivity areas, as well as blending service modes for vehicles.

14. The following route modifications, as illustrated in figure 2, are recommended for the medium-term, or 5-10 years out when development proceeds and new road linkages are available:

    - Routes 3/7. As further development occurs, these routes should be extended further west on Magic Mountain Parkway and Valencia Boulevard. Portions could be converted to hybrid service.
    - Route 4. A service extension into development beyond Plum Canyon should be probed with a hybrid route.
    - Route 5. This new route would connect Canyon Country/Via Princessa Metrolink to the MTS via new extensions of Via Princessa and Magic Mountain Parkway, serving the new Whittaker-Bermite development. It would operate south of MTS on the current Route 4 linkage, but continue south of Lyons Avenue on Wiley Canyon.
    - Route 9. This route could serve the rapidly developing Lost Canyon Road east of Highway 14. It would operate on Golden Valley, exiting to serve Centre Pointe, and use the new segment of Newhall Ranch Road east of Bouquet Canyon. It could either travel to the MTS via McBean Parkway or loop through North Valencia on Seco Canyon and Decoro Drive. Segments of the route might operate in hybrid mode.
    - Route 11. This potential hybrid route would serve the Newhall Ranch Landmark Village along Henry Mayo Drive, connecting to the MTS via Commerce Center Drive and Magic Mountain Parkway.
    - Route 12. This route would connect new development in the Copper Hill/Tesoro area with the MTS via Copper Hill Drive. It could also include hybrid service.

The medium-term modifications would require 49 buses, including Station-link and school trippers, compared to 34 at present and 38 in the short-term scenario. Annual bus revenue hours would increase to 178,500, an increase of 58 percent over current operations.

Figure ES-2 SCT Local Routes: Proposed Medium Term Route Structure

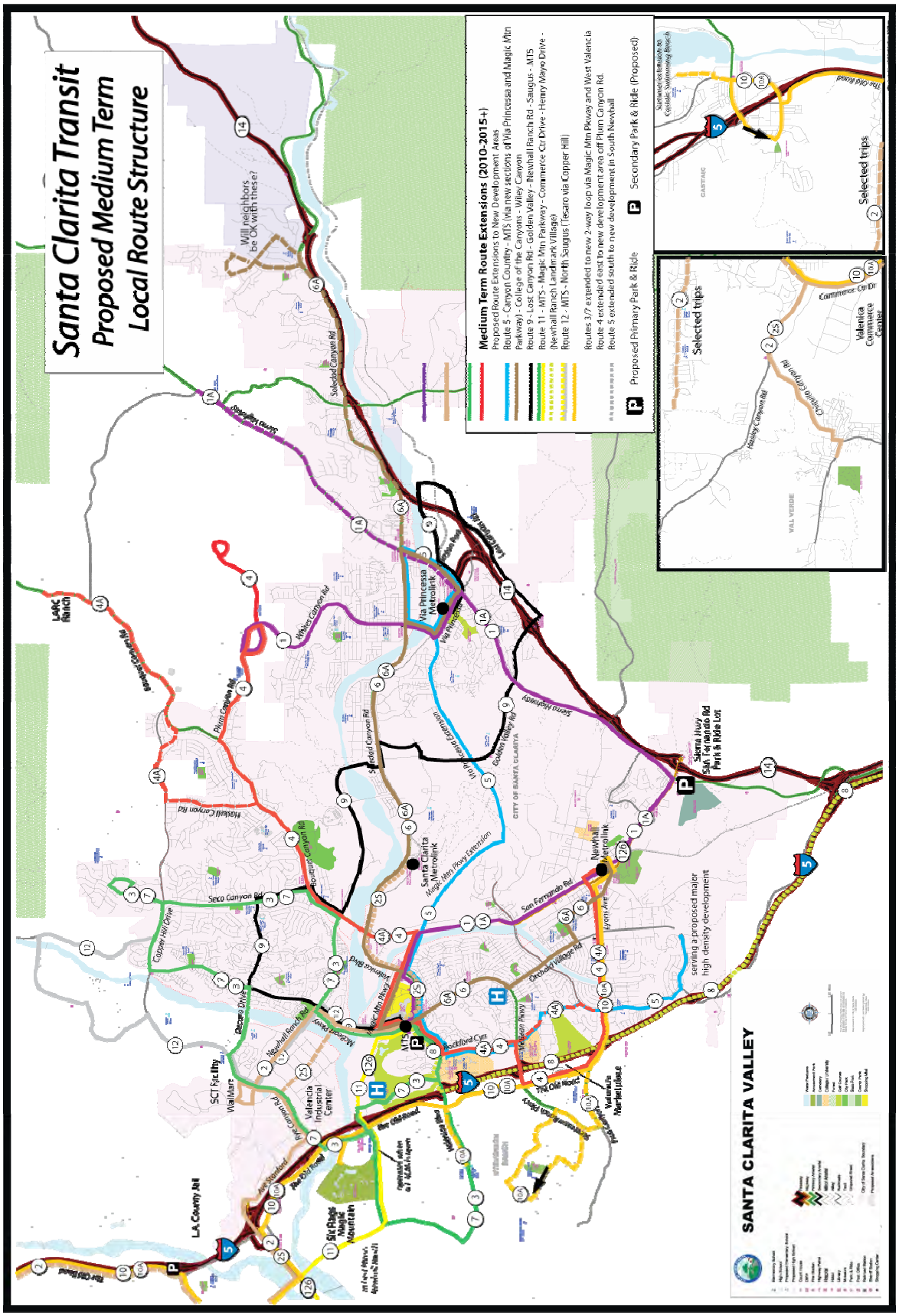


Table ES-3. Santa Clarita Transit: Local Routes Projected Vehicle Hours & Peak Bus Requirements

Route	Base Weekday Headway	Estimated Hours per Weekday	Revenue Hours, Weekday	Estimated Hours, Saturdays	Revenue Hours, Saturday	Estimated Hours, Sundays	Revenue Hours, Sunday	Total Revenue Hours	Peak Buses
EXISTING SERVICE									
1 / 2	30	101.4	26,053	52.0	3,614	44.0	3,081	32,748	8.0
3 / 7	30/60	24.9	6,392	17.3	1,201	17.4	1,224	8,817	2.0
4	30	57.4	14,748	35.2	2,440	16.6	1,167	18,355	4.0
5 / 6	30	128.8	33,099	62.9	4,360	52.0	3,646	41,105	10.0
501-504	n/a	15.9	4,085					4,085	4.0
620-638 school	n/a	18.3	4,700					4,700	6.0
Totals		**346.7**	**89,077**	**167.4**	**11,615**	**130.0**	**9,118**	**109,810**	**34.0**
PROPOSED, SHORT TERM									
1	30	87.0	22,272	48.0	2,496	40.0	2,120	26,888	7.0
2	30	49.0	12,544	30.0	1,560	28.0	1,484	15,588	3.0
3 / 7	30/60	40.0	10,240	24.0	1,248	22.0	1,166	12,654	3.0
4	30	60.0	15,360	48.0	2,496	24.0	1,272	19,128	4.0
5	30	0.0	0	0.0	0	0.0	0	0	0.0
6	15	115.0	29,440	60.0	3,120	50.0	2,650	35,210	8.0
9	n/a	0.0	0	0.0	0	0.0	0	0	0.0
10	60	42.0	10,752	30.0	1,560	8.0	1,484	13,796	3.0
501-504	n/a	15.9	4,085	0.0	0	0.0	0	4,085	4.0
620-638 School	n/a	18.3	4,700	0.0	0	0.0	0	4,700	6.0
Totals		**427.2**	**109,393**	**240.0**	**12,480**	**192.0**	**10,176**	**132,049**	**38.0**
PROPOSED, MEDIUM TERM									
1	30/30	87.0	22,272	48.0	2,496	40.0	2,120	26,888	7.0
2	30	49.0	12,544	30.0	1,560	28.0	1,484	15,588	4.0
3 / 7	30/60	45.0	11,520	24.0	1,248	22.0	1,166	13,934	3.0
4	30	70.0	17,920	48.0	2,496	24.0	1,272	21,688	5.0
5	30	48.0	12,288	28.0	1,456	26.0	1,378	15,122	3.0
6	15	115.0	29,440	60.0	3,120	50.0	2,650	35,210	8.0
9	30	60.0	15,360	28.0	1,456	28.0	1,484	18,300	4.0
10	60	42.0	10,752	30.0	1,560	28.0	1,484	13,796	3.0
11	60	16.0	4,096	14.0	728	0.0	0	4,824	1.0
12	60	16.0	4,096	14.0	728	0.0	0	4,824	1.0
501-504	n/a	12.0	3,084					3,084	3.0
620-638 School	n/a	24.0	5,200					5,200	7.0
Totals		**584.0**	**148,572**	**324.0**	**16,848**	**246.0**	**13,038**	**178,458**	**49.0**

Source: Michael Fajans & Associates from SCT Current Hourly Data

Dial-a-Ride Service

16. In the immediate-term, it is essential that the level of training and knowledge of DAR dispatch and call-taking personnel be increased significantly, with consistent staffing of these functions by properly trained persons with excellent knowledge of the service area.

17. If dispatch and call-taking performance does not improve, the City should consider taking over these functions when a new operating contract takes effect in 2007. SCT should move forward quickly to install Interactive Voice Recognition (IVR) technology to assist call taking staff in reducing customer hold times.

18. SCT should provide greater outreach to riders to explain the nature of DAR service (e.g., it is a shared ride service, not a taxi service).

19. The dispatching function should take full advantage of available technology to develop "quasi-routing", sweeping routes. In order to do this efficiently, it will be necessary to "negotiate" with riders to adjust pickup/drop-off times and standing pickup reservations.

20. Some DAR vehicles should be confined to limited geographic zones to handle concentrations of short trips. At present, vehicles tend to wander around too much.

21. SCT should continue to acquire City-owned vehicles for DAR service; at present most DAR buses are owned by the service contractor and may not always be available.

Finance and Capital Projects

1. If there are no significant changes in present funding formulas, it appears that SCT will maintain sufficient financial capacity to fund the recommended service expansion, subject to keeping escalation in operating expenses under tight control. If service expansion increases the budget faster than available revenues, the service expansion implementation can be delayed by a year or two.

2. Major sources of operations and preventive maintenance funding (e.g. FTA Section 5307, TDA Article 8, Proposition A Discretionary) may not keep pace with inflation.

3. SCT will need to rely more heavily on Proposition A and C Local Return sales tax funds, which are subject to declining revenues during economic recessions.

4. Capital funding is highly dependent on grants for individual projects, but there does not appear to be any major hindrance regarding accessibility to capital funds.

5. With the completion of SCT's new Transit Maintenance Facility, acquisition of replacement buses and park-and-ride facilities are the major capital priorities. In addition to standard bus replacement, SCT should consider the acquisition of a number of 30-foot low floor buses that can be used both for low-patronage fixed route service, hybrid services, and more heavily utilized DAR service.

6. The Via Princessa Metrolink Station should be upgraded to match the standards established by the Newhall and Santa Clarita stations. In addition, the City should develop a set of on-

street bus stops on northwest bound Via Princessa adjacent to the station, coupled with stairs and a ramp down to the station level. This will allow for future bus to bus time-transfers at the station without local buses having to make time-consuming diversions into the station.

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1.0 The Current Transportation Environment: Opportunities and Constraints

This section describes the environment in which Santa Clarita Transit operates. This includes demographic and growth trends, transportation-related facilities serving the area including the highway network, public transit services, paratransit services, park-and-ride lots, transit centers, and other supporting transportation infrastructure.

1.1 Population, Employment and Travel Patterns

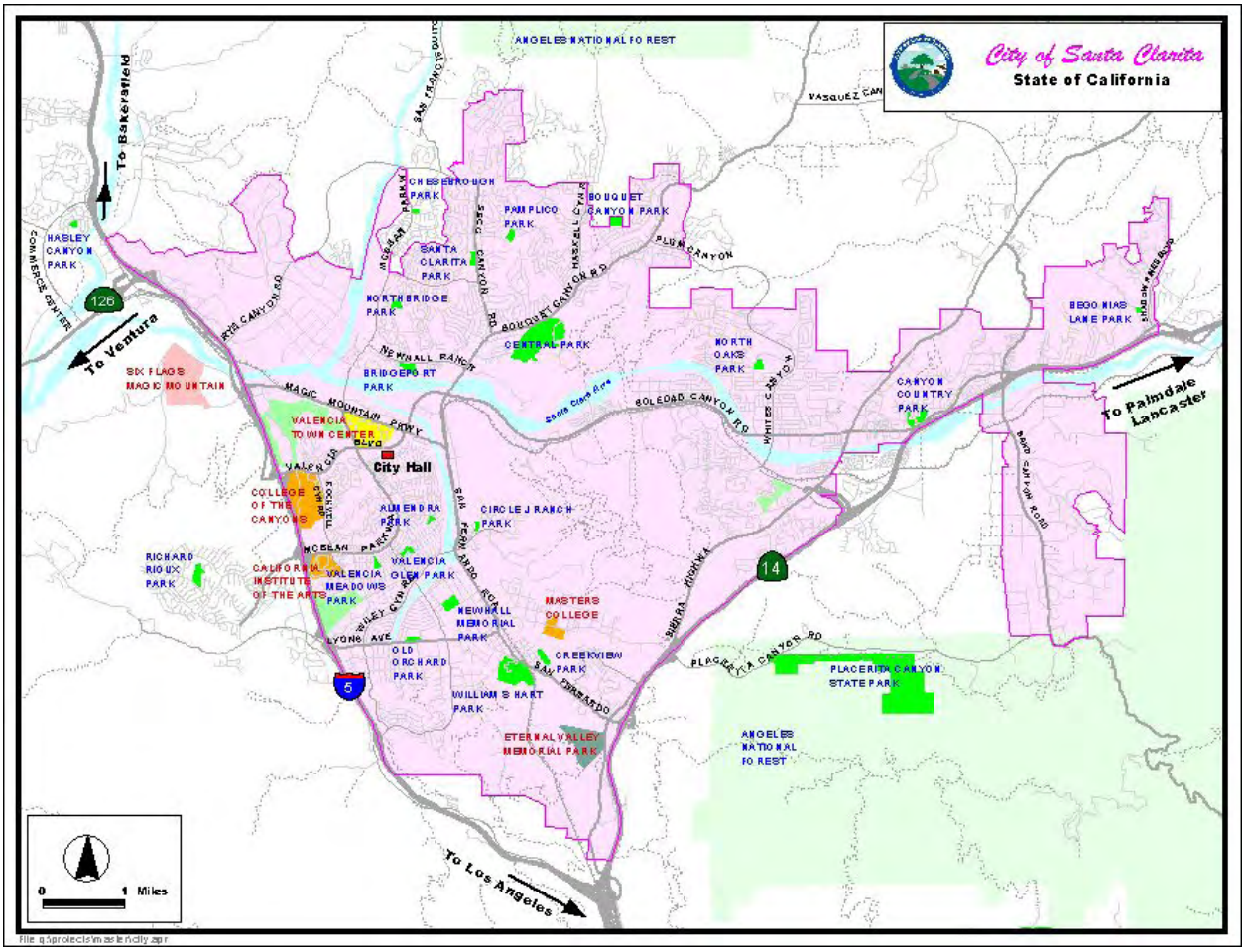
Existing and Forecast Population & Demographics

The City of Santa Clarita incorporated in 1987. City boundaries encompass more than 40 square miles centered in the Santa Clarita Valley, about 35 miles northwest of downtown Los Angeles. The City is triangular in shape, straddling I-5 and Route 14, spreading west and northeast of the junction between those two major freeways. The City is composed of a series of distinct communities, including Canyon Country, Newhall, Saugus and Valencia. Development is predominantly residential, with areas of industrial and commercial uses as well as strip retail uses along major streets. The Valencia Town Center is notable for not only a large regional shopping mall, but also a major New Urbanist mixed use development incorporating office space, retail, and high density, market-rate housing.

Santa Clarita had a population of 110,000 at its 1987 incorporation and grew to approximately 165,000 in 2005. By the year 2015, the City's population is expected to exceed 210,000, a growth rate among the fastest for communities within Los Angeles County.

The surrounding unincorporated areas and rural fringes are also growing rapidly, exceeding 75,000 population in 2005. The combined Santa Clarita Valley population (City plus unincorporated) is anticipated to grow to more than 300,000 residents by 2010 based on existing development entitlements and current growth trends. Other development proposals under consideration or anticipated by Los Angeles County could raise the Santa Clarita Valley build-out population to more than 400,000 after 2025, including 60,000–65,000 additional residents in the proposed Newhall Ranch project west of I-5 and south of Route 126. According to the 1991 Santa Clarita General Plan, some 46 percent of the City land area was vacant in 1990, while 75 percent of the unincorporated land within the City's planning area was vacant. Available vacant land within the City has declined significantly with rapid growth, adding to development pressures in the unincorporated peripheries.

Figure 1.1 City of Santa Clarita



There are additional unincorporated sections of Castaic in upper left-hand corner off this map.

Table 1.1 Santa Clarita Valley Population, Employment, and Projections

Year	City of Santa Clarita Population	Unincorporated Santa Clarita Valley population	Total Population	Total Employment
2000	151,088	61,523	212,611	62,170
2005*	171,290	78,053	249,343	73,540
2010	196,680	105,095	301,775	87,650
2015	210,280	125,850	336,130	96,430
2020	222,290	146,400	368,690	105,470
2025	232,830	166,550	399,380	114,540

Source: Southern California Association of Governments, 2004 RTP

Santa Clarita has a relatively young population, with 32% of the population age 20 or under and only 7.1% over age 65 according to a 2004 estimate, compared to about 10% over 65 statewide. With a median household size of 2.84, a median household income of approximately $53,769 and an average of 2.1 vehicles per household according to the 2000 Census, the community lacks socioeconomic characteristics that often correlate with the problems of older cities. Although fewer than 3% of households did not have access to an automobile in 1990, there are pockets in Newhall and along Soledad Canyon in Canyon Country where income levels were well below community averages and the number of households without access to an automobile was well above the community average. Figures 1.2 through Figure 1.4 illustrate relevant demographic indicators for transit dependency by Census Tract.

Existing and Forecast Employment

Including the unincorporated area, the total 2000 employment was estimated at approximately 62,000, which is projected to increase to more than 96,000 jobs by 2015 and 114,000 by 2025. The major employment center in the community is the Valencia Industrial Center, with approximately 15,000 jobs. Growth is anticipated throughout the community, but the Valencia Commerce Center northwest of the interchange of I-5 and Route 126 is projected to be the most rapidly growing employment area.

Key Travel Patterns

The Southern California Association of Governments (SCAG) is the metropolitan planning agency responsible for the region's socioeconomic demographic forecasts. Based on Year 2000 data from the U.S. Census Bureau, SCAG reported a total of 72,293 employed residents of the City of Santa Clarita. Table 1.2 illustrates reported job locations by jurisdiction, and estimated jobs by sub-area within the City of Los Angeles. Figure 1.5 also illustrates this data graphically. While some of the distribution of jobs data is relatively old, the proportions are unlikely to have changed much.

The SCAG forecasting model shows that in the year 1990, of the 106,000 work-related person-trips originating in the Santa Clarita area (the zone includes the surrounding area as well as the City), about 41% stayed within the area. Other key destinations included the San Fernando Valley (29%) and West Los Angeles (14%). Based on the 2000 Census, about 48% of Santa Clarita employed residents stayed within the City. Of the 415,000 non-work person-trips originating in the Santa Clarita area in 1990, about 76% remained within the Santa Clarita Valley, with about 13% going to the San Fernando Valley. Figure 1.5 summarizes key commute trip patterns originating from Santa Clarita Valley based on the 2000 Census. SCAG's future forecast suggests that the number of both home-to-work trips and non-work trips in the Santa Clarita Valley may double by 2030. While the proportion of employed residents working within the Santa Clarita Valley may increase, the absolute number of out-commutes is also growing.

Figure 1.2 Percentage of Households with Seniors: 2000 Census

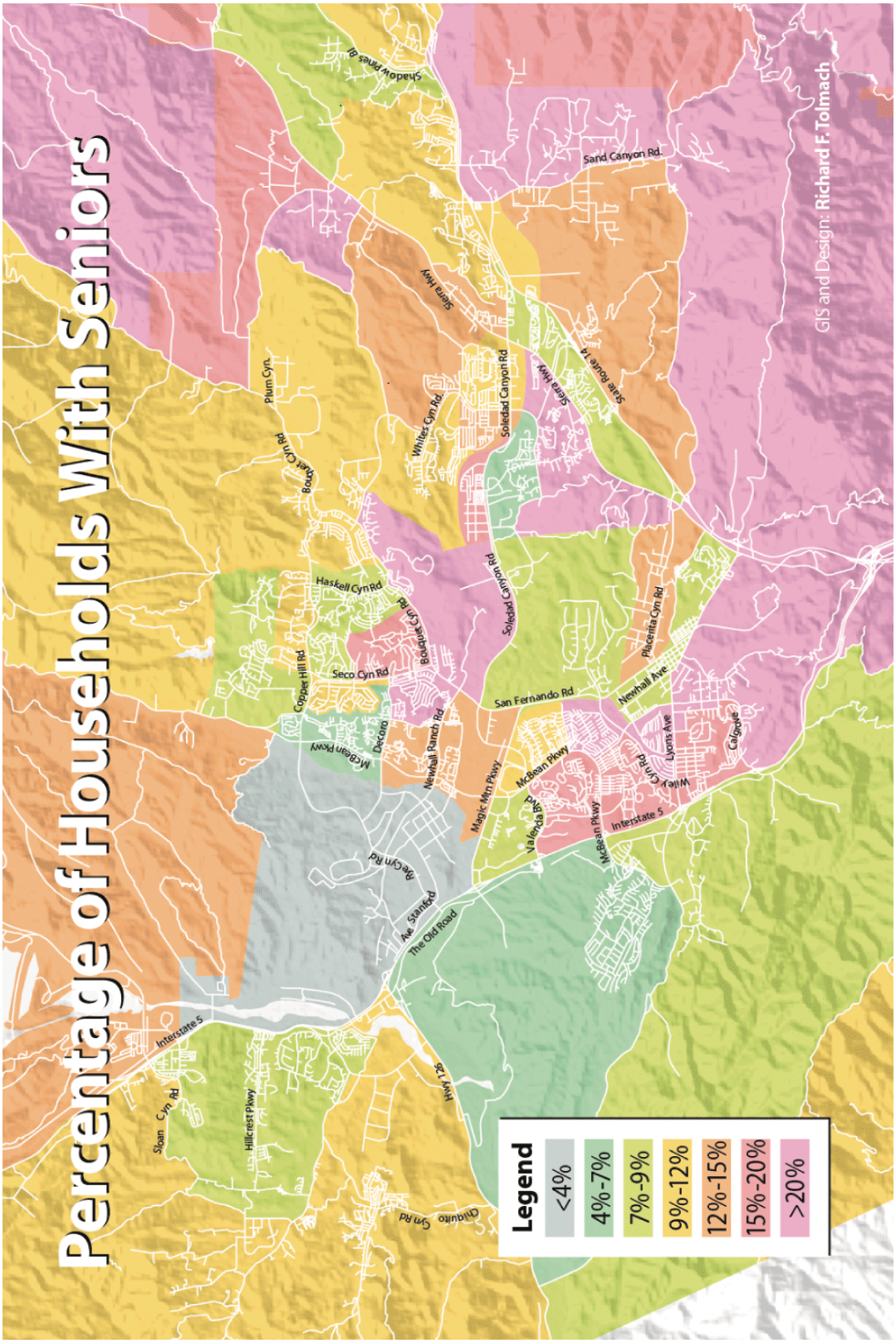


Figure 1.3 Average Per Capita Income: 2000 Census

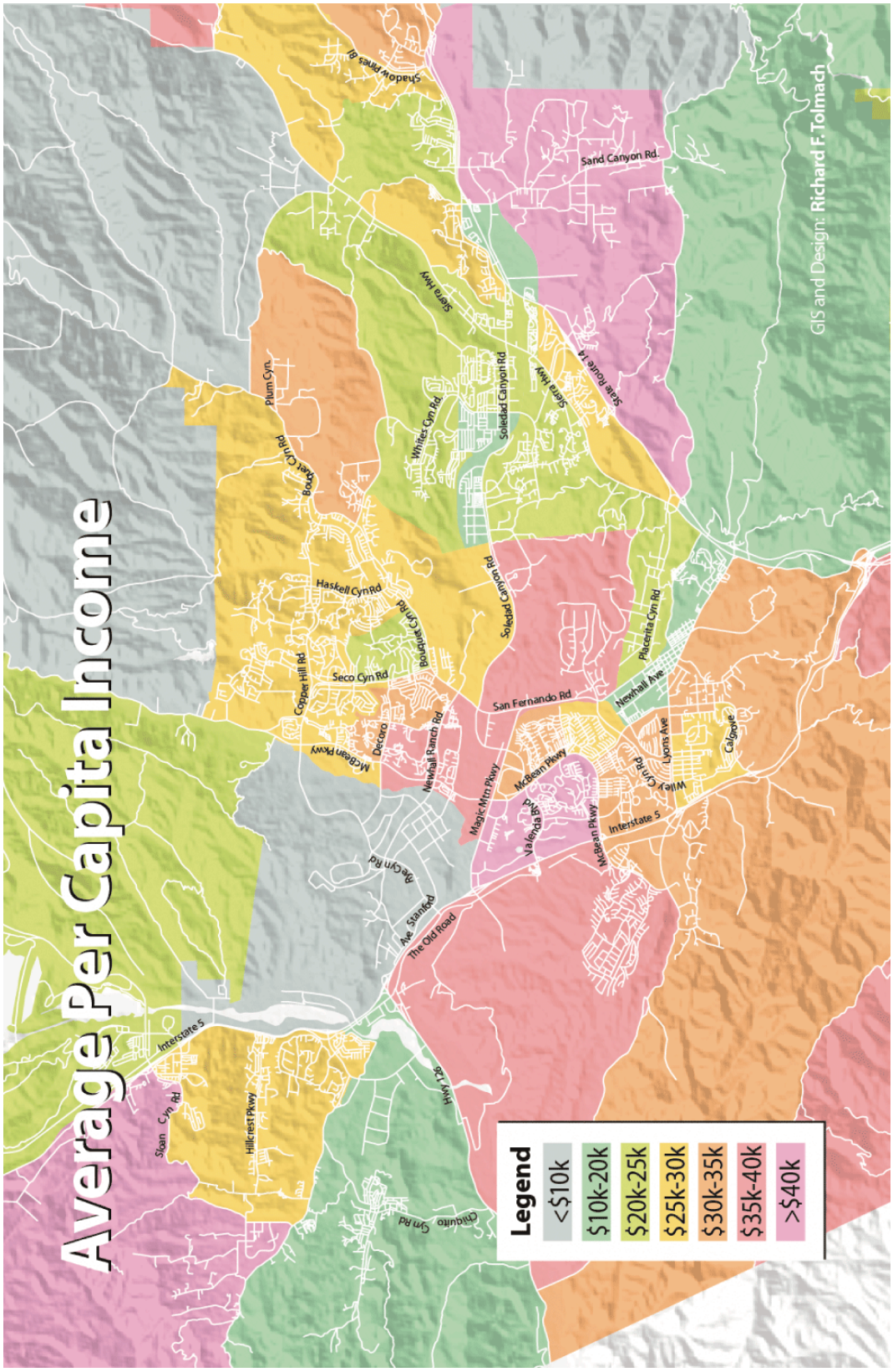
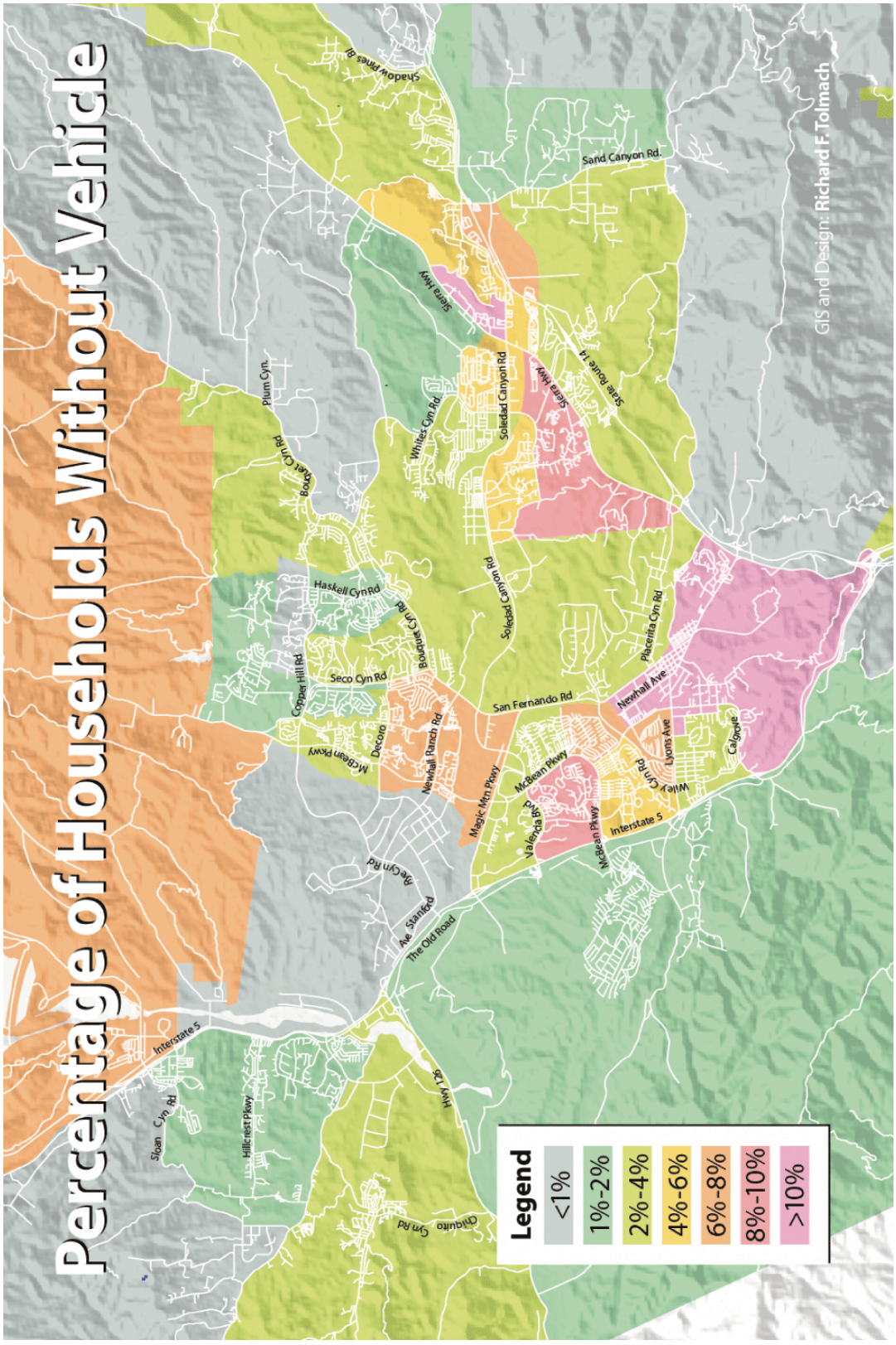


Figure 1.4 Percentage of Households Without Vehicle: 2000 Census



Of the daily work trips that arrived to the Santa Clarita Valley for the year 2000, the majority of person-trips once again began in the Santa Clarita Valley (48%); 19% originated in the City of Los Angeles mostly from the San Fernando Valley; 5%-7% originated in the Antelope Valley; and minor percentages originated from other areas in the SCAG region. For non-work trips, the vast majority of trips were within Santa Clarita Valley (93%), with about 5% coming from the San Fernando Valley. By the year 2030, home-to-work trips may *double* and non-work trips may *more than double*.

Based on SCAG's demographic forecasts for Year 2030, the Los Angeles County Metropolitan Transportation Authority (MTA) performed traffic simulations as part of its analysis in developing Los Angeles County's 20-Year Transportation Plan (20-Year Plan). This exercise led to the following conclusions related to Santa Clarita/North County:

- Los Angeles County's largest increases in population will occur in Santa Clarita and Palmdale, adding between 250,000 and 300,000 people by 2030. Adjacent communities such as Lancaster and the west San Fernando Valley will also experience major growth. While experiencing very high growth rates, the resulting population density is still low compared to the rest of Los Angeles County.

- The percentage growth in employment is expected to be very high, though the resulting employment density is still low compared to the rest of Los Angeles County.

- Morning peak period freeway speeds in the traffic simulations generally show free-flowing conditions (over 40 mph) in the study area for the current year. Traffic simulations for the year 2030, which incorporate improvements adopted in the 20-Year Plan, shows a dramatic worsening of freeway travel speeds (0 to 15 mph). This appears to be due to major growth in the North County which has severe roadway constraints in the Newhall Pass between Santa Clarita Valley and San Fernando Valley. Forecasts indicate this will be one of the slowest freeway sections in Southern California. Arterial speeds show a similar dramatic decline in vehicle speeds.

The MTA transportation forecast model indicates that mobility in the North County will be severely hampered in the future, highlighting the need for transportation alternatives other than the single-occupant automobile.

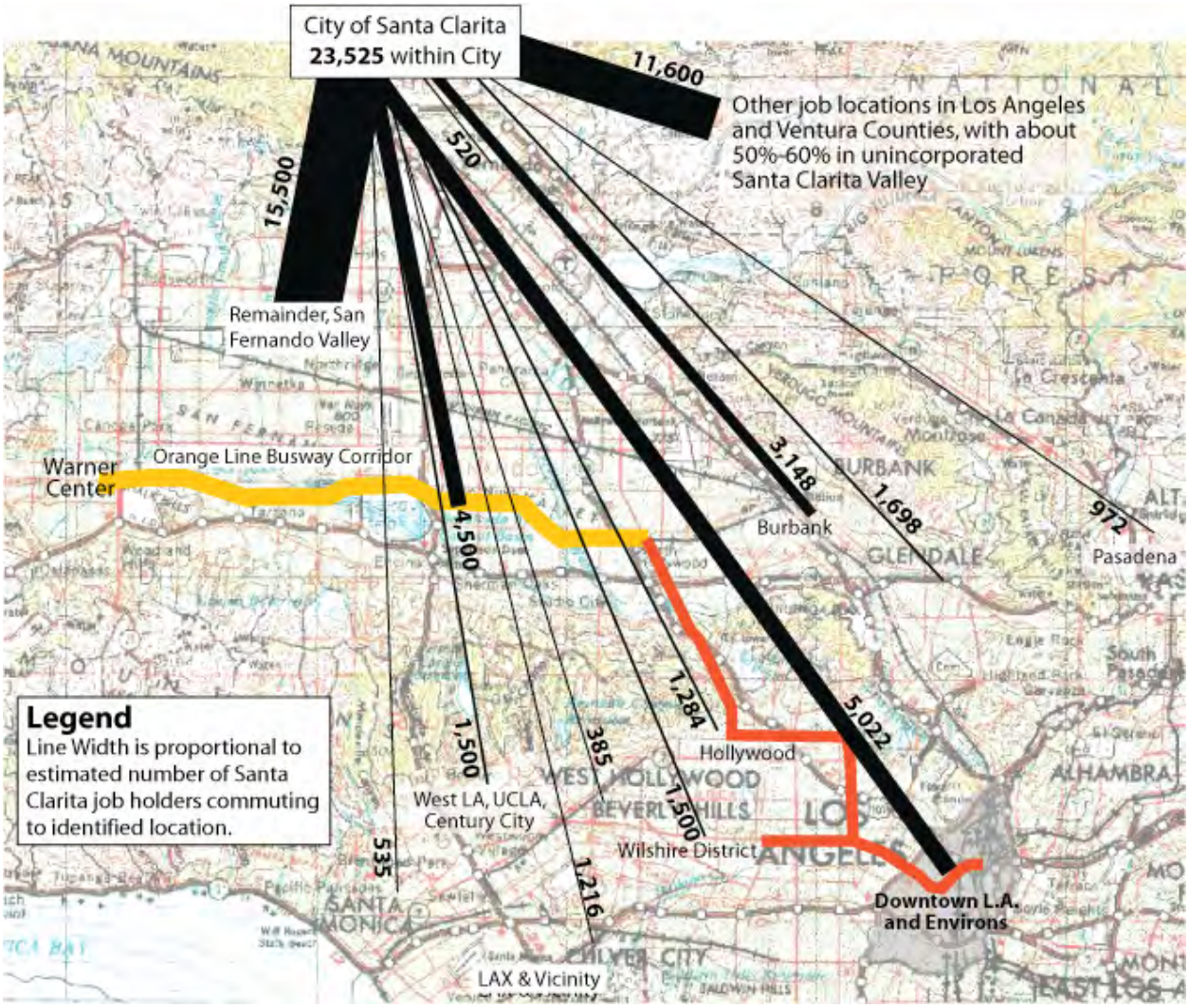
Table 1.2 Job Locations of Santa Clarita Employed Residents: 2000

*Estimates of job centers within City of Los Angeles in italics**					
Jurisdiction or Subarea, L.A. City, # Employed	Miles from I-5 / Hwy 14 Junction	Total Employment 2000 Census	Total Job-Holders Residing in Santa Clarita	Percent of Jobs in Subarea	Source of Data
City of Santa Clarita	n.a.	49,102	72,293		U.S. Census 2000
Residents staying in City	n.a.	49,102	23,525	47.91%	
San Fernando	7	14,039	520	3.70%	U.S. Census 2000
Burbank	17	82,064	3,158	3.85%	U.S. Census 2000
San Fernando Valley - L.A.	13	*478,000*	*19,120*	*4.00%*	Valley Almanac 2000
*Orange Line Busway (Red Line)***	16	*150,000*	*4,500*	*3.00%*	Los Angeles MTA Busway EIR
Sherman Oaks/Encino	17	*18,000*	*450*	*2.50%*	Giuliano & Small 1991
Van Nuys	16	*25,000*	*750*	*3.00%*	Giuliano & Small 1991
Warner Center	24	*25,000*	*750*	*3.00%*	Giuliano & Small 1991
Hollywood	22	*64,200*	*1,284*	*2.00%*	Giuliano & Small 1991
Downtown L.A. (2.5 mi. radius)	27	*558,000*	*5,022*	*1.10%*	Giuliano and Redfearn
Wilshire District	25	*100,000*	*1,500*	*1.50%*	Giuliano & Small 1991
Beverly Hills	27	49,083	385	0.78%	U.S. Census 2000
West Hollywood	25	26,493	163	0.62%	U.S. Census 2000
West L.A./UCLA/Century City	23	*100,000*	*1,500*	*1.50%*	Giuliano & Small 1991
Santa Monica	26	85,585	535	0.63%	U.S. Census 2000
Culver City	27	38,672	284	0.73%	U.S. Census 2000
Los Angeles LAX	31	*60,000*	*420*	*0.70%*	Giuliano & Small 1991
El Segundo	33	53,750	319	0.59%	U.S. Census 2000
Inglewood	31	28,528	97	0.34%	U.S. Census 2000
Hawthorne	35	19,179	96	0.50%	U.S. Census 2000
Glendale	22	81,460	1,698	2.08%	U.S. Census 2000
Pasadena	29	98,330	972	0.99%	U.S. Census 2000

Job estimates for each job center within City of Los Angeles adjusted for job growth 1980-1990. Job center estimates for City of L.A. are based on Giuliano and Small, 1991. *Subcenters in the Los Angeles Region.* UCTC 39*;* Giuliano, Redfearn, Agarwal, Li, and Zhuang*, 2005. Not All Sprawl: Evolution of Employment Concentrations in Los Angeles, 1980-2000*

** Includes Van Nuys and Warner Center

Figure 1.5 Commute Patterns City of Santa Clarita Employed Residents

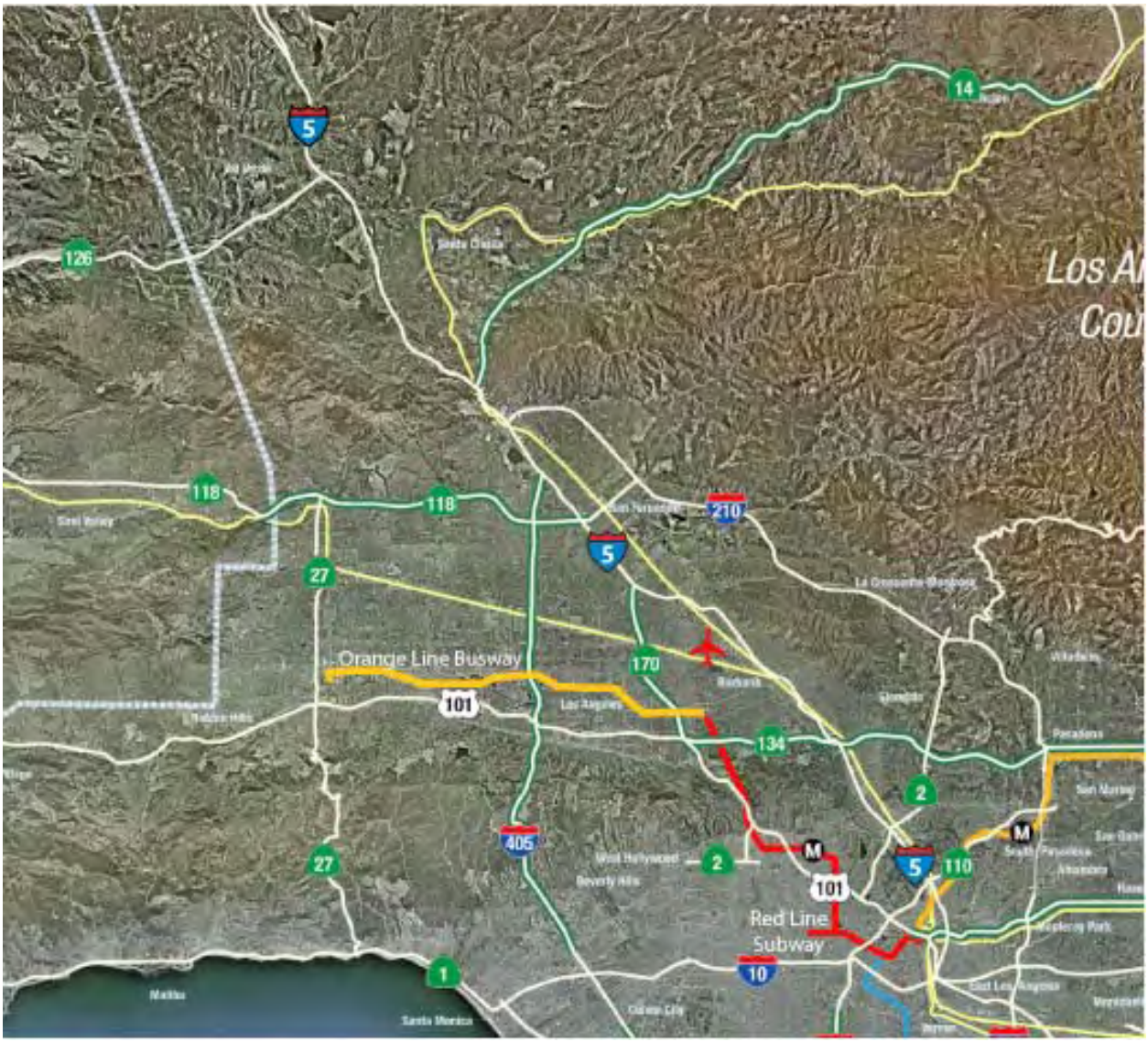


Highway Network

The following major routes, included in the National Highway System, serve the study area:

- Interstate 5 - Golden State Freeway
- Route 14 - Antelope Valley Freeway
- Route 126 - San Fernando Road, Magic Mountain Parkway, Henry Mayo Drive

Figure 1.6 Santa Clarita Area State Highways



Santa Clarita lies at the north end of the Los Angeles metropolitan region, and I-5 connects the region with the Central Valley, Northern California, and Oregon and Washington. Route 14 is the major corridor between the high desert cities of Lancaster and Palmdale in the Antelope Valley and the metropolitan area. The two freeways join just south of Santa Clarita, connecting to the San Fernando Valley via the Newhall Pass. Route 126 provides a connection from Santa Clarita to Ventura and the beach cities of Ventura County approximately 40 miles to the west. The roads listed above provide the segment of Route 126 between I-5 and Route 14. See Figure 1.9.

The MTA's most recently adopted 20-Year Plan identifies projects in Los Angeles County that are expected to be funded over the next 20 years. The projects included in this plan are reflected in the SCAG's Regional Mobility Element (RME) for the south coast region. The MTA 20-Year Plan includes baseline projects (projects under construction or have full funding commitment) for the following highway/high occupancy vehicle lane (HOV) projects related to the study area:

- Route I-405 HOV from Route 101 to Route I-5
- Route 118 HOV from Route I-5 to Ventura County Line
- Route 14 HOV from San Fernando Road to Escondido (in segments)
- Route 126 arterial widening

The MTA's 20-year plan identifies additional projects to be implemented in a 20-year timeframe:

- Route I-5 HOV from downtown Los Angeles to Route 14 (in segments)
- Route I-5/14, I-5/118 and 118/I-405 HOV interchanges
- Route 14 HOV from Route I-5 to San Fernando Road (Completed)

These improvements will lead to a network of HOV lanes which link the North County communities of Lancaster, Palmdale and Santa Clarita with a fairly comprehensive network of HOV lanes throughout Los Angeles County.

Community Arterial Network

Local traffic within Santa Clarita is served by an extensive network of moderately high speed (45- to 55-mph speed limits) four- and six lane arterial roadways with traffic signals spaced relatively far apart. The terrain of the Santa Clarita Valley results in clusters of commercial and residential development along the linear floors of canyons in some portions of the community, while development clusters on top of the hills in others. Many motorists use Sierra Highway and Soledad Canyon Road to avoid congestion on Route 14. Soledad Canyon Road parallels the Santa Clara River and is the only major cross-town arterial roadway that is centrally located, which results in severe congestion and delays, particularly on weekday afternoons.

A Caltrans plan to extend Route 126 as a freeway connector between I-5 to Route 14 was rejected by the City of Santa Clarita. Currently, the City of Santa Clarita has an eastward 6- to 8-lane extension of Newhall Ranch Road (the "Cross Valley Connector") under construction as of this writing (Fall 2006), portions of which parallel Soledad Canyon Road, connecting Route 126 at I-5 to Golden Valley Road and Via Princessa. Completion of this project by 2008 is expected to greatly reduce Soledad Canyon congestion, resulting in more reliable travel times for both motor vehicles and Santa Clarita Transit buses. Plans also exist for a westward extension of Via Princessa westward to Newhall, but a completion date is not definitive since construction is dependent on contributions from adjacent commercial and residential developments.

Proposed Residential and Commercial Development

While residential and industrial growth is anticipated in many areas of Santa Clarita and the surrounding unincorporated service area, proposed commercial and residential development in a number of areas particularly stand out, and need to be considered in designing future transit services during the next decade. These areas, which are plotted in Figure 1.7 relative to the existing SCT local transit network, include:

- Rye Canyon Business Park, with 4.4 million square feet, could result in 3-5,000 new jobs.

- Valencia Commerce Center, which could add 5,000 or more additional jobs.

- Newhall Ranch, where approximately 25,000 new housing units and 60,000 new residents are anticipated in this unincorporated area bounded by I-5 on the east, Valencia Boulevard in the south and Route 126 in the north. However, only 3,800 housing units are expected by 2014, but with 15,000 additional housing units between 2015 and 2022.

- Stevenson Ranch, south of Newhall Ranch, is expected to have 3-5,000 additional housing units.

- Gate King, located southwest of San Fernando Road and Sierra Highway, is approved for more than four million square feet of industrial development, which could yield more than 5,000 new jobs.

- Whittaker-Bermite and Centre Pointe Business Park, which could generate almost 3,000 housing units and 2-3,000 new jobs.

- North Valencia, Tesoro, etc, which could result in 7-10,000 additional housing units with access off Copper Hill and north McBean Parkway.

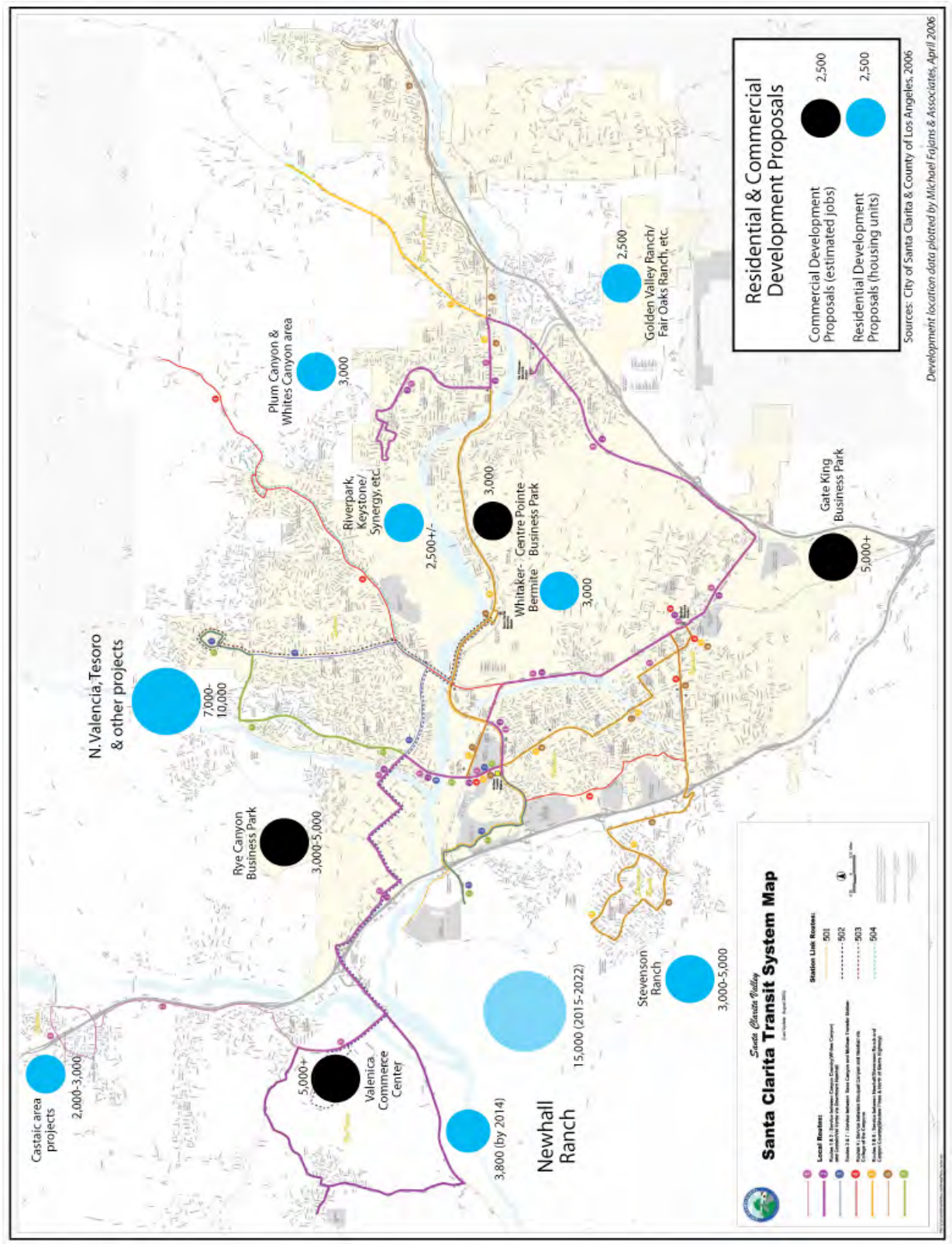
- Riverpark, Keystone/Synergy, and other development which could include 2,500 housing units off Newhall Ranch Road and between the extension of Golden Valley Road and Plum Canyon.

- Plum Canyon/Whites Canyon, where growth could include more than 3,000 new housing units.

- Golden Valley Ranch, Fair Oaks Ranch, and nearby projects that could add more than 2,500 housing units south of Route 14 between Golden Valley Road and Sand Canyon.

While not all this development will occur within the next 10 years, depending on the pace of the economy, these projects are all approved or well into the entitlement process.

Figure 1.7 Proposed Residential and Commercial Developments



1.2 Inventory of Transportation Services

This section describes the various rail and bus services that currently serve the Santa Clarita area. It also briefly describes transit infrastructure including transit centers, maintenance facilities, and park-and-ride facilities used by bus riders and car/vanpoolers, and taxi and airporter bus services. Although many junior and high school students ride local transit, limited school bus service is also provided by the William S. Hart School District.

Passenger Rail / Rail Transit Facilities

Metrolink. The Southern California Regional Rail Authority (SCRRA) operates Metrolink, a five county commuter rail network of over 400 miles, as shown in Figure 1.8 below.

Metrolink's seven commuter rail routes all connect at Union Station near downtown Los Angeles, where connections to other trains operated by Amtrak can be made, or where riders may board buses, vans, or the Metro Red Line subway to central downtown Los Angeles locations. In addition, Union Station has connections to the Los Angeles Metropolitan Transportation Authority (Los Angeles MTA) Gold Line, a light rail transit (LRT) line connecting to Pasadena and other San Gabriel Valley destinations. Metrolink's line to Santa Clarita began service between Santa Clarita, the San Fernando Valley, Burbank, Glendale and Los Angeles Union Station in fall 1992.

The Metrolink Saugus/Santa Clarita station was the first to open serving the Santa Clarita Valley, off Soledad Canyon Road about 2 miles east of Valencia. This station has parking for about 500 vehicles, serves as a major transit center including a bus ramp directly serving the rail platform, and includes restroom facilities and a passenger drop-off area.

When the 1994 Northridge earthquake caused the collapse of major bridges at the I-5/Route 14 interchange, seriously disabling access between Northern Los Angeles County and the rest of Los Angeles County, Metrolink was quickly extended from the Saugus station to Palmdale. This extension added a second station in Santa Clarita at Via Princessa serving Canyon Country and surrounding neighborhoods, with 420 parking spaces. The Jan Heidt Newhall Metrolink station opened in March 2000. This station originally opened with 150 parking spaces, recently expanded by approximately 100 more spaces that opened in early 2006. A railroad passing siding and second platform at Newhall Metrolink was also added and opened to service in 2005. Prior to this station's opening, using Metrolink required a five to ten minute "backtrack" for Valencia and Newhall residents.

As of early 2006, 12 weekday trains operate in each direction on the Antelope Valley line, with 9 each way operating through to or from Palmdale and Lancaster. Three trains originate or terminate in Santa Clarita, 2 at the Via Princessa station and 1 at the Santa Clarita station. Five trains operate inbound to Union Station prior to 8:00 a.m., with 5 return trips returning between 3:30 p.m. and 7:00 p.m. Metrolink also offers limited service on Saturdays; four round trips operate over the entire length of the Antelope Valley line from Lancaster, Palmdale, Santa Clarita, the San Fernando Valley, Burbank, Glendale and Union Station.

Santa Clarita Transit express buses meet selected trains that terminate in Santa Clarita, providing connecting service to Palmdale and Lancaster. Detailed Metrolink schedules are available on-line at { HYPERLINK "http://www.metrolinktrains.com" }. Travel time between the three Santa Clarita stations and key destinations are shown in Table 1.3 below.

Figure 1.8 SCRRA *Metrolink* Commuter Rail Network

Source: Metrolink Note: The Newhall station opened in March 2000.

Table 1.3 Metrolink Antelope Valley Line: Scheduled Travel Times

ORIGIN Station	Santa Clarita, Via Princessa	Santa Clarita, Saugus	Santa Clarita, Newhall	Sylmar	Burbank	Glendale	Los Angeles Union Station
Lancaster	52	58	65	80	93	99	115
Palmdale	43	49	56	71	82	88	106
Vincent	32	38	45	60	73	79	94
Princessa	--	**6**	**13**	**26**	**39**	**49**	**61**
Santa Clarita	**6**	--	**7**	**20**	**35**	**41**	**57**
Newhall	**13**	**7**	--	**13**	**28**	**34**	**50**
Sylmar/SF	26	20	13	--	13	19	35
Burbank	40	34	27	13	--	6	22
Glendale	46	40	33	20	6	--	16
Union Station	56	50	43	30	16	10	--

Metrolink ridership originating from the three stations serving Santa Clarita averaged about 1,034 inbound boardings during the weekday a.m. commute period, according to a sampling of Metrolink trains in August 2005 (summarized in Table 1.4.) Boardings in Santa Clarita are about 48% of total Antelope Valley line weekday a.m. ridership. About 70 people reverse commute on Metrolink from Los Angeles and Burbank to Santa Clarita, even there are only two non-peak direction trains before 8:00 a.m.

Table 1.4 Metrolink Weekday A.M. Boardings: Antelope Valley Line

Station	Boardings, Inbound	Alightings	Percent of Boardings	Percent of Alightings
Lancaster	326	0	15.1%	0.0%
Palmdale	211	0	9.8%	0.0%
Vincent	185	1	8.6%	0.0%
Princessa	**303**	**7**	**14.0%**	**0.3%**
Santa Clarita	**442**	**53**	**20.4%**	**2.5%**
Newhall	**289**	**20**	**13.4%**	**1.0%**
Sylmar/SF	202	82	9.3%	3.8%
Sun Valley	17	63	0.8%	2.9%
Burbank	113	455	5.2%	21.0%
Glendale	74	147	3.4%	6.8%
L.A. Union Station (estimate)	0	1334	0.0%	61.7%
TOTAL, Antelope Valley Line	**2,162**	**2,162**	**100.0%**	**100.0%**
Total Metrolink A.M. Boardings	14,540	14,540		
Antelope Valley Line, Percent	**14.9%**	**14.9%**		
Santa Clarita Stations, Percent	**7.1%**	**7.1%**		

Source: Metrolink, *A.M. Peak Period Samplings,* August 2005

About 1/3 of the estimated 7,000 weekday passengers on Metrolink's Antelope Valley line are carried during the midday and evenings. Of these, an estimated 48% originate or terminate in Santa Clarita. On Saturdays, the Antelope Valley line carries about 2,200 passengers, with slightly less than 1,100 of these passengers originating or terminating in Santa Clarita.

Table 1.5 Metrolink Weekday & Saturday Boardings: Antelope Valley Line

September 2005	Boardings, Inbound	Percent of Boardings
Metrolink **Weekday** Boardings	40,078	100.0%
Antelope Valley Line Boardings	6,972	17.4%
Santa Clarita Weekday Boardings (estimate)	**3,346**	**8.4%**
Metrolink **Saturday** Boardings	6,229	100.0%
Antelope Valley Line Saturday Boardings	2,244	36.0%
Santa Clarita Saturday Boardings (estimate)	**1,077**	**17.3%**

Source: Metrolink, *Metrolink Performance Summaries,* September 2005

Metrolink fares vary according to distance traveled, the exact fare dependent on how may zones are passed through on a trip.

Former Santa Paula Rail Branch. An abandoned railroad right-of-way parallels State Route 126 connecting Santa Clarita with Fillmore and Santa Paula in Ventura County. A portion of the railroad

corridor has been displaced by development along Magic Mountain Parkway; if this right-of-way were reused for transportation purposes, a new alignment would be required. In the 1990's, the Newhall Ranch Development Company indicated its intent to preserve the segment of the right-of-way within its development area, allowing potential future use as a rail passenger corridor, and has indicated a desire to build a passenger station and associated park and ride lot. In the 1990's, proposals were made to operate Metrolink-type commuter service or "alternative rail technology" (e.g., self-propelled railcars using diesel or alternative fuels). No funding has been identified for rail in this corridor.

Amtrak California Routes. No Amtrak California rail service operates through Santa Clarita. However, Amtrak California operates an extensive network of daily express buses along I-5 that connect throughout Southern California to and from the daily *San Joaquin* trains that originate or terminate at the Bakersfield Amtrak. Of these connecting Bakersfield buses, a total of 5 daily northbound and 6 daily southbound trips stop in Santa Clarita at the Newhall Metrolink station, including a late night southbound arrival at 1:30 a.m., and a northbound departure at 2:30 a.m.

California High Speed Rail Authority (CHSRA) Proposals. The State of California has been studying the feasibility of a statewide intercity high speed rail (HSR) network since the early 1990's. Current thinking at the CHSRA strongly favors construction of a route linking Southern California starting at Union Station and the existing Bakersfield Amtrak station that would approximately follow existing railroad right of ways through the San Fernando Valley, Santa Clarita, the Antelope Valley, and Tehachapi Pass. A second, less favored option would be a route paralleling I-5 over The Grapevine and Tejon Pass. If the Palmdale routing were constructed, the HSR station location closest to Santa Clarita is tentatively proposed for Sylmar. This is a major change from 1990's proposals for possible Santa Clarita stations near Magic Mountain for an I-5 HSR alignment, and near Via Princessa for the HSR alignment via the Antelope Valley. The greatest impact on Santa Clarita of HSR is likely to be noise, requiring major mitigations along the proposed alignment. The current status of HSR proposals in California is unclear.

Southern California Magnetic Levitation Train (Maglev) Proposals. The Orangeline Development Authority (OLDA) is a joint powers agency currently composed of 14 Orange County and Los Angeles County cities, including the City of Santa Clarita, has proposed construction of a $36 billion+ regional Maglev network throughout Southern California, which would include routes to a the proposed Palmdale International Airport, Las Vegas, and Northern California. The Palmdale Airport proposal would include a station in Santa Clarita. Any Maglev proposal is assumed not to begin service until after 2015 or 2020.

Santa Clarita Transit Services

The City of Santa Clarita assumed responsibility for local transit in 1991 from Los Angeles County, which had developed an embryonic transit network. Under City management, a number of new regional express services to various points in the San Fernando Valley, West Los Angeles, and downtown Los Angeles were added or improved. Since the previous TDP completed in 1996, total system ridership has nearly tripled, as shown in upcoming tables. The McBean Transfer Station (MTS) was developed and provides a key transfer point adjacent to the Town Center. In spring 2006, the transit offices and bus maintenance and storage facility moved to a new location designed to facilitate growth.

Regional Express Service. Santa Clarita operates a total of ten regional express routes, which are summarized by Table 1.6. Santa Clarita's express bus network into the Los Angeles basin is illustrated in Figure 1.9.

Santa Clarita Transit **Route 8**–which began operations on Sunday, March 5, 2006 between McBean Transfer Station (MTS) and the Sylmar Metrolink station, where several MTA routes converge–operates every 30 minutes in the a.m. and p.m. peak periods, and every 60 minutes mid-afternoon. Monday-Saturday service ends with the last departure from Sylmar Metrolink at 9:20 p.m., and at 7:20 p.m. on Sundays and major holidays.

After only two months of operation in May 2006, Route 8 served an average of 186 weekday passengers (6.6 passengers/revenue hour), 174 Saturday passengers, and 127 passengers on Sundays and holidays. If Route 8 follows patterns typical in the transit industry, patronage during the first month of operation is about 25%-30% of ultimate route patronage experienced after 18 to 24 months of service.

SCT staff has also been considering elimination of Route 790 service to the Olive View Medical Center in Sylmar due to very low patronage and productivity. It only made three weekday, midday round trips. Much more frequent service connecting from SCT Route 8 at the Sylmar Metrolink Station is offered by LAMTA Route 94, which operates every 15-20 minutes during commute periods and every 30 minutes at other times (versus 3 round trips per day on Route 790). Based on these results and better overall service offered by connections at Sylmar Metrolink, the consulting team concurs with SCT staff sentiments to eliminate SCT Route 790.

Figure 1.9 Santa Clarita Transit Regional Express Routes

Table 1.6 Regional Transit Connections

Route	Key Destinations	Frequency	Fares
Metrolink	LA Union Station Burbank, Glendale Palmdale, Lancaster	12 each direction 5 commute trains 33-150 min. headways	$6.75 Union Station $12.50 RT $177.50 monthly pass
SCT Route 795	Palmdale Lancaster	2 morning trips AV to SC, 3 afternoon trips SC to AV	$4.00 EZ Pass $133
SCT Route 796-791	Warner Center-Woodland Hills	30 min. headways 5 morning-5 afternoon commute round trips	$3.50 EZ Transit Pass $118
SCT Route 797-792	UCLA, Century City	30-50 min. headways 4 morning and 5 afternoon commute period RT	$4.00 EZ Pass $133
SCT Route 798-793	Van Nuys, Sherman Oaks	20-70 min. headways 5 morning & 6 afternoon commute RT	$3.50 EZ Transit Pass $118
SCT Route 799-794	Downtown Los Angeles, Burbank on return trips	10-15 min. headways 9 morning & 10 p.m. commute RT	$4.00 EZ Pass $133
SCT Route 8	Sylmar	30-60 min. headways, 5:50am to 9:20pm	$1.00 $25 monthly pass

Route 795 supplements Metrolink train service with connections between Santa Clarita and the Antelope Valley, most importantly as extensions of Metrolink trains originating or terminating in Santa Clarita. This service is partly funded by Metrolink, who is unable to operate trains the entire distance to the Antelope Valley at certain times due to rolling stock limitations and the requirements of meeting peak period departures from L.A. Union Station.

Santa Clarita Transit **Route 796** provides inbound weekday a.m. and p.m. outbound trips from Santa Clarita to Warner Center and Woodland Hills in the west San Fernando Valley. **Route 791** is paired with Route 796, providing reverse commute trips from Warner Center and Chatsworth to Santa Clarita employment centers, e.g., the Valencia Industrial Center. This route uses buses that otherwise would be "deadheaded" (e.g., operated "out of service") back to the Santa Clarita bus maintenance facility, attracting new patrons that otherwise would not use Santa Clarita Transit. Three additional reverse commute routes operate in a similar manner (Routes 792, 793, and 794).

Route 797 provides weekday-only inbound a.m. and outbound p.m. trips to/from the University of California, Los Angeles (UCLA), Westwood and Century City in West Los Angeles. **Route 792** provides the corresponding reverse commute service to/from Santa Clarita.

Santa Clarita Transit **Route 798** serves Van Nuys; **Route 793** is the corresponding reverse commute route to/from Santa Clarita.

Finally, **Route 799** provides extensive express service to to/from downtown Los Angeles. **Route 794** is the corresponding reverse commute route, with an added stop at the Burbank Metrolink station. When Metrolink service from Santa Clarita originally began in 1992, Route 799 patronage

was not materially impacted. Compared to Metrolink, Route 799 has lower fares, more frequent commute-period frequencies, wider coverage of stops in Valencia and Newhall, and extensive stops in the heart of downtown Los Angeles, compared to Metrolink's one stop at Union Station and required transfers to/from the Los Angeles MTA Red Line subway, various shuttle bus routes, or Los Angeles MTA local buses.

Local Bus Service. The local bus fare structure is summarized in Table 1.7, and service is summarized in Table 1.8. Figure 1.10 illustrates the current local Santa Clarita regular route network. Santa Clarita Transit currently operates seven all-day local routes, four Metrolink feeder ("Station Link") routes, and provides school commute service to 12 junior and senior high schools. Online schedules are located at:

{ HYPERLINK "http://www.santa-clarita.com/cityhall/admin/transit/routes&schedules.asp" }.

Routes 1 and 2 operate combined service between Castaic and Val Verde Park (service by Route 2 only), Valencia Industrial Center, Valencia, McBean Transfer Station (MTS) adjacent to the Valencia Town Center, Newhall, the Sierra Highway corridor parallel to Route 14, and Canyon Country. Buses operate every 15 minutes during the morning and afternoon peaks, and every 30 minutes midday, evenings and weekends.

Routes 3 and 7 operate between Magic Mountain, Tourney Road, MTS, and western Saugus generally along McBean Parkway and Seco Canyon Road. Buses operate every 60 minutes on each individual route, and every 30 minutes on the combined route segment between MTS, Tourney Road and Magic Mountain.

Table 1.7 Santa Clarita Transit Local Fares

Single Ride Cash	
Local Full Fare	$1.00
Local Reduced	$0.50
Children 5 and under	Free
Transfers	Free
Monthly Pass	
Local Full Fare	$25.00
Local Reduced	$15.00
Fare Definitions	
Full Fare – All passengers except those who meet qualifications for reduced.	
Reduced Fare – Available to those over 60 years of age with a valid identification card, or with a Medicare ID Card or a LA County Transportation Organization Association (LACTOA) ID card. The LACTOA application is available through Santa Clarita Transit.	

Route 4 operates between Bouquet Canyon Road, Saugus, MTS, College of the Canyons, California Institute of the Arts, and the Newhall Metrolink station. Buses operate every 30 minutes at all times. On Sundays, Route 4 operates only north of the McBean Transfer Station.

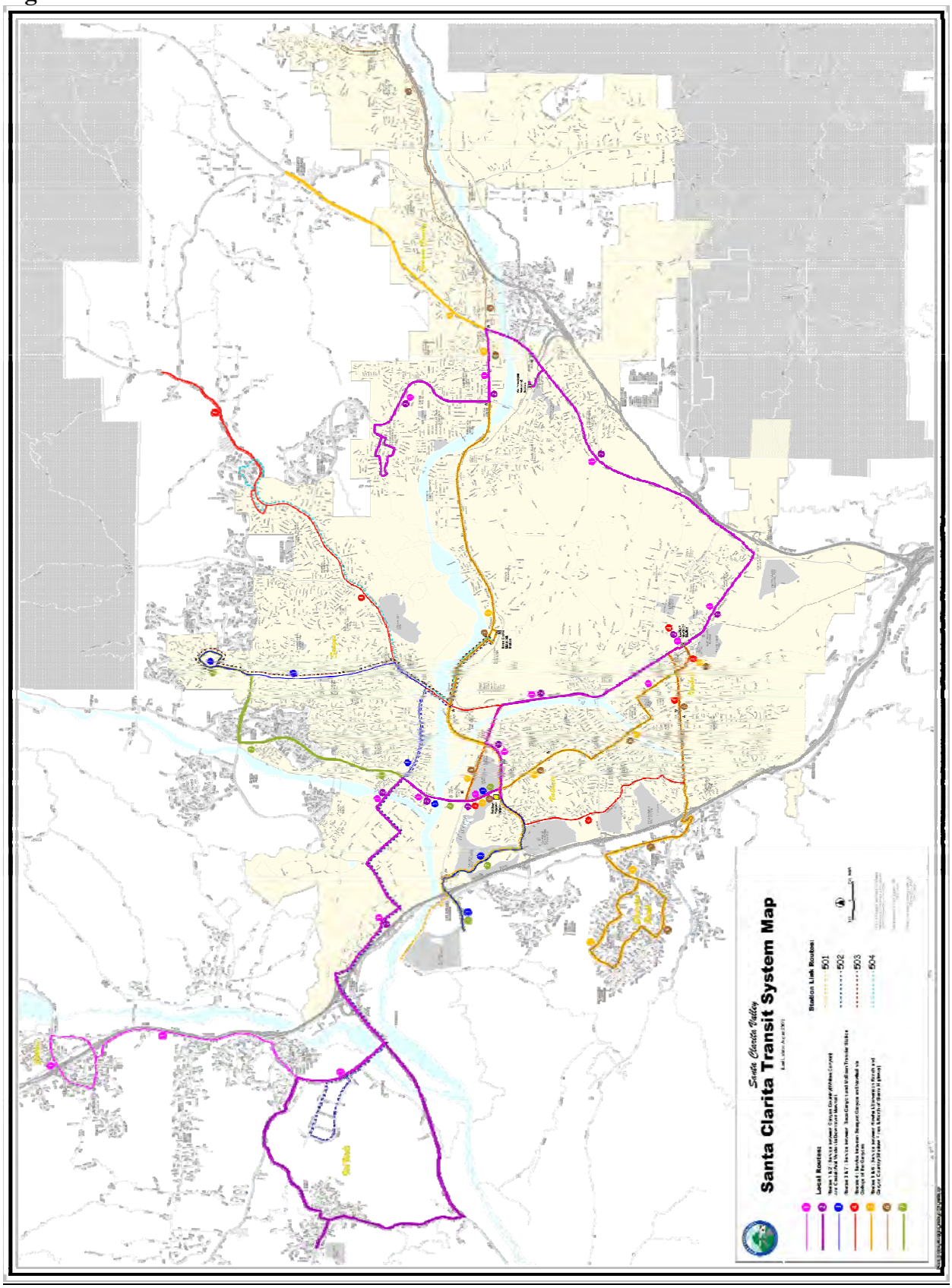
Routes 5 and 6 connect Stevenson Ranch, the Valencia Market Place shopping area, Newhall Metrolink station, Henry Mayo Newhall Hospital, MTS, the Valencia Town Center/City Hall area, connecting to the Canyon Country area via Soledad Canyon Road, with Route 5 branching out Sierra Highway, and Route 6 out eastern Soledad Canyon Road to the Shadow Pines subdivision. Buses operate every 15 minutes during weekday peak periods, and every 30 minutes, midday, evenings and weekends.

Metrolink "Station Link" Series 500 feeder buses operate Monday-Friday only with limited peak period service, connecting Valencia and Saugus to/from the Santa Clarita/Saugus Metrolink station. **Route 501** serves Magic Mountain and Central Valencia. **Route 502** serves the Valencia Industrial Center and Valencia Commerce Center near Castaic. **Route 503** serves the Seco Canyon Road area of Saugus. **Route 504** serves Bouquet Canyon Road. **Route 507** served Copper Hill Road and Newhall Ranch Road until discontinued in 2003 due to low ridership.

Table 1.8 Santa Clarita Transit Local Routes

Route	Transit Centers	Communities Activity Centers	Frequency
1 – Castaic –Whites Canyon	McBean Transfer Station Newhall Metrolink Princessa Metrolink	Castaic, Valencia Commerce Center, Valencia Industrial Center, Town Center, Newhall Center, Sierra Vista Jr. High Canyon High School	15-30 minutes Weekdays- 4:30am to 11pm 30 min. weekends 6:30am-10pm
2- Val Verde-Whites Canyon	McBean Transfer Station Newhall Metrolink Princessa Metrolink	Same route as #1 except starts in Val Verde instead of Castaic	Frequency is same as #1, 30-60 minutes in Castaic and Val Verde.
3/7 – Magic Mt. to Seco Canyon (3 via Newhall Ranch) (7 via McBean & Copper Hill)	McBean Transfer Station	Valencia/Saugus Magic Mountain, Kaiser Med. Ctr, Town Center, Arroyo Seco Jr. High, Santa Clarita Park	30 minutes 6am to 7:45pm
4 – Bouquet Canyon to Newhall Metrolink	McBean Transfer Station Newhall Metrolink	Saugus/Valencia/Newhall LARC Ranch, Saugus HS, Town Center, College of Canyons, Calif. Institute of Arts, SCV Senior Center	30 minutes Weekdays 5:45 to 10pm Weekends 7:15am to 7:30pm
5/6- Stevenson Ranch to Canyon Country (5 to Sierra & Vasquez) (6 to Soledad Canyon and Shadow Pines	Newhall Metrolink McBean Transfer Station Santa Clarita Metrolink	Stevenson Ranch/Newhall/ Valencia/Canyon Country Market Place, Wm. Hart Park, Hart HS, Placerita JH, Town Center,	15-30 minutes Weekdays 4:30am to 11pm Weekends 7am to 10:15pm
501- Magic Mt. to Santa Clarita Metrolink	Santa Clarita Metrolink	Valencia Magic Mt, Kaiser Med. Ctr. Town Center to Metrolink	3 weekday morning trips from Metrolink, 3 afternoon returns
502-Commerce Ctr to SC Metrolink	Santa Clarita Metrolink	Valencia Commerce Center & Industrial Center to Metrolink	3 weekday morning trips from Metrolink, 3 afternoon returns
503-Seco & Tamarack to SC Metrolink	Santa Clarita Metrolink	Saugus to Metrolink	2 weekday morning trips to Metrolink, 3 afternoon returns
504-Shadow Valley and Bouquet Canyon to SC Metrolink	Santa Clarita Metrolink	Saugus to Metrolink	1 weekday morning trip to Metrolink, 3 afternoon returns
600 routes		Junior High and High Schools	1-2 trips each peak

Figure 1.10 Santa Clarita Transit Local Route Network



Santa Clarita Transit Dial-A-Ride. In addition to its extensive local fixed route system, the City of Santa Clarita also provides demand-responsive service using a fleet of 16 ADA-compliant paratransit vans and small buses. Curb-to-curb service is available to elderly and disabled residents from 5:00 a.m. to 10:30 p.m. Monday through Friday, 7:00 a.m. to 10:30 p.m. on Saturdays, and between 8:00 a.m. and 8:00 p.m. on Sundays and major holidays. Dial-a-Ride service is also available to the general public between 6:00 p.m. and 10:30 p.m. Monday through Saturday, and 6:00 p.m. to 8:00 p.m. on Sundays. Reservations must be made a minimum of 24 hours in advance, and may be made up to 7 days in advance. The Dial-A-Ride fare structure is presented in Table 1.9. There are no restrictions to the amount or types of trips that can be taken per day, as long as space is available. In addition, Santa Clarita Transit contracts with the Senior Center for operation of five additional buses which make supplemental trips between senior housing complexes, the senior center, and other destinations.

Table 1.9 Santa Clarita Transit Dial-A-Ride Local Fares

Single Ride Cash	
Adults/Students/Children over 5	$2.00
Senior/Disabled	$2.00
Children 5 and under	Free
Transfers / Personal Care Attendants	Free
Companions	$2.00

SCT currently provides complementary paratransit to ADA-eligible riders under contract to ASI. This service, in turn, is delegated to Veolia for daily scheduling and operations. ASI provides and maintains the ADA-eligible ridership list and reimburses SCT on a per-eligible-ride basis. Until recently the Antelope Valley Transit Authority (AVTA) was the only other transit operator in Los Angeles County that maintained a similar arrangement. SCT is now the only transit agency within LA County contracting directly with ASI. Privately owned firms that contract directly with ASI serve the remainder of the County. SCT, along with AVTA, have a unique arrangement where trips to and from the rest of LA County are not performed on a point-to-point basis but are instead provided through connections at Olive View in Sylmar, which are made three times per day.

While many communities limit dial-a-ride service to the disabled who require dedicated service, Santa Clarita Transit's dial-a-ride carries many seniors who prefer door to door service but whom could probably utilize fixed route service. Peak usage periods are from 8:00 a.m. to 4:00 p.m. when up to 12 paratransit vehicles are on the road.

Other Transportation Services

In addition to Metrolink and Santa Clarita Transit, other services and facilities include the park-and-ride lots used by car-poolers and van-poolers as well as transit riders, taxi service, school bus service, and Airporter services.

Park & Ride Facilities. Table 1.10 lists park and ride facilities in the Santa Clarita Valley. Of the eight facilities listed, only one does not have transit service, and in that case, a transit stop is approximately ¼ mile away.

Table 1.10 Santa Clarita Park and Ride Facilities

Name and Location	Transit Connection	Approximate spaces	Percent occupied
Princessa Metrolink	SCT Routes 5/6 Metrolink	417	80%
Golden Valley @ Rte. 14	None	190	70%
20516 San Fernando Newhall west lot @ Sierra Hwy.	SCT Routes ½ 793, 795,796,797, 798,799	50	100%+
Newhall east lot San Fernando @ Rte. 14	1/4 mile walk to those just above	32	100%+
Oak Creek 23610 San Fernando ½ mile west of Rte. 14	SCT Routes 1/2 793, 795,796,797, 798,799	130	40%
Newhall Metrolink	SCT Routes, 1/2, 4, 5/6 793, 795, 796, 797, 798, 799 Metrolink	200	100%
Mann Theatre Cinema Dr. @ Valencia Blvd.	SCT Routes 5/6, 795, 796,797, 798, 799	340	75%
Santa Clarita Metrolink 22122 Soledad Canyon Rd.	SCT Routes 5,6,501-504 793, 795,796,797,798,799 Metrolink	471	100%+

In addition to these lots, there are small amounts of commuter parking available along the route of the express buses along McBean Parkway and Orchard Village Road, such as 20 spaces on Del Monte, and 25 spaces on a Bank of America property at Orchard Village and Lyons.

Taxi Service. Taxi service is provided in the Santa Clarita Valley by Yellow Cab and Eagle Cab Companies. Both companies have a drop charge" (e.g., enter cab) of $2.00 and a per mile rate of $2.00. There is no taxi voucher system to subsidize taxi service.

School Bus Transportation. Each elementary school district provides "yellow bus" transportation. The William S. Hart Union High School District provided school bus service until a financial crisis in 1991 forced it to institute a $100 per semester fee per student using the school bus. This change caused most students to shift to walking, getting rides to school, or using Santa Clarita Transit due to lower overall fares. The School District still has a fleet of school buses, but they are used only for school-related events, disabled student transportation, and similar purposes.

"Airporter" Services. Residents of the Santa Clarita Valley primarily use the Burbank-Glendale-Pasadena Airport in Burbank for shorter distance flights, and Los Angeles International Airport (LAX) for international flights or for destinations not served by Burbank. Besides taxi service, the following options are available for transportation to and from the airports:

- **Antelope Valley Airport Express.** This service only offers stops in Santa Clarita during its route between Lancaster and LAX. Curbside pick-up and drop-off occurs in Canyon Country at the Sand Canyon Road Denny's and at San Fernando Road/Route 14 (Carl's Jr. lot). Seven trips are made daily about every 2 hours; between Santa Clarita and LAX is one hour. The one-way fare is $35 per person or $60 round trip.

- **Van Nuys Fly-Away Shuttle.** Passengers can drive and park their automobiles, or take a Santa Clarita 793 or 798 bus to the Van Nuys Fly-Away bus terminal location at Woodley Avenue/Saticoy in Van Nuys. Shuttle service between Van Nuys and LAX is every 15

minutes in the morning peak (5 a.m. to 8 a.m.), then every 30 minutes until 1 a.m. Hourly trips are available between 1 a.m. and 5 a.m. Fares are $3.50/adult one-way and $6.00/adult round trip. Parking is $4.00 per 24 hours. Fly-Away service to LAX has recently been initiated from Union Station, which connects with Metrolink service.

1.3 Activity Centers

The Santa Clarita Valley has a number of major activity centers to which linking transit service is desirable. These locations are listed in Table 1.11. One way of identifying large activity centers is by noting large-scale employers. Although most jobs are seasonal, Six Flags Magic Mountain is the largest single employer in the community, with 4,500 jobs. Henry Mayo Newhall Memorial Hospital, with almost 900 jobs, is another large employer, while H.R. Textron in the Valencia Industrial Center has approximately 800 employees. The regional U.S. Post Office facility in the Valencia Commerce Center has approximately 2,000 employees. Between 3,000 and 4,000 employees are estimated to be employed at Valencia Town Center, including Princess Cruises with about 1,200 jobs, and over 1,000 jobs in the enclosed mall section of the development.

There are many other employers who have between 100 and 900 employees but lack transit service, including a new Wal-Mart at Copper Canyon Road and Newhall Ranch Road. Transit service is desirable at locations where very large employers or clusters of employment are found. Locations that attract large numbers of visitors, students, children, the elderly or disabled should also have transit service available.

Virtually all the activity centers listed in Table 1.11 have some level of transit service. The Masters College is a major exception to this rule; because of locked gates, public or transit access is not allowed on Placerita Canyon Road between The Masters College and Sierra Highway. However, the College is undergoing a major expansion, on which a condition placed by the City of Santa Clarita requires new public roadway access from the Newhall side of Placerita Canyon Road.

1.4 Community Workshops

Public Comment from Community Workshops

As part of the Transit Development Plan process, several formats for community input were provided. Informational notices were placed on buses, at key locations in the community, and regular riders were contacted by e-mail. Comments were solicited and invited by e-mail and at three meetings with the Community Accessibility Advisory Committee, with the Commuter Ambassadors, and at a Saturday community meeting. In addition, a presentation on the plan was given to the Chamber of Commerce Transportation Committee.

At the three meetings, the nature of the Transit Development Plan process was described, concepts under consideration discussed, and public input solicited. The comments listed below are a summary of the feedback received at the meetings.

Community Meeting. Approximately 45 people attended the community meeting at Santa Clarita City Hall, held March 18, 2006. Key discussions included the problems of late buses on local

Table 1.11 Santa Clarita Valley Activity Centers

Activity Center	Location	Existing Transit Service
Six Flags Magic Mountain	Magic Mtn Parkway west of I-5	Rte 3-7 Daily
College of the Canyons	Valencia Blvd & Rockwell Canyon	Rte 4 Monday-Saturday
California Institute of the Arts	McBean Parkway/Tournament Rd	Rte 4 Monday-Saturday
The Masters College	Placerita Can Rd/Quigley Can Rd	None
Valencia Town Center / Mall	Valencia Blvd/McBean Parkway	All SCT Routes Daily
Santa Clarita Valley Senior Center	22900 Market Street, Newhall	Rte 4 Mon-Sat, Rte 5/6 Daily
Adult Day Care Center	22903 Soledad Canyon Road	Routes 5,6, DAR
Valencia Industrial Center	Avenue Stanford/Rye Canyon Rd	Rte 1/2 Daily, Reverse Commute Rtes & 502 Monday-Friday
Valencia Commerce Center	Commerce Center Drive	Rte 1 & 2 Daily, Rte 502 Mon-Fri
Mayo Newhall Memorial Hospital	McBean Pkwy/Orchard Village	Rte 5/6 Daily
William S. Hart Union High	24825 N. Newhall Avenue	Rte 5/6 Daily
Saugus High	21900 W. Centurion Way	Rte 4 Daily, select "trippers"
Canyon High	19300 W. Nadal Street	Rte 1 & 2 Daily, select "trippers"
Valencia High	27801 N Dickason	Rte 1 & 2 Daily, select "trippers"
West Ranch High	Valencia Blvd & Old Rock Road	Select "trippers"
Golden Valley High	Golden Valley Road & Robert C. Lee Parkway	Rte 1 & 2 Daily, select "trippers"
Santa Clarita Activity & Aquatics Center	Golden Valley Rd. & Centre Pointe Parkway	Rte 5 & 6 daily

routes, particularly routes 1, 2, 5, and 6. There was interest in having more trips to Castaic and Val Verde, as well as serving the Centre Pointe area and the new City sports complex (service has been initiated). The possibility of a second transfer center in Canyon Country was mentioned and endorsed by several people, as was the idea of better cross-valley connections.

For paratransit service, there were complaints about the limited number of transfer trips to the San Fernando Valley, and a desire to reduce the pick-up window from one hour to 30 minutes. For the regional express service, several speakers desired service to the Red Line Station in North Hollywood, the need for increased park and ride capacity near Route 14 and San Fernando Road, and complaints about schedule reliability of afternoon service, particularly for buses making second trips and drivers traveling together to pick-up buses left in downtown Los Angeles. Individual suggestions were made for new services to Glendale/Pasadena, Cal State Northridge, Chaminade High School, LAX, and Santa Monica.

Approximately 25 people completed a brief one-page questionnaire that was distributed at the Community Meeting, and indicated their key priorities for new fixed route service were more reliable schedules, better coverage of the community, more frequent trips, and faster bus trips within Santa Clarita. The key reasons people gave for not riding buses more often were that it takes too long if

they don't drive, and that buses were too infrequent. The majority of the respondents live in Valencia and Saugus with representation from Castaic and Canyon Country as well. There were no responses from Newhall residents.

Commuter Ambassadors. The key suggestions of this group, who represented regional express route riders, including the desire for improved capacity and amenities at Route 14 and San Fernando Road park and ride lot. There was interest in having some trips originate in Canyon Country (Via Princessa Metrolink station) and providing transfers at Route 14 and San Fernando although concern was voiced that a return to Canyon Country might limit options on PM return trips. People felt that the loop through the community from Santa Clarita Metrolink to Newhall Metrolink and Route 14 via McBean Parkway, Orchard Village, and Lyons was too time consuming for those who parked at the Santa Clarita Metrolink Station.

Concern was expressed about the lack of midday express return trips to Santa Clarita, such as for family emergencies. The 11:42 AM and 1:50 PM Metrolink trips from Union Station are the only midday connections, so a connection to the non-station park and ride lots from Metrolink as well as midday service to the North Hollywood Red Line/Orange Line Stations was considered desirable options. Potential new routes to consider were listed as North Hollywood Red Line Station, Pasadena/JPL, and LAX/El Segundo.

Santa Clarita Transit Accessibility Advisory Committee (AAC). The AAC was established for the purpose of providing guidance on the quality of its programs and services for seniors and persons with disabilities to Santa Clarita Transit. The AAC's voting membership is comprised of eleven members. Four positions are reserved for riders who use Santa Clarita Transit services, and who are sixty years of age or older. Four additional positions are reserved for individuals who use Santa Clarita Transit services, and whom have disabilities as defined in the Americans with Disabilities Act (ADA). The three remaining members represent agencies that provide services to senior citizens, or people with disabilities in the Santa Clarita Valley. Discussion with the ACC focused on suggestions for key concerns of committee members. These included concerns about:

- More seamless transfers in the San Fernando Valley. Outside of Olive View Hospital was not viewed as a desirable location for transfers.
- The seven day advance booking provision and a strong desire for shorter booking period.
- Interest in the prioritization of trips (based on trip function, not first call).
- The Adult Day Care Center uses too much DAR capacity between 8:00 a.m.-10:00 a.m., and 2:00 p.m.-4:00 p.m., and that it is difficult to get a trip elsewhere during those periods.
- People complained of being left on hold for too long when they call; they are left out in the elements without trip status and are afraid to go inside to call.

E-mail Responses. Most e-mail comments were received from regional express bus commuters. Suggestions included: earlier start and better spacing of buses to downtown Los Angeles; more reliable p.m. return trips; e-mail or text messaging of delays to regular riders; adequate and safe park and ride lot at Route 14 and San Fernando Road; and express bus connections from Castaic.

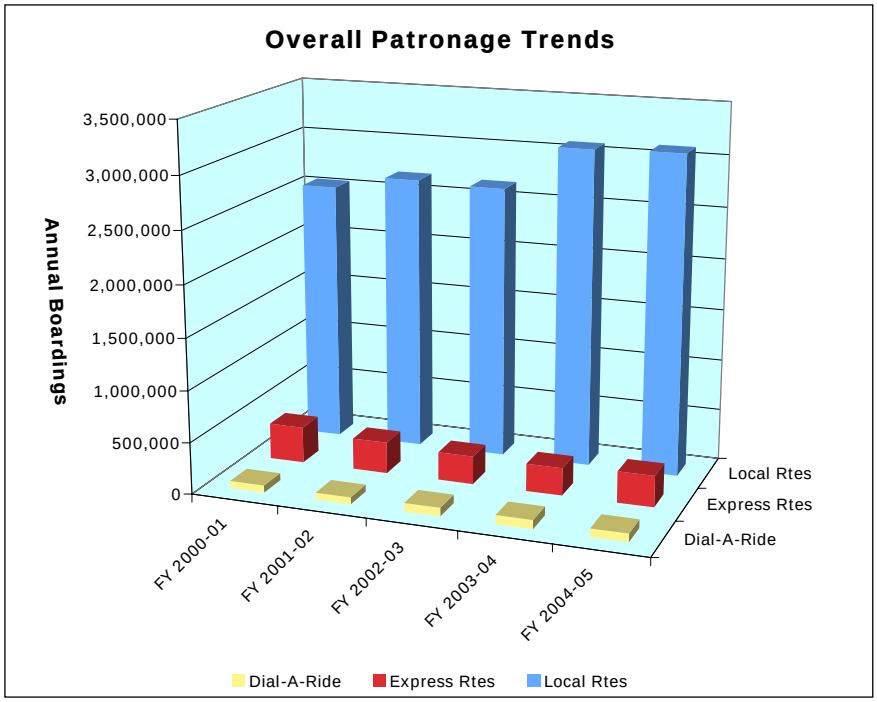
2.0 Santa Clarita Transit Performance Trends and Constraints to Operations

This section provides the evaluation of the existing system and a discussion of the constraints to efficient operation. This includes consideration of ridership and financial performance trends, as well as the findings from the line-by-line analysis of the local fixed route system.

2.1 Transit Performance Trends

Overall, Santa Clarita Transit operates an average of 28 regional express, 34 local, and 12 Dial-A-Ride vehicles during the weekday afternoon peak between 2:00 p.m. and 6:00 p.m., peaking with 74 buses between 3:00 p.m. and 4:00 p.m. Nearly 3.5 million passengers were carried by Santa Clarita Transit in FY 2004-05, approximately 3.1 million on local routes, about 300,000 on regional express routes, and approximately 80,000 on the SCT Dial-A-Ride system. Operating statistics and performance indicators for each type of transit service are summarized in Table 2.1. Overall patronage trends are illustrated in Figure 2.1.

Figure 2.1 Santa Clarita Transit Overall Patronage Trends



Between FY 2000-01 and FY 2004-05, patronage on Santa Clarita's local routes increased by 22% from about 2.5 million to 3.1 million annual boardings. Preliminary figures indicate 285,000 more trips were made in FY 2005-06, bringing the annual total to 3,387,000. Regional express route patronage, in contrast, declined about 24% between FY 2000-01 and FY 2002-03, following the events of September 11, 2001. Declining transit patronage on routes serving major employment centers in large cities–such as downtown Los Angeles–was a common occurrence following the terrorist attacks. Express route patronage began a strong recovery beginning in FY 2004-05,

increasing about 14% from FY 2003-04 totals. According to preliminary numbers, it grew an additional 11,000 trips in 2005-06, bringing the annual total to 314,647.

Santa Clarita Transit Dial-A-Ride patronage increased from about 70,000 annual boardings during FY 2000-01 to about 85,000 boardings in FY 2003-04, declining to about 75,000 boardings in FY 2004-05, and 68,800 for FY 2005-06.

Productivity measures for each type of service generally tracked overall patronage, adjusted for changes in service levels. For example, productivity of local routes increased from 26.6 riders per revenue vehicle hour on weekdays in FY 2000-01 to 30.2 (13.5%) during FY 2004-05, while overall revenue vehicle hours (RVH) increased 7.5%. Productivity increased again slightly in FY2005-06. In contrast, regional route productivity declined from 10.5 riders/RVH in FY 2000-01 to 9.6 riders/RVH in FY 2005-06 (-8%); overall regional service provision declined by about 5.0%.

Dial-A-Ride's net productivity increased slightly over the 5-year period, from 3.0 riders/RVH in FY 2000-01 to 3.5 riders/RVH in FY 2003-04 before declining in FY 2004-05 and FY 2005-06.

Table 2.1 Santa Clarita Transit Summary Operating Statistics & Performance Indicators

	FY 2000-01	FY 2001-02	FY 2002-03	FY 2003-04	FY 2004-05
Total Transit System					
-Annual Boardings	2,875,222	3,044,123	3,007,959	3,434,937	3,485,942
-Weekday ridership	9,807	10,371	10,094	11,413	11,311
- Saturday ridership	4,200	4,523	4,797	5,454	5,643
- Sunday ridership	3,299	3,737	3,447	4,177	4,295
Regional Express Routes – Total					
-Annual Boardings	352,594	304,430	272,985	267,219	303,382
-Weekday ridership	1,399	1,218	1,090	1,090	1,215
-Weekday riders/hour	10.5	9.1	8.0	8.0	9.2
-Weekday farebox return	22.1%	22.8%	22.5%	19.9%	22.8%
- Saturday ridership	0	0	0	0	0
- Sunday ridership	0	0	0	0	0
Local Fixed Routes – Total					
-Annual Boardings	2,542,562	2,671,913	2,651,907	3,082,737	3,102,027
-Weekday ridership	8,156	8,912	8,709	10,020	9,810
-Weekday riders/hour	26.6	26.4	25.2	29.6	30.2
-Weekday farebox return	18.1%	18.2%	18.4%	22.9%	22.4%
- Saturday ridership	4,125	4,442	4,720	5,374	5,568
- Sunday ridership	3,259	3,700	3,407	4,136	4,259
Dial-A-Ride – Total					
-Annual Boardings	70,066	67,780	83,067	84,981	75,064
-Weekday ridership	252	241	295	303	269
-Weekday riders/hour	3.0	2.8	3.0	3.5	3.0
-Weekday farebox return	1.6%	0.9%	1.3%	1.5%	1.3%
- Saturday ridership*	75	81	77	80	72
- Sunday ridership*	40	37	40	41	35

* estimated

Santa Clarita Transit's overall economic performance, measured by the Farebox Return ratio, increased slightly between FY 2000-01 and FY 2004-05. Local route farebox return increased from about 18% in FY 2000-01 to 22% in FY 2004-05; regional express route farebox return increased from 22% in FY 2000-01 to slightly less than 23% in FY 2004-05. Farebox return increased markedly for local routes between FY 2003-04 and FY 2004-05 due to a fare increase. Paratransit farebox return remained very low at less than 2% in recent years, partially because discount tickets largely negate the higher $2 paratransit fare.

Local patronage on weekends showed marked increases during the five-year analysis period. In FY 2000-01, Saturday patronage averaged 4,125 daily boardings, increasing 35% to 5,568 daily boardings by FY 2004-05, and 6,467 in FY 2005-06. On Sundays an average of 3,259 daily boardings were recorded in FY 2000-01, increasing by 31% to 4,259 average Sunday boardings during FY 2004-05. Weekend patronage on the Dial-A-Ride system remained essentially unchanged from FY 2000-01 to FY 2004-05.

Regional Express Route Performance Trends

As summarized in Table 2.2, regional express routes suffered moderate declines in patronage in FY 2001-02 and following years, presumably due to the impact of the events of September 11, 2001 on commuting and the economies of large U.S. cities, such as Los Angeles. Employment in Los Angeles as a whole also declined between 2001 and 2004. Patronage may also have declined due to fare increases. Reverse commute route (791, 792, 793, and 794) also declined somewhat during this period. Patronage on Route 795 also declined markedly, reflecting discontinued trips as more Metrolink commuter rail trips were extended to the Antelope Valley.

Regional express route patronage began to increase significantly in FY 2004-05, growing 14% from FY 2003-04. Patronage on all Los Angeles-oriented commute routes except Route 798 to Van Nuys increased. Reverse commute patronage also increased slightly overall. Regional route trends are summarized in Figures 2.2 to 2.5.

Figure 2.2 SCT Regional Route Patronage Trends

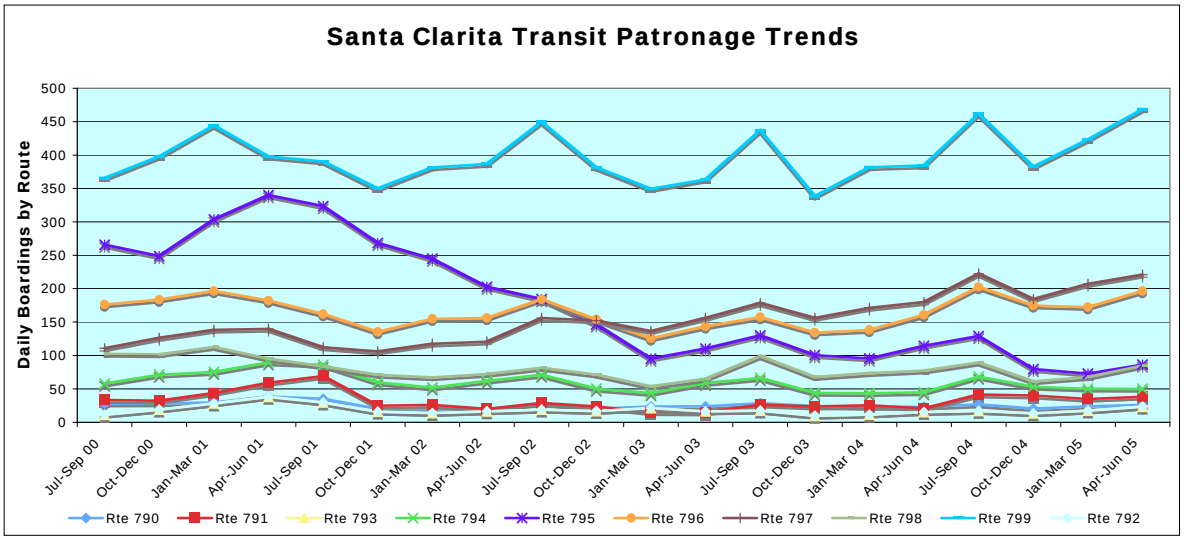


Figure 2.3 SCT Regional Route Productivity

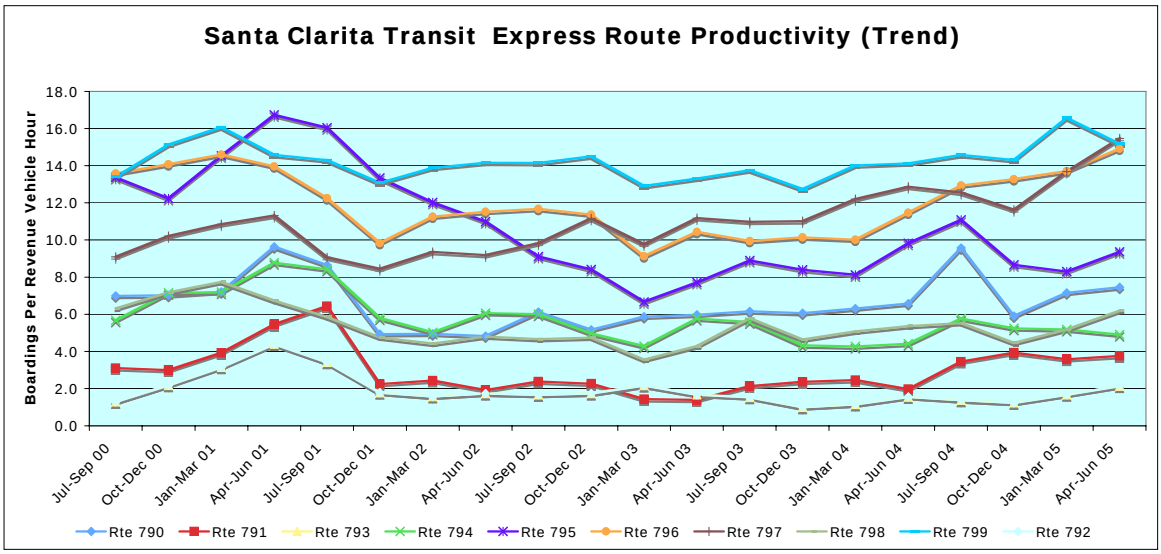


Figure 2.4 SCT Regional Route Subsidy per Boarding

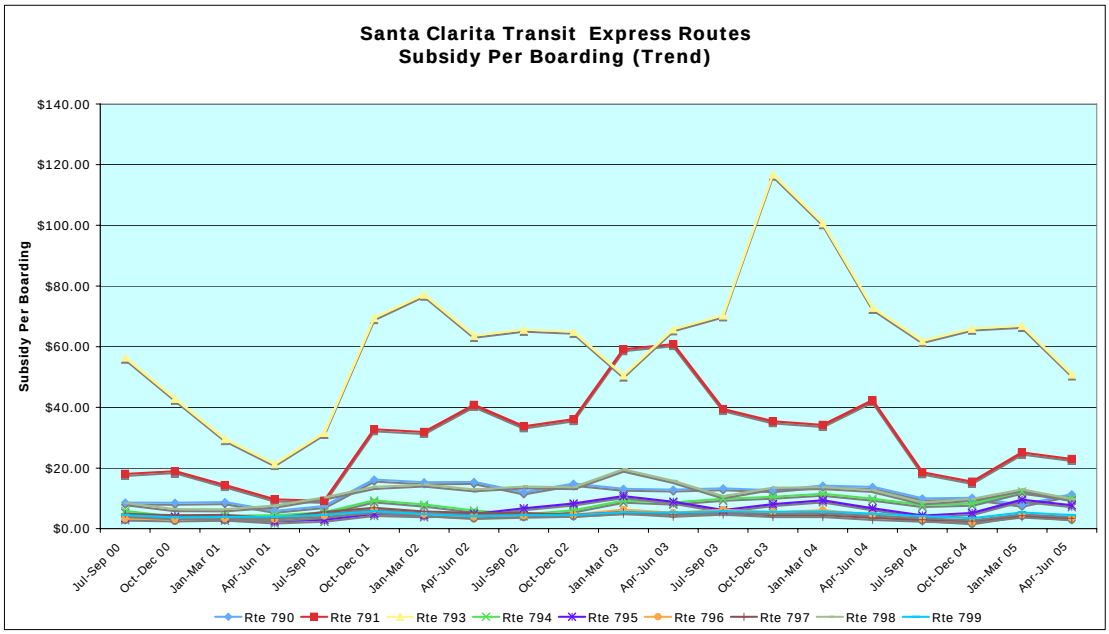
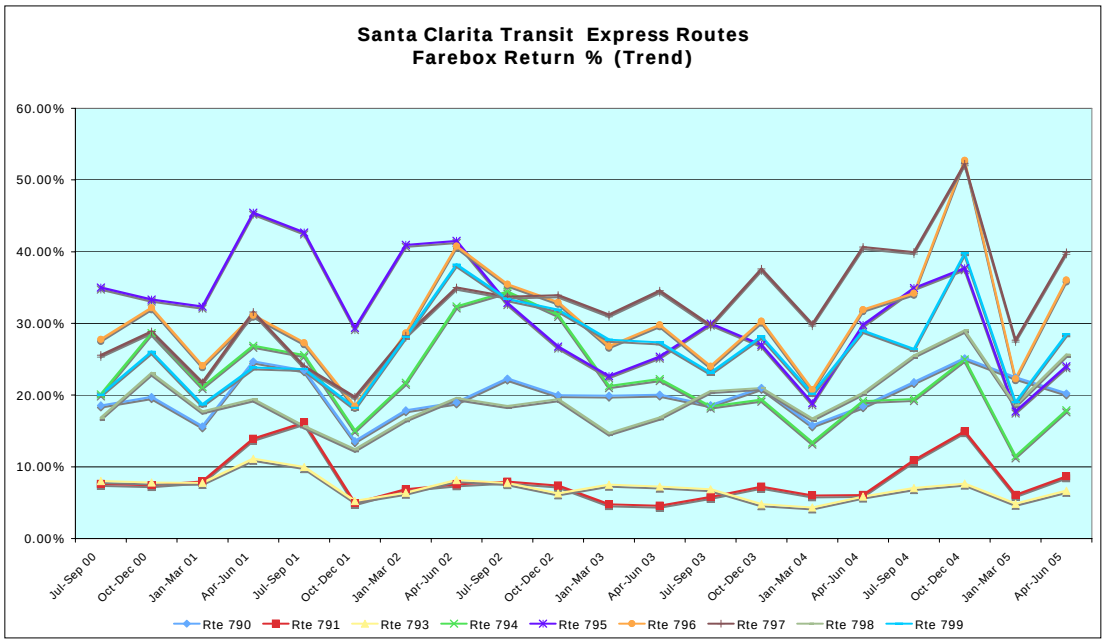


Table 2.2 SCT Regional Route Performance Trends: FY 2001-05

	FY 2000-01	FY 2001-02	FY 2002-03	FY 2003-04	FY 2004-05
Regional Express Routes					
Annual Ridership	352,594	304,430	272,985	267,219	303,382
Route 790 Averages (Olive View Medical Ctr)					
-Weekday ridership	31	24	24	28	24
-Weekday riders/hour	7.7	5.8	6.1	6.3	7.3
-Weekday farebox return	19.7%	18.2%	20.6%	18.5%	22.2%
Route 791 averages (Warner Center/Chatsworth reverse commute)					
-Weekday ridership	42	35	21	24	42
-Weekday riders/hour	3.9	3.2	1.9	2.2	3.9
-Weekday farebox return	9.3%	8.4%	6.2%	6.3%	9.3%
Route 792 averages (UCLA/Century City reverse commute)					
-Weekday ridership	24	19	18	13	24
-Weekday riders/hour	2.8	2.1	1.8	1.3	2.8
-Weekday farebox return	7.4%	6.5%	6.5%	4.9%	7.4%
Route 793 averages (Van Nuys reverse commute)					
-Weekday ridership	121	99	81	81	82
-Weekday riders/hour	10.1	7.5	8.0	6.0	5.8
-Weekday farebox return	8.8%	7.3%	7.2%	5.5%	6.5%
Route 794 averages (Burbank/Downtown L.A. reverse commute)					
-Weekday ridership	73	65	56	50	55
-Weekday riders/hour	7.2	6.3	5.3	4.6	7.2
-Weekday farebox return	24.2%	23.6%	27.5%	17.6%	17.9%
Route 795 averages (Antelope Valley)					
-Weekday ridership	289	260	134	110	92
-Weekday riders/hour	14.2	14.9	8.1	9.1	9.4
-Weekday farebox return	36.6%	38.3%	27.2%	26.3%	27.7%
Route 796 averages (Warner Center)					
-Weekday ridership	185	152	152	148	185
-Weekday riders/hour	14.1	11.2	10.6	10.4	14.1
-Weekday farebox return	28.8%	28.8%	31.2%	26.7%	28.8%
Route 797 averages (UCLA/Century City)					
-Weekday ridership	129	114	150	171	209
-Weekday riders/hour	10.4	9.0	10.5	11.3	12.4
-Weekday farebox return	26.9%	27.1%	33.4%	34.4%	39.1%
Route 798 averages (Van Nuys)					
-Weekday ridership	103	74	68	79	76
-Weekday riders/hour	7.0	4.6	4.0	4.9	5.3
-Weekday farebox return	19.1%	16.2%	17.4%	19.6%	24.3%
Route 799 averages (Burbank/Downtown L.A.)					
-Weekday ridership	401	377	386	385	434
-Weekday riders/hour	14.8	13.8	13.7	13.7	15.1
-Weekday farebox return	22.1%	27.3%	30.1%	25.1%	27.8%

Figure 2.5 SCT Regional Route Farebox Return



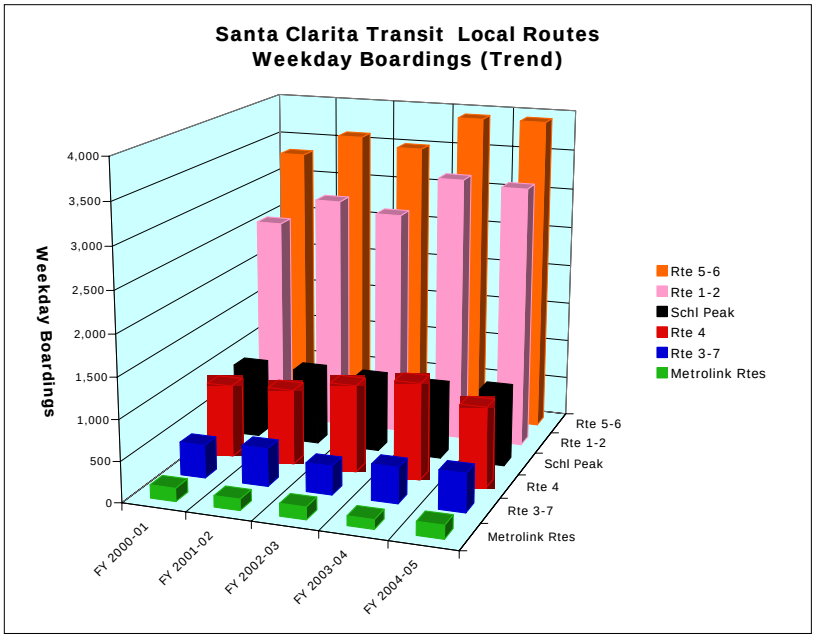
Local Route Performance Trends

Table 2.3 summarizes patronage trends for the last five years on Santa Clarita Transit local routes. Selected trends are presented in Figures 2.6 to 2.8. As previously mentioned, local route patronage increased by about 22% between FY 2000-01 and FY 2004-05. These increases were fairly evenly distributed among regular local routes. In contrast, Metrolink feeder route patronage declined slightly, while annualized school commute ridership increased by about 30% over the five-year period. In absolute terms, patronage increased on SCT's "mainline" routes, 1/2 - Whites Canyon – Castaic/Val Verde Park, and 5/6 Vasquez Canyon/Shadow Pines – Stevenson Ranch.

Table 2.3 Santa Clarita Transit Local Performance Trends: FY 2001-05

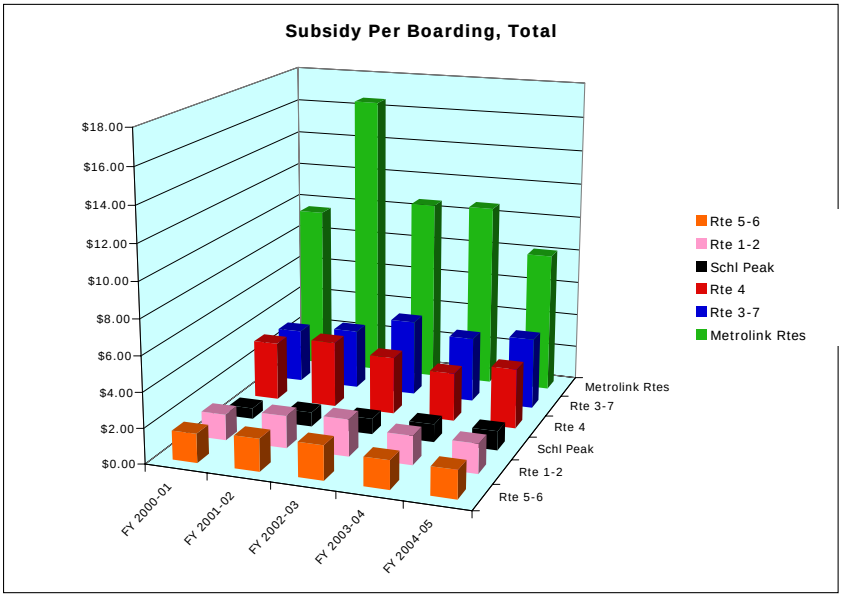
	FY 2000-01	FY 2001-02	FY 2002-03	FY 2003-04	FY 2004-05
Local Routes					
Annual Ridership	2,542,562	2,671,913	2,651,907	3,082,737	3,102,027
Route 1/2 Averages (Whites Canyon - Castaic/Val Verde)					
-Weekday ridership	2,571	2,913	2,796	3,297	3,242
-Weekday riders/hour	33.4	30.5	27.6	32.5	33.0
-Weekday farebox return	27.3%	25.1%	23.8%	26.9%	26.4%
- Saturday ridership	1,179	1,416	1,467	1,790	1,852
- Sunday ridership	915	1,276	1,060	1,412	1,404
Routes 3/7 averages (Magic Mountain - Seco Canyon)					
-Weekday ridership	410	468	354	443	473
-Weekday riders/hour	18.6	19.4	14.3	19.4	25.6
-Weekday farebox return	10.0%	10.7%	8.0%	12.4%	11.3%
- Saturday ridership	272	311	327	348	415
- Sunday ridership	210	212	207	248	248
Routes 4 averages (Newhall Metrolink – Bouquet Canyon)					
-Weekday ridership	899	932	1,079	1,197	996
-Weekday riders/hour	18.6	19.4	14.3	19.4	25.6
-Weekday farebox return	10.2%	11.4%	12.6%	14.7%	14.4%
- Saturday ridership	517	466	578	602	562
- Sunday ridership	176	171	272	240	255
Routes 5/6 averages (Vasquez Canyon/Shadow Pines – Stevenson Ranch)					
-Weekday ridership	3,320	3,598	3,493	3,921	3,924
-Weekday riders/hour	28.1	29.1	27.3	30.7	31.1
-Weekday farebox return	20.4%	21.0%	21.0%	25.1%	24.6%
- Saturday ridership	2,157	2,250	2,349	2,634	2,740
- Sunday ridership	1,957	2,041	1,867	2,236	2,353
Metrolink Feeder Route averages					
-Weekday ridership	180	160	169	129	163
-Weekday riders/hour	6.1	5.3	6.2	7.3	10.3
-Weekday farebox return	2.9%	2.9%	3.8%	3.8%	4.6%
- Saturday ridership	0	0	0	0	0
- Sunday ridership	0	0	0	0	0
School Commute averages (annualized)					
-Weekday ridership	777	841	818	1,032	1,012
-Weekday riders/hour	92.4	82.2	84.3	92.9	110.5
-Weekday farebox return	37.4%	38.6%	45.7%	53.6%	50.0%
- Saturday ridership	0	0	0	0	0
- Sunday ridership	0	0	0	0	0

Figure 2.6 SCT Local Route Weekday Boardings



Patronage on Route 1/2 increased from 2,571 average weekday boardings during FY 2000-01 to 3,242 average weekday boardings during FY 2004-05. Saturday patronage increased about 57% from 1,179 to 1,852 average Saturday boardings in FY 2000-01 and FY 2004-05, respectively. From FY 2004-05 to 2005-06, weekday patronage dropped slightly while Saturday patron grew by 20%. On Sundays, Route 1/2 patronage grew 53% from 915 to 1,404 average Sunday boardings.

Figure 2.7 SCT Local Routes: Subsidy per Boarding



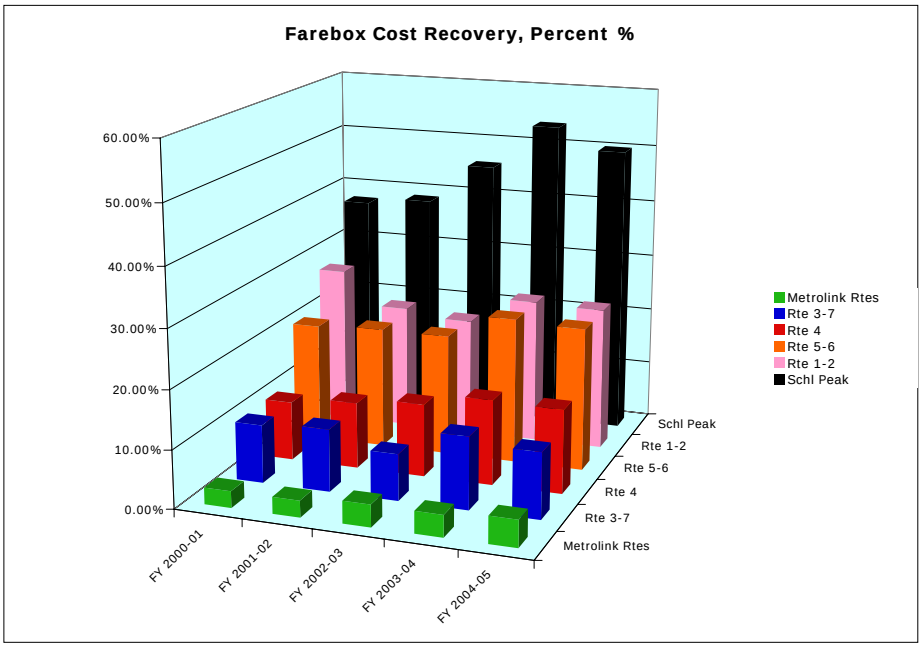
Route 5/6 patronage growth was much slower than growth on Route 1/2, increasing about 18% over five years. In FY 2000-01, there was an average of 3,330 weekday boardings on Route 5/6. In FY 2004-05, this figure increased to 3,924 weekday boardings. Weekend patronage growth was more robust. On Saturdays, an average of 2,157 boardings in FY 2000-01 increased 27% to 2,740 daily boardings. On Sundays during FY 2000-01, Route 5/6 carried an average of 1,957 boardings; during FY 2004-05, this figure had grown to 2,353 daily boardings, an increase of about 20%.

Increases on less-patronized local routes were more modest than on Routes 1/2 and 5/6 through 2005. Route 3/7 – Magic Mountain – Seco Canyon patronage increased by 15% from 410 to 473 daily boardings on weekdays between FY 2000-01 and FY 2004-05, 53% from 272 to 415 average boardings on Saturdays, and 18% from 210 to 255 average boardings on Sundays. In FY 2005-06, Route 3/7 had a 16% increase to 550 daily passengers and a 40% increase on Saturdays to 583 daily passengers. On Route 4 – Bouquet Canyon – Newhall, weekday patronage increased modestly from 899 to 996 daily average boardings, and then jumped to 1,171 in FY 2005-06; Saturday ridership from 517 to 562 daily by FY 2004-05 and a large jump to 718 in FY 2005-06; Sunday patronage from 176 to 255 daily boardings over the five-year analysis period.

As previously mentioned, Metrolink feeder route patronage actually declined slightly between FY 2000-01 and FY 2004-05, by about 9%. This might have resulted from opening the Newhall Station, with added parking availability, thus taking pressure off parking at the Saugus/Santa Clarita Station. However, Metrolink feeder ridership jumped significantly in FY 2005-06, with Route 502 doubling its daily ridership to 186. School commute patronage grew robustly from about 777 to 1,012 daily boardings. On days that school is in session, school commute patronage often ranges between 1,300 and 1,400 daily boardings.

In terms of economic performance, school commute routes showed the best improvement, increasing from an estimated 37% farebox cost recovery in FY 2000-01 to 50% during FY 2004-05. Route 5/6 was slightly improved, increasing from 20.4% to 24.6% during the same period. The

Figure 2.8 SCT Local Routes: Farebox Recovery Ratio



Route 1/2 and 3/7 farebox recovery ratios remained relatively steady; the Route 4 average improved modestly by FY 2004-05, probably reflecting fare increases. Metrolink feeder routes maintained their very poor averages: less than 5% cost recovery from fares.

Dial-A-Ride (DAR) Performance Trends

A 2003 telephone survey found that 85% of randomly selected respondents rated dispatchers as "Excellent" or "Very Good"; 78% of drivers were in this category. The quality of the vehicles wasn't rated quite as highly, with only 56% in the "Excellent or "Very Good" category. Trips to the Adult Day Care Center and medical appointments account for the largest share of dial-a-ride trips, followed by accessing the Senior Center. Most remaining trips are for a variety of shopping, work, and miscellaneous trips.

At a cost of about $27-30 per ride, the Santa Clarita dial-a-ride service tends toward the higher end, although there are ADA systems which cost more than $30 per trip. The most efficient dial-a-ride services provide service for $7 to $10 per trip for relatively short trips in communities much smaller and less spread out than Santa Clarita. The Dial-A-Ride system carried 83,067 passengers in FY 2002-03, 84,981 passengers in FY 2003-04, and 80,487 passengers during FY 2004-05. In FY 2004-05, Dial-A-Ride accounted for approximately 20% of the overall operating budget but carried about 2% of Santa Clarita Transit's total patronage. This, however, is not unusual in transit.

A recent conversion to new software and on-vehicle hardware has not gone smoothly. Discussion with staff and riders indicates that dispatchers and customer service agents are not fully utilizing the features of the new software to improve the efficiency of the Dial-A-Ride system, and the software has some deficiencies that will be remedied. These changes are the subject of a separate report. Requirements of the ASI contract also generate some difficulties in record keeping and merging of ADA-certified riders with non-certified senior and disabled patrons.

Table 2.1 summarizes trends in the DAR service. The introduction of new equipment and staffing problems has caused a deterioration of productivity during the past year, but data collection problems make it difficult to determine how patronage and productivity has dropped. It appears that FY 2004-05 ridership and productivity declined to approximately 69,100 completed trips and 2.4 riders per hour. Ridership declined further to 61,000 completed trips in FY 2005-06.

2.2 Route Performance Profiles

A line-by-line analysis of Santa Clarita Transit local and station link routes yielded several clear observations related to overall system service and individual route performance (a comparable amount of analysis was not conducted for the regional routes). Overall ridership by route suggested the same level of activity that SCT currently reports, with routes 1/2 and 5/6 demonstrating good ridership, route 4 showing fair ridership, and routes 3/7 having low ridership. Within each route, several distinct peaks are observed, suggesting each route serves multiple trip patterns. Many route tails have little ridership and could reasonably be cut, reutilized, or assigned to flex-route service. Long-term planning should consider the current trip making trends and overall volumes detailed within when evaluating restructured fixed routes and candidate zones for demand-response or flex-route service.

The most noticeable observation on a systemwide level is the poor on-time performance of nearly every local route, particularly routes 1/2 and 5/6, and particularly weekday afternoon runs. Delay is primarily attributable to the level of traffic congestion throughout Santa Clarita. Compounding this effect is the sparse amount of layover assigned to most trips, so that delay incurred on one trip is passed on to the following, and so on, throughout the day. Adding an extra bus to routes 1/2 and 5/6, trimming tails, and retiming the schedules of all routes to include more layover would be some immediate solutions to this problem. Long-term evaluation should consider signal technology along with shorter route lengths and more buses to address this concern.

Tables 2.4 to 2.7 quantify key findings described here. The following section includes additional analysis derived from stop-by-stop ontime and ridership charts for each route by direction and time of day.

Weekday Service

Weekday travel was observed throughout SCT's service day, from 4:00 a.m. until 12:00 a.m., with primary focus given to the morning and afternoon peak periods, 6:00 a.m. – 9:00 a.m. and 2:00 p.m. – 7:00 p.m. *All trips during these times were checked over the course of the ride check.*

Routes 1/2

Ridership

Routes 1 and 2 have good ridership through the core of the route, especially the segment from Whites Canyon to McBean Transfer Station (MTS), which had 69 riders/trip (618 total riders) in the morning and 49 riders/trip for the reverse afternoon trip (635). See Tables 2.4 and 2.5 for more information. A total of 19 morning, 8 midday, and 27 PM peak trips were checked.

Several distinct trip patterns emerge on these routes. In the mornings, there is a strong eastbound passenger flow from Castaic and Val Verde to Valencia H.S. and MTS, apparently transferring to other routes. From MTS, a new ridership pattern emerges of riders boarding consistently throughout the Newhall corridor. Nearly half of these riders are students alighting at Golden Valley H.S. The rest continue into the Sierra/Soledad corridor. A new school pattern then begins in this corridor that picks up students going to Canyon H.S. The neighborhood segment through Whites/Ashboro generates little traffic.

In the a.m. westbound direction, ridership picks up in the Sierra/Soledad corridor and grows steadily as the route heads toward MTS. Again, Golden Valley H.S. sees several alightings. The Newhall corridor is once again strong, particularly the Valle de Oro stop. A little less than half of these riders exit at MTS or the Valencia Town Center, with most of the rest riding to the Valencia Industrial Center (VIC) or Valencia Commerce Center (VCC) with only a small number continuing on to Castaic or Val Verde. The segment from Valle de Oro to Valencia is the only one in the system that shows regular overloads.

In the afternoons, these patterns essentially reverse, with eastbound passengers boarding from the VCC and VIC, about half transferring to other points at MTS and the rest continuing into the Newhall and Sierra/Soledad corridors. A large number of riders also board at MTS and Newhall Metrolink for the eastbound trip. The busiest alighting points are Newhall Metrolink and Valle de Oro.

Westbound afternoon boardings are strong through Sierra/Soledad with the most popular destinations continuing to be Valle de Oro, Newhall Metrolink, and MTS. A new ridership pattern beyond MTS brings riders to destinations at end of the line stops in Val Verde and Castaic.

On-Time Performance

Routes 1/2 have poor on-time performance. Route 1 roundtrips had an average running time of 16.6 minutes behind schedule in the morning and 13.6 minutes late in the afternoon. Route 2 fared slightly better, running 10.9 minute late on average in the morning, and 5.8 minutes late in the afternoon (see Table 2.6). Average scheduled round trip time is roughly 2 hours, 40 minutes.

Since most trips have little or no layover at the end of the line, overall delay was compounded with each subsequent roundtrip. In fact, on-time performance is most likely worse than stated above, as some buses were running so far behind schedule that runs on these routes would be dropped mid-route. Of all route segments of the 1/2, Whites Canyon to MTS in the a.m. and the reverse trip in the p.m. proved most consistently behind schedule. Revisions to the schedule will be implemented October 15, 2006 which hopefully will ameliorate the on-time difficulties.

Routes 3/7

Ridership

These routes have very low ridership, carrying fewer than 10 riders/trip on all peak segments except MTS to Six Flags Magic Mountain in the morning and the reverse in the afternoon. During the survey, many Route 3/7 riders were foreign students transferring at MTS to continue to their jobs at Six Flags Magic Mountain. Magic Mountain operates on a seasonal schedule, so this pattern will vary whether or not the park is open.

Looking more closely at other trip trends, very light a.m. traffic boards throughout the Seco Canyon corridor and alights at MTS or in the central Valencia area. Few riders utilize the route through the Tourney Road district. In the a.m. northbound direction, the only prevalent pattern is that riders from MTS take route 3 to destinations throughout the Seco/Bouquet corridor. There is little ridership in the northern residential tail; however, it does appear that the route is being used by some passengers to "travel through" the end of the line (Route 3 NB becomes 7 SB, and Route 7 NB becomes 3 SB).

In the afternoon, southbound riders on the Seco Canyon portion are again boarding and exiting throughout the segment, although MTS remains the primary destination. Almost no southbound riders travel through MTS on routes 3 or 7, but a fair volume of passengers are again making the distinct MTS to Six Flags trip in this period. In the p.m. northbound direction, large passenger volumes (27 riders/trip) make the Six Flags to MTS trip, while lighter loads begin from MTS into the Bouquet/Seco corridor.

On-Time Performance

Routes 3/7 had some of the best on-time performance measures in the system (no average roundtrip over 5 minutes late), due primarily to its light ridership, lower-density corridors, and shorter overall route distance. Even given this, not enough layover time is built into the route to absorb these delays, so each subsequent roundtrip compounds schedule decay. With an average scheduled roundtrip of around one hour, it is not hard for a bus to get behind by 20-30 minutes in the afternoon peak.

Route 4

Ridership

Overall ridership is low to fair on Route 4, ranging between 11 and 20 average riders/trip in the morning and afternoon peak periods. Several unique trip making patterns emerge on this route.

Starting with the morning southbound trip, riders begin boarding from the LARC end of the line stop and throughout the northern Bouquet corridor. Saugus H.S. is the first major destination, although more riders continue to board through the southern Bouquet corridor, alighting at Bouquet/Valencia, or more commonly, at MTS. About half of the riders remain on the bus at MTS, joined by more transferring from other routes to route 4. The majority of these passengers get off at College of the Canyons (COC). The few remaining riders join a new pattern of riders boarding along Lyons Avenue west of Orchard Valley and alight east of Orchard Valley in the central Newhall area. The prevalent a.m. northbound trends are riders from Newhall Metrolink traveling to the Lyons corridor, COC, and MTS; and riders from MTS and Bouquet/Soledad traveling to the Saugus H.S. area.

In the afternoon, southbound passenger volumes grow steadily along lower Bouquet, about half emptying at MTS. The rest join new riders from MTS for destinations at COC, in the Lyons/Newhall corridor, and Newhall Metrolink. Northbound p.m. traffic originates from Newhall Metrolink, the Lyons corridor, and very strongly from COC for MTS, where a third of the riders join transferring passengers for destinations along lower Bouquet.

On-Time Performance

On-time performance for this route was fair in the morning (average of 2 minutes late per round trip) and poorer in the afternoon (average of 10.5 minutes late). This route benefits from some end of the line layover time to absorb these delays, but suffers from the interlining in the peak periods with the chronically late routes 5/6. This proved especially problematic in the afternoon, when the average starting time from Newhall Metrolink was over 12 minutes behind schedule.

Routes 5/6

Ridership

Routes 5/6 demonstrated good overall ridership, especially through its core section between The Old Road/Pico Canyon to Sierra/Soledad. Tail ridership in Stevenson Ranch and east of Sierra/Soledad was much lower. The most productive route segment was from Vasquez/Shadow Pines to MTS in the morning, with 33 average riders/trip (461 total riders), and its return afternoon trips with 39 average riders/trip (744 riders.

Routes 5/6 showed fewer clear-cut trip trends than other routes. Starting with the morning eastbound trip, ridership did not begin in significant numbers until Lyons Avenue. At Newhall Metrolink, the largest number of riders boards the bus. Interestingly, more riders board at Hart H.S. than alight at this stop. Traffic is then scant until MTS, where around sixty percent of riders depart. New riders from MTS replace about half of these riders, and boardings and alightings are steady all along Soledad, particularly at Golden Oak (offs), Reuther (offs), Rainbow Glen (ons), Camp Plenty (offs), and the Sierra/Soledad area. Ridership further east was minimal. Coming back westbound in the mornings, ridership is slightly better on the Route 6 tail than the Route 5 tail, and loads spike for both routes at Soledad/Sierra, Soledad/Whites, and Rainbow Glen.

At Reuther, passengers begin to exit in greater quantities, then again at Santa Clarita Metrolink and Soledad/Bouquet. The majority of the remaining riders transfer off at MTS. Few new riders board at MTS. There is light activity at Newhall Metrolink and through the Lyons corridor, but volumes are sparse by Stevenson Ranch.

Afternoon trends are similar to morning patterns. The eastbound p.m. trip does not become productive until The Old Road, and then grows steadily, picking up and dropping off passengers in the Newhall Ranch area, particularly Newhall Metrolink. More riders board than alight at MTS for various destinations along Soledad. Soledad/Bouquet, Reuther, Rainbow Glen, Camp Plenty, and Soledad/Sierra continue to be the most popular stops. Two stops east of Soledad/Sierra, volumes grow very light, though Route 6 continued to perform better than Route 5.

Westbound p.m. trip are stronger on the Route 6 tail than Route 5, and both routes are well utilized once they are in the Soledad/Sierra corridor. By Soledad/Bouquet, riders are predominantly departing the bus until MTS, where volumes spike again. Traffic is light until the Hart H.S. area, where a large number of riders both exit and enter the bus. Volumes remain strong through the Newhall area, especially at Newhall Metrolink, where volumes climb again, depositing passengers steadily through the Lyons corridor and Stevenson Ranch area.

On-Time Performance

Routes 5/6, along with Routes 1 and 2, demonstrate poor on-time performance. In the morning, Route 5 lost an average of 7.9 minutes from the schedule on each roundtrip, while Route 6 lost 10.6 minutes per trip on average. In the afternoon, both routes performed even more poorly, with Route 5 running an average of 27.7 minutes behind schedule and Route 6 running 14.3 minutes behind schedule on average. Scheduled time for each roundtrip is between 2-hr and 2 hr-15 min for Route 5, and between 2hr-30min and 2hr-45min for Route 6.

As stated previously, these delays are compounded throughout the day by a general lack of adequate layover built into the schedule. In fact, one a.m. segment and one p.m. segment which have slack built into the route actually average better than on-time service, indicating that service delays could be addressed with revised scheduling, provided additional buses could be utilized to maintain currently scheduled transfer meets.

Routes 501-504

Ridership

Ridership on these station link routes is very sparse with the exception of route 502 from Santa Clarita Metrolink to Valencia Industrial Center/Valencia Commerce Center in the morning and the return evening trip, and route 501 from Metrolink to Six Flags Magic Mountain in the morning. All other route patterns average no more than six riders/trip, with some carrying no riders. In general, the trends suggest that Santa Clarita residents are not using the station link routes to access Metrolink, but that travelers coming from outside of Santa Clarita to work are using these routes from Metrolink to local employment destinations.

On-Time Performance

On-time performance is relatively good for these routes. In the morning, no trip averages more than 5 minutes behind schedule. Performance slips in the more congested afternoon period, where three of eight route patterns average more than five minutes of delay in a trip; however, scheduled

layover built into these routes to coordinate with Metrolink schedules keep delays from compounding.

Weekend Service

Saturday travel was observed throughout SCT's service day, from 6:00 a.m. until 10:00 p.m., with primary focus given to the midday period from 10:00 a.m. – 3:00 p.m. Sunday service was recorded during the midday period only. On most routes, 10-11 trips received on-board counts.

Weekend on-time performance was not quite the problem it was during the week, with nearly all routes averaging between zero and 7 minutes behind its scheduled travel time. Weekend schedules also offered more end-of-line recovery time, so the compounding delay problem was not felt nearly as much as during the week.

Routes 1/2

The MTS to Whites Canyon segment (250-350 total midday riders each direction) carried two to three times as many passengers as the MTS to Castaic/Val Verde segment; however, most riders on the western segment used the route from end-of-line stops all the way to MTS, with little traffic through the Commerce Center and Industrial Center, as would be expected. Conversely, few riders used the eastern terminus loop through Whites Canyon. Reasonable volumes on this segment predictably did not occur until the Soledad/Sierra corridor, peaking through the Newhall area. Ridership here mirrored weekday trends, with most riders traveling between Valle de Oro, Newhall Metrolink/downtown Newhall, and MTS/central Valencia.

Routes 3/7

As on the weekday, Routes 3/7 show the lowest ridership, with no segment averaging more than six riders/trip for the midday period. The best ridership is from the Seco Canyon area to MTS and central Valencia destinations. The specific MTS to Six Flags trip also was observed, though the midday volumes pale in comparison to the morning and afternoon crush loads carrying employees to and from the amusement park. Little to no activity occurred in the Valencia Boulevard/Tourney section of the route, or the northern portion of Route 7. A noticeably number of riders continued to make the trip around the northern terminus transition from Route 3 to Route 7, and vice versa.

Route 4

Route 4's ridership falls off from weekdays, when it is supported by strong trip patterns to Saugus H.S. and COC, and from Newhall Metrolink to work destinations. Weekend ridership averages between four and 11 riders/trip. Traveling southbound, rider volumes pick up at Bouquet/ Centurion and increase through the lower Bouquet corridor, peaking around Newhall Ranch Road and dropping off passengers through the central Valencia area to MTS. On Saturdays, the route continues from MTS to Newhall Metrolink. After riders board at MTS, little to no traffic is generated until the route reach Lyons Avenue. Fair activity is observed through to the end-of-line station. The reverse northbound pattern demonstrates similar characteristics, with mild traffic in the Newhall/Lyons corridor, near central Valencia and MTS, and between Newhall Ranch Road and Centurion on Bouquet.

Routes 5/6

Ridership on this route group remains strong on the weekend, with over 30 average riders/trip on Saturday and over 40 average riders/trip on Sunday. Most midday trips are on Route 6 with only one or two Route 5 trips in the midday. In the eastbound direction, there is little traffic in Stevenson Ranch, and then boardings spike at The Old Road/Constitution and remain strong through the Lyons corridor. Volumes continue to rise through Newhall Metrolink and the Hart H.S. area, and then stay flat until MTS, where about half the riders depart. Ridership picks up again through central Valencia then begins to dissipate at Rainbow Glen, Camp Plenty and stops through the Soledad/Sierra corridor. The eastern tail has very light ridership. Sunday shows heavy activity at Soledad/Commuter Way.

Coming westbound, ridership is once again light on the tail and begins in earnest on Soledad from Sierra to Whites Canyon. Most of these riders alight in the central Valencia area and at MTS. Traffic is scarce until the Hart H.S. and Newhall Metrolink areas, and then is heavy along Lyons Avenue. The majority of riders then exit the bus on The Old Road at Wal-Mart. Few riders continue on into Stevenson Ranch.

Table 2.4 SCT Local Routes: Average Weekday Peak Riders per Trip

		Weekday Morning (6A - 9A)			Weekday Evening (2P - 7P)		
Route	Inbound		Outbound		Inbound		Outbound	
1	Castaic to MTS	19	MTS to Castaic	45	Castaic to MTS	31	MTS to Castaic	20
2	Val Verde to MTS	19	MTS to Val Verde	26	Val Verde to MTS	22	MTS to Val Verde	16
		19		39		26		18
1	Whites to MTS	74	MTS to Whites	21	Whites to MTS	26	MTS to Whites	68
2	Whites to MTS	59	MTS to Whites	34	Whites to MTS	42	MTS to Whites	27
		69		29		34		49
3	Seco to MTS	9	MTS to Seco	12	Seco to MTS	10	MTS to Seco	8
7	Seco to MTS	5	MTS to Seco	6	Seco to MTS	8	MTS to Seco	11
		7		9		9		9
3	Six Flags to MTS	3	MTS to Six Flags	21	Six Flags to MTS	27	MTS to Six Flags	8
7	Six Flags to MTS	0	MTS to Six Flags	15	Six Flags to MTS	26	MTS to Six Flags	2
		3		18		27		5
4	LARC to MTS	18	MTS to LARC	13	LARC to MTS	15	MTS to LARC	14
4	Newhall ML to MTS	11	MTS to Newhall ML	17	Newhall ML to MTS	20	MTS to Newhall ML	16
5	Stevenson to MTS	18	MTS to Stevenson	23	Stevenson to MTS	13	MTS to Stevenson	26
6	Stevenson to MTS	31	MTS to Stevenson	7	Stevenson to MTS	35	MTS to Stevenson	29
		24		14		24		28
5	Vasquez to MTS	35	MTS to Vasquez	19	Vasquez to MTS	22	MTS to Vasquez	33
6	Shadow Pines to MTS	30	MTS to Shadow Pines	21	Shadow Pines to MTS	33	MTS to Shadow Pines	44
		33		20		28		39
AVERAGE RIDERS		**29**		**21**		**24**		**25**
501	Six Flags to Metrolink	0	Metrolink to Six Flags	25	Six Flags to Metrolink	2	Metrolink to Six Flags	0
502	Com Ctr to Metrolink	3	Metrolink to Com Ctr	23	Com Ctr to Metrolink	11	Metrolink to Com Ctr	1
503	Seco to Metrolink	6	Metrolink to Seco	2	Seco to Metrolink	0	Metrolink to Seco	3
504	Bouquet to Metrolink	4	Metrolink to Bouquet	0	Bouquet to Metrolink	2	Metrolink to Bouquet	2
AVERAGE RIDERS		**3**		**18**		**4**		**2**

Table 2.5 SCT Local Routes: Total Weekday Peak Riders

Route	Weekday Morning (6A - 9A) Inbound		Outbound		Weekday Evening (2P - 7P) Inbound		Outbound	
1	Castaic to MTS	76	MTS to Castaic	269	Castaic to MTS	246	MTS to Castaic	122
2	Val Verde to MTS	77	MTS to Val Verde	78	Val Verde to MTS	151	MTS to Val Verde	78
		153		347		397		200
1	Whites to MTS	442	MTS to Whites	62	Whites to MTS	158	MTS to Whites	473
2	Whites to MTS	176	MTS to Whites	169	Whites to MTS	251	MTS to Whites	162
		618		231		409		635
3	Seco to MTS	17	MTS to Seco	36	Seco to MTS	52	MTS to Seco	38
7	Seco to MTS	9	MTS to Seco	11	Seco to MTS	33	MTS to Seco	63
		26		47		85		101
3	Six Flags to MTS	8	MTS to Six Flags	42	Six Flags to MTS	107	MTS to Six Flags	38
7	Six Flags to MTS	0	MTS to Six Flags	29	Six Flags to MTS	132	MTS to Six Flags	9
		8		71		239		47
4	LARC to MTS	92	MTS to LARC	52	LARC to MTS	161	MTS to LARC	154
4	Newhall ML to MTS	56	MTS to Newhall ML	104	Newhall ML to MTS	176	MTS to Newhall ML	158
5	Stevenson to MTS	89	MTS to Stevenson	115	Stevenson to MTS	116	MTS to Stevenson	179
6	Stevenson to MTS	154	MTS to Stevenson	50	Stevenson to MTS	312	MTS to Stevenson	344
		243		165		428		523
5	Vasquez to MTS	248	MTS to Vasquez	95	Vasquez to MTS	151	MTS to Vasquez	300
6	Shadow Pines to MTS	213	MTS to Shadow Pines	123	Shadow Pines to MTS	333	MTS to Shadow Pines	444
		461		218		484		744
TOTAL RIDERS		**1,657**		**1,235**		**2,379**		**2,562**
501	Six Flags to Metrolink	0	Metrolink to Six Flags	75	Six Flags to Metrolink	6	Metrolink to Six Flags	0
502	Com Ctr to Metrolink	5	Metrolink to Com Ctr	68	Com Ctr to Metrolink	44	Metrolink to Com Ctr	3
503	Seco to Metrolink	11	Metrolink to Seco	2	Seco to Metrolink	1	Metrolink to Seco	9
504	Bouquet to Metrolink	4	Metrolink to Bouquet	0	Bouquet to Metrolink	3	Metrolink to Bouquet	7
TOTAL RIDERS		**20**		**145**		**54**		**19**

Table 2.6 SCT Local Routes: Average Weekday Peak Minutes Late (Early) Per Trip

Route	Weekday Morning (6A - 9A) Inbound		Outbound		Weekday Evening (2P - 7P) Inbound		Outbound	
1	Castaic to MTS	(3.0)	MTS to Castaic	11.9	Castaic to MTS	0.0	MTS to Castaic	6.7
2	Val Verde to MTS	(0.3)	MTS to Val Verde	(3.3)	Val Verde to MTS	(0.3)	MTS to Val Verde	0.4
1	Whites to MTS	6.8	MTS to Whites	0.8	Whites to MTS	(1.5)	MTS to Whites	8.4
2	Whites to MTS	8.7	MTS to Whites	5.8	Whites to MTS	(0.2)	MTS to Whites	5.8
	Route 1 Roundtrip	**16.6**	**Route 2 Roundtrip**	**10.9**	**Route 1 Roundtrip**	**13.6**	**Route 2 Roundtrip**	**5.8**
3	Seco to MTS	5.0	MTS to Seco	(1.3)	Seco to MTS	0.4	MTS to Seco	2.4
7	Seco to MTS	1.0	MTS to Seco	(2.0)	Seco to MTS	(1.0)	MTS to Seco	4.5
3	Six Flags to MTS	(1.3)	MTS to Six Flags	2.0	Six Flags to MTS	1.5	MTS to Six Flags	0.2
7	Six Flags to MTS	0.0	MTS to Six Flags	(0.5)	Six Flags to MTS	(0.8)	MTS to Six Flags	(0.8)
	Route 3 Roundtrip	**4.3**	**Route 7 Roundtrip**	**(1.5)**	**Route 3 Roundtrip**	**4.5**	**Route 7 Roundtrip**	**1.9**
4	LARC to MTS	2.8	MTS to LARC	(1.5)	LARC to MTS	3.8	MTS to LARC	2.2
4	Newhall ML to MTS	(0.8)	MTS to Newhall ML	1.5	Newhall ML to MTS	2.1	MTS to Newhall ML	2.4
	Route 4 Roundtrip	**2.0**			**Route 4 Roundtrip**	**10.5**		
5	Stevenson to MTS	0.8	MTS to Stevenson*	(3.1)	Stevenson to MTS	7.6	MTS to Stevenson	7.9
6	Stevenson to MTS	2.6	MTS to Stevenson	1.4	Stevenson to MTS*	(3.9)	MTS to Stevenson	3.9
5	Vasquez to MTS	7.4	MTS to Vasquez	2.8	Vasquez to MTS	8.2	MTS to Vasquez	4.1
6	Shadow Pines to MTS	5.5	MTS to Shadow Pines	1.0	Shadow Pines to MTS	7.2	MTS to Shadow Pines	7.0
	Route 5 Roundtrip	**7.9**	**Route 6 Roundtrip**	**10.6**	**Route 5 Roundtrip**	**27.7**	**Route 6 Roundtrip**	**14.3**
501	Six Flags to Metrolink	(2.0)	Metrolink to Six Flags	4.7	Six Flags to Metrolink	3.9	Metrolink to Six Flags	(0.5)
502	Com Ctr to Metrolink	0.0	Metrolink to Com Ctr	0.3	Com Ctr to Metrolink	5.1	Metrolink to Com Ctr	(1.7)
503	Seco to Metrolink	(1.0)	Metrolink to Seco	0.0	Seco to Metrolink	1.5	Metrolink to Seco	6.0
504	Bouquet to Metrolink	0.0	Metrolink to Bouquet	(3.0)	Bouquet to Metrolink	7.0	Metrolink to Bouquet	4.7

**Schedule includes slack within route segment*

Table 2.7. SCT Local Routes: Total Weekend Midday Riders

Route	Saturday Midday (10A - 3P) Inbound		Outbound		Sunday Midday (10A - 3P) Inbound		Outbound	
1	Castaic to MTS	59	MTS to Castaic	79	Castaic to MTS	43	MTS to Castaic	64
2	Val Verde to MTS	60	MTS to Val Verde	61	Val Verde to MTS	47	MTS to Val Verde	30
		119		140		90		94
1	Whites to MTS	172	MTS to Whites	156	Whites to MTS	161	MTS to Whites	127
2	Whites to MTS	178	MTS to Whites	136	Whites to MTS	177	MTS to Whites	120
		350		292		338		247
3	Seco to MTS	31	MTS to Seco	10	Seco to MTS	33	MTS to Seco	16
7	Seco to MTS	18	MTS to Seco	7	Seco to MTS	11	MTS to Seco	18
		49		17		44		34
3	Six Flags to MTS	3	MTS to Six Flags	18	Six Flags to MTS	1	MTS to Six Flags	11
7	Six Flags to MTS	12	MTS to Six Flags	23	Six Flags to MTS	10	MTS to Six Flags	23
		15		41		11		34
4	LARC to MTS	129	MTS to LARC	80	LARC to MTS	63	MTS to LARC	40
4	Newhall ML to MTS	70	MTS to Newhall ML	84	Newhall ML to MTS	n/a	MTS to Newhall ML	n/a
5	Stevenson to MTS	0	MTS to Stevenson	90	Stevenson to MTS	42	MTS to Stevenson	81
6	Stevenson to MTS	344	MTS to Stevenson	243	Stevenson to MTS	424	MTS to Stevenson	400
		344		333		466		481
5	Vasquez to MTS	31	MTS to Vasquez	19	Vasquez to MTS	58	MTS to Vasquez	24
6	Shadow Pines to MTS	337	MTS to Shadow Pines	303	Shadow Pines to MTS	378	MTS to Shadow Pines	387
		368		322		436		411
TOTAL RIDERS		**1,444**		**1,309**		**1,448**		**1,341**

2.3 Transit Opportunities and Constraints

One of the tasks of the first *Transportation Development Plan* completed by Santa Clarita in 1996 was to identify "service deficiencies," that is, where current transit services was not meeting identified needs. This terminology does not imply that the current transit system is inefficient, although there are individual routes that are well below average in performance. As originally noted in the 1997 TDP, Santa Clarita Transit continues to be a progressively operated, productive, and expanding transit system with a wide diversity of services, operating in one of the most difficult suburban transit operating environments in the United States. Local terrain, major drainage courses, and utility rights-of-way have dictated land use and street configuration patterns that handicap transit operations in major ways. These constraints include:

- Street patterns in many neighborhoods are extremely difficult to serve. Many neighborhoods have only one entrance and exit; many are walled, and some are also built on hilltops well above the major arterials where most bus service operates, requiring very steep grades to access. Some gated subdivisions severely restrict the vehicles allowed inside, as well as excluding non-residents. As a result of these and related factors, a very large percentage of Santa Clarita residences are outside the accepted standard of a maximum of ¼ mile walking distance to or from a bus stop.

- Other areas cannot be served because available financial resources are already committed to existing services. Some of these areas are relatively low priority for service improvements compared to service deficiencies of the existing transit system.

It may be possible to "fix" some of these transit-unfriendly neighborhood features. Others, such as subdivisions with only one entry/exit and gated developments, stand out as things that should not be allowed in future development if transit service is desired. Still other features are contradictory: the off-street pedestrian and bicycling opportunities offered by Santa Clarita's "paseos", for example, and the City's high speed, high volume arterial roadways. Walled subdivisions typically severely restrict access, both by vehicle and on foot. The road system in some ways is extremely transit unfriendly, but also greatly improves Santa Clarita Transit's ability to provide area coverage, reasonable service frequencies and relatively fast point-to-point travel times within available finances, since the arterials have such high average speed.

In most places, transit service patterns remain relatively unchanged, with changes occurring on an incremental basis. As pointed out in the 1996 TDP and still valid in 2006, Santa Clarita and the surrounding unincorporated area is growing very rapidly. Unlike most areas, growth is not just occurring on the fringes but all over the community, primarily dictated by when developers are able to finance and proceed with a given project. This sort of development pattern makes keeping the transit service pattern up-to-date difficult at best.

Santa Clarita's transit service pattern has evolved to meet the challenges of growth, including service to developing destinations such as new junior and senior high schools, new employment centers, new shopping centers and other new development. This can be considered a success because while responding to these challenges, local system productivity increased about 10% from 26.6 passengers per RVH in FY 2000-01 to 30.2 during FY 2004-05.

As originally recommended in the 1997 TDP, it appears that SCT local service has evolved to reflect rapid changes in community character and development of new destinations, rather than placing excessive emphasis on serving small pockets and enclaves of potential demand not well- served or practically-served, e.g., neighborhoods more than ¼ mile from a bus stop.

- Santa Clarita Transit operations changed in 2002 from pulsed connections at the Santa Clarita Metrolink station to the McBean Transfer Station (MTS) adjacent to the Valencia Town Center. This relocation of the system's main timed transfer point to MTS has provided a "focus" at the logical center of the system, and has improved overall efficiency by eliminating backtracking and duplicate service needed when the Metrolink station was the primary system hub.

- Since the 1997 TDP, Santa Clarita Transit has taken responsibility for all regional express routes serving the Santa Clarita Valley. As previously stated, these routes perform within the range typical for express routes. Startup of new "Route 8" connecting MTS, College of the Canyons, and the Sylmar Metrolink Station in the San Fernando Valley brings new midday connections to the rest of Los Angeles County. There is still a need for a larger, well-designed park-and-ride facility near San Fernando Road and Route 14 for express service patrons who, in the absence of such a facility, have fully utilized available parking at the Santa Clarita and Newhall Metrolink Stations.

- Other opportunities for improving connections to the community also appear to exist, such as realigning the current poor-performing Van Nuys express route to instead serve Los Angeles MTA's Red Line subway station in North Hollywood, where connections to the new east-west Orange Line Busway are also available. Though little action has been taken since the 1996 TDP, opportunities still exist to sponsor or assist subscription buses, bus pools, and van pools to serve markets that do not justify scheduled public bus service.

- Santa Clarita Transit continues to achieve excellent coverage and very high productivity by suburban standards because of favorable operating costs and average speeds 50% higher than suburban norms. In recent years, service reliability has declined because of congestion and increased ridership. Upon the expected 2008 opening of the Newhall Ranch Road extension, congestion along Soledad Canyon Road will be relieved, which in turn will significantly improve overall on-time performance.

- Santa Clarita Transit also suffers from decreasing reliability due to increasing traffic congestion. Longer routes, particularly routes 1, 2, and 6, get substantially behind schedule most afternoons and early evenings, making it impossible to keep up the hub and spoke concept which allows efficient transfers at the MTS.

Route Coverage and Community Transit Accessibility

All regular Santa Clarita Transit local routes operate every 30 minutes seven days per week over most route segments. Excellent transit access is provided to the Valencia Town Center, the Newhall area, and the core areas of Canyon Country. The route structure has evolved logically, reflecting growth patterns, opening of new transit centers such as MTS and the Newhall Metrolink station, within the configuration and constraints of the arterial road network and the locations of major activity centers in the community.

As shown in Figure 2.9, about 40 percent of the Santa Clarita Valley's population lives outside ¼ mile walking distance from a bus route –the maximum distance most people are readily willing to

walk to bus service. Major areas unserved by SCT's regular route system (but some partially by school commute routes) include:

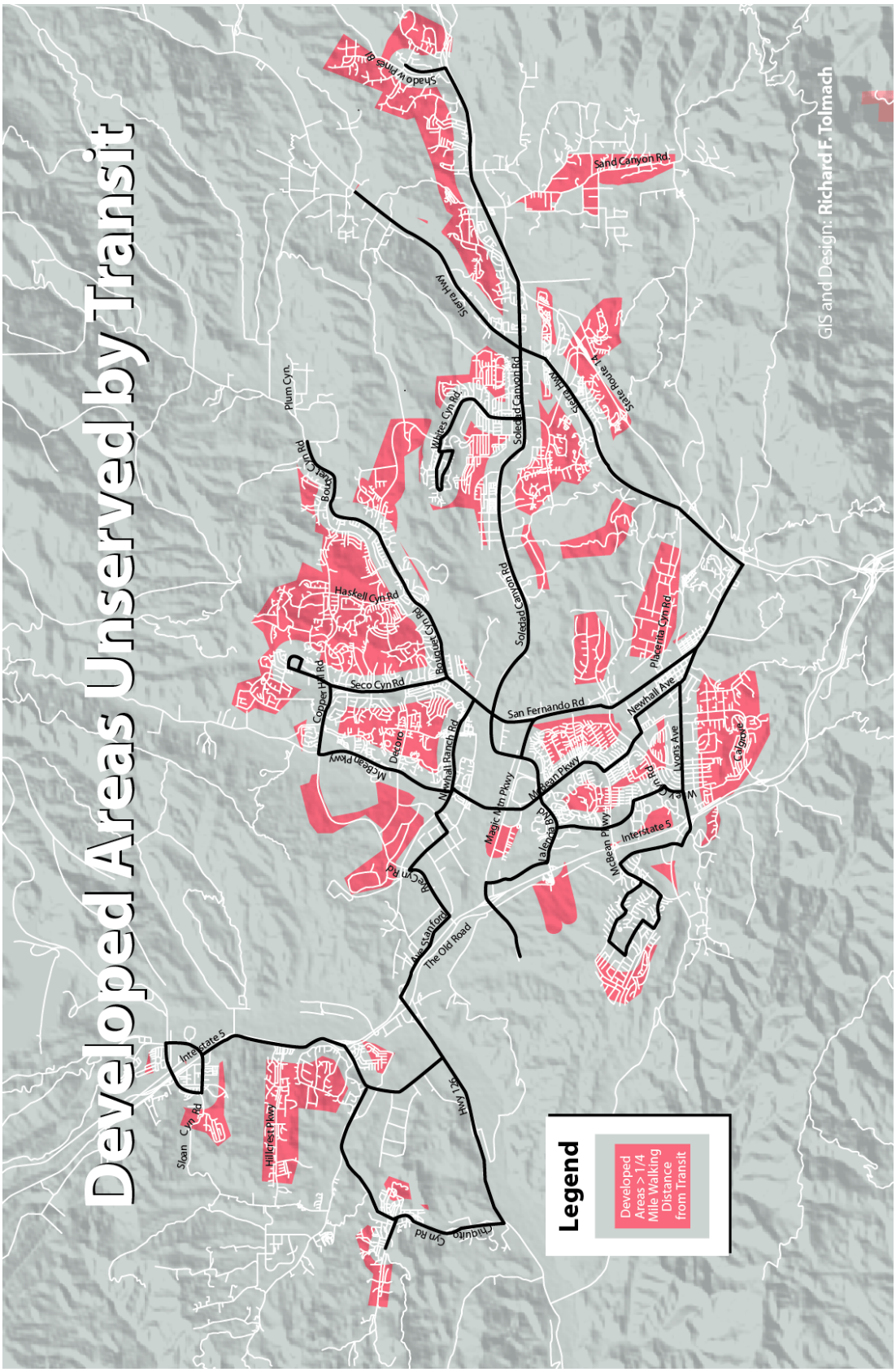
- Hillcrest Parkway in Castaic, including Castaic Middle School

- Fringe areas of Castaic and Val Verde Park
- Valencia Parkway west of I-5, including West Ranch High and Rancho Pico Junior High
- The western edge of Stevenson Ranch
- Newhall neighborhoods ¼ mile or more south of Lyons Avenue
- Valencia neighborhoods ¼ mile or more east of McBean Parkway
- Placerita Canyon Road, including The Masters College
- West and southeast ends of Via Princessa, including new development south of Route 14
- Plum Canyon off Bouquet Canyon
- Saugus neighborhoods more than ¼ mile from Newhall Ranch Road, north McBean Parkway, Copper Hill Road, Seco Canyon Road, and Bouquet Canyon Road
- Portions of Canyon County, particularly hilly areas above Whites Canyon Road
- The northern portions of neighborhoods ¼ mile or more north of Soledad Canyon Road east of Sierra Highway.
- Sand Canyon
- Outlying rural fringe developments.

Most community activity centers are well within the ¼ mile walking distance standard (e.g. ½ mile total wide "bandwidth") of at least one route; a notable exception is The Masters College.

An assessment of service coverage based on ½ mile wide bandwidths is somewhat misleading and overstates actual transit accessibility. This measure is most valid in communities with traditional grid street patterns, where there is a multiplicity of closely spaced, readily traversable paths directly to transit stops. While on a map many Santa Clarita neighborhoods appear to be within easy walking distance of a bus route, in reality there is no easy, direct path; often the actual paths are 3 or 4 times longer than it would appear on a map. Steep terrain, aqueducts, flood control channels, and power line corridors are typical barriers to pedestrians. Walled neighborhoods with internalized "pocket patterns" of curvilinear streets are the norm for the newest developments. In some cases, the paseo system would appear to offer easy pedestrian access to bus stops. However, no connecting pedestrian connections have been provided where some grade separated pedestrian and bicycle paths cross arterial streets. These constraints are also reflected on Figure 2.9.

Figure 2.9 Santa Clarita Areas Beyond ¼ Mile of Transit



Route Patterns

Local Service. As previously mentioned, Santa Clarita Transit's local route pattern has evolved in a logical fashion, given the configuration and confines of the area's major street system and the locations of community activity centers. However, system design is severely hampered by Santa Clarita's relative lack of major arterial streets. Currently, most direct "cross valley" travel by both cars and transit is limited to a single arterial, Soledad Canyon Road. This results in very high traffic counts, severe afternoon congestion and major transit service delays, particularly for buses exiting the Santa Clarita Metrolink Station and lost time at the intersection with Bouquet Canyon Road. Recently the City opened an extension of Golden Valley Road, which is grade separated over Soledad Canyon Road. By 2008, this new section will connect to a 6- to 8-lane eastward extension of Newhall Ranch Road, which is expected to divert a significant portion of existing cross-valley traffic. The extension of Plum Canyon Road to Whites Canyon Road also provides some "cross-town" traffic relief in the northern portion of Saugus and Canyon Country.

Other road extensions include an overpass over the South Fork of the Santa Clara River and San Fernando Road, connecting Wiley Canyon Road to a new western segment of Via Princessa. Similarly, an eastern extension of Via Princessa connects to Whites Canyon Road. However, the proposed 4-mile Via Princessa connector through Santa Clarita's hilly "central triangle" has yet to be completed. Construction depends on development fees from adjacent properties – the Whittaker-Bermite property located inside the "triangle." As a result, Route 1/2 must be routed through relatively unproductive segments along Sierra Highway, resulting in long trip times and indirect service.

Potential "Flexible Fixed Route" (FFR) Service. In the past, the question of arterial vs. local routes has not been much of an issue for Santa Clarita. Santa Clarita Transit service is predominantly an arterial system, and this sort of service will continue to be the primary type of service, carrying most local transit riders. The street patterns in already built neighborhoods are far too discontinuous to efficiently operate arterial bus routes. Similarly, street patterns in most new, or to-be-built, areas are similarly discontinuous due to barriers, including subdivision walls, steep terrain, drainage, aqueducts and other utility corridors.

The usual solution to providing transit to such neighborhoods has been demand-responsive paratransit service, using buses significantly smaller than standard 35- or 40-foot transit buses, such as that operated by Santa Clarita Dial-A-Ride. However, paratransit is compromised by low productivity, high costs per passenger, and in Santa Clarita's case, very low (less than 3%) farebox recovery ratios. Santa Clarita Valley paratransit is also handicapped by very long travel distances in a very large low-density service area; very low productivity of 2-3 passengers per RVH is the norm, compared to 7-10 passengers per RVH for paratransit systems operated in smaller, more compact, denser communities with relatively short trip lengths such as Claremont and Arcadia.

However, since the mid-1990's, there have been advances in Intelligent Transportation Systems (ITS) hardware and software that make hybrid "flexible fixed route" (FFR) (e.g., route deviation) service increasingly practical. Previous to these ITS advances, most route deviation system severely compromised passenger convenience and flexibility by requiring 24-hour or more advance reservations. In the case of Santa Clarita, route-deviation shows particular promise in residential areas where there are at least two entrances and walls or drainage channels prevent access to the arterial anywhere in between.

Even with the recognition that flexible fixed routes may obviate some concerns regarding a hostile environment for operating transit, emphasis still should be placed on the "transit-friendliness" elements of community fabric (as discussed below) to make the arterial-based system as accessible to people as practical. Other benefits of flexible fixed routes may include "demand probes" in rapidly growing fringe areas, and replacing low ridership fixed routes on nights and weekends.

Regional Bus Service. All commute express services originate and terminate from the Santa Clarita Metrolink Station, and also serve the Newhall Metrolink Station. Local bus connections and parking are available at both Metrolink stations. All Los Angeles-oriented "inbound" routes (796, 797, 798, and 799) operate via the Cinema park-and-ride lot, Valencia Boulevard, McBean Parkway, Orchard Village Road, Lyons Avenue, and San Fernando Road to Route 14, making limited stops with a final one at the informal park-and-ride lot at San Fernando Road and Sierra Highway, adjacent to the freeway on-ramp to Route 14. This routing has the advantage of providing reasonably consistent and frequent service on each express route, with 15 to 30 minute frequencies during commute periods. However, travel time between the Santa Clarita Metrolink Station and the freeway on-ramp is 25-26 minutes. The park-and-ride facility at San Fernando and Sierra has been overcrowded for many years, reflecting efforts by bus riders to minimize travel times. The severe overcrowding of park & ride lots at Saugus, Newhall, and San Fernando/Sierra indicate a crucial need for a permanent, significantly larger park & ride facility at this location.

Transit-Friendly Community Features

Many large and small details of a community's fabric–that is, infrastructure and community design–influence how well or poorly transit service serves travel needs. In a transit-friendly community, transit may attract many "choice" riders because transit is readily accessible to most people and operates very close to the places where people want to go. Transit-friendly areas with good pedestrian access to bus stops also attract much higher levels of walking. In such cases, transit is more productive and a more valuable asset to local residents. But in transit-hostile environments, the same level of transit service is likely to attract only "transit-dependent" riders. Progress on these design features has been accomplished within the City of Santa Clarita, but there has been little progress in the unincorporated portions of the service area that are regulated by the County of Los Angeles.

Sidewalks and Paved Waiting Places. Many areas of Santa Clarita were developed when it was implicitly assumed that virtually all trips would be made by motor vehicle. Thus, key segments of major arterial and collector streets lack sidewalks and paved pads that are safe for waiting for the bus, including many points near major destinations that otherwise appear to be logical bus stop locations. It is possible to walk through wet and muddy grass after sprinklers have been on, or along high speed arterials on the paved shoulders; however such situations are extremely discouraging to would-be transit riders. While retrofitting sidewalks in already built residential areas is very difficult, retrofitting paved waiting pads at all bus stops and building essential pedestrian access is relatively easy in commercial areas and along major arterial streets (to the extent extra right-of-way is available), without intruding on established uses. The Transit staff is compiling an inventory of transit shelters and amenities, and this should provide direction to where improvements are most needed.

Access to Paseos. The "paseo" system throughout the Valencia community is an outstanding network of walking, jogging, and bicycle trails that is generally separated from the street system, including grade-separated crossings of the busier arterial streets at numerous places. As previously

pointed out in the 1997 TDP, the paseos offer a significant opportunity to greatly improve transit access from many of Valencia's internalized enclaves, partially compensating for a street pattern that otherwise severely restricts good transit access. However, where some of the earliest paseos have grade-separated crossings of arterials with transit service, pedestrian access is not provided. At the newer paseo crossings, access is provided but is sometimes circuitous, obscure and uninviting. Since the 1996 TDP, a number of improvements at specific locations have partially mitigated this situation. But many un-retrofitted locations remain. The following actions as proposed in the 1996 TDP are still valid:

- Retrofit remaining older paseo crossings to provide reasonable access to arterial bus routes.
- Construct paved waiting pads in safe, logical positions where paseos intersect with arterial bus routes.
- Provide reasonably direct and readily visible pedestrian access between paseos and bus routes in new developments.
- In addition, improved paseo signage could direct people to transit stops.

Access to "Internal" Streets. As previously noted, the dominant local street pattern in Santa Clarita is one of internalized enclaves walled off from arterials and major collectors where most transit service operates. In many newer neighborhoods, this problem is solved by provision of pedestrian access through walls where cul-de-sacs "stub-up" or run along boundary walls. An effective design for these locations minimizing noise and maximizing privacy is to leave a gap at a point, fronted by a short parallel wall a few feet closer to street-side. Retrofitting such pedestrian access points through subdivision walls is usually practical and affordable, but often generates outspoken opposition from pre-existing neighbors concerned about potential crime and decreased privacy. Such retrofitting should only be considered at locations with neighborhood support. A more fundamental point is to make sure that this type of pedestrian accessibility is built into new neighborhoods at every reasonable opportunity.

Access Across Flood Control Channels and Utility Barriers. While pedestrian and bicycle trails have often been built parallel to flood control channels and utility corridors, few pedestrian linkages to transit stops have been built perpendicular to such barriers. While such linkages may raise safety issues (e.g., requiring fencing of the new path to keep people out of flood control channels and other dangerous areas), with careful analysis there may be opportunities for such improvements that could significantly improve pedestrian access to transit, such as across the South Fork of the Santa Clara River between Valencia neighborhoods and San Fernando Road.

Access Across High-Speed Arterial Roadways. The pedestrian environment along many of the major arterials where bus stops are located remains extremely unfriendly. Many crossing locations are still extremely intimidating to pedestrians and remain unprotected from 45-55 mph traffic. Bus stops are also often very inconveniently located. In some locations, the bus-riding public is in effect offered service in only one direction, severely impacting patronage potential.

In the late 1990's Santa Clarita received grants to improve pedestrian access to transit along Soledad Canyon Road. The situation will improve somewhat once the Newhall Ranch Road extension connecting to Golden Valley Road opens in 2008, projected to divert 35% to 40% of existing traffic.

Street Patterns. Planning transit routes is much simpler in areas with grid street patterns, whether in older communities or in "New Urbanism" developments. The post-World War II "suburban"

pattern of curvilinear local streets with generous provision of cul-de-sacs designed to prevent through motor vehicle traffic also greatly hinders efficient operation of transit service, and undermines efficient pedestrian access to transit stops. Most of Santa Clarita was developed following the postwar "suburban" pattern. Major changes in this pattern are unlikely. Development patterns are largely dictated by severe terrain, drainage courses, utility corridors and the influences of the already built street and neighborhood pattern. Local street discontinuity, curvilinear forms and pocket neighborhoods will continue to constrain transit access.

The keys to making developing areas in Santa Clarita transit-friendly lie in strategies such as (1) pedestrian links to transit should be provided to ensure accessibility similar to that of neighborhoods developed on grid street patterns, and (2) turnouts at bus stops that don't obstruct the right lane also greatly impact the efficiency of transit operations and the quality of transit service.

On low-volume streets, turnouts reduce conflicts between motorists and buses, and introduce an element of safety for transit users. However on high volume, high speed arterials, turnouts as usually designed continue to enhance convenience for motorists but tend to impede transit operations because buses suffer delays as they wait for safe openings to merge back into traffic. In general, on high volume arterials, turnouts should only be constructed when sufficient merging length can be provided for buses pulling back into traffic.

Gated Roadways. In general, transit service can only be provided at the entrance points to gated subdivisions. In some cases, demand-responsive services are allowed into these areas to pick up elderly or disabled persons. One peculiarity of Santa Clarita are a number of locked gates across would-be collector streets, a strategy designed to prevent through traffic. The problem with this is that while such gates effectively prevent through motor vehicle traffic, they also tend to preclude transit service to areas surrounding the gated street. Examples include gates blocking a connection from Calgrove Boulevard to Valley Street and Placerita Canyon Road (however, in the later case, the City has stipulated construction of a new public roadway access to serve expansion of The Masters College). From a transit perspective, desirable General Plan policies include rules disallowing new gates across established roadways, and require adequate pedestrian access to new gated subdivisions, preferably within ¼ mile of existing or future bus stops.

Shopping Center Layout. The typical pattern of postwar suburban shopping centers place shops and stores at the back of the development, separated from roadways by vast swaths of automobile parking. Banks, fast-food restaurants with drive up windows and other "peripheral" highly auto-oriented businesses are placed on the corners of shopping center parcels, closest to streets and intersections. Transit riders dropped off street-side must typically walk across vast parking lots to reach the stores. Bringing buses into shopping center parking lots increases travel time for other passengers and causes conflicts with cars. Suggested policies to remedy this situation include:

- Provide clear pedestrian paths separated from parking between transit stops and the shopping concourse. These paths should be direct and should minimize the need to cross parking circulation aisles or to require pedestrians weaving between parking stalls.

- In new development, emphasize the placement of shop buildings closer to the street and intersections corners, greatly increasing pedestrian and transit access. Place auto parking at the side and back of buildings. Place drive-up banks and fast-food outlets locations where their traffic will interfere least with everyone else (including street traffic).

Growth and Infill: Productivity Increase vs. Operating Efficiency Decrease

As previously noted, Santa Clarita Transit achieves good area coverage and acceptable schedule frequency within existing financial resources, since bus operating speeds are faster than typical in most suburban environments. This outcome is due to (1) the rather high average traffic speeds that generally prevail on Santa Clarita' arterial and collector street network, and (2) long stretches of these roadways that have relatively little development and/or likely transit destinations, and are generally very unfriendly to pedestrians.

Over time, however, these conditions have changed–particularly along Soledad Canyon Road–and it is difficult to maintain the existing schedules. With continued community growth, congestion will increase, average traffic speeds will decline, as will transit operating speeds. Without specific strategies to address this problem, more bus drivers and vehicles will be needed to maintain the existing transit network and service frequency. A reduction of perceived point-to-point bus operating speeds will also make transit service less attractive.

Transit's operating environment greatly influences transit productivity and operating efficiency. An important goal for transit management is to identify those factors that favorably impact transit efficiency and productivity, and work to ensure that these conditions remain favorable. Santa Clarita Transit also needs to aggressively develop new strategies and key infrastructure components that enhance and improve the efficiencies of its operating patterns, offsetting continued deterioration in its operating environment. Since the 1996 TDP, these include development of the McBean Transfer Station, the Newhall Metrolink station, the opening of a new maintenance and operations facility, and the gradual evolution and improvement of the route structure through 2005. New strategies over the next decade may include:

- Develop permanent Metrolink facilities/transit centers at the Via Princessa Station, including expanded bus transfer facilities and increased supply of park & ride spaces.
- Construct express bus park & ride capacity at selected locations, beginning with the intersection of San Fernando Road and Sierra Highway (highest priority).
- Implement a proposed Computer-Aided Dispatching/Automatic Vehicle Location (CAD/AVL) system, including software that allows operation of flexible fixed routes and computerized analysis tools for transit planning.
- Institute flexible fixed routes (FFR) in selected neighborhoods, as a probe for establishing new routes, possible replacement for less productive paratransit, replacement of low ridership segments of regular fixed routes, evening shuttles, Sunday service, etc.
- Install selected transit priority strategies, such as "queue jumpers" at congested intersections where possible, selective transit priorities at traffic signals, and similar traffic engineering techniques.
- Improve pedestrian access to transit and pedestrian friendly environments in general, including paseo-bus stop connections, etc., in both developed and new growth areas.

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3.0 Goals, Objectives, and Standards

This section proposes a mission statement for Santa Clarita Transit, and presents a set of goals and objectives to guide future strategies. It also indicates service standards in relation to development density and patterns, and suggests some measures that should be utilized to monitor the performance of Santa Clarita Transit. When a set of goals, objectives, and standards are selected, they can be utilized to focus the Transit Development Plan Program.

3.1 Mission Statement

The following mission statement is recommended for Santa Clarita Transit:

> *To provide a mix of transportation services to enhance local and regional mobility in the Santa Clarita community, transporting people and facilitating their accessibility efficiently, effectively, and safely while respecting the environment.*

3.2 Goals and Objectives

GOAL 1. Create a diversified transportation system.

Objectives

a. Provide effective, attractive and innovative alternatives to the single occupant automobile.

b. Contribute to the area's economic and social well-being by improving access to employment, shopping, and activity centers for the maximum number of residents.

c. Operate the current system efficiently, economically and safely to provide transit services at the lowest reasonable cost.

d. Serve those with limited transportation options: the mobility-impaired, senior citizens, low-income persons, and youth.

e. Work with local and regional agencies to promote an integrated, seamless transportation system that meets access needs, including local and regional bus service, dial-a-ride, taxis, rail, vanpools, carpools, buspools, bicycling, walking, and autos.

GOAL 2. Develop and implement Capital Improvement Plans for short-term and long-term enhancements in support of a multimodal transportation system.

Objectives

a. Develop a long-range capital improvement plan for transit facilities.

b. Take a proactive approach to transit planning and work with City departments and the County to incorporate transit-serving projects into long-range capital improvement plans.

c. Acquire and/or reserve rights-of-way for future bus rights-of-way, rail systems and possible extensions, stations and park-and-ride lots in accordance with regional plans.

GOAL 3. Assist in preserving air and environmental quality while accommodating growth.

Objectives

a. Reduce overall vehicle emissions and ease traffic congestion by increasing vehicle occupancy.

b. Develop new ridership and increase patronage on established routes.

c. Provide new service where new development requires and supports it.

d. Market transportation alternatives as the commuter's choice to increase vehicle occupancy during the most critical peak periods.

e. Use clean fuel vehicles as part of the fleet mix where feasible.

GOAL 4. Provide services tailored to existing community development patterns and activity centers.

Objectives

a. Provide higher frequency fixed route service to all significant activity centers and within 1/4 mile of 95% of residents in neighborhoods containing at least 400 units of moderate or higher density housing (6.7 or more housing units per acre).

b. Provide fixed route bus service within 1/2 mile of at least 75% of residents in suburban density (3.4 to 6.6 housing units per acre) neighborhoods where it is feasible to do so.

c. Serve low density and hilly residential areas with personalized services such as dial-a-ride, taxis, or other hybrid, non-traditional transit where not feasible to serve with fixed route transit.

d. Provide a high level of peak hour transit service to employment centers (Town Center, Industrial Center, Commerce Center) from higher density neighborhoods and from areas with low rates of car ownership.

e. Focus routes with frequent headways and all day service to serve community commercial centers and neighborhoods with substantial transit dependent populations.

f. In conjunction with Metrolink, design midday transit service to serve a portion of non-work trips within and leaving the area.

GOAL 5. Work with City and County departments to achieve development patterns that reduce vehicular trips.

Objectives

a. Develop coordinated plans for land use, circulation and transit with City and County departments to concentrate high density housing, employment and commercial areas close to transit corridors.

b. Recommend adding public transportation to the list of public facilities to be synchronized with new development in the growth management policies of the General Plan.

c. Recommend amending the City's General Plan to designate larger areas near the Town Center and near rail stations for high and moderate density residential use.

d. Work with City and County departments to require rights of way in new development for walking, bicycling, and access to transit. This includes through public streets, sidewalks, bicycle paths, design of intersections for easy pedestrian crossings, and linkages between paseos and arterial streets.

e. Encourage the City and County to permit a higher floor area ratio and lower parking requirements for commercial developments that provide transit facilities and subsidize shared-ride programs.

f. Work with the City and County to establish maximum parking limits for major development that is located on routes with frequent transit service.

g. Comment on environmental documents and serve as part of the project review team for the City and County and be an advocate in the community for urban design that supports transit use.

GOAL 6. Adapt to differing environmental and social conditions, new land uses, and changes in the regional transportation network.

Objectives

a. Experiment with multi-occupant modes to develop the most effective new services, including shared-ride taxis, variable hybrid routes, vanpools and buspools.

b. Consider subsidizing vanpools as a cost-effective alternative to bus services or as a transition to providing regional commute bus service.

c. Work with Santa Clarita employers to develop shuttle services to workplaces from Metrolink and/or transit centers.

GOAL 7. Build community support for the transportation system by using it to create a sense of special identity for Santa Clarita.

Objectives

a. Focus transit services to reinforce the community center, the community commercial centers, and major concentrations of employment.

b. Locate attractive transportation information kiosks in commercial and recreational centers.

c. Work with residents to permit through buses in gated communities and pedestrian access to arterials in walled communities.

d. Provide a high quality service so that residents can be confident that service will be reliable, safe, and represent a pleasant experience.

e. Create a high profile for transit by participating in community emergency planning.

f. Support a high quality family environment by providing services that meet the needs of youth.

GOAL 8. Identify and pursue all potential sources of funding to support a mix of transportation modes.

Objectives

a. Seek tax funds, grants, and capital and operating funds from all levels of government.

b. Develop partnerships with other public transit agencies to strengthen funding requests.

c. Develop partnerships with the private sector to fund innovative services which address their needs.

d. Increase revenue from the farebox through patronage growth and selected fare increases.

e. Control expenses to enhance budget flexibility.

f. Develop specific and cost effective programs to utilize fee revenues gained through the City transit mitigation fee.

GOAL 9. Coordinate with Metrolink and transit providers in the San Fernando and Antelope Valleys.

Objectives

a. Develop joint goals and plans to attain maximum utilization of services for inter-area trips.

b. Coordinate services to minimize deadheading and increase utilization.

c. Coordinate schedules and market each other's services to facilitate reverse commutes.

d. Provide service to major regional connection points, such as Sylmar Metrolink and the Red/Orange Line terminal in North Hollywood.

e. Develop a regional plan to promote and operate carpools, vanpools, and subscription buses in coordination with Southern California RideShare.

GOAL 10. Implement an aggressive marketing and customer service plan to promote widespread use of alternatives to the auto.

Objectives

a. Conduct studies and research to understand customer needs and attitudes for targeted communications and outreach programs.

b. Conduct periodic on-board surveys to obtain demographic profiles to assist in preparation of targeted promotional materials, and community surveys to determine why others are not using the services.

c. Identify low productivity trips, routes or segments on an annual basis and adjust marketing programs to boost ridership.

d. Use bus stops and transfer points to promote transit with attractive and readable information and schedules.

e. Respond to customer complaints in a timely manner and address problems that arise repeatedly.

f. Train drivers to be marketing representatives for transit.

g. Work with the Chamber of Commerce, TMAs, key businesses, and City economic development staff to maximize support for transit marketing plans. Plans should include reciprocal promotion of transit by business and business by transit. Work with businesses to determine bus announcements for important destinations.

3.3 Standards for Minimum Service Levels

Stability and service reliability are important characteristics for transit service. Thus, one of the key challenges for Santa Clarita Transit is to provide service to a rapidly growing community without constantly modifying the route structure and schedule.

As discussed previously, there are two primary challenges in providing service to Santa Clarita. The first is to provide service to new areas of development; and the second will be to adapt the route structure to new arterials as they are completed so as to provide improved linkages between Santa Clarita communities.

Major route changes should not occur more frequently than every three years, and service to new or growing demand areas should be provided once they achieve a critical mass without disrupting the majority of the existing network. It is not possible to add small increments of service to an existing route network without potentially causing great disruption. With a timed transfer local network and 30 or 60 minute headways, a small extension of a route may make it impossible to maintain the schedule and meet time if the current schedule is stretched to its operational limit.

Transit service is most efficient and productive where higher density and high trip generating land uses are adjacent to or within a quarter mile of arterial routes that have transit service. It is not feasible from efficiency or effectiveness criteria for transit routes to wander through neighborhood and collector streets in search of ridership. In addition to generating neighborhood opposition, such routes would become discontinuous and very slow in relation to other modes, thus discouraging potential riders who have a choice in their travel mode. The one exception to this rule would be hybrid services that can go off-route to pick-up or drop-off ADA or other patrons who pay for the

premium service. While this slows down the route, it is worthwhile if it reduces need for Dial-a-Ride trips.

In establishing new services, Santa Clarita Transit decisions should be based on the density and quantity of new development, and the ability to develop a logical route extension or new route without requiring route miles and revenue hours in excess of those which will be productive. For transit planning purposes, a net population density of less than 10,000 persons per square mile is generally considered low density, while a net density of 10,000 to 20,000 per square mile is considered medium density, and more than 20,000 persons per square mile is considered to be high density. It is difficult to have productive fixed route transit where the net population density is below 10,000 persons per square mile.

The Santa Clarita General Plan sets residential zone categories from residential estate density to residential high density. The minimum density of 3.4 dwelling units per net acre in the suburban plan category translates to about 6,000 persons per square mile, while the 6.7 dwelling units per acre maximum of the moderate density category translates to approximately 12,000 persons per square mile, bracketing the midpoint density for the suburban category which would yield approximately 9,100 persons per square mile.

In 2004-05, the average Santa Clarita local route generated approximately 30 passengers per revenue vehicle hour. Thus, with two buses operating for 15 hours, the average route generated about 900 passengers per weekday. With approximately 10,000 daily weekday riders on the local fixed route service and a population of 210,000 in the service area, about 48 rides were generated daily in Santa Clarita per 1,000 population -- a rate which has grown each year (it was at 33 rides per 1,000 ten years ago). Based on surveys at other transit properties, this average level of transit use is lower for low-density areas and higher for high density areas. Thus, 10,000 residents on average would generate 480 daily bus rides, but it might require 12,000 residents in suburban density housing but only 5,000 residents in medium high density housing to generate that many riders.

In general, new fixed route transit service is probably not warranted unless it can generate at least 15 passengers per revenue vehicle hour within two years of implementation -- only 50% of the average ridership of existing routes for 2004-05. With 30 minutes headways, this would generate 450 passengers per day, equivalent to ridership on the current Route 3/7. While it is desirable to provide transit service as soon as new development occurs, it is often not feasible because the pace of any specific development area usually requires quite a few years to generate the number of patrons to support the service adequately, as described above. Also, roads are built as demand increases; often the complete arterial network of a development area may not be in place to allow an efficient routing.

Proposed Service Standards

As established in the previous section, the goal for amount of service to be provided in Santa Clarita should be related to the number and density of households, employment concentrations, and other activity centers. Assuming that the current level of transit funding is maintained on a per capita basis, the following service standards are recommended for Santa Clarita:

- Provide high frequency (15 to 30 minute headways) of fixed route service to all activity centers and within 1/4 mile of 95% of residents in neighborhoods containing at least 400 units of moderate or higher density (6.7 or more housing units per acre) housing.
- Provide fixed route service within 1/2 mile of at least 75% of residents in suburban density neighborhoods (3.4 to 6.6 housing units per acre), with school and commute time trippers to

supplement where needed.

- Serve low density suburban areas and low density employment areas with fixed route service if they can be served productively (15 passengers per hour within two years of implementation) in conjunction with service to suburban and higher density areas.

- For areas not qualifying for fixed route service under the criteria above, provide alternatives such as dial-a-ride, subsidized taxis, or other hybrid non-traditional services at premium fares as financial resources permit.

- Meet ADA requirements for complementary paratransit, while attempting to mainline as many ADA clients as possible on fixed route and hybrid services. Continue to serve the non-ADA senior population with paratransit service only if financial resources permit.

- At a minimum, provide basic connections to the regional public transportation network in the San Fernando Valley.

Routing Standards

There are a variety of standards that are typically used in planning fixed route networks. These principles are applicable to Santa Clarita, and have generally been followed in the development of the existing services. These principles include:

- Route Alignment. The one-way route miles should not exceed 1.3 times the most direct distance between terminal points unless geography or street layout require a more indirect routing.

- Route Diversions. Diversions from the main route should only be provided if they do not exceed five minutes (with exceptions for hybrid services), and the number of boardings facilitated by the diversion is greater than the number of on-board passengers inconvenienced by the diversion.

- Loops. These may be included at the end of a route. The total time to complete the loop portion should not exceed five minutes.

- Branches. These may also be included at the end of a route. Only one branch should be served on a trip, and each branch should have a different route designation to avoid confusion.

- Turnbacks. If more than 75% of a route's ridership occurs on the central 50% of the routing, turnbacks or a new route should be utilized to increase the level of service on the core route.

- Headways. If resources permit, policy headways for regularly scheduled weekday service should be 30 minutes, with 60 minute maximum headways for evenings, weekend, or lightly utilized branches.

- Pulse Scheduling. Fixed route service in suburban areas should be "pulse scheduled" wherever possible to allow full network access with one transfer.

- Interlining. Routes should be interlined to connect destinations and reduce the need to transfer.

- Cycle Times. Whenever possible, scheduled cycles should be in 15-30 minute increments including layover and/or recovery time to facilitate pulse scheduling and interlining.

- Bus Stops. Stops should be provided every 500 to 1,000 feet where pedestrian access can be provided to nearby development. Each stop should have a hard surface waiting area and similar access to the origin or destination areas. Benches should be provided wherever possible, and schedule information made readily available. Shelter from the elements should be provided at any stop that generates 25 daily trips or more.

Financial Standards

There are measures that are commonly used to gauge the financial performance of a transit operation. These standards include:

- Operating Cost per Revenue Vehicle Hour. This is the primary measure of operating efficiency. This cost factor should not increase at an annual rate in excess of inflation.

- Farebox Recovery Ratio. This is a measure of passenger fares as a proportion of all operating costs. Desirable minimum proportions would be 10% for the dial-a-ride service, 20% for the fixed route local service, and 30-35% for the commuter express service. The 10% and 20% farebox recovery level represent state mandated levels for established service.

3.4 Quality of Service Standards

There are various measures that are typically utilized to measure the quality of transit service. These include the following:

- Schedule Adherence. On-time performance is defined as no more than five minutes late and never early. Buses shall leave each time point on-time no less than 95% of the time or equal to the previous year's performance, whichever is better.

- Missed Trips. No trip shall be canceled due to lack of personnel or equipment.

- Accidents. Buses shall travel no less than 75,000 miles between chargeable accidents or equal to the previous year's performance, whichever is better.

- Road Calls. Buses shall travel no less than 10,000 miles between mechanical road calls.

- Bus Utilization. A minimum of 80% of revenue vehicles shall be available and in use during peak service hours.

- Dial-a-ride. At least 95% of requests for service shall be met within 30 minutes of the requested time. Wait time for reservations should not exceed three minutes.

- Public Information. Santa Clarita Transit should function as a clearinghouse for information on transportation alternatives. Transit tickets, passes, and route information should be provided at multiple outlets. Passenger telephone information should be available at a minimum during all hours of operation.

- Overloads. With the exception of school trips, no local service should operate on a regular basis with more than 1.25 passengers per seat. No commute or dial-a-ride service should operate with more than one passenger per seat. SCT appears to meet this standard at

present.

- Clean Buses. Dirt and graffiti should be removed from buses or facilities on a daily basis. Bus interiors should be cleaned of trash at each trip end.

4.0 Regional Express Bus Network

This section contains recommendations for modifications to the existing regional express bus linkages operated by Santa Clarita Transit. The routes and number of trips have expanded in recent years. The suggested changes are based on the performance evaluation in Section 2, input from community workshops held in March 2006, and improvements to regional connections provided by LACMTA and Metrolink since the completion of the prior TDP.

4.1 Existing Regional Express Linkages

The expansion of Metrolink service has not diminished the demand for regional bus linkages, with the growth of the Santa Clarita commuter market and diversity of destinations driving the demand levels. Current Metrolink expansion plans anticipate increasing the current 24-train weekday schedule to 28 trains by 2010 and 32 trains by 2015. Two or three of the added trains will be a.m. or p.m. peak period peak direction trains, with one anticipated reverse peak trip. The number of cars and seats per trip will also expand on existing trains.

In evaluating the regional express bus routes, ridership on most routes is good, but average cost per trip is high. This is caused by the long travel times, often on congested highways, and the limited number of second trips operated by buses and drivers. Santa Clarita Transit should examine opportunities for mid-day storage of additional buses in Los Angeles and other downstream sites in order to minimize the expense of running mostly empty trips back to Santa Clarita. Each bus that does not have to return to Santa Clarita would save about $1.00 per mile for fuel and maintenance, or between $60.00 and $80.00 per day for each bus stored during the daytime. If 10 additional buses didn't return to Santa Clarita after the a.m. commute, annual savings of up to $150,000 to $200,000 may be possible. However, the logistics of gathering bus drivers on each route for the return to Santa Clarita and the need to continue selected reverse commute trips would offset these savings. The other difficulty mentioned by commuters is the concern about all the commute trips possibly being delayed if the driver's joint journey to their buses is delayed by congestion. Some transit properties have dealt with the issue by hiring part-time drivers who hold daytime jobs at the commute destination.

There are two main recommendations regarding the commuter bus network.

- Simplify the commuter bus route structure within Santa Clarita.

  The pick-up/drop-off routing for express buses through Santa Clarita should be modified, to eliminate the McBean/Orchard/Lyon legs, operating directly from Santa Clarita Metrolink to Newhall via Soledad/Bouquet/San Fernando Road. Few riders board/disembark in the McBean/Orchard/Lyon segment. This would reduce travel time by 10 minutes and might allow several additional buses to make two commute trips, increasing driver and bus productivity. Reviewing the current commuter paddles, only 7 of 41 commuter paddles represent double trips for this fleet.

- Develop a large park-and-ride lot at San Fernando Road and Sierra Highway.

At present, a significant portion of cars parked at the Santa Clarita and Newhall Metrolink Stations belong to commuter bus riders. There is great interest in a proper park and ride lot at the San Fernando Road/Sierra Highway intersection, adjacent to where the commute buses enter Highway 14. Creation of a 500+ space lot there would take pressure off Metrolink Station parking and generate new express bus ridership. Once a large park and ride lot is in place, it is recommended that SCT consider adding second trips made by buses that only return to Newhall and the park and ride lot. In addition, another park-and-ride lot should be considered for the property behind the MTS.

Specific route by route modifications are suggested as follow:

Route 790 Olive View/Sylmar. With the introduction of frequent Route 8 service between the McBean Transfer Station and the Sylmar Metrolink Station, the three lightly utilized round trips on this service should be eliminated. Transfers to multiple Metro routes are available at the Sylmar Metrolink Station, and the ASI sponsored DAR service provides connection at the Olive View Medical Center.

Route 795 Antelope Valley/Metrolink Supplemental Service. The Southern California Regional Rail Authority (SCRRA) operates Metrolink commuter rail service over 778 fixed-guideway route miles (NTD report for FY 2004-05) with a fleet of 159 commuter railcars and locomotives in Los Angeles, Ventura, Orange, San Bernardino, Riverside, and San Diego Counties. Metrolink's limited fleet is spread relatively thinly over a large network, a situation that has led to various compromises and gaps in Metrolink's schedules. Metrolink has only 0.2 vehicles per route mile, which is very low compared to other small commuter rail systems such as North San Diego County's Coaster (0.43 vehicles/route mile) and Virginia Railway Express serving the southwest suburbs of Washington, D.C. (0.58 vehicles per route mile).

Of the 12 round-trip trains scheduled on the Antelope Valley Metrolink route between Lancaster, Palmdale, Santa Clarita, Burbank, Glendale, and Los Angeles, 3 round trips currently turn around at either the Santa Clarita station or Via Princessa at 8:37 a.m., 2:55 p.m., and 5:05 p.m. As a result, Santa Clarita Transit provides connecting service to the Antelope Valley, essentially as extensions of Metrolink. The first afternoon connecting Route 795 bus leaves Newhall Metrolink at 2:40 p.m., carrying 31 passengers according to the limited March 2006 per-trip counts. A second peak period bus leaves Santa Clarita Metrolink at 5:25 p.m. and Newhall at 5:50 p.m., connecting from a Metrolink train arrival at 5:43 p.m., then operating parallel to the train with 23 passengers the day of the March 2006 per-trip count. A third bus also departs Newhall Metrolink for the Antelope Valley at 7:15 p.m. with 8 passengers, also running parallel to a Metrolink train. It is not clear why there is no connecting bus at Newhall or Santa Clarita Metrolink for the train ending at 5:05 p.m., presumably a connecting schedule that would have very high patronage potential.

In the morning peak period, Santa Clarita Transit also provides two inbound Route 795 trips, both paralleling train services. The first leaves Lancaster Metrolink (with 10 counted passengers) at 3:53 a.m., arriving at Newhall at 5:02 a.m. a few minutes before the parallel train schedule, then operates in the opposite direction (northbound), stops at McBean Transfer Station and terminates at Santa Clarita Metrolink. The second early morning bus leaves Lancaster at 4:49 a.m., 21 minutes before the 5:10 a.m. train departure, carrying 18 passengers according to the March 2006 per-trip counts. This bus "catches up" at Newhall with the train that left Lancaster at 5:10 a.m., then follows the same pattern as the previous bus stopping at MTC before terminating at Santa Clarita Metrolink.

It does not make economic sense to operate buses paralleling trains at very similar schedule times, particularly when parallel Metrolink trains are typically 15-20 minutes faster than the buses, and train

service is much more reliable given increasing congestion on Highway 14. Therefore the following adjustments to Route 795 are recommended:

- Discontinue both early morning SCT Route 795 trips from the Antelope Valley, saving about 6 hours per day, and at least $100,000 annually in excessive operating expense. Excessive capacity is available on the corresponding Metrolink trains between the Antelope Valley and Santa Clarita. In addition, local SCT route changes are proposed later in this chapter that would provide better connections for current Metrolink patrons from the Antelope Valley connecting to feeder routes in Santa Clarita.

- Reroute the 5:27 p.m. Route 795 departure from Santa Clarita Metrolink to operate eastbound on Soledad Canyon Road, joining Highway 14 in Canyon Country. It is not clear why this bus runs opposite the flow of trains via Newhall. Direct operation eastbound from Santa Clarita Metrolink should save connecting passengers at least 30 minutes, thereby increasing patronage. *SCT should continue to operate this trip until Metrolink is able to add rolling stock to its Antelope Valley line, e.g., running the 5:05 p.m. arrival through to Palmdale and Lancaster.*

- Revise the 2:40 p.m. Route 795 departure from Newhall to 3:00 p.m. from Via Princessa Metrolink to serve the 2:55 p.m. train arrival that ends there, again until Metrolink is able to extend that particular schedule through to Lancaster and Palmdale. This Route 795 trip could originate at the Valencia Commerce Center near Val Verde, operating via Valencia Industrial Center, MTS and Santa Clarita Metrolink for the benefit of early shift workers returning to the Antelope Valley. Other Lancaster/Palmdale bound train departures could also be served by feeder trips from Santa Clarita's employment areas provided as part of proposed local service changes, as discussed later in this chapter.

Given the amount of deadheading required to start service in the morning in the Antelope Valley and end it there in the evening, it would be more logical for Antelope Valley Transit Authority to operate this route than for SCT to do so. In fact, the origin of the route was when a private carrier based in the Antelope Valley was operating SCT's regional service.

Route 796/791 Warner Center. According to the March 2006 per-trip counts, Route 796 carried a total of 133 a.m. peak period passengers to Warner Center on 5 trips, approximately 26.6 riders per trip. In the afternoon, there were a total of 128 passengers on 5 return trips to Santa Clarita, or 25.6 riders per trip. Reverse commute patronage was not surprisingly light, with 17 a.m. passengers on 5 trips, and only 6 passengers counted on the afternoon return trips to Warner Center. Given the moderate, acceptable performance of Route 796, no service changes are recommended at this time.

Route 797 UCLA/Century City. Route 797 has also experienced significant patronage growth in the last year. In FY 2004-05, Route 797 averaged a total of 209 weekday passengers. However, according to the March 2006 per-trip counts, Route 797 buses leaving Santa Clarita carried 131 a.m. passengers on 4 trips, 33 per trip. In the afternoon, a total of 89 passengers were counted on 3 trips, or 30 per trip. Two p.m. trip counts on Route 797 were missed; it is assumed that these two trips also carried about 30 passengers per trip. Based on this assumption, Route 797 is carrying about 270-280 passengers, an increase of 30%-35% over FY 2004-05.

The 6:10 a.m. Route 797 departure from Santa Clarita carried 44 passengers according to the March 2006 per-trip counts. The addition of a trip to UCLA/Century City departing Santa Clarita about 5:50 a.m. appears justified, given the full buses being experienced on the 6:10 a.m. departure.

Given the increasing volume of passengers traveling to and from UCLA and other parts of West Los Angeles, one additional trip arriving 15 to 20 minutes before 10:00 a.m. should be considered. Similarly, earlier trips leaving UCLA after 2:00 p.m. and 3:00 p.m. should also be considered. Since

full-time drivers are used for regional express service, marginal expenses for these additional trips should be low, consisting mainly of additional fuel and vehicle maintenance. There may be sufficient midday demand to keep one bus making round trips as far as Westwood, not to Century City, particularly if trips can be coordinated with inbound Metrolink arrivals at Newhall, providing a coordinated service to West Los Angeles. On the other hand, no changes are recommended for reverse commute route 792, which carries only a handful of passengers.

Route 798 Van Nuys. Santa Clarita Transit Routes 798 and 793 are among the worst peak period performers of all regional express routes. Per-trip counts conducted in March 2006 revealed only 36 riders on five morning Route 798 inbound trips to Van Nuys, and 40 riders on five afternoon outbound trips back to Santa Clarita. In the same counts, Route 793, the reverse commute link of this route pair, actually had more riders back to Santa Clarita in the morning peak with 51 riders on five trips, and returning in the evening with 44 passengers on five trips.

As discussed earlier, Route 798 averaged 5.3 passengers per revenue vehicle hour (RVH) in FY 2004-05; Route 793 performance was slightly better, averaging 5.8 passengers per RVH. The farebox return ratio for each route was relatively better at 24.3% for Route 798, but low as expected at 6.5% for Route 793. An alternative routing to serve the Red Line/Orange Line Station in North Hollywood is recommended below

Route 799 Downtown Los Angeles. Route 799 between Santa Clarita and downtown Los Angeles is the busiest regional express route. Per-trip counts conducted in March 2006 revealed 304 a.m. inbound passengers on nine trips, an average of 34 riders per trip. In the afternoon peak period, 342 outbound passengers were counted on 10 trips, again an average of 34 riders per trip. According to FY 2004-05 data, Route 799 averaged 15.1 riders per revenue vehicle hour (RVH), and about a 28% farebox cost recovery ratio. Ridership in the March 2006 per-trip counts totaled 646 passengers, up 49% from the FY 2004-05 average of 434 daily riders.

In contrast, the March 2006 per-trip counts on the reverse commute route associated with Route 799, Route 794, revealed 27 a.m. passengers on four trips returning to Santa Clarita, and 45 p.m. passengers on five returns to Los Angeles.

The per-trip count also revealed that the first three buses leaving Santa Clarita in the morning for downtown Los Angeles–leaving Santa Clarita Metrolink station at 5:15 a.m., 5:25 a.m., and 5:35 a.m., carried 152 passengers, or 51 per trip. This is an interesting result because Santa Clarita's fleet of MCI's average 47 seats per vehicle. In contrast, the 5 Route 799 trips leaving Santa Clarita after 6:00 a.m. carried a total of 122 passengers, or 24.4 riders per trip.

In the afternoon peak period, the busiest return trip leaves downtown Los Angeles (8th and Spring Streets) at 3:22 p.m. with 46 passengers according to the March 2006 per-trip counts.

Based on these results, a minor reallocation of Route 799 resources is recommended during the a.m. peak period. After 6:00 a.m., average headways should be lengthened slightly to buses departing every 20 minutes rather than every 15 minutes, based on the relatively low ridership per trip compared to trips departing before 6:00 a.m. This would free one bus that could be rescheduled to leave Santa Clarita at 4:50 a.m. or 4:55 a.m., and arriving in downtown Los Angeles by 6:00 a.m. This schedule change should shift passengers from the 5:15 a.m. and 5:25 a.m. departures, reducing crowding on those trips. In addition, an earlier arrival time would be more convenient for workers

coordinating their schedules with New York Stock Exchange bell times and collaborating with colleagues located in other business centers around the world. No changes are recommended to Route 794.

4.2 New Regional Express Linkages

Regional Connector to LACMTA Red and Orange Line Stations. Revision of Routes 798 and 793 to serve the North Hollywood and Universal City stations of LACMTA's Red Line subway is likely to produce significant ridership increase compared to the existing routing serving Van Nuys. The Red Line provides direct access to several large employment centers including North Hollywood, Universal City, downtown Hollywood, and a portion of the Wilshire District. The Fall 2005 opening of the Orange Line Busway east-west through the San Fernando Valley also provides direct access to an estimated 150,000 jobs, including Los Angeles Valley College, Van Nuys, Los Angeles Pierce College, and Warner Center. Orange Line Busway buses operate approximately every 5 minutes during weekday peak periods, every 10 minutes midday, every 20 minutes after 8:00 p.m., and every 12 minutes on Saturdays, Sundays and holidays. An estimated 4-5,000 Santa Clarita residents may work along the Orange Line corridor.

In September 2005, the City of Burbank added two "Burbank Bus" peak period shuttle routes serving the North Hollywood Station on weekdays. These two routes serve the Burbank Airport area and Burbank's Media District. Of the estimated 3,100 Santa Clarita residents who work in Burbank, several hundred work in the Media District. Each shuttle route operates every 20 minutes, connecting to every other Red Line train, and every 3rd or 4th Orange Line bus.

Frequent connections provided by LACMTA "Metro Rapid" Route 750 on Ventura Boulevard are also available one stop south on the Red Line at the Universal City station. Route 750 directly serves major employment centers at Studio City, Sherman Oaks, Encino, and Tarzana. Direct Route 798 service to the Universal City Red Line station is also recommended (if feasible given congestion levels and limited access for buses), to avoid the requirement for making two transfers for commuters to the previously listed employment centers, as well as direct connections to a number of other LACMTA and City of Los Angeles bus routes available at Universal City.

For beginning revised Route 798 service to North Hollywood and Universal City Red Line stations rather than Van Nuys, the following service characteristics are suggested:

- During weekday commute periods (5:00 a.m. to 9:00 a.m., 3:00 p.m. to 7:00 p.m.), buses every 20 minutes are recommended. This would provide "every other train" connections to the Red Line, and "every bus" connections to the Burbank Bus shuttles to Burbank Airport and the Media District during weekday peak periods.

- During midday, Saturdays, and Sundays, revised Route 798 would operate every 60 minutes.

The "Route 793" designation would no longer be used. Revised Routes 2 and 10 would provide connections at MTS and Newhall respectively for reverse commuters between North Hollywood and Castaic/Val Verde via Valencia Industrial Center and Valencia Commerce Center. Proposed routing between Santa Clarita, North Hollywood and Universal City would be as follows:

- The new Route 798 originates/terminates at McBean Transfer Station.

- The route would operate in both directions via Valencia Boulevard, Magic Mountain Parkway, and San Fernando Road/Railroad Avenue to the Newhall Metrolink Station.

- From the Newhall Metrolink Station, it would operate along San Fernando Road, to stops at the San Fernando/Sierra Highway Park and ride lot. From that point, Route 798 would

Table 4.1 Recommended Modifications to Santa Clarita Regional Network

Route	Modifications
790 Sylmar	Eliminate this route, Route 8 provides frequent service to Sylmar Metrolink Station, and DAR can make trips to Olive View if necessary.
795 Antelope Valley	Eliminate trips that compete with Metrolink schedules, operate a more complementary schedule, and modify route to operate between Santa Clarita Metrolink and Antelope Valley via Soledad Canyon, eliminating Newhall leg. Phase out route when Metrolink provides more service to Antelope Valley.
796 Warner Center 791	Explore possibility of reducing 791 return trips by leaving two buses in Warner Center vicinity. Monitor on-time performance of route.
797 UCLA/Century City 792	Consider adding 5:50am and 8:10am inbound morning trips and 3:10pm departure from Century City.
798 Van Nuys 793	Ridership is low, consider reduction of service or replacement with Red/Orange Line connector to North Hollywood.
799 Downtown Los Angeles 794	Add a 4:55am departure and change frequency between 6:05 and 7:05am to every 20 minutes.
Red Line Connector	Initiate daily service to the Red Line/Orange Line North Hollywood with service extended to Universal City Red Line Station to interface with Metro Rapid Route 750 Ventura Boulevard service. Minimum service level should be hourly (2 buses) and every 20 minutes during peaks if ridership and resources allow.
Other Potential Regional Routes	Conventional bus service not warranted to Pasadena, Glendale, El Segundo/LAX, Ventura, and Kern County. Vanpool assistance could be considered.

Source: Michael Fajans & Associates

operate non-stop in both directions to the North Hollywood Red Line station via Highway 14, Interstate 5, State Route 170, Burbank Boulevard, and Lankershim Boulevard.

- Round trip travel time (cycle time) is estimated to vary between 2 hours and 2 hours 15 minutes, depending on the level of traffic congestion on Interstate 5 and Highway 14. During peak periods, up to 7 buses may be needed on the route, with 2 at other times (midday, evenings, and weekends).

- Initially, the last departure on weeknights from North Hollywood should be around 9:15 p.m., arriving 5-10 minutes before the last scheduled timed transfer "pulse" at MTC at 10:15

p.m. On Saturdays and Sundays, the last North Hollywood departures would leave earlier, matching the earlier end of local Santa Clarita service on weekends at MTS.

Operation of Route 798 separately from new SCT Route 8 serving the Sylmar Metrolink station is recommended. A combined route would add 15-20 minutes travel time for North Hollywood passengers, due to the otherwise required Sylmar Metrolink station route diversion. The relatively long trip of nearly an hour between Santa Clarita and North Hollywood calls for use of more comfortable MCI commuter coaches, rather than buses designed for local service. Based on the number of transit connections, potential peak period patronage to/from North Hollywood may be similar to Route 799 to downtown Los Angeles, with at least 20 and perhaps more than 30 passengers per peak period trip. On the other hand, midday and weekend patronage potential is probably considerably less than for SCT Route 8, due to the much longer travel distance and travel time compared to Route 8.

Initial daily patronage of 300-500 daily passengers is projected on revised Route 798 during the first few months of service, and between 1,200 and 1,500 daily riders upon maturation of service after 18-24 months. Saturday and Sunday patronage is likely to average 40%-50% of weekday averages.

Table 4.2 below summarizes current and projected short-term and medium-term total bus hours with the suggested modifications to regional service. The elimination of Route 790 and reduction of service on Route 795 result in very little change in total hours in the short-term, assuming the substitution of the Red Line service for Route 793/798. If both the existing 798 and Red Line service are operated, there would be an additional 7,500 to 13,000 annual hours of service. In the medium-term, total bus hours would increase approximately 11 percent over current levels.

Connections to Pasadena and Glendale. From time to time Santa Clarita Transit has received requests for express bus service to Glendale and Pasadena. According to the 2000 Census, about 2% of those working in Glendale (about 1,600 persons) lived in Santa Clarita. In Pasadena, Santa Clarita residents make up about 1% of the workforce (about 1,000 persons). Currently, Metrolink trains serving Santa Clarita stop at the Glendale Transportation Center, located about 1.5 miles south of downtown Glendale's largest and densest concentration of employment.

Since Santa Clarita Metrolink passengers constitute about half of total a.m. Metrolink boardings on the Antelope Valley line (see Table 1.5), it is reasonable to assume that about half of the 147 passengers alighting at Glendale Metrolink during the morning peaks are from Santa Clarita. These 75-80 persons constitute about 7% to 8% of all residents commuting to Glendale in the a.m. peak. This is actually a fairly high percentage, given that most jobs in Glendale are located well beyond walking distance from the Metrolink station, e.g., downtown or in northwest Glendale centered near the railroad tracks about 2 miles south of downtown Burbank Metrolink station (also suggesting a potentially successful location for a new Metrolink station to serve the estimated 15,000 to 20,000 jobs within ½ mile of the Western Avenue railroad crossing).

Table 4.2 Projections of Annual Operating Hours for Regional Service

Route	Existing weekday revenue hours	Existing total Revenue hours	Short-term weekday revenue hours	Short-term total revenue hours	Medium-term weekday revenue hours	Medium-term total revenue hours
790 Olive View	893	893	0	0	0	0
795 Antelope Valley	2,500	2,500	1,500	1,500	0	0
796-791 Warner Center	6,000	6,000	6,000	6,000	6,600	6,600
797-792 UCLA/ Century City	6,828	6,828	7,850	7,850	8,240	8,240
798-793 Van Nuys Red Line/Orange Line	7,006	7,006	7,500	10,000	10,000	13,000
799-794 downtown LA	9,420	9,420	9,890	9,890	10,365	10,365
Subtotal	32,647	32,647	32,740	35,240	35,205	38,205
8 Sylmar	6,940	9,400	6,940	9,400	7,290	9,870
Total	39,587	42,047	39,680	44,640	42,495	48,075

Source: Michael Fajans & Associates projections based on SCT FY 2005-06 data.

The City of Glendale's "Beeline" local bus system provides frequent peak period service between the Glendale Transportation Center and downtown, with more than 200 daily boardings recorded at the train station. Providing direct express bus service to Glendale from Santa Clarita would appear to be a relatively low priority use of resources, particularly compared to the potential cost-effectiveness of adding service to the LACMTA Red Line.

Direct express bus service to Pasadena does not appear to be financially justified, given the very long travel distance from Santa Clarita and relatively limited number of commuters. However, frequent Metro Rapid Bus service is available to Pasadena, 3 blocks north of the Glendale Transportation Center on Los Felize Boulevard. Metro Rapid Route 780 buses operate every 15-16 minutes on weekdays and require approximately 35-37 minutes travel time to downtown Pasadena. Based on Metrolink train trip times and adequate allowance for transferring, travel times from Newhall Metrolink to downtown Pasadena is about 77 to 80 minutes in each direction, plus access times at each end of the trip.

The cities of Pasadena, Glendale, and Burbank are currently (Fall 2006) studying the possibility of a "regional connector" between the downtowns of each city. Once such a system is in place, direct service to downtown Glendale and Pasadena is likely to be available from the Burbank Metrolink station. The timing of such improvements is unknown at this time.

Regional Express Connections to Other Areas (LAX, El Segundo, Ventura, Kern County). From time to time, Santa Clarita Transit has also received requests for regional express service to the Los Angeles International Airport (LAX), El Segundo, and Culver City areas. However, according to Census data, these areas collectively employ about 1,000 Santa Clarita residents, e.g., about 0.7% of total area employment. Unlike Pasadena that has a similar number of jobholders from Santa Clarita, LAX-area employment is extremely dispersed. Therefore the LAX/El Segundo area is probably even less amenable to cost-effective regional express bus service from Santa Clarita than even Pasadena.

Culver City's CityBus Route 6 operates frequent (every 12 minutes) bus service between UCLA, Westwood, LAX, and El Segundo (LAMTA Green Line), but has long travel times of 1 hour, 15 minutes in each direction. Potential riders transferring to or from SCT Route 797 would have travel times of 2 ½ to 3 hours in each direction.

It has been also been suggested that intercity transit service be provided in the State Highway 126 corridor between Santa Clarita, Santa Paula, and Ventura. However, compared to other priorities discussed in this chapter, such a route would have relatively low ridership. Therefore it is not anticipated a Highway 126 bus route would begin service before significant development has occurred at Newhall Ranch. In addition, most commuters traveling in the corridor would live in Ventura County, so it would be reasonable for Ventura County to have primary responsibility for subsidizing transit operating and capital costs. At present the Ventura County Vista service connects Fillmore to Ventura once an hour, so an extension of this would be a possibility.

There is also potential development of 23,000 homes at Centennial, on the Tejon Ranch just over the Kern County border near the summit of the Grapevine. The grades on I-5 between Castaic and the summit would be difficult for a bus. Scheduling of the development is unclear at this point. New development in that area, while technically in Kern County, may be oriented to employment and shopping trips to Santa Clarita and the San Fernando Valley. Santa Clarita Transit should be open to collaboration, but it should be the primary responsibility of Kern Regional Transit to sponsor a transit connection to Santa Clarita.

For these routes that do not warrant conventional commuter express service, Santa Clarita Transit could assist with van pooling creation or sponsorship if other agencies do not provide the service for trips to or from the Santa Clarita Valley. Among transit operators, PACE in Chicago and King County Metro in Seattle operate two of the most successful van pool programs. As an incentive to reduce commute traffic in Santa Clarita, the City could work with developers/corporations to reduce parking requirements in exchange for sponsorship of employee van pools.

Enhanced Passenger Amenities

Several innovations could enhance the regional express services. When the CAD/AVL system is installed, the regional fleet should be included although the radio frequencies may need to be different while operating south of Santa Clarita. Wireless internet access is possible on buses, and this would be a good addition to the regional fleet. In addition, the ability to download Real Time Passenger Information to PDAs would provide real time schedule information to the regional commuters. If and when Los Angeles adopts a countywide smartcard system, contact-less smartcards for payment should become available on the regional express fleet.

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5.0 Local Fixed Route Network

The results of the line-by-line analysis indicate poor on-time performance as well as the characteristic travel patterns within Santa Clarita. Routes 1 and 2 and routes 5 and 6 carry the majority of the riders, and they do so in the core of the network, with relatively light ridership on the tails of the lines. The 500 Station link services have good ridership where they provide bus service to people coming to jobs in Santa Clarita, either to the Town Center and Magic Mountain area, or to the Valencia Industrial Center and Commerce Center. Station link buses that link Saugus neighborhoods to Metrolink for residents commuting out of town have poor ridership. Finally, the 600 series school trippers have some of the highest per trip ridership in the system, but have the type of problems typically associated with carrying large loads of teenagers.

Based on the anticipated continued development patterns in Santa Clarita and the surrounding unincorporated community, new roads will be developed, new schools will open, and new residential and industrial/commercial development will occur. However, with the exception of school services in the new areas of development, it is likely that the core ridership will continue to be in Newhall, the Town Center area of Valencia, and along the Soledad Canyon corridor east to Sierra Highway. Commute time trips to the Industrial Center, Commerce Center, and seasonal trips to Magic Mountain will also be well utilized. However, unless development patterns change dramatically, with increased densities, separate bus lanes that avoid congested arterial lanes, and parking charges at colleges, commercial and industrial sites, it is likely that most local riders will continue to be transit dependent rather than choice riders.

While having all routes hub each 30 minutes at the McBean Transit Station (MTS) has served SCT well, the on-time performance issues, limited expansion capacity, and concentration of teenagers gathering at MTS suggests it is time to expand the number of system hubs. Thus, the plan anticipates improvements at the Via Princessa Metrolink Station to accommodate timed-transfers in the Canyon Country community, and to enhance transfer opportunities at the Newhall Metrolink Station. To reduce potential delays at Via Princessa, it is recommended that westbound/ northbound buses have stops on a widened Via Princessa adjacent to the Station. This will require a retaining wall and pedestrian ramp from the street into the station. Eastbound/ southbound buses would turn left into the station to eliminate the need for transferring patrons to cross the wide and high-speed Via Princessa.

Two additional strategies should be considered to reduce bus conflicts with other vehicles and to reduce bus delays associated with long signal cycles and congestion on the major arterials of Santa Clarita. There have been complaints about bus stops that block travel lanes, and thus delay other vehicular traffic when the bus stops. Technical criteria exist which suggest when bus pull-outs are appropriate; the Transit Division should work with Traffic Engineering and Public Works to identify and implement additional pull-outs at appropriate locations. Pull-outs need to be designed to give buses an acceleration zone to aid in pulling back into the travel lanes, thus avoiding delays.

The Transit Division should also work with Traffic Engineering to identify and implement Traffic Signal Priority (TSP) to reduce bus delays at critical intersections. The software now exists to identify when buses are behind schedule – and to provide signal priority when needed to help get them back on schedule. Our field research indicated that there are long delays for buses entering and exiting the Santa Clarita Metrolink Station on Soledad Canyon, particularly for bus trips (and autos) departing after afternoon commute train and bus arrivals from Los Angeles. Changing the

signal cycle at the Metrolink Station during this period would benefit transit riders, both those who park at the station and those who arrive and depart by bus.

5.1 Recommended Short-term Route Restructuring

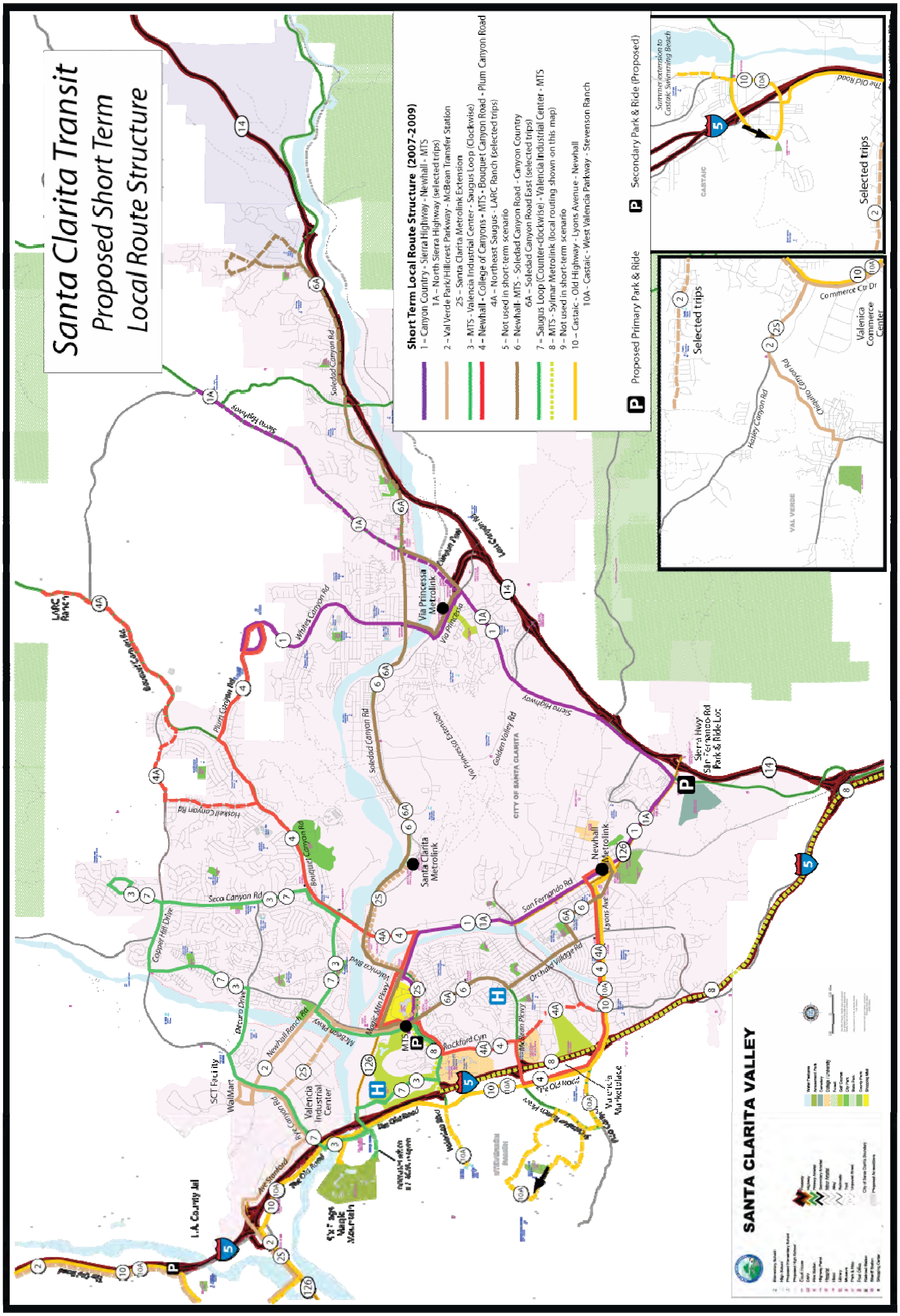
The following changes are recommended for implementation as soon as possible, ideally within the next year. The only capital improvement required would be changes at the Via Princessa Station to allow westbound buses to stop on the street instead of entering the station. The recommended short-term network is shown on Figure 5.1.

Route 1. Because of poor on-time performance, the two ends of this route should be split, and route 1 should operate from MTS to Whites Canyon. Rather than travel north on Sierra Highway and make a left onto Soledad Canyon and a right turn onto Whites Canyon, the buses would turn left on Via Princessa, stop at the Metrolink Station, and then turn right on Whites Canyon. The Whites Canyon end point should be relocated to Heller Circle. While this is further up Whites Canyon than the current turn-around loop, the loop is shorter and is on a collector street with few homes compared to the current neighborhood streets that buses operate on. A potential branch for this route (Route 1A) would be to continue north on Sierra Highway to Vasquez, serving the segment on Sierra Highway north of Soledad Canyon current served by Route 5. While ridership has been very light on this segment, the opening of a branch of College of the Canyons may increase ridership. Another option would be to operate a one-bus shuttle between north Sierra Highway and the Via Princessa/Friendly Valley area. Once the CAD/AVL system is in place the 1A would be a prime candidate for hybrid service

Route 1 cycle time, currently 80 minutes from MTS back to MTS, should be lengthened to 90-95 minutes, including added recovery time at Heller Circle required to improve schedule reliability. Since this route carries students to Hart, Golden Valley, and Canyon High Schools, and serves the high volume Newhall/Valle de Oro area, service should be provided every 15 minutes during peak times and every 30 minutes the remainder of the day.

Route 2. This route should be a local route connecting Castaic, Val Verde, the Commerce Center, and the Valencia Industrial Center to the MTS. During non-peak periods, the bus should take Rye Canyon to Newhall Ranch Road, and from there to McBean Parkway. This would provide a connection to new shopping areas along Rye Canyon, including the Wal-Mart store. During peak periods, there should be a 2S which connects the Commerce Center and Industrial Center to the Santa Clarita Metrolink Station via Avenue Scott and the MTS, replacing the current route 502. At present, a single bus which operated from Castaic or Val Verde to the MTS and returned, rather than doing the eastern leg, would have a cycle time of 60 minutes, but the time check indicated the schedule for this segment is unrealistic, particularly in the northbound direction. Having the route provide service to Castaic and Val Verde makes it a slower route (for Castaic riders), but a 90 minute cycle, requiring an additional bus, should improve on-time performance, a problem cited as a critical problem by residents at the community meeting.

Figure 5.1 SCT Local Routes: Proposed Short-Term Route Structure



Route 3/7. These routes have the fewest on-time performance issues as well as the lowest ridership among the fixed-route network. Ridership is very light in the North Valencia area as well as along Tourney Road. Significant ridership occurs to Magic Mountain when the park is open. A possible change would be to operate the 3 and 7 on closed loops, one clockwise and the other counterclockwise. When Magic Mountain is not open, buses would operate on The Old Road between Magic Mountain Boulevard and Rye Canyon, and then on Rye Canyon to Newhall Ranch Road or Decoro Drive, and then back to McBean Parkway to serve the northern segment to Copper Hill. When the park is open, the buses could go up Magic Mountain Parkway to the gate as they do now. This lengthened route would require one additional bus

Route 4. Ridership on the Bouquet Canyon tail and the Tournament Road segment between McBean Parkway and Orchard Village is very light. In contrast, there is good ridership on lower Bouquet Canyon, to College of the Canyons, and to the Senior Center and other destinations in Newhall. It is recommended that there be two branches of this route with hourly instead of 30 minute service on less utilized segments. At the northern end, one branch would use Haskell Canyon Road and Copper Hill back to Bouquet Canyon (the route could use Benz back to Bouquet as well), continuing up Bouquet Canyon to LARC Ranch as at present. The other branch would operate up Bouquet to Plum Canyon and end at Heller Circle (providing a cross-town link with Route 1) or another location on Plum Canyon.

On the southern portion of the route, some buses would continue on the Tournament Road segment, while others would cross I-5 on McBean and use the Old Road between McBean and Lyons, thus increasing service to the commercial district on the Old Road and the western segment of Lyons Avenue. Selected trips would continue to serve the Senior Center as at present.

Route 5. This route would be eliminated. The Sierra Highway to Vasquez segment would be replaced by the Route 1A.

Route 6. This route has excellent ridership and very poor on-time performance. It needs to be shortened to serve the most productive core area. The Stevenson Ranch and Lyons Avenue segment would be replaced by a new Route 10. The route would operate between the Newhall Metrolink Station and Via Princessa Station via existing routing on Newhall Avenue, Orchard Village, McBean Parkway to MTS, etc. At the eastern end, most trips would operate a clockwise loop from Soledad Canyon, south on Sierra Highway, West on Via Princessa, north on Whites Canyon, and back west on Soledad Canyon. The layover/recovery point would be the Via Princessa Metrolink Station. Selected trips on 30 or 60 minute headways would continue east on Soledad Canyon to serve the Shadow Pines loop. Some trips would continue to divert from Soledad Canyon to serve the City Recreation/Swim center and the Centre Pointe development.

The core route from Newhall Metrolink to Via Princessa Station may warrant 15 minute headways. This would require 8 buses compared to the 10 buses used on Routes 5 and 6 at present (four buses midday if service continued every 30 minutes).

Route 10. This is a new route that would operate from Castaic to Newhall via The Old Road and Lyons Avenue. Peak period trips could divert through the Valencia Commerce Center on Commerce Center Drive, while a route 10A would provide both school trippers to West Ranch High School and Rancho Pico Junior High on Valencia Boulevard and serve the Stevenson Ranch loop presently operated by Route 6. It would not serve the MTS, but would provide a more direct link between Castaic and Newhall. The intent is to provide a direct linkage from Castaic to

Metrolink and express buses at Newhall, and conversely, provide a linkage for reverse commuters on Metrolink to access jobs near the Old Road, including Magic Mountain and the Commerce Center. A stop at the Old Road and Rye Canyon Road would allow people to walk to jobs at the western end of the Valencia Industrial Center as well.

This would require 3 buses, including the school and Stevenson Ranch local service. As the route is not time sequenced at the MTS, the schedule should be designed to maximize transferability to/from trains and express buses in Newhall with morning southbound trips coordinated to southbound express bus and train departures, and morning northbound buses coordinated with train/bus arrivals from the south.

These modifications would add four buses to the current peak requirement of 34 buses, and would extend annual bus hours by 20 percent, from approximately 110,000 revenue hours to 132,000 revenue hours. The improvements can be adopted in segments, with the obvious exception that some are linked, such as elimination of Route 5/6 service to Lyons/Stevenson Ranch requires substitution by the new Route 10.

5.2 Recommended Medium-term Route Restructuring

The recommended medium-term changes would be implemented within the 4-6 year time frame, but would depend on the pace of new development at Newhall Ranch, North Valencia, and Whitaker-Bermite. Likewise, some of the recommended modifications require the completion of currently missing roadway segments of Newhall Ranch, Magic Mountain, and Via Princessa. To operate some routes using a hybrid mode, the anticipated CAD/AVL system would also need to be in place.

Route 3/7. Depending on the pace of new development, this route could be extended further west on Magic Mountain Parkway and Valencia Boulevard, serving new development in Newhall Ranch. It is not clear if an additional bus would be required beyond the bus added in the short-term phase. Because of light ridership on segments of this route, portions could be converted to hybrid service, particularly as a "demand probe" into newly developing areas. A 30-foot bus would be adequate for most service on this route, with the exception of school-related trips and peak trips to Magic Mountain.

Route 4. Depending on the pace of development beyond Plum Canyon, an additional bus would be programmed to allow an extension into areas of new development. Potential ridership on this extension should be probed with a hybrid route.

Route 5. This would be a new cross-town route, connecting Canyon Country and the Via Princessa transit center to MTS, via the new segments of Via Princessa and Magic Mountain Parkway. South of MTS, the route would pass the College of the Canyons and serve the Tournament/Wiley Canyon branch of Route 4 (which would then only operate on the Old Road branch). It would continue south of Lyons on Wiley Canyon, providing service to proposed high density development at Wiley Canyon and Calgrove. Three buses would be required to provide 30 minute headways on this route.

Route 9. This route would serve the rapidly developing Lost Canyon Road area east of Highway 14. It would start at Via Princessa, loop high density areas east of Sierra Highway and south of the river, and then travel on Lost Canyon to Golden Valley. It would travel on Golden Valley, exit the expressway portion to serve Centre Pointe (including the City Recreation Center), and use the new segment of Newhall Ranch Road. It could either travel to McBean Parkway and the MTS directly,

or via a diversion to Seco Canyon and Decoro Drive as shown on Figure 5.2. Four buses would be required to provide 30 minute headways on this route. It is possible that segments of the route southeast of Route 14 could be operated as a hybrid service.

Route 11. This route would serve the Newhall Ranch Landmark Village area along Henry Mayo Drive, connecting to the MTS via Henry Mayo, Commerce Center Drive, and Magic Mountain Parkway. It would require one bus for 60-minute headways. It would be possible to initiate this route as a hybrid route.

Route 12. This route would provide service between the Copper Hill/Tesoro area and other proposed new development north of Copper Hill Drive, linking to the community network at the MTS. One bus would be required to provide 60-minute headways. It would be possible to operate this as a hybrid route.

The weekday, Saturday, and Sunday bus hours for existing, short-term, and medium-term modifications are shown on Table 5.1**.** The medium-term scenario would require 49 peak period buses, compared to 34 at present and 38 in the short-term scenario. Annual bus revenue hours for local service would increase from 110,000 hours to 178,500 hours, an increase of 58 percent over current operations. However, if several hybrid routes effectively diminish need for separate dial-a-ride service, there would be an offset by not having to expand the DAR service by a similar ratio.

As with the short-term modifications, most of the medium-term recommendations can be implemented in phases as development and finance resources permit.

Figure 5.2 SCT Local Routes: Proposed Medium-Term Route Structure

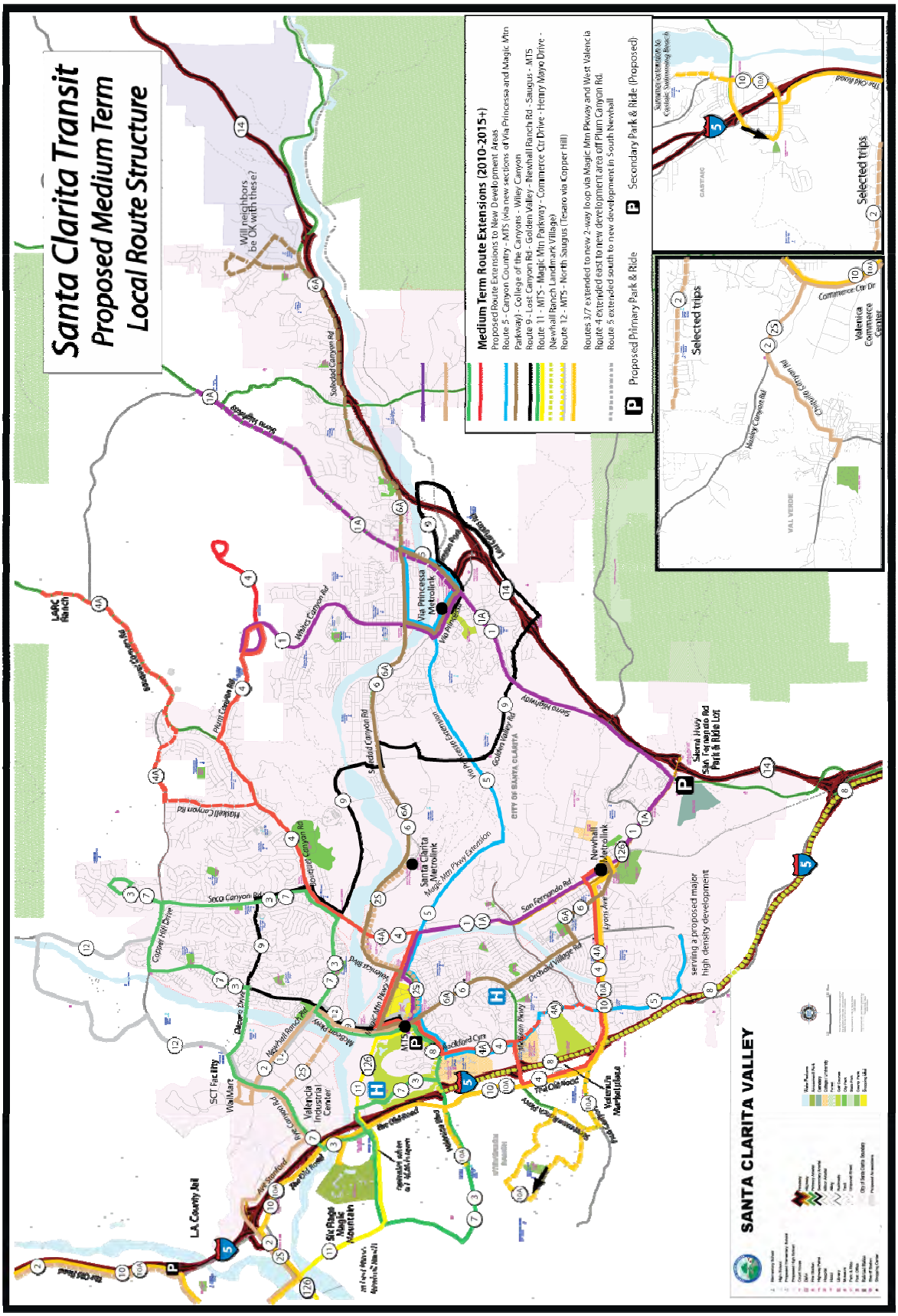


Table 5.1 Santa Clarita Transit: Local Routes Projected Vehicle Hours and Peak Bus Requirements

Route	Base Weekday Headway	Estimated Hours per Weekday	Revenue Hours, Weekday	Estimated Hours, Saturdays	Revenue Hours, Saturday	Estimated Hours, Sundays	Revenue Hours, Sunday	Total Revenue Hours	Peak Buses
EXISTING SERVICE									
1 / 2	30	101.4	26,053	52.0	3,614	44.0	3,081	32,748	8.0
3 / 7	30/60	24.9	6,392	17.3	1,201	17.4	1,224	8,817	2.0
4	30	57.4	14,748	35.2	2,440	16.6	1,167	18,355	4.0
5 / 6	30	128.8	33,099	62.9	4,360	52.0	3,646	41,105	10.0
501-504	n/a	15.9	4,085					4,085	4.0
620-638 school	n/a	18.3	4,700					4,700	6.0
Totals		**346.7**	**89,077**	**167.4**	**11,615**	**130.0**	**9,118**	**109,810**	**34.0**
PROPOSED, SHORT TERM									
1	30	87.0	22,272	48.0	2,496	40.0	2,120	26,888	7.0
2	30	49.0	12,544	30.0	1,560	28.0	1,484	15,588	3.0
3 / 7	30/60	40.0	10,240	24.0	1,248	22.0	1,166	12,654	3.0
4	30	60.0	15,360	48.0	2,496	24.0	1,272	19,128	4.0
5	30	0.0	0	0.0	0	0.0	0	0	0.0
6	15	115.0	29,440	60.0	3,120	50.0	2,650	35,210	8.0
9	n/a	0.0	0	0.0	0	0.0	0	0	0.0
10	60	42.0	10,752	30.0	1,560	28.0	1,484	13,796	3.0
501-504	n/a	15.9	4,085	0.0	0	0.0	0	4,085	4.0
620-638 School	n/a	18.3	4,700	0.0	0	0.0	0	4,700	6.0
Totals		**427.2**	**109,393**	**240.0**	**12,480**	**192.0**	**10,176**	**132,049**	**38.0**
PROPOSED, MEDIUM TERM									
1	30/30	87.0	22,272	48.0	2,496	40.0	2,120	26,888	7.0
2	30	49.0	12,544	30.0	1,560	28.0	1,484	15,588	4.0
3 / 7	30/60	45.0	11,520	24.0	1,248	22.0	1,166	13,934	3.0
4	30	70.0	17,920	48.0	2,496	24.0	1,272	21,688	5.0
5	30	48.0	12,288	28.0	1,456	26.0	1,378	15,122	3.0
6	15	115.0	29,440	60.0	3,120	50.0	2,650	35,210	8.0
9	30	60.0	15,360	28.0	1,456	28.0	1,484	18,300	4.0
10	60	42.0	10,752	30.0	1,560	28.0	1,484	13,796	3.0
11	60	16.0	4,096	14.0	728	0.0	0	4,824	1.0
12	60	16.0	4,096	14.0	728	0.0	0	4,824	1.0
501-504	n/a	12.0	3,084					3,084	3.0
620-638 School	n/a	24.0	5,200					5,200	7.0
Totals		**584.0**	**148,572**	**324.0**	**16,848**	**246.0**	**13,038**	**178,458**	**49.0**

5.3 Potential Benefits from Planned CAD/AVL System

SCT has budgeted for procurement of a Computer Aided Dispatch/Automatic Vehicle Locator (CAD/AVL) system for its fixed route fleet. Concomitant with this is procurement of fixed route scheduling software including potential for hybrid service capabilities. Full implementation of the system is likely around the end of 2008. If used to its maximum capabilities, this combined package can profoundly transform passenger amenities that can be offered, the real-time control of daily operations, and the frequency with which route planning and service plan updating can be performed. Each is discussed briefly in turn.

Passenger Amenities

Real-Time Passenger Information (RTPI) should be installed at key locations. The McBean Transfer Center should be programmed within the City budget for installation of communications infrastructure and for the sign hardware in time for the completion of the CAD/AVL implementation. This will cost about $100,000. RTPI capability can also be offered over the Internet and as downloads to Personal Digital Assistants (PDA's) for a small additional investment.

Other popular stops and transfer points, such as Metrolink stations, should also be considered for RTPI as the budget permits. Currently, developers are asked to provide bus shelters in-lieu of impact fees. These shelter locations should be chosen based on numbers of riders and durations of waits, and should not necessarily be limited to the site of a given development. When new shelters are built, the installation of communications links and RTPI signs should be included.

Park and ride lots and other locations with large numbers of transfers could have Transit Signal Priority (TSP) installed triggered by the approach of buses or Metrolink trains. This would decrease delays from conflicts with heavy traffic on adjacent arterials and increase the attractiveness of multimodal services. (Fixed timing set by the City's traffic control system is not always effective, as it presumes transit vehicles arriving at the exact same time every day.) To prevent duplication or unnecessarily costly solutions, TSP should always be planned in conjunction with the City's Traffic Engineering department.

AVL systems can help improve transit security and safety. Help can be summoned quickly in case of crime, accident or illness. As has been done in Portland, Oregon and Toronto, Canada, the general public might also be informed that buses can be flagged down in case of emergency since AVL gives drivers the ability to summon immediate help to an exact location.

Fixed Route Real-time Control

Staff training revisions and changes in operating procedures should be considered in anticipation of CAD/AVL implementation. Examples include:

- Active intervention using rehearsed recovery tactics during delays. Dispatchers should be familiar with various techniques so they can respond effectively as needed. It should also be noted that more frequent updates of schedules based on regular statistical analysis of archived data can improve schedule realism and reduce the need for recovery measures.
- Real-Time Passenger Information updates. Passengers always appreciate information on anticipated delays. This can also be used to explain alternative services and rerouting when required.

- Active holding/dispatching at transfer points to improve transfer reliability. This will be particularly valuable when it is the last connection for the day for a particular route.
- Possible use of one or two standby vehicles during peak hours. When the location of all vehicles is known, it is possible to make judicious insertions as needed to relieve crowding, to substitute for buses that are anticipated to not make transfer points on time, or to substitute for buses with mechanical problems.
- Better monitoring of contractor operations by SCT staff. AVL displays can be installed at key locations, including on wireless computers in the field, so that staff can always assess operations on short notice.
- Monitoring of vehicle vital signs to improve service reliability. An optional feature of CAD/AVL systems allows the dispatcher, and perhaps the maintenance department, to be warned of incipient equipment failures. Buses can then be substituted at the first opportunity.

Fixed Route Planning

The compilation of a data archive based on actual operations will greatly improve the quality and quantity of planning information available. This will include bus locations every 30 or 60 seconds, time and location of each door opening and closing, and boarding and alighting counts with every door opening and closing. (Smaller vehicles may require drivers to log counts into an MDT instead because an Automatic Passenger Counter won't fit.) Some of the planning benefits can include:

- Much easier and more frequent schedule adherence checking. Much of the analysis can be automated although a skilled analyst must still filter the data to some degree.
- Much easier and more frequent passenger count statistics. Again, much of the analysis can be automated although a skilled analyst must still filter the data to some degree.
- Feedback of data for "what if" scenarios. Schedule and passenger statistics can be inserted into the optimizing algorithm of the scheduling software to generate new hypothetical run cuts and schedules. This can be automated to some degree if a post-processing module is procured from the software vendor.
- Assignment of appropriate vehicle size by time of day and route. The optimization can also include shifting of different-sized vehicles between routes and depots to better match supply and demand and/or to reduce deadheading.
- Identification of chronic delay and overcrowding points. Locations where traffic signals need to be retimed or would benefit from TSP, where the bus stop is problematic, where boarding/alighting times are excessive, and so on, can be readily identified.
- Better selection of appropriate services by time of day and location. As the SC Valley in-fills and expands and its demographics change, these will be apparent in both the fixed route archived data and in the demand-responsive archived data. Viewed together, a skilled analyst can periodically reassess the set of services offered within a particular district. This is explained further in Chapter 6.

6.0 Demand-Responsive Services (ASI/DAR) and Other Community Transit Services

As a complement to the fixed route services, Santa Clarita Transit (SCT) provides demand-responsive (DAR) service spanning the entire City plus the same unincorporated areas served by the fixed route network. The DAR service serves two distinct sets of customers with different funding for each. One group is those eligible for complementary paratransit under the Americans with Disabilities Act (ADA). Access Services, Incorporated (ASI), a wholly owned subsidiary of the LA County MTA, is responsible for provision of service to the entire county, and contracts the service to SCT. The second group is those 60 and over, who are offered the same Dial-A-Ride (DAR) service during the operating hours available to the ADA-eligible. After 6:00 p.m., DAR is open to the general public, but few others partake. Trips are scheduled for both groups simultaneously rather than attempting to serve them separately. In line with the service area dictated by the ADA, it operates within ¾ mile of all fixed routes (plus some areas enclosed by fixed routes). The SCT DAR service is supplemented with services managed and delivered by the Santa Clarita Senior Center, partially subsidized by transit funds.

This TDP recommends that the character of these services be changed significantly. Fixed route services will also need to change, although to a lesser extent. The recommended new services will be "hybrid" in character, meaning that there are elements of both demand responsive and fixed route services. These new concepts are discussed primarily in this chapter, but references have been made to the hybrid concept in other sections.

6.1 Assessment of Current Services

ASI/DAR paratransit is operated by the same contractor that operates the fixed route. Unlike many transit agencies where fixed route service is operated by public employees and demand-responsive services are provided by a private contractor, all employees at SCT work for the same contractor, belong to the same union, and have the same wage rates and seniority rules. Thus, ASI/DAR operators and dispatchers tend to be commingled with fixed route operations due to switching between jobs during bids. The Customer Service Agents (CSAs) are hired under a separate job description.

The total DAR operating budget for FY2004/2005 was about $2.4 million. Total ridership was about 75,000. This represents about two percent of total SCT annual patronage but almost 20 percent of the total operating budget. Of this ridership, 18 percent are ADA-eligible. DAR is financed internally, the cost of which is the difference between total annual operating cost and support received from ASI. SCT is currently compensated by ASI at the rate of $29 per ride for each ADA-eligible passenger. (Attendants are allowed to travel along, but SCT receives no extra compensation.) At approximately 17 percent of the DAR budget, the resulting total compensation from ASI is roughly equal to the percentage of total ASI/DAR riders, but is less than the actual cost percentages incurred as a result of operating ASI services since both the paratransit manager and SCT's responsible administrative analyst report that they spend large percentages of their time on ASI-related compliance and documentation issues. Less directly, ASI has its own unique interpretation of ADA mandates regarding reservation rules and the use of standing reservations.

These impose operating constraints on SCT that impact the potential productivity of DAR service for all riders, not just ADA-eligible users.

The ASI service rules allow reservations from one to seven days in advance. New trips cannot be reserved less than one day in advance, but return trips can be scheduled on a will-call basis. In practice, most ADA-eligible persons call one to two days in advance, with DAR riders calling somewhat earlier in advance. Based on established case law, ADA-eligible persons cannot be refused a trip due to capacity limitations, and must be accommodated within a window one hour earlier or later than their requested time. Non ADA-Dial-a-ride passengers can be refused or offered alternatives times depending upon the space available. Although the base fare is $2.00, the average fare is $0.43 because heavily discounted tickets are sold at the Senior Center and other locations, dramatically lowering the farebox recovery ratio.

The combined ASI/DAR services averaged between 250-300 completed trips per weekday for the last year. (Passenger count is higher as it includes guests and passenger attendants of ADA-eligible riders.) The total Saturday plus Sunday demand averages between eight and 10 percent of total demand. The passenger count can vary widely from one day to the next due to fluctuations in demand. The demand is concentrated by destination, by length by trip, and by time of day. About 25 percent of all trips are to/from the Adult Day Care Center. Another 15 percent are to/from the Senior Center in Newhall, and another 15 percent of trips are to medical clinics and offices. Shopping trips are concentrated at Valencia Mall, along Lyons Avenue, Wal-Mart, and near the intersection of Bouquet and Soledad. Just less than 50 percent of trips are less than four miles in length; and only six percent of trips are taken after 7 p.m. There are relatively few recreational trips and social visits.

SCT also contracts with the Senior Center which runs a fleet of five buses carrying between 29,000-33,000 persons per year. It receives a limited amount of support from the City: $150,000 from SCT and $100,000 in social service fees from developer fees. This service is also highly concentrated, focusing on connecting senior housing with shopping centers, the Senior Center and medical centers. Groups make most trips that are on a fixed timetable and fixed route. On occasion, ASI/DAR will coordinate with the Senior Center, adding persons to their group trips, while ASI/DAR will accommodate some single trips.

Service productivity in FY 2005-06 averaged about 2.5 completed trips per hour. This is typical of paratransit in Los Angeles County and in urbanized areas across the United States. However, productivity is less than it was two years ago (about 3.5 per hour). An aging population and a fast growing population suggest that demand should be increasing, not decreasing. All of these factors indicate potential for higher productivity and ridership and raise the issue of what happened to lower them. The trend in monthly ridership is shown in table 6.1.

Table 6.1 Completed ASI/DAR Trips at Santa Clarita Transit

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2003							6,590	6,381	6,579	6,993	5,893	5,825
2004	6,129	5,740	6,588	6,366	5,791	6,189	6,136	6,448	5,996	5,878	5,785	5,286
2005	5,757	5,706	6,500	4,596	5,404	5,607	5,216	5,634	5,262	5,262	5,003	4,805
2006	5,006	4,560	5,317	4,622	5,327	4,936	4,999	5,341				

Total service hours have remained fairly constant, so productivity went down instead of SCT realizing operating cost reductions. Increasing congestion over this span of time would make some

contribution to lower productivity due to lower travel speeds, but this factor is too small to be the primary explanation.

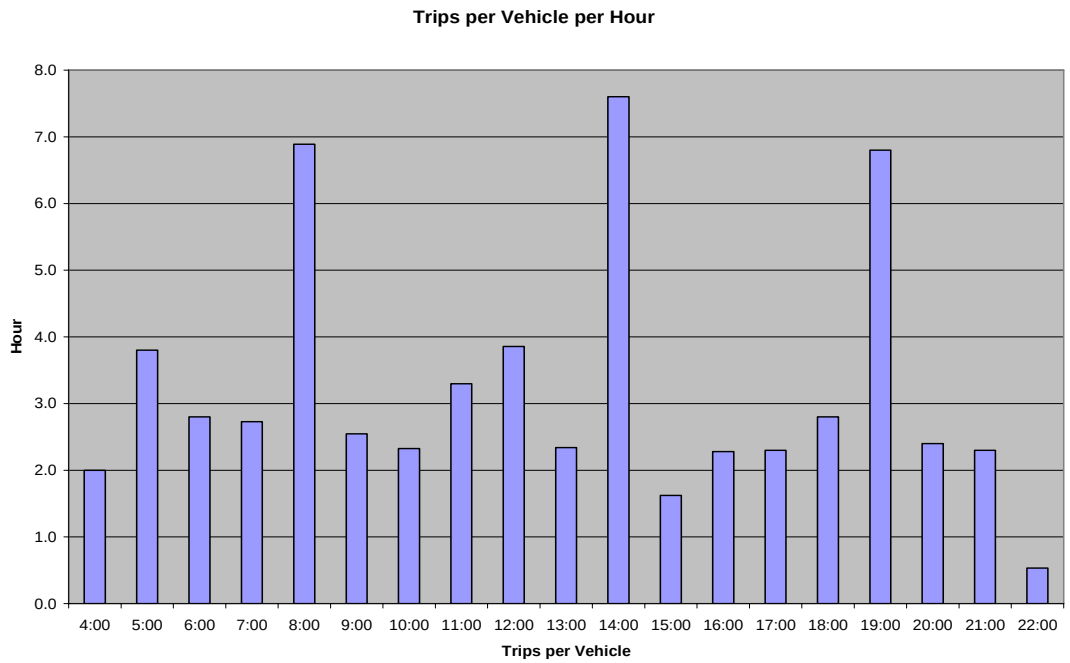
The reduction in DAR demand and productivity is the subject of a separate report. But to summarize, there have been reductions in the size of the program at the Adult Day Care Center. Other contributing factors include considerable management as well as substantial staff (CSAs and dispatchers) turnover at the contract operator over the last two years. At times there have also been staff shortages. Over the same period, the legacy dispatching/scheduling/call-taking software was replaced with software provided from *Route Match*. Together, these caused substantial disruption to daily operations of the ASI/DAR services and negatively impacting service quality. This, in turn, caused ridership to decline as persons who fear long waits on the phone or at their pickup points reacted by limiting trips to those deemed most essential, or they made other travel arrangements.

Current DAR vehicle routing patterns can be characterized as fairly random. The DAR vehicles tend to wander all over the Santa Clarita Valley. This contributes to low productivity on a per-mile basis. It also tends to increase response times for will-call trips and increase the probability of delays due to congestion. Furthermore, as can be seen in Figure 6.1, productivity tends to peak severely. Peaking to some extent is inevitable because, as with fixed routes, there are certain times of days when people make appointments and prefer or need to perform certain activities. However, spreading the peaks out is highly desirable for at least three reasons. First, the number of vehicles required would be reduced. Currently, the number of vehicles in service surges to 11 at least twice per day, generating substantial deadheading and unproductive hours. Second, service quality would be improved. Heavy demand increases the number of persons on board and the amount of indirect travel that passengers must endure. Third, and perhaps most importantly, ADA case law establishes that no ADA-eligible person may be refused a trip because of lack of capacity. Failure to accommodate a person within a one-hour window either way could lead to a formal complaint and/or legal action by groups or agencies advocating for members of the disabled community.

Public outreach through a customer survey performed in 2003, hearings held in conjunction with the TDP, comments from the Accessibility Committee, and complaints/suggestions called in to the CSAs (and recorded), all confirm that riders see scope for improvement. There are recurring themes in these comments. People with disabilities sometimes must wait outside for uncertain or excessive periods of time. Furthermore, when pick-ups are delayed they are afraid to go inside to make a call for fear of missing the vehicle. This fear is justified, as some riders have reported that they were declared "no-shows" before the 5-minute grace period expired. Furthermore, riders are sometimes put on hold for long periods of time, probably due to staffing shortages in the call-taking office, the dispatchers being too busy, or a dispatcher is driving as a result of driver shortages.

In fairness to the contract operator, many factors are outside its control. Because SCT has accepted responsibility for operation of ADA-eligible services on behalf of ASI, SCT has to accept ASI established rules. For example, trips to destinations outside the Santa Clarita Valley are required to transfer at Olive View Hospital in Sylmar. Even a trip to the Facey Clinic in the North San Fernando Valley requires a transfer, even though vehicles pass near it on the way to the Olive View transfer point. These connections are made only three times per day, a source of frustration to some passengers. Fortunately, only about 125 passengers per month are affected, but this may in fact reflect suppressed demand due to resistance to such a poor service. By comparison, persons living in other cities in Los Angeles County can make trips across almost the entire county without a transfer. Recent ASI experimentation includes a new loop route in the San Fernando Valley to connect major medical centers, which eliminates the transfer at Olive View for Santa Clarita patrons. The need to transfer for most Los Angeles basin trips is inequitable relative to residents of other area communities.

Figure 6.1 SCT Typical Weekday DAR Trips per Vehicle per Hour



Another constraint to DAR operations is the complications created by the rapid growth of the community. Maps used by the software are not updated frequently, so new addresses often can't be located. New roads and the new travel times resulting from completion of new roadway links are not reflected, so travel times are often incorrectly assigned by the software.

6.2 Service Revisions Expected in the Immediate Future

A separate report lists actions already underway at SCT to improve productivity and customer satisfaction. In addition, the report recommends that the software vendor be required to make some important revisions and corrections and that the contract operator be required to make further changes to its staffing and training programs. The actions currently underway as well as other key recommendations are briefly explained here.

Highlights of the Development of New Scheduling and Routing Principles

In order to limit unnecessary deadheading, to minimize the number of long trips with few persons onboard, and to improve the response time for will-call riders, service must be restructured into two basic types: "quasi-routes" and zone services. Each will be explained briefly.

A "quasi-route" is based on developing a "skeleton" route based on known demand and then filling available capacity with occasional riders. The planning steps are as follows:

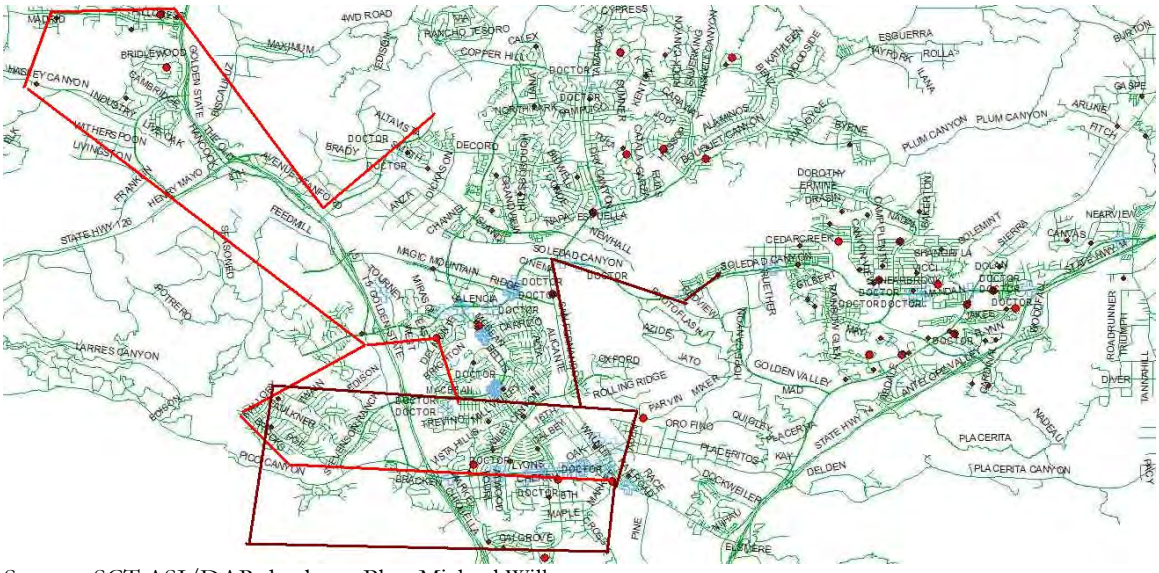
- Analyze where recurring demand is (for example, kidney dialysis trips) and build a loose schedule around it. This same schedule will be the starting point for many days.
- Provide slack time to accommodate pickup and drop-off of occasional riders.

- When good information is available from a GIS database about the ridership patterns, instead of using particular recurring trips, the mere probability that there will be trips can be used with confidence.

Because SCT has developed a solid GIS database that has revealed amenable ridership patterns, a route need not even have a skeleton of recurring trips. Instead, it can be timed to "sweep" through an area in the knowledge that there is a high probability there will be trips requested at about this time and location. There will be only a few such quasi-routes. One or two of them may repeat the entire day analogous to a fixed route. The remainder would be designed for a few continuous hours with a break and relocation for another block of continuous hours elsewhere.

Quasi-Route Example. The example shown in Figure 6.2 below shows a vehicle leaving the depot. It then sweeps through an area of known demand between 7:00 and 8:00 a.m. (in orange) to arrive at the Senior Center. It then sweeps the inset area (rectangle in red) again between 8:00-9:00 a.m. to arrive at the Adult Day Care Center shortly thereafter. This is a two-hour long quasi-route, but it might easily be extended upon further analysis of the GIS data.

Figure 6.2 Potential Quasi-routes for DAR Vehicles



Source: SCT ASI/DAR database Plot: Michael Wilkerson

"Zone service" is where one or two vehicles are confined to a localized area to provide demand-responsive service. The planning steps are as follows:

- Each zonal area is tailored to match concentrations of demands for short trips.
- Zonal areas may overlap and quasi-routes will also cross zones to serve requests for longer trips.
- Vehicles not currently carrying passengers will return to a centrally located parking spot that minimizes deadheading and response time to will-call trips.

Zone Service Example. The example in Figure 6.3 below shows a vehicle that operates with both the quasi-route and zone concepts. Upon completion of a sweep through Saugus/Bouquet (orange area), the vehicle remains within the Newhall/Valencia zone (yellow area) for many hours as substantial demand persists all day.

Figure 6.3 Potential Zone Service for DAR Vehicles

{ SHAPE * MERGEFORMAT }
Source: SCT ASI/DAR database Plot: Michael Wilkerson

Development of service using these principles can be expected to become more refined over time. In addition to the origin/destination and demographic data that has already been analyzed, other useful information will start to supplement it. AVL data on actual vehicle times and locations is continually being logged, but has not yet been analyzed fully with respect to travel times. The CAD/AVL system has been running for less than two years as of this writing, but the travel time data for key links in the SC Valley data would no doubt already show time lengthening due to increasing congestion. This information, in turn, can be fed back into the scheduling software.

A skilled analyst can also use the archived AVL data to compare actual pickups/drop-offs to estimated values to select improved software parameters. The scheduling algorithms will then adjust estimated travel times to be more realistic and perhaps find alternative routes that take less time if they exist. Thus, the parameters used in the estimation of travel times and for schedule optimization should be adjusted more frequently in the future, further improving service quality and scheduling efficiency.

Highlights of Recommended Corrections to Software and Hardware

The *RouteMatch* software transmits instructions to the drivers via Mobile Data Computers (MDCs) installed on the buses. There are currently no GIS polygons that would permit creation of zones. This capability is fundamental to creating efficient operations when origins and destinations tend to be concentrated. Without requiring GIS expertise on the part of the analyst, it should be possible to define polygons using a simple drawing tool, or a list of latitude and longitude coordinates. When implemented, this improvement will greatly assist the Customer Service Agents (CSAs) in creating efficient schedules.

There is currently no "route object" available in the software, a feature that is needed to simplify the development of repetitious operations. Making quasi-routes based on where subscription riders reside and where there is a high probability of trip requests is highly desirable. Then individual runs can be filled in with the remaining trips over the course of the day or from one day to the next. (Route Match has indicated this capability will be installed "soon"). When implemented, this improvement will help structure and guide the route development process for the CSAs.

The computerized message to drivers that says "trip modified" is not useful. Drivers still need to talk with the dispatcher to know what to do. Instead, the computerized manifest must be updated automatically. Relevant information for drivers includes pickup/drop-off times, the pickup/drop-off address, and any special needs. If special needs can't be explained in a few words or an icon, then an additional window should popup on the MDC with the further information as needed. The information should be finalized only after driver acknowledges the new line(s) in the manifest. This will reduce dispatcher and driver workload and reduce the chances of erroneous information being sent or received.

Drivers can currently only see the "Scheduled Time" (estimated time) for pickups and drop-offs. They should also be able to switch to "Request Time" (time negotiated with passenger) in order to make field judgments about how to best recover from delays or how to adapt when trips are cancelled. This will support their empowerment to make better decisions that provide better customer service.

Staff Training Improvements

The following items should be included in contractor staff training:

- Explaining the nature of service (shared-ride, not taxi or limo) to prospective passengers should improve their cooperation. Most people can adjust their preferred pick-up time if it is not a major inconvenience.
- Learning how to do careful negotiation with riders to adjust pickup/drop-off times within legal limits and to adjust standing orders will allow more opportunities for the software's "Route Scheduling Engine" to optimize vehicle assignments.
- Improving staff understanding of the theory behind the scheduling software will improve insight into the consequences of their choices. For example, rounding of estimated times can seriously affect schedule optimization possibilities.
- Increasing the geographic awareness of call-takers will help them to efficiently plan vehicle schedules. This includes frequent updating of the underlying maps used by the call-taking/ scheduling software to keep up with the fast pace of development and new roads.
- Empowering staff to make decisions that provide the best service to each customer without compromising service to later passengers. As an example, policy could allow drivers to wait longer than their five minute grace period in cases where there is a long time until the next passenger boards. But a time limit is needed that should not be exceeded. For example, a person cannot be declared a no-show without dispatcher permission.
- Eliminate cross-training of dispatchers as drivers in order to 1) eliminate a conflict of interest when disciplinary action is necessary; and 2) to eliminate the temptation by the contractor to use dispatchers as substitute drivers.

Improving Productivity and Service Quality

SCT should accelerate the planned installation of Interactive Voice Recognition (IVR) technology to assist call-takers and reduce customer hold times. SCT should also consider an outreach campaign to riders and prospective riders to explain DAR service (e.g., it is a shared ride service, not a taxi). Should more complex hybrid service be offered, regular outreach programs would be needed to explain the availability and proper use of such services to the riding public.

After the current round of route and schedule restructuring is completed, service should stabilize at a higher level of productivity. If not, then the state of the operator's training and/or turnover is an impediment to improved productivity and customer service. If that is the case, SCT should consider replacing contractor-supplied dispatchers and CSAs with City employees in the next contract.

After service has stabilized and the transit staff has become comfortable with accessing and processing the archived GIS database for planning purposes, SCT should investigate the conversion of one or two quasi-routes into "Service Routes". These run slowly in the sense that they meander about, but the trade-off is that they become highly accessible fixed routes serving major destinations of interest to both the elderly and the disabled. The attractions to potential users would be that no reservations are required and that the fare would be the same as for regular fixed routes. The decision to operate a service route can be made based on whether sufficient demand between these points reveals itself. The criterion would be that a service route could remove enough riders from the ASI/DAR system that the cost of operating these routes could be more than covered by the

service reductions elsewhere. Such routes could possibly open to the general public as well depending on capacity.

Service Route Example. Current data suggests two potential routes that could connect popular origins and destinations. These are shown in Figure 6.4 below. Note how they almost form full circles. They could be timed to meet one another at locations with good shelter and amenities, further increasing connectivity between popular points and decreasing the circuitry of many trips.

Figure 6.4 Potential Service Routes for Santa Clarita Transit

{ SHAPE * MERGEFORMAT }
Source: SCT ASI/DAR database Plot: Michael Wilkerson

Further Investments to Increase Productivity and Service Quality

SCT is addressing the fact that demand-responsive vehicle ownership is currently with the contractor. Four new city-owned vehicles will be delivered in fall 2006. Additional vehicles should be procured to avoid either pressure to retain the same contract operator or a possible service disruption in case a different firm is selected for the next contract.

SCT should consider providing financial support towards improvement of vehicle accommodation at key points:

- The Adult Day Care Center should have its driveway modified to allow bypassing. The current design makes buses wait until the one in front departs. Delays here affect performance of the entire DAR/ASI operation.
- Convenient and strategic holding or parking spaces should be found where vehicles can layover when there is no activity – without returning to the yard. This will prove helpful in support of restructuring using zone services.

6.3 Recommended Medium-term Service Revisions (CAD/AVL required)

There are two major motivations for trying new service designs. The first is to address unmet transit market needs. The second is to reduce the cost of ASI/DAR services. Successful new designs should address both motives simultaneously. While it is not possible to fully eliminate separate ASI/DAR services in the existing service areas - there will always be those whose disabilities require specialized attention, a 50 percent reduction is realistic if route-deviation hybrid services are effectively implemented. Riders who shifted from ASI/DAR to a new service are likely be joined by other new riders.

It will take several months for daily operations and planning routines to absorb and reflect the capabilities that CAD/AVL brings to fixed route operations and planning. Once this has occurred, further steps can be taken with some confidence. In particular, the software features that support hybrid operations can be explored. The capabilities that should be in place and the institutional issues that they raise are the subject of the next subsection.

Institutional Issues with Introduction of Hybrid Services

ITS technology provides decision-support tools that require some sophistication to use well. Real-time control of operations requires the development of tactical plans for various scenarios. For effective use of the archived data for planning, SCT will need to ensure it has the in-house capability to decide how the data should be post-processed and how it should be analyzed. In the interest of speed and flexibility, SCT should have full in-house GIS capability and reduce its reliance upon Technical Services to those projects that involve more than one City department. Of special note is the capability of scheduling software to build "what-if" scenarios. Staff assigned to this function

should have an engineering, math, or operations research background with an understanding of optimization theory to correctly set up constraints and parameters for these scenarios.

Experimentation and route setup should not be left to the contract operator, but be guided by SCT staff. To some extent, the interface between DAR and fixed-route hybrid would be automated. The computer can "shop" for the best solution between ASI/DAR and route-deviation when and where both are available. However, a dispatcher should still have the ability to override computer advice to assign either a route deviation or demand-responsive vehicle. They might need to do so in case of short-notice requests or system disturbances.

It may prove mutually beneficial to SCT and the Senior Center to install the same CAD/AVL equipment in Senior Center vehicles and cede some control to SCT call-takers and dispatchers. Increased coordination and cooperation with the currently separate Senior Center fleet should improve overall service levels.

Existing Service Areas

Portions of several fixed routes have already been identified as potential candidates for route-deviation service. See Section 5 on fixed route services for the specific routes and their particular rationale. This subsection describes the general principles used for selecting appropriate sections of routes as conversion candidates.

The basic principle of route-deviation service is to allow deviations up to ¾ mile in low-demand areas and at low ridership times. (In practice, longer distances are sometimes accommodated, especially if the area is fully or almost enclosed by several routes.) Slack time is built into schedules to facilitate deviations. This can accommodate one or more ADA-eligible or DAR passengers by using a few minutes on each deviation. If there aren't many passengers on board, the overall inconvenience is acceptable.

There are at least two incentives for ADA-eligible and DAR passengers to use route deviation service. The first is being mainstreamed into the general population, something many riders prefer. The second is to be able to travel with much shorter notice. Instead of a minimum one day lead time and one-hour window in either direction of the originally requested time, riders can make a request one or two hours in advance. In practice, riders can sometimes even by accommodated "on the fly". Additional financial incentives are possible; rather than pay up to twice the regular fare as per ADA regulations, ADA-eligible persons choosing this service could pay the normal fixed route fare or even ride for free.

The most common application of route deviation is for unproductive "tails" of fixed routes. The extra slack time allows an increase in area coverage if the deviation extends beyond the end of the route. If there are physical barriers separating potential riders from an arterial on which a bus runs, this ability also may create a huge de facto area coverage increase not apparent by drawing ¾ mile contours on a map. On the other hand, the cycle time extension caused by slack could potentially decrease the frequency of service possible for a given budget. But in many situations, transit-dependent riders would appreciate the area coverage more than service frequency. In some situations schedules already have extra slack available to meet timed-transfer constraints. Thus, productive use might be made of previously wasted time.

Expansion Areas

New areas can, of course, be served using the same hybrid approaches as for existing areas. But given the rapid growth of the Santa Clarita Valley, these new areas are likely to need an evolutionary service design. This process consists of the following steps:

- Checkpoint service with a van or small bus is used initially to connect with existing routes.
- When demand builds, extend fixed route using deviation capability to "probe" demand. (The analyst makes their best guess of where the route should go initially. But the route's fixed stops are adjusted as demand reveals itself.)
- As demand builds, 40-foot-long buses can be inserted only during peak periods.
- Conversion to pure fixed route is implemented if and when demand warrants. At this point, complementary paratransit is probably required.
- Reassign smaller vehicles to new expansion areas to begin the process anew.

Table 6.2 indicates the number of vehicle hours and vehicles to be assigned to continuing DAR-type services. The improvements recommended to software, training, and staffing should accomplish a 15-20% increase in productivity, but a 10% reduction in current hours is programmed under the assumption that better service will induce some of the lost ridership to return. If 10-20,000 annual hours of hybrid service are effectively implemented in the medium-term, a further 15-20% reduction in DAR service should be possible. While new fixed-route services are anticipated as new arterials are opened, and new areas of development are created, there will be new demand for DAR service. However, because a considerable amount of anticipated development represents infill, the geographic spread of the DAR service area will not grow much beyond its current boundaries. In order to be conservative, a flat 10% reduction of DAR hours has been projected into the future.

Table 6.2 Projected Revenue Vehicle Hours and Peak Vehicle Requirements: Demand-Responsive Services

	Total Hours	Peak Vehicles
Existing service	25,500	11
Proposed short-term service	23,000	10
Proposed medium-term service	23,000	10

6.4 Service Changes in the Longer-Term Future

Technological advancement is rapidly enabling full freedom for planners to create any type of service design they feel is appropriate. Within one more generation of ITS and scheduling software purchases -- approximately 10 years -- there will be few if any hardware or software differences between what is sold for fixed route and demand-responsive fleets. Instead, hardware and software will be configured to suit the particular application. Modules would be turned off or on to support the desired service designs.

Hardware will be increasingly flexible. Due to computing power and memory increases, large amounts of information can be stored onboard and vehicles can make many decisions

autonomously. Equipment will be configured for different types of service designs when needed. For example, Mobile Data Terminals (MDT) will simply change the screen interface to the driver if a vehicle is being switched between fixed route, hybrid or pure demand-responsive service. Even though a large bus is unlikely to ever be used in anything but pure fixed route, it will not be worth the effort to buy dedicated hardware, even if it would be a simpler device. There are offsetting economies of scale in producing more identical units that brings down unit prices. Furthermore, identical units bring down the cost of holding inventory as fewer types and numbers of spares must be held. Finally, because ITS standards governing communications and data interfaces are maturing, future hardware designs bought as replacement parts are likely to readily replace technologically obsolescent designs with close to "plug and play" ease.

It is likely that software will not be sold as separate packages. Analogous to spreadsheet software, it will contain modules for all types of service designs that might be of interest to SCT. This will liberate service planners from concern whether dispatchers or call-takers can access the needed displays or information needed to support a particular service design. It will also simplify cross-training of staff. Persons who accommodate or manage trips for ADA-eligible persons will use the same basic software as persons managing the trunk routes, perhaps using some additional features.

Ultimately, there will probably be no distinction at all between demand-responsive and fixed-route services at the industry-leading transit agencies. Instead, there will be a spectrum of services. Service design might be changing by time of day and by location anywhere in the network. This will open up some new possibilities for schedule optimization. Vehicles of different sizes can be re-assigned to different routes based on when demand peaks. For example, peak college and high school demand is later in the morning than peak commuter demand. Vehicle swapping will be particularly easy at timed-transfer centers since there is no deadheading movement required. Indeed, with Real Time Passenger Information (RTPI) installed, the vehicle need not even move to a berth for a different route --- the sign can change instead.

6.5 Appropriate Equipment Types

At present, Santa Clarita Transit operates three basic bus types, 40- and 45-foot highway commuter bus, a 40-foot standard transit bus, and 20 to 24-foot "cut-away"-type small buses used for DAR service. The most recent order of standard transit buses were low-floor CNG-powered vehicles. This mix serves the operation well, and while 40-foot buses may be too large for midday service on some local routes, some are used for school trippers and the economics of transit do not permit extra buses to switch several times a day – taking a bus out of service would require drivers to deadhead back to the maintenance facility, thus adversely affecting schedules. However, in the future, the scheduling software may identify limited opportunities for vehicle swapping.

With development of hybrid-type routes in the medium-term, an effective blending of fixed-route and DAR service, SCT should add 30-foot low-floor buses to its fleet mix. These buses would be more acceptable in many areas than 40-foot buses for hybrid services that enter neighborhoods rather than staying on arterial routes. They could also be used for DAR quasi-routes that might carry more people than the standard DAR vans. Possibly 9-12 30-foot buses might be used for hybrid services on routes 1A, 3/7, 4, 9, 11, and 12 – so SCT should acquire 15 or more 30-foot buses if it pursues hybrid service, including spares. Several more could be used for quasi-route DAR service in-lieu of current smaller "cut-away" buses.

As ridership increases, SCT might consider a small number of 60-foot articulated buses to be used for school trippers and on Route 6, the most utilized route in the fixed-route network.

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7.0 Financial Plan

This section presents the financial plan for the City of Santa Clarita to implement the recommended transportation improvements. The purpose of the financial plan is to provide a financial roadmap for implementing the projects and service changes identified in the TDP.

The financial plan, in part, determines the phasing strategy for implementing the proposed TDP projects and services. The phasing strategy is the result of an iterative process that ensures that the recommended network for local fixed-route, regional, and neighborhood service is compatible with the financial plan.

In developing the financial plan, a financial capacity analysis was performed to evaluate the relative financial feasibility of implementing the TDP recommendations. The analysis covers the ten-year period from 2006 through 2015.

Development of the financial plan consists of many steps, including a funding/revenue assessment, identification of capital and operating costs, preparation of financial summaries, and evaluation of financial feasibility. Results of these tasks are included in this section of the TDP.

7.1 Overview of Los Angeles County Transit Funding

The Los Angeles County Metropolitan Transportation Authority (MTA), or Metro, has the authority as the Regional Transportation Planning Agency (RTPA) to award regional transportation funds in the County. In addition, MTA administers two local transportation sales tax initiatives, receiving the collected funds from the State. The primary sources of MTA funds are local sales taxes (Propositions A and C), and portions of the state gasoline tax of 18 cents and federal gasoline tax of 18.4 cents per gallon. California sales tax on motor vehicle fuel provides additional revenue.

The MTA provides funding directly to projects through grants of local funds or indirectly through allocated federal or state grants. Local funds consist mainly of Proposition A and Proposition C sales tax funds which are disbursed by the MTA to agencies based on an approved spending plan. Federal and state grant funds are programmed or allocated by the MTA and disbursed directly by the granting agency or disbursed by MTA to the grantee or recipient. The recipient agency is responsible for administering and managing the federal or state grant.

Transit Funding Programs Available to Santa Clarita Transit

Funding for Santa Clarita Transit is made available primarily though federal grants and Municipal Operator Programs administered by MTA. Funding is also generated through the farebox and allocated through the city's transit fund.

Municipal Operator Programs provide for the equitable allocation of local revenues to sixteen transit service providers in Los Angeles County. These funds are allocated based on formulas prescribed by state law and by the MTA Board of Directors. The basis for these allocations is the Formula Allocation Procedure (FAP) The FAP originated in 1986 and was codified in state law through the Calderon bill that was adopted by the Board Directors and legislated through Senate Bill (SB) 1755 in 1996.

The Formula Allocation Procedure is used to allocate countywide bus transit funds among certain bus operators in Los Angeles County, as described in state law (section 99285 (d) of the Public Utilities Code). The state law and SB 1755 define certain transit operators as "included" or "eligible" for allocation purposes.[1] "Included" operators are mostly those that were in existence when the PUC law went into effect on January 1, 1971 (with later amendments). In Los Angeles County, an "eligible municipal operator" is a transit operator that has been designated eligible to receive formula-equivalent funds allocable for transit operating purposes, other than funds specifically included in the formula allocation program as defined by SB 1755.

Per the state law, there are 14 "included" operators in Los Angeles County (including MTA) and four "eligible" operators. Santa Clarita Transit is one of the four "eligible" operators and receives Formula Equivalent Funds through the Formula Allocation Procedure.

The law specifies that the distribution of funds under the FAP is based on transit performance data for bus operations. Each operator's share is calculated as: (1) 50% of the operator's vehicle service miles; and (2) 50% of the operator's passenger revenues divided by its base cash fare (referred to as fare units). The funds allocated using the FAP include State Transportation Assistance (Operator Revenue Share), Transportation Development Act Article 4, Proposition A Discretionary, and Federal Section 5307 (using a variation of the above formula).[2] Santa Clarita Transit does not receive any TDA Article 4 funds, but it receives TDA Article 8 funds that are allocated to four cities and a portion of Los Angeles County based on population.

Santa Clarita Transit, as do all "included" and "eligible" transit operators, also receive Proposition C Discretionary funds under five programs approved by the MTA Board of Directors: Foothill Mitigation Program, Base Service Restructuring, Transit Service Expansion, Bus Service Improvement Plan (BSIP) including Overcrowding Relief, and the Municipal Operator Service Improvement Program (MOSIP).

Foothill Mitigation Program. Foothill Mitigation funds are made available to "included" and "eligible" transit operators in existence before Foothill Transit began operations. The program is designed to keep whole the previous "included" and "eligible" operators' funding, while allowing Foothill to receive formula funding as an "included" operator.

Base Service Restructuring Program. The Base Service Restructuring Program is available to four municipal operators in the region who added service sometime before 1990. These four municipal operators are given additional Proposition A 40% Discretionary and Proposition C 40% Discretionary funding. Santa Clarita Transit does not qualify for these funds.

Transit Service Expansion Program. Transit Service Expansion (TSE) Program funding is available to five municipal operators in the region for expansion or introduction of fixed route bus service in congested corridors.

Bus Service Improvement Program. The Bus Service Improvement Program (BSIP) addresses service improvements on overcrowded non-Metro bus lines used primarily by the transit dependent.

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[1] California Department of Transportation (January 2005), *Transportation Development Act Statues and California Codes of Regulations*, Division of Mass Transportation, Section 99207 and Section 99207.5.

[2] "Eligible" operators receive Proposition C Discretionary funds; and Proposition A Discretionary funds above the Consumer Price Index (CPI) as formula-equivalent funds in-lieu of STA (Operator Revenue Share), TDA Article 4, and Federal Section 5307 funds. If the growth of Proposition A is not greater than CPI, the "eligible" operators receive Proposition A Incentive funds. The Incentive program is then funded with Proposition C Discretionary money, since the funding guidelines give "eligible" operators first priority on Incentive funds.

Metro Operations and all other Los Angeles County transit operators, except Claremont, La Mirada and Commerce, participate in this program.

Municipal Operators Service Improvement Program. The Municipal Operators Service Improvement Program (MOSIP) was adopted by the MTA Board in April 2001 and is intended to provide bus service improvements to the transit dependent in Los Angeles County by reducing overcrowding and expanding services. All of the municipal operators in Los Angeles County participate in this program, and they are allocated funding according to FAP calculation methodology. This funding source was to expire in 2006 but the MTA Board provided an additional allocation in FY 2007. For the financial plan, it is assumed that this source, or a source of an equivalent amount, will continue to be provided in the future.

In addition, the Proposition A and Proposition C ordinances require that each of the 88 cities and Los Angeles County receives a direct share, based on population, of the total Proposition A and Proposition C sales tax revenues. Known as "local return", these funds must be used to support transit needs or other transportation related projects including paratransit and fixed route service, street and road maintenance (Proposition C only) on streets heavily used by transit, and other transit-related improvements.

As the RPTA, MTA is also responsible for preparing the region's Transportation Improvement Program (TIP). The TIP Call for Projects (CFP) is a biennial process for allocating selected local, state, and federal transportation funds to cities in Los Angeles County, Los Angeles County, municipal transit operators, joint power authorities, and other public agencies. After MTA establishes funding estimates, eligible organizations submit project applications for review. The CFP is another method from which Santa Clarita Transit can obtain transit funds. There has not been a CFP since 2000; the 2002 CFP was cancelled and MTA recently announced a 2007 CFP with funding available in late 2009 or early 2010.

During the CFP process, MTA staff, based on a scoring system adopted by the Board of Directors, evaluates the merits of each project submittal and develops a priority ranking. The Board of Directors reviews the staff recommendations and adopts a multi-year funding program. After adoption by the Board of Directors, the MTA programs funding based on project cash flow plans and secures written agreements with successful project sponsors. Projects implemented through the Call for Projects are generally funded by Proposition C and federal Surface Transportation Program (STP) funds.

The MTA also acts as the grantee for some federal funds on a pass-through basis. Some of this funding is allocated by formula while some is discretionary.

A table showing transit funding sources and eligibility by transit mode available to Santa Clarita Transit is presented in Table 7.1. A detailed description of each funding source is provided in Appendix 2.

Table 7.{ SEQ Table * ARABIC \s 1 } Transit Funding Sources and Modal Eligibility for Santa Clarita Transit

A – Allocated; E – Eligible but not allocated			Bus	
Funding Source	**Allocation Process**	**Allocated To**	**Cap**	**Ops**
LOCAL SOURCES				
Proposition A – ½ cent Los Angeles County Sales Tax				
Prop. A 25% - Local Return	Population	Cities by Population	E	A
Prop. A 40% - Discretionary 95% of 40%	FAP	MTA and Municipal Operators	E	A
Prop. A 40% - Incentive 5% of 40%	FAP	LTSS Operators		A
Prop. A Interest	FAP	MTA and Municipal Operators	E	E
Proposition C – ½ cent Los Angeles County Sales Tax				
Prop. C 5% - Transit Security	FAP	MTA and Municipal Operators	E	A
Prop. C 10% - Commuter Rail & Transit Centers	CFP	MTA, Local Agencies, Metrolink for Earmarked Projects	E	
Prop. C 20% - Local Return	Population	Cities by Population	A	A
Prop. C 25% - Transit-related Highway	CFP	MTA and Local Agencies for Earmarked Projects	E	
Prop. C 40% - Discretionary	MTA Board	MTA and Municipal Operators for Discretionary/Special Programs	A	A
Prop. C Interest	FAP	MTA and Municipal Operators	E	E
Transportation Development Act – ¼ cent State Sales Tax				
TDA Article 8 – Transit/Paratransit Unmet Needs	FAP	Cities & Unincorporated County not served by MTA, by Population		A
Public Transportation Account (PTA) – State Transit Assistance (STA)				
STA Operator Revenue Share	FAP	MTA and Municipal Operators	A	A
STA Operator Revenue Share Interest	FAP	MTA and Municipal Operators		A
Municipal Operator/City General Revenues				
Farebox including pass sales	Operator/ City Budget	Transit or other programs based on city or transit operator guidelines and budgets.	E	E
STATE SOURCES				
State Transportation Improvement Program (STIP)				
Regional Improvement Program (RIP)	MTA Board, CFP, CTC	MTA and Local Agencies for Earmarked Projects	A	
Assembly Bill 2766 Subvention Fund Program				
40% Program to Cities and Counties	SCAQMD	Cities by Population	E	E
30% Mobile Source Air Pollution Reduction Review Committee	MSRC	Local Agencies for Earmarked Projects	E	E
Carl Moyer Memorial Air Quality Standards Program	SCAQMD	Public or private entities operating eligible engines and/or equip.	E	

Table 7.1, Continued

FEDERAL SOURCES				
Surface Transportation Program (STP)				
STP – Regional (RSTP)	MTA Board and CFP	MTA and Local Agencies for Earmarked Projects	A	A
STP – Local (STP-L) (subset of RSTP program)	Statute	Fixed Amount to Cities and LA Co.	A	
Air Quality				
Congestion Mitigation & Air Quality (CMAQ)	MTA Board and CFP	MTA and Local Agencies for Earmarked Projects	A	A
Section 5307 – Urbanized Area Program				
84% Capital Formula (LA UZA)	FAP	MTA and Local Agencies	A	A
16% Capital Discretionary (LA UZA)	FAP	MTA and Local Agencies for Earmarked Projects	A	
100% Capital Formula (Santa Clarita UZA)	FTA	Transit programs based on transit operator guidelines and budgets.	A	A
Section 5309 Capital Program				
Discretionary Bus and Bus Facilities	Congress via FTA	MTA and Local Agencies for Earmarked Projects	E	

NOTES: Source: Adapted from Los Angeles County Metropolitan Transportation Authority, *Funding Sources Guide 2004*.
1. Table does not include Rail and Highway/Multi-modal modes.

Acronyms:
CFP – Call For Projects
CTC – California Transportation Commission
FAP – Formula Allocation Procedure
FTA – Federal Transit Administration
LTSS – Local Transit Service System
MSRC – Mobile Source Air Pollution Reduction Review Committee
SCAQMD – South Coast Air Quality Management District

Headings:
Cap – Capital
Ops – Operations

7.2 Financial Capacity Analysis

A cash flow model is used to assess the Santa Clarita Transit's financial capability to implement the TDP recommendations. The cash flow model matches operating and capital revenues against operating and capital costs to determine annual and cumulative surpluses and shortfalls over the analysis period.

Data for funding sources and uses are entered into the cash flow model, including detailed funding/revenue, operating and maintenance (O&M) costs, and planned capital project and replacement cost data. In addition, fare revenue estimates associated with the TDP recommendations are included in the model. General assumptions such as inflation and other factors are applied to the data. The cash flow model consolidates these data and calculates the annual operating and capital surpluses/shortfalls, and cumulative ending cash balance.

TDP Recommendations

The TDP recommends short-term and medium-term service modifications and related capital for local, regional express, and DAR service. The elimination of a route and reduction of service on another will result in moderate changes in total express service hours in the short-term (+8 percent), assuming substitution of other routes. In the medium-term, total express bus hours would increase

approximately 17 percent over current levels. Four additional express buses would be needed in the medium term to serve the additional service hours.

Short-term modifications would add four local buses to the current peak requirement of 34 buses, and would extend annual bus hours by 19 percent for local service. The medium-term scenario would require 49 local peak period buses, compared to 34 at present and 38 in the short-term scenario. Under the medium-term scenario, annual bus revenue hours for local service would increase 58 percent over current operations. However, if several hybrid routes effectively diminish need for separate dial-a-ride service, there would be an offset by not having to expand the DAR service by a similar ratio.

The recommended TDP modifications can be implemented in phases as development and finance resources permit. Developing an implementation schedule for the TDP recommendations is an iterative process. An initial implementation schedule based on the TDP recommendations is assumed in the cash flow model. If funding is not available in a particular year to implement the service change or capital project, the implementation schedule is modified (e.g. delaying projects/service changes, shifting order of projects/service changes) until a financially feasible financial plan is achieved.

In the cash flow model, it was assumed that the short-term modifications would take two years to implement beginning in FY 2007, and medium-term modifications would take three years to implement beginning in 2009. Table 7.2 shows the number of vehicles and service hours associated with the recommended TDP modifications and associated implementation schedule assumed in the cash flow model. In addition, four additional Dial-a-Ride vehicles would be required for the medium-term modifications.

Table 7.2 Recommended TDP Implementation Plan

	FY2006	FY 2007 Approved budget	FY2007	FY2008	FY2009	FY2010	FY2011-2015
OPERATING HOURS							
Regional Routes	32,647	35,000	34,000	35,240	36,500	38,205	38,205
Local Routes[1]	119,210	123,000	125,400	141,449	141,449	159,870	188,328
Dial-a-Ride	25,577	33,000	25,000	24,000	23,000	23,000	23,000
Total Operating Hours	**177,434**	**191,000**	**184,400**	**200,689**	**200,949**	**221,075**	**249,533**
VEHICLES (Total Fleet)							
Regional Routes	28		28	28	28	28	32
Local Routes	43		43	47	51	55	58
Dial-a-Ride	16		16	16	16	16	20
Total Vehicles	**87**		**87**	**91**	**95**	**99**	**110**

NOTES:
1. Route 8 included with Local routes for financial modeling.

7.3 Financial Assumptions

Numerous assumptions, which reflect the best available estimate of future trends in funding and costs over the 10-year analysis period, were utilized in developing the cash flow financial model. Existing Santa Clarita Transit and MTA policy, as well as federal and state policies and laws guided the development of the assumptions. Emphasis was placed on meeting all policy and legal conditions pertaining to data sources. Listed below are the major assumptions applied to the cash flow financial model.

Beginning Balance. The Beginning Balance represents the cash available to Santa Clarita Transit at the beginning of the analysis period, which is 2006. This amount represents the 2005 ending balances of the various Santa Clarita accounts related to transit, which include Proposition C (fund 205), Proposition A (fund 206), and the city's Transit fund (fund 801).

Inflation. Two inflation rates are used in the cash flow model – one applied to operating revenue (including fares) and revenue vehicle capital costs; and the other applied to non-vehicle capital and operating costs. For operating revenue and revenue vehicles, inflation rates for 2006 and 2007 were derived from Los Angeles County Metropolitan Transportation Authority (MTA) fund estimates. Annual inflation rates for 2008 and later years were assumed to be 3.0%, which is consistent with Santa Clarita Transit's financial forecast.

For non-vehicle capital and operating costs, annual inflation rates for 2006 through 2008 were estimated based on the Consumer Price Index for Urban Wage Earners (CPI-U) forecasts from the California Department of Finance (CUURA421SA0,CUUSA421SA0; August 2006). The rate for 2009 was calculated as the average of the previous seven years. After 2009, the rate was assumed to be 3.5% annually. However, the operating cost per hour is inflated by 6.0% in 2007 to be consistent with Santa Clarita's existing operating contract.

The inflation rate for non-vehicle capital and operating costs is somewhat higher than for operating revenue and revenue vehicles. Under these assumptions, costs for non-vehicle capital and operations would be rising at a greater rate than operating revenue. Table 7.3 shows the inflation assumptions for the financial plan.

Table 7.3 Inflation Assumptions for TDP Financial Plan

Inflation Rate	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011-2015
Operating Revenue and Revenue Vehicles	2.69%	2.60%	3.00%	3.00%	3.00%	3.00%
Non-Vehicle Capital and Operating Costs[1]	5.18%	4.45%	4.32%	3.87%	3.50%	3.50%

NOTES:
1. Operating cost inflation assumed to be 6.0% per SCT's operating contract.

Sales Tax Growth. Sales tax growth rates were applied to Proposition A and C sales tax revenue estimates. Sales tax growth rates are consistent with assumptions made by MTA that uses the 12-year rolling average of sales tax growth for Propositions A and C. The sales tax growth rate is applied to most funding sources that are based on sales tax receipts. Table 7.4 shows the sales tax growth rate assumptions for the financial plan.

Table 7.4 Sales Tax Growth Assumptions for TDP Financial Plan

Sales Tax Growth Rate	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011-2015
Sales Tax Growth	3.85%	3.90%	3.90%	3.90%	3.90%	3.90%

Sources of Funds

A mix of local, state, and federal funding sources are available to Santa Clarita Transit. The major funding and revenue assumptions are listed below. A detailed description of funding and revenue sources for which Santa Clarita Transit is eligible is included in Appendix 2.

The main funding sources available to SCT are Transportation Development Act (TDA) Article 8, FTA 5307 Urbanized Area, and Proposition A Discretionary funds. The city of Santa Clarita also receives Proposition A and C Local Return funds that can be used for transportation purposes (e.g. streets and roads, transit).

Proposition A and C Local Return. For the financial plan, it was assumed that Proposition A and C Local Return funds would be available as 20% local match for federal grants that would be secured to pay for revenue vehicle replacements and expansion. SCT would be eligible for additional Local Return funds if needed, but the amount available would be dependent on city policy and guidelines.

Federal Transit Grants. The remaining 80% of funding for revenue vehicle replacement and expansion was assumed to come from one or a combination of federal grants. These grants are assumed to be FTA Section 5308 Clean Fuels, Section 5307 Bus and Bus Facilities, and Congestion Mitigation and Air Quality (CMAQ) programs. As in the past, Section 5307 Urbanized Area funds can also be used to pay for vehicles. Actual available amounts and eligible grant programs will depend on when funding is required.

Passenger Fares. Passenger fares are also a major revenue source for SCT, funding approximately 27% of local operating and maintenance (O&M) costs and 34% of commuter O&M costs. In the cash flow financial model, fare revenue was estimated for local, commuter express, and DAR service by multiplying the average fare for each service with estimated passenger boardings (the average fare takes into account the base fare, discounts for reduced fares, and discounts related to pass sales). It was assumed that SCT's base fare would increase by 12% in 2008 and 2011 (a 12% increase to the base fare results in an average fare increase of approximately 7% for local service and 10% for commuter service).

Uses of Funds

Uses of funds are divided into two broad categories: Capital Projects and Operating & Maintenance. Capital Projects costs are incurred to construct, replace, and rehabilitate fixed assets such as stops and transfer centers, transit vehicles, and maintenance facilities. Operating and maintenance (O&M) costs are the expenses incurred to provide day-to-day transit administration, operations and maintenance of the transit system.

Revenue Vehicles (Lease and Purchase). Santa Clarita Transit's revenue vehicle fleet consists of a mixture of owned and leased vehicles for local, express, and DAR service. All future replacement and expansion vehicles are assumed to be owned by SCT. Replacement costs are based on SCT's fleet inventory as of May 2006 and augmented by subsequent vehicle purchases through August 2006. Expansion vehicle costs are based on recommendations of the TDP (see sections 4 through 6). A 12-year useful life is assumed for local and express vehicles, and five years for dial-a-ride vans. These useful lives are consistent with FTA guidelines for vehicle replacement. Vehicle costs are based on data provided by SCT.

Based on the recommendation of the TDP, four buses will be purchased for short-term improvements and twelve buses will be purchased for medium-term improvements, for a total of 16

buses. All of these vehicles will be operated in local service, although some could be applied to future hybrid routes. Four expansion buses are assumed for express service during medium-term modifications to accommodate the estimated increase in service hours.

Four additional DAR vans are assumed in the financial plan. In addition, fourteen of the sixteen expansion buses for local service are planned to be 30-feet in length so they can be applied to future hybrid routes. Table 7.5 shows the anticipated replacement and expansion vehicle purchases through 2015.

Table 7.5 Replacement and Expansion Vehicles for TDP Financial Plan

Vehicles (Total Fleet)	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Regional Routes				R: 4	R: 6			R: 5		E: 4
Local Routes			E: 4	R: 7 E: 4	E: 4	E: 4		R: 22		
Dial-a-Ride	R: 2	R: 4		R: 5	R: 5	R: 2	R: 4		R: 5	R: 5 E: 4

NOTES:
R – Replacement Vehicle
E – Expansion Vehicle

Other Capital. Other capital consists of non-revenue vehicle capital projects. SCT has not readily identified non-revenue vehicle capital projects after 2007, but is anticipated that capital projects will be necessary in the future for general overhaul and rehabilitation of facilities and equipment. In order to capture these items, the annual cost of future capital projects is estimated based on known transit rehabilitation and replacement methods for specific assets. This methodology provides a rough estimate of future non-revenue vehicle capital costs. The annual inflation rate for non-vehicle capital and operating costs is applied to the estimates.

Operating & Maintenance Costs. Operating and maintenance (O&M) costs are estimated separately for local, express, and DAR services. O&M costs are calculated by multiplying the cost per hour for each type of service (e.g. local, express, DAR) times the number of service hours estimated for the TDP. The cost per hour is based on existing hourly rates. These costs were increased annually by the rate of operating inflation. However, the operating cost per hour is inflated by 6.0% in 2007 to be consistent with Santa Clarita's operating contract. In addition, Administration & Overhead costs consisting of insurance, security, and city services were also estimated.

7.4 Financial Feasibility of TDP Recommendations

The results of the cash flow model are the primary tool for evaluating the financial feasibility of the TDP recommendations. The TDP recommended service modifications and related implementation plan are considered financially feasible if there are no forecasted annual cumulative negative ending cash balances. It is anticipated that the efficiencies resulting from the TDP recommendations will offset any or most increases in costs. However, if the recommended implementation plan is determined not to be financially feasible, then financing strategies will be developed.

The results from the cash flow financial model indicate that all of the TDP recommended service modifications and related implementation plan are financially feasible given the assumptions used in the cash flow model. The resulting cash balance in 2015 of $17 million is significantly lower than the beginning cash balance of $21 million in 2006. Table 7.6 shows the results from the cash flow model.

The 2015 cumulative ending balance is the result of annual negative balances that are consistent beginning in 2009. The negative balances are due mainly to implementing the TDP recommended service modifications. There are enough reserves and new revenue to keep the cumulative ending balance positive through 2015, but the trend that results in consistently higher costs compare to revenues would eventually result in a cash flow deficit.

While it is assumed in the cash flow model that vehicle replacements would be fully funded with a combination of federal grants and matching local funds, no such assumption was made for overhaul and rehabilitation of existing facilities and equipment. These capital costs are included in the financial model, but no funding assumptions were made. There are funding sources available to SCT that could be used to cover these costs, such as additional Proposition A or C Local Return and/or Proposition C Discretionary funds. In addition, as mentioned above regarding inflation assumptions, costs for non-vehicle capital and operations would be rising at a greater rate than operating revenue. Assumed fare increases in 2008 and 2011 offset some of this difference. However, an additional fare increase (e.g. 2013 or 2014) may be necessary to ensure revenues keep pace with costs.

There are several potential strategies for delaying or preventing the negative cash flow trend:

- Delay the implementation of the TDP recommended modifications for one to two years in order to possibly bolster reserves;
- Spread the implementation of the TDP recommended modifications over a period of six to seven years instead of five years (the suggested plan is to implement the short-term modifications over two years and the medium-term modifications over following three years);
- Implement the short-term TDP recommended modifications immediately and delay the medium-term modifications. The suggested plan is to implement the medium-term modifications in the years immediately after the short-term implementation. Leaving a gap of two to three years between the short-term and medium-term implementation would likely improve cash flow.
- Delay replacement vehicle purchases, especially in 2013 when 27 vehicles are scheduled to be replaced. Extending the useful life of some of the fleet to 14 or 15 years could smooth-out the cash flow and possibly prevent negative balances.

It is recommended that SCT assess future-year cash flows on a regular basis. In addition, a long range capital improvement program and funding strategy would allow for early planning to mitigate potential funding shortfalls.

In summary, it is reasonable to assume, based on the financial analysis, that Santa Clarita Transit has the financial capacity to implement the recommended service modifications and related implementation plan specified in the TDP. However, changes to base assumptions (e.g. higher inflation rates) could result in annual negative cumulative ending balances. It should be noted that cash flow forecasts in later years are not as accurate as those for the near-term, but the results of this financial analysis uncovers a trend that indicates that SCT closely monitor long-term capital and operating plans.

Santa Clarita Transit

Transit Development Plan

DRAFT

CASH FLOW SUMMARY

With 20% Local Return Matching Funds

Table 7.6 Cash Flow Results with TDP Implementation

SOURCES OF FUNDS	TOTAL 2006-2015	FISCAL YEARS - INFLATED DOLLARS 2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Revenues from Operations and County											
Motor Bus (Local, Commuter, Commute Connection) Farebox	$ 41,918,437	$ 2,808,134	$ 3,092,926	$ 3,577,321	$ 3,756,187	$ 3,943,997	$ 4,477,293	$ 4,701,158	$ 4,936,216	$ 5,183,027	$ 5,442,178
Demand Response Farebox	$ 503,667	$ 35,620	$ 40,036	$ 44,106	$ 46,311	$ 48,627	$ 51,058	$ 55,198	$ 57,957	$ 60,855	$ 63,898
Operating Revenue	$ 8,330,570	$ 655,728	$ 751,475	$ 771,809	$ 797,056	$ 823,123	$ 850,296	$ 875,274	$ 904,836	$ 934,506	$ 966,468
County Share Contribution	$ 23,681,219	$ 2,142,450	$ 2,495,297	$ 2,175,839	$ 2,239,415	$ 2,261,478	$ 2,328,854	$ 2,384,685	$ 2,517,478	$ 2,529,913	$ 2,605,810
Subtotal	$ 74,433,893	$5,641,932	$6,379,734	$6,569,074	$6,838,969	$7,077,225	$7,707,501	$8,016,315	$8,416,488	$8,708,301	$9,078,354
Non-Operating Revenues											
TDA Article 8	$ 61,284,920	$ 5,148,072	$ 5,663,342	$ 5,660,708	$ 5,856,129	$ 6,059,407	$ 6,223,048	$ 6,393,825	$ 6,571,925	$ 6,757,550	$ 6,950,914
Proposition A & C Local Return	$ 6,363,667	$ 24,248	$ 48,496	$ 307,013	$ 1,358,146	$ 1,016,886	$ 767,581	$ 48,496	$ 2,623,066	$ 60,620	$ 109,116
Proposition A Discretionary, Incentive, Interest & STA	$ 42,726,195	$ 3,582,595	$ 4,019,417	$ 3,965,014	$ 4,041,598	$ 4,107,612	$ 4,156,909	$ 4,222,982	$ 4,282,621	$ 4,361,236	$ 4,436,313
Proposition C BSIP, Foothill Mitigation, TSE, MOSIP, Security, Interest	$ 14,638,804	$ 1,206,170	$ 1,291,840	$ 1,378,654	$ 1,405,349	$ 1,426,603	$ 1,447,657	$ 1,464,243	$ 1,486,328	$ 1,511,181	$ 1,522,775
Subtotal	$ 122,965,684	$ 9,961,085	$ 11,023,094	$ 11,311,389	$ 12,661,222	$ 12,610,508	$ 12,595,195	$ 12,129,546	$ 14,963,940	$ 12,690,587	$ 13,019,118
Federal Funds											
FTA 5307 Urbanized Area	$ 47,938,494	$ 4,094,625	$ 3,919,525	$ 4,613,395	$ 4,260,969	$ 4,453,539	$ 4,650,661	$ 4,671,613	$ 4,805,781	$ 4,927,475	$ 5,024,104
FTA 5309 Bus and Bus Facilities	$ 12,299,682	$ -	$ -	$ -	$ -	$ 1,585,801	$ 1,197,018	$ 75,628	$ 4,090,588	$ 94,535	$ 170,163
FTA 5308 Clean Fuels	$ 15,774,199	$ -	$ -	$ -	$ -	$ 2,033,772	$ 1,535,162	$ 96,992	$ 5,246,131	$ 121,240	$ 218,232
5316 JARC, 5317 New Freedoms	$ 7,149,927	$ -	$ 396,504	$ -	$ 750,476	$ 765,145	$ 775,175	$ 785,206	$ 795,236	$ 805,266	$ 815,296
Congestion Mitigation and Air Quality (CMAQ)	$ 3,474,517	$ -	$ -	$ -	$ -	$ 447,970	$ 338,144	$ 21,364	$ 1,155,544	$ 26,705	$ 48,069
Subtotal	$ 86,636,818	$ 4,094,625	$ 4,316,029	$ 4,613,395	$ 5,011,445	$ 9,286,227	$ 8,496,159	$ 5,650,803	$ 16,093,280	$ 5,975,221	$ 6,275,864
TOTAL SOURCES OF FUNDS	$ 313,197,637	$ 19,697,642	$ 21,718,857	$ 22,493,858	$ 24,511,637	$ 28,973,960	$ 28,798,855	$ 25,796,664	$ 39,473,707	$ 27,374,108	$ 28,373,337

USES OF FUNDS	TOTAL 2006-2015	FISCAL YEARS - INFLATED DOLLARS 2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Capital Projects											
Revenue Vehicles (Lease and Purchase)	$ 34,046,703	$ 548,259	$ 669,498	$ 1,962,081	$ 7,217,747	$ 5,344,577	$ 4,098,052	$ 242,480	$ 13,115,328	$ 303,100	$ 545,580
Other Capital	$ 8,578,468	$ 90,539	$ 6,034,595	$ -	$ -	$ 1,500,000	$ 54,521	$ -	$ 234,089	$ 75,978	$ 588,745
Subtotal	$ 42,625,170	$ 638,798	$ 6,704,093	$ 1,962,081	$ 7,217,747	$ 6,844,577	$ 4,152,573	$ 242,480	$ 13,349,417	$ 379,078	$ 1,134,325
Available for Operations	$ 224,587,455	$ 19,058,844	$ 15,014,764	$ 20,531,777	$ 17,293,889	$ 22,129,382	$ 24,646,282	$ 25,554,184	$ 26,124,290	$ 26,995,030	$ 27,239,011
Operating & Maintenance											
Fixed Route Service	$ 162,615,651	$ 9,261,326	$ 11,377,274	$ 13,104,218	$ 13,730,849	$ 15,764,164	$ 18,532,112	$ 19,180,736	$ 19,852,062	$ 20,546,884	$ 21,266,025
Dial-a-Ride	$ 18,843,820	$ 2,048,818	$ 1,862,155	$ 1,864,811	$ 1,731,814	$ 1,731,220	$ 1,791,154	$ 1,853,844	$ 1,918,729	$ 1,985,884	$ 2,055,390
Administration & Overhead	$ 49,325,942	$ 3,556,151	$ 4,661,316	$ 4,689,948	$ 4,810,582	$ 4,952,286	$ 5,071,743	$ 5,204,191	$ 5,338,007	$ 5,462,942	$ 5,578,776
Subtotal	$ 230,785,413	$ 14,866,295	$ 17,900,745	$ 19,658,977	$ 20,273,245	$ 22,447,670	$ 25,395,009	$ 26,238,772	$ 27,108,798	$ 27,995,710	$ 28,900,192
TOTAL USES OF FUNDS	$ 273,410,583	$ 15,505,093	$ 24,604,838	$ 21,621,058	$ 27,490,992	$ 29,292,248	$ 29,547,582	$ 26,481,252	$ 40,458,215	$ 28,374,788	$ 30,034,517
BEGINNING BALANCE		$ 21,075,419	$ 25,520,648	$ 22,861,013	$ 23,971,151	$ 21,201,713	$ 21,092,260	$ 20,546,968	$ 20,061,004	$ 19,267,261	$ 18,449,247
ANNUAL SURPLUS(SHORTFALL)		$ 4,192,550	$ (2,885,981)	$ 872,800	$ (2,979,356)	$ (318,288)	$ (748,727)	$ (684,588)	$ (984,508)	$ (1,000,680)	$ (1,661,180)
INVESTMENT INCOME		$ 252,680	$ 226,347	$ 237,338	$ 209,918	$ 208,834	$ 203,435	$ 198,624	$ 190,765	$ 182,666	$ 167,881
ENDING BALANCE		$ 25,520,648	$ 22,861,013	$ 23,971,151	$ 21,201,713	$ 21,092,260	$ 20,546,968	$ 20,061,004	$ 19,267,261	$ 18,449,247	$ 16,955,947

Appendix 1. Park and Ride Lot

{ SEQ CHAPTER \h \r 1}MICHAEL FAJANS 1911
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510 527-6615
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May 1, 2006

To: Corie Hill
Cc: Robyn Dowd, Ben Gonzales, Susan Rosales, Herb Higgenbotham, Mike Setty

From: Michael Fajans

Re: Transit Development Plan Park and Ride Opportunity

Our analysis for the Transit Development Plan will include ways to improve the regional commute bus service. While the commute service is well utilized, its productivity is not very good – largely because of the extremely long travel time and need to virtually deadhead the buses back to Santa Clarita for midday maintenance and storage. The majority of commute bus riders drive to the bus; few riders can walk to a commute bus stop and very few seem to ride local buses to get to the commute bus. Thus, the availability of park and ride lots is critical to the success of the regional commute bus network. The parking lots at the Santa Clarita and Newhall Metrolink Stations, which are used by commute bus riders as well as Metrolink riders, are near capacity.

As part of the analysis, we have identified the desirability of an additional large park and ride lot at San Fernando Road and Sierra Highway, adjacent to the Route 14 interchange where the regional buses start the express portion of their trip to downtown Los Angeles, Van Nuys, Westwood/Century City, or Warner Center/Woodland Hills. As we understand that there was recently a parcel sale at that intersection (10 acres for $2.2 million), we strongly believe it is in the City's best interest to secure much of this parcel for use as a park and ride lot – before the opportunity is lost. Building 500 or more additional parking spaces dedicated to commute bus riders (which would be used by car and van poolers as well) would free up spaces at the Metrolink Stations – thus improving parking availability for both bus and train commuters.

In conclusion, acquiring land for a large park and ride lot, as close to the freeway as possible, should be a high priority and the City should immediately use any available funds and seek grant funding from Caltrans and LACMTA to proceed with this project.

Background

At present, regional bus commuters tend to park at the Santa Clarita Metrolink Station, the Cinema Drive lot, and the Newhall Metrolink Station. In addition, they use smaller lots located along Lyons and the de facto lots at San Fernando Road at the interchange with Route 14, the last opportunity before the regional buses operate in express mode. This includes the dirt lot behind the gas station, and the 30-40 spaces at the southwest quadrant of the interchange.

In anticipating the growth of regional travel in the future, the expected 35% population growth (and comparable increase in local jobs) in the Santa Clarita service area (city and unincorporated area) during the next ten years will result in increased demand for regional transit as the number of commuting residents continues to grow. While Metrolink expects to add two additional commute trains to and from Los Angeles, there will be increased demand for regional bus trips as well. The increasing cost of gasoline and expansion of the HOV lanes south of the I-5/Route 14 junction as well as further south on I-5 and I-405 will also serve to encourage demand for these services.

At present, parking at the Via Princessa Station is at 80-90 percent of capacity, with about 40-60 available spaces on a typical day. Parking at Santa Clarita and Newhall Stations is at capacity. There is limited opportunity to add perhaps 50 spaces by paving additional area at Santa Clarita Metrolink, and the only opportunity to add parking at Newhall is in expensive structured parking that would be shared with community uses.

We think the best opportunity to expand park and ride capacity is to acquire space and build a 500-600 space park and ride lot in the vicinity of the San Fernando and Route 14 interchange. A 10 acre parcel at the southwest corner of San Fernando and Sierra Highway is currently advertised for sale – although we understand from Dennis Verner, the listing agent, that it was recently sold to a group (Pentech (sp?)) that will propose an 110,000 square foot shopping center. While we suggest having Traffic Engineering examine the opportunity to verify its appropriateness, we strongly urge the City to take action ASAP to investigate and acquire this parcel for development as a park and ride lot due to its strategic location. We are concerned that development of the site would preclude the city's best opportunity to establish a parking facility at such a prime intercept location. It might be possible to allow development of 3-4 acres furthest from the intersection, ideally with a use that would have some parking compatibility with a park and ride lot (movie theatres, dinner restaurant, etc).

This area was identified by commuters as desirable for expanded park and ride. At the March 18, 2006 meeting with the City's Ambassadors who use Santa Clarita's regional bus services, participants emphasized the importance of providing a logical, comprehensive system of park-and-ride facilities and deemed the current parking options as woefully inadequate. Residents from both Canyon Country and the unincorporated west side of the community view this location as the best opportunity to intercept the regional buses, minimizing the extra travel time associated with a transit trip.

As we have discussed and will include in our recommendations in the TDP, a faster route through Santa Clarita will be suggested for the regional buses. In-lieu of the route from the Santa Clarita Metrolink Station along Valencia to McBean, Orchard Village, and Lyons before returning the San Fernando Road, we believe they should operate from Santa Clarita Metrolink on Soledad Canyon directly down San Fernando Road to the Newhall Station, entering Route 14 to pick-up the HOV lane as they do now. The present routing from Santa Clarita Metrolink to Route 14 is scheduled at 25-26 minutes and we believe the more direct route would reduce route time by 10 minutes. This will marginally increase the productivity of the regional routes, potentially allowing one or two more buses to make a second roundtrip during a peak period.

Furthermore, with a large park and ride lot at San Fernando Road and Route 14, it might be possible to have early morning commute buses make return trips just to Newhall and the park and ride lot. This should allow several more buses to make second commute trips, further improving the system productivity in terms of utilization of both buses and drivers.

There are many examples of well utilized park and ride lots that encourage bus usage and other forms of ride sharing. We are particularly familiar with the Curtola Park and Ride lot in Vallejo that is well utilized for such a purpose and helps support a very effective commute bus service.

As cited above, acquiring land for a large park and ride lot, as close to the freeway as possible, should be a high priority and the City should immediately use any available transit funding and seek additional grants if required to proceed with this project. With the current dramatic increases in gas prices, moving forward with acquisition and development of a park and ride lot at San Fernando and Sierra would provide wonderful publicity for the City as well as an outstanding method of enhancing future express bus service.

Appendix 2. Transit Funding Sources

A mix of local, state, and federal funding sources are available to Santa Clarita Transit. The major funding sources listed below are those for which Santa Clarita Transit is eligible, or are available but not presently utilized. Other possible funding sources, which may not be directly related to transit and that will likely yield only limited funding, are not included.

Each of the major funding sources presented in this section includes the following information:

- **Description:** A brief summary that describes the source of the revenue and how it is derived from taxes or grants;
- **Policies & Guidelines:** Describes (1) the legislative restrictions, provisions and guidelines and/or (2) guidelines for the use(s) of the specific funding source; and
- **Project Eligibility:** Describes types of expenditures that qualify for support or reimbursement from the specific funding source.
- **Apportionment Method:** Describes the methodology for distributing funds among recipients.
- **Forecast Method:** Describes assumptions and methodology for forecasting future-year funding for the TDP.

TDA Article 8

Description. The Transportation Development Act (TDA) creates in each county a Local Transportation Fund (LTF) for the transportation purposes specified in the Mills-Alquist Deddeh Act, also known as the Transportation Development Act, PUC Section 99200. Revenues are derived from ¼ cent of the 7.25 cent retail sales tax collected statewide. The ¼ cent is returned by the State Board of Equalization to each county according to the amount of tax collected in that county.

TDA Article 8 funds are used for public transit services provided under contract for both fixed-route service and paratransit programs to fulfill unmet transit needs in areas that are not served by MTA. If there are no unmet transit needs, funds may be used for streets and roads improvements.

Policies & Guidelines: Up to 4.8% of total available TDA funds are allocated directly to the cities based on population under the Article 8 program.

TDA Article 8 funds can be used for local streets and roads, and projects for pedestrians and bicyclists; passenger rail service operations and capital improvements; payment to contractors for public transportation or for providing transportation services for any group requiring special transportation assistance; payments to counties, cities, and transit districts for their administrative and planning cost for any group requiring special transportation assistance; capital expenditures to acquire vehicles and related equipment, bus shelters, bus benches, and communication equipment for the transportation services for any group requiring special transportation assistance.

If, under Article 8, it is determined that there are no unmet transit needs, then local street and road maintenance and rehabilitation projects are eligible.

Apportionment Method: MTA allocates TDA funds to MTA and Municipal Operators based on established criteria and formulas. The funds are held by the County of Los Angeles and distributed upon direction by MTA Accounting Department.

Each year, Los Angeles County deducts the amount needed for its administrative costs. Up to 1% of the revenues from the annual LTF allocation can be used by MTA and ¾% (up to $1 million) by the Southern California Association of Governments (SCAG) for transportation planning and programming.

Forecast Method: Funds are forecasted by multiplying the estimated funding pool with Santa Clarita's estimated share of population, based on SCAG forecasts, for agencies eligible to receive Article 8 funds (Avalon, Lancaster, Palmdale, portion of LA County). Since these funds are derived from sales taxes, the funding pool was estimated by applying MTA's 2007 fund estimate to MTA's estimated sales tax growth rate. MTA's sales tax growth rate in calculated as the rolling average of sales tax growth for the previous 12 years. Thus, the growth assumption for this funding source is consistent with MTA's.

AB 2766 South Coast Air Quality Management District (SCAQMD)

Description: Since 1991, local governments have received Assembly Bill (AB) 2766 funds to implement programs that reduce air pollution from motor vehicles. A motor vehicle registration fee surcharge of $6 per vehicle is collected by the Department of Motor Vehicles and subvened to the South Coast Air Quality Management District (SCAQMD) for disbursement.

Forty percent of four dollars of the AB 2766 fund (approximately $18.6 million in the South Coast Air Basin) is returned to the cities and counties to fund transportation-related projects that reduce air pollution. The AB 2766 Subvention Program provides a funding source for cities and counties to meet requirements of federal and state Clean Air Acts, and for implementation of motor vehicle measures in the SCAQMD Air Quality Management Plan (AQMP).

Policies & Guidelines: The legislation creating this revenue source provides for oversight of the use of these monies by local governments. Air districts that receive AB 2766 monies report annually to the California Air Resources Board on the use and results of the programs funded by the fees. Cities and counties under SCAQMD's jurisdiction provide annual program and financial information to the SCAQMD. This information is compiled by the AQMD and forwarded as an annual report to CARB.

Project Eligibility: Primary emphasis is directed towards those projects that provide cost-effective emissions reductions. CARB has defined cost-effectiveness as project funding divided by the total emissions reduced. Projects are considered cost-effective if emissions reduction costs are less than $20,000/ton or $10.00/pound of emissions reduced. Most studies, plan development, or research projects are demonstrative by nature and may be an exception to this threshold. However, funding of such projects should not significantly exceed ten percent of Subvention Funds received for the fiscal year.

Apportionment Method: AB 2766 revenue is distributed by the SCAQMD on a quarterly basis to cities and counties in the South Coast Air Basin based on their prorated share of the population.

Forecast Method: These funds are used by the city of Santa Clarita for specific air quality-related projects. Therefore, no AB2766 were assumed to be available for the TDP recommendations. However, certain transit projects could be eligible for this funding source in the future, should the city of Santa Clarita choose to use AB2766 funds for these projects.

Proposition A Local Return

Description: Twenty-five percent of the Proposition A sales tax is designated for the Local Return Program. The funds are to be used by cities and the County (jurisdictions) in developing and/or improving public transit, paratransit, and the related transportation infrastructure.

Policies & Guidelines: Proposition A Local Return funds are allocated to local jurisdictions based on their relative percentage share of L.A. County population. The Cities have discretion in choosing programs to be supported by Proposition A 25% funds, however, the projects must be approved by MTA before project implementation.

Project Eligibility: The Proposition A ordinance requires that Local Return funds be used exclusively to benefit public transit. Expenditures related to fixed route and paratransit services, Transportation Demand Management, Transportation Systems Management and fare subsidy programs that exclusively benefit transit are all eligible uses of Proposition A Local Return funds. Proposition A Local Return funds may also be traded to other jurisdictions in exchange for general or other funds.

Apportionment Method: Proposition A 25% revenues are allocated to local jurisdictions based on their relative percentage share of L.A. County population. The Cities have discretion in choosing programs to be supported by Proposition A 25% funds. However, they must be approved by LACMTA before project implementation.

Forecast Method: For the financial plan, it was assumed that Proposition A and C Local Return funds would be available as 20% local match for federal grants that would be secured to pay for revenue vehicle replacements and expansion. SCT would be eligible for additional Local Return funds if needed, but the amount available would be dependent on city policy and guidelines.

Funds are forecasted by multiplying the estimated funding pool with Santa Clarita's estimated share of Los Angeles County population based on SCAG population forecasts. Since these funds are derived from sales taxes, the funding pool was estimated by applying MTA's 2007 fund estimate to MTA's estimated sales tax growth rate. MTA's sales tax growth rate in calculated as the rolling average of sales tax growth for the previous 12 years. Thus, the growth assumption for this funding source is consistent with MTA's.

Proposition C Local Return

Description: Twenty percent of the Proposition C sales tax is designated for the Local Return Program. The funds are to be used by cities and the County (jurisdictions) in developing and/or improving public transit, Congestion Management Programs, bikeways and bike lanes, street improvements supporting public transit service, Pavement Management System (PMS) projects, paratransit, and related services to meet the Federal requirements of the Americans with Disabilities

Act (ADA). Local Return funds are allocated and distributed monthly to jurisdictions on a "per capita" basis.

Policies & Guidelines: Proposition C Local Return funds are distributed directly to the cities on a per capita basis. To expend the Proposition C 20% funds, local jurisdictions must submit a three-year plan to the MTA Board of Directors. The projects will receive funding if they meet the statutory requirement of being for "public transit purposes."

Project Eligibility: Projects eligible for Proposition C Local Return funds include: operating costs for fixed route and paratransit services, capital costs for vehicles and equipment, transit related TDM/TSM improvements, fare subsidy programs, safety and security programs. Stand alone amenities such as traffic signals, landscaping, storm drains are ineligible.

Under certain conditions approved by MTA, Proposition C Local Return funds can also be used for ridesharing programs, right-of-way improvements, facilities, recreational transit, bus stop improvements and maintenance, park-n-ride lots, non-exclusive school service, administration, transportation planning, engineering, design, specialized public transit, rail, synchronized signalization, congestion management, bike lanes/bikeways, street improvements and maintenance.

Apportionment Method: Per the Proposition C Ordinance, LACMTA distributes the "Local Return" funds directly to the cities on a per capita basis. To expend the Proposition C 20% funds, local jurisdictions must submit a three-year plan to LACMTA Board of Directors. The projects will receive funding if they meet the statutory requirement of being for "public transit purposes."

Forecast Method: For the financial plan, it was assumed that Proposition A and C Local Return funds would be available as 20% local match for federal grants that would be secured to pay for revenue vehicle replacements and expansion. SCT would be eligible for additional Local Return funds if needed, but the amount available would be dependent on city policy and guidelines.

Funds are forecasted by multiplying the estimated funding pool with Santa Clarita's estimated share of Los Angeles County population based on SCAG population forecasts. Since these funds are derived from sales taxes, the funding pool was estimated by applying MTA's 2007 fund estimate to MTA's estimated sales tax growth rate. MTA's sales tax growth rate in calculated as the rolling average of sales tax growth for the previous 12 years. Thus, the growth assumption for this funding source is consistent with MTA's.

Proposition A Incentive

Description: Five percent of the Proposition A 40% Discretionary revenues is used for transit incentives. Proposition A Incentive funds are used to support the bus operations of "eligible" operators when sales tax growth is less than the Consumer Price Index (CPI). The primary users are paratransit programs. Proposition A Incentive program funds are available for community transit services for transit riders, such as handicapped, who cannot use conventional transit as the program is used in lieu of the TDA Article 4.5 program.

Policies & Guidelines: Only the County of L.A., cities, and public transit operators are eligible to apply for Proposition A Incentive Program (5% of 40%) funds. Private operators or other agencies can only receive these funds through sponsorship by an eligible operator.

Project Eligibility: By policy, Proposition A Incentive Program funds are used for sub-regional paratransit programs, special transit programs, community transportation programs, and voluntary NTD reporting.

Apportionment Method: Funds are distributed based on priorities stated in the adopted 5% of 40% guidelines set by MTA. The Proposition A Incentive Program is funded from 5% of the Proposition A Discretionary revenues. Funds are allocated to service providers elected through a competitive process and who maintain certain financial services standards as described in the Incentive Program guidelines.

Forecast Method: Funds are forecasted by using a rolling average of funding amounts for the previous seven years. Thus, the 2008 forecast is based on historical and budget data, and these data are used in forecast years through 2014.

Proposition A Discretionary & STA

Description: Forty percent of Proposition A revenues is set-aside by MTA for Discretionary Programs to operators by formula that include: 1) transit operations; 2) transit service, and; 3) transit expansion. These three categories annually receive shares by formula that total 95% of the 40%, plus an adjustment for the CPI based on projected tax receipts. The annual amount is adjusted once during the mid-year reallocation. The remaining amount (5% of the 40%) goes to the Proposition A Incentive program.

The Public Transportation Account (PTA) is a transportation trust fund which derives its revenue from sales and use taxes on diesel fuel and gasoline. Funds can be used for state and local mass transportation related expenditures. Fifty percent of PTA funds are directed to the State Transit Assistance (STA) program. The remaining 50% is for statewide highway and specified transportation uses excluding rolling stock.

Of the PTA funds directed to the STA program, 50% is allocated to counties based on the ratio of each county's population to the State's population and 50% is allocated to counties based on the ratio of the total transit operators' revenues to total revenues of transit operators in the State.

Policies & Guidelines: Proposition A Discretionary funds (95% of the 40%) are allocated to MTA and municipal transit operators based on MTA's Formula Allocation Procedure (FAP). The FAP mandates that based upon audited transit performance data, each included operator's (as defined in PUC section 99207(d)) share of the Proposition A Discretionary funds available for allocation shall be calculated as follows: 50 percent of the operator's vehicle service miles, and 50 percent of the operator's passenger revenues divided by its base cash fare.

MTA allocates the Operator Revenue Share of STA funds to MTA and the Municipal Operators according to the Formula Allocation Procedure. The Population Share is allocated to MTA for Rail Operations. Santa Clarita Transit receives a portion of the Operator Revenue Share.

Project Eligibility: Proposition A 40% funds can be used for any transit purpose and have historically been used for bus capital and operations. In fact, MTA's current practice is to use all Proposition A 40% discretionary funds for bus operations.

The operator revenue share is eligible for transit operations or capital (interest earnings on the STA operator revenue share can be used only for bus operations). The population share is eligible for transit operations or roads, although it is allocated, by policy, to MTA for rail operations. Claims must be consistent with the Short-Range Transit Plan and the Short-Range Transportation Improvement Program.

Apportionment Method: Funds are allocated using the Formula Allocation Procedure (FAP) described above. Two of the components that make-up the FAP (vehicle service miles, passenger revenue) are assumed to grow annually at the same rate as between 2004 and 2005 (used in MTA's 2006 and 2007 fund estimates). The third component of the FAP, base fare, is assumed to remain constant at 2005 levels in all future years. These components determine the relative share of funds received by "included" and "eligible" operators.

Forecast Method: Funds are forecasted by multiplying the estimated Proposition A Discretionary (95% of the 40%) and STA Operator Revenue Share funding pool with Santa Clarita's estimated FAP share that is based on vehicle service miles and fare units. Since the funding pools are derived from sales taxes, the funding pool was estimated by applying MTA's 2007 fund estimate to MTA's estimated sales tax growth rate. MTA's sales tax growth rate in calculated as the rolling average of sales tax growth for the previous 12 years. Thus, the growth assumptions for these funding sources are consistent with MTA's.

Bus Service Improvement Program (BSIP) and Transit Service Expansion (TSE)

Description: The Bus Service Improvement Program (BSIP) addresses service improvements on overcrowded non-Metro bus lines used primarily by the transit dependent. Metro Operations and all other Los Angeles County transit operators, except Claremont, La Mirada and Commerce, participate in this program. This program is funded by Proposition C 40% Discretionary funds.

Transit Service Expansion (TSE) Program funding is available to nine municipal operators in the region for expansion or introduction of fixed route bus service in congested corridors. Santa Clarita Transit is one of the operators eligible for TSE funds.

Policies & Guidelines: Proposition C 40% funds are distributed at the sole discretion of the MTA Board. Proposition C 40% Discretionary funds are to be the "Funds of Last Resort". They are only available after all other reasonable funding opportunities have been exhausted. They are to be applied in accordance with the objectives, program priorities, and guidelines adopted by the Board. The TSE program is one that is consistently funded with Proposition C Discretionary funds.

Project Eligibility: The MTA Board adopted bus system improvement as its highest priority for the BSIP in September 1995. A working group that included MTA staff and municipal operators developed the BSIP. The group later expanded its membership to include Local Transit System operators.

The Los Angeles County Transportation Commission created the Transit Service Expansion program as a pilot program, in 1990. Services must meet criteria created by the Board to stay in the program. The program prefers new service to expansion of existing service.

Apportionment Method: The BSIP and TSE programs are funded from Proposition C 40% Discretionary. Funding levels were held at the 1996 level until FY 2002 when they were increased by CPl. Subsequent funding has increased by CPI each year.

Forecast Method: Funds are forecasted by growing the 2007 fund estimate by inflation. This growth assumption for these funding sources is consistent with the growth estimated by MTA in its 2007 funding estimate.

Foothill Transit Mitigation

Description: These additional funds were made available in order to keep whole the previous "included" operators' funding, while allowing Foothill to receive formula funding as an "included" operator.

Policies & Guidelines: Proposition C 40% funds are distributed at the sole discretion of the MTA Board. Proposition C 40% Discretionary funds are to be the "Funds of Last Resort". They are only available after all other reasonable funding opportunities have been exhausted. They are to be applied in accordance with the objectives, program priorities, and guidelines adopted by the Board. The Foothill Transit Mitigation program is one that is consistently funded with Proposition C Discretionary funds.

Project Eligibility: The Proposition C ordinance requires that projects using 40% Discretionary funds are to improve and expand rail and bus transit services. Examples of these projects funded with approval of the MTA Board include: Foothill Mitigation, Transit Service Expansion, Discretionary Base Restructuring, Bus System Improvements, Over Crowding Relief, Bus Security Enhancements, Consent Decree, Municipal Operator Transit Service Improvement Program, Safety and Security Improvements, Technology Improvements, and System Capacity Expansion – Operating and Capital.

Apportionment Method: The calculation takes Foothill's statistics (i.e. vehicle service miles, passenger revenue and base fare) from 1995 and adds them to the latest audited NTD statistics of the other "included" operators (with a 0.25% cap for Dial-A-Rides). That number is subtracted from the latest audited statistics for all operators. The difference is the growth in Foothill Transit since it became an "included" operator. Each operator's portion of its share (corrected for the DAR cap and excluding "eligible" operators and LADOT) is multiplied by the total amount of TDA Article 4 and STA. Dial-A-Ride operators do not receive mitigation.

Forecast Method: Funds are forecasted by using a rolling average of funding amounts for the previous seven years. Thus, the 2008 forecast is based on historical and budget data, and these data are used in forecast years through 2014.

Municipal Operators Service Improvement Program (MOSIP)

Description: The Municipal Operators Service Improvement Program (MOSIP) was adopted by the MTA Board in April 2001 and is intended to provide bus service improvements to the transit dependent in Los Angeles County by reducing overcrowding and expanding services. All of the

municipal operators in Los Angeles County participate in this program, and they are allocated funding according to FAP calculation methodology.

Policies & Guidelines: The municipal operators were pursuing State legislation to require MTA to provide "fair share" funding from Proposition C 40%. In exchange for the creation of this funding program, the municipal operators agreed not to pursue additional legislation.

Project Eligibility: MOSIP is intended to improve service to the transit dependent in Los Angeles County by reducing overcrowding and expanding services. The money can be used for bus operations and capital.

Apportionment Method: Funds are apportioned by calculating the weighted percentage of "included" and "eligible" operator's FAP shares, excluding MTA. The FAP shares of "included" and "eligible" operators, excluding MTA, was 32.13% of total shares for the 2006 funding estimate (MTA = 67.87%) and 29.62% of total shares for the 2007 funding estimate (MTA = 70.38%).

Forecast Method: From July 1, 2001 through June 30, 2006, MTA will have allocated to the "included" and "eligible" municipal operators in Los Angeles County $15 million per year plus a 3% per year cumulative annual increase.

This program was scheduled to end in 2006, but MTA has provided funding for 2007. For the Transit Development Plan, it is assumed that this program, or another program generating the same amount of funds, will continue. Transit operators that currently receive these funds have indicated that they would want compensation equal to the MOSIP program if the program were to be discontinued.

Transit Security

Description: Five percent of Proposition C revenue is used to improve and expand rail and bus security.

Policies & Guidelines: Proposition C Rail & Bus Security funds are allocated to MTA and municipal transit operators based on MTA's Formula Allocation Procedure (FAP). The FAP mandates that 90% of Proposition C 5% Rail & Bus Security funds are to be allocated based on unlinked passenger trips (boardings). The remaining 10% is allocated to MTA for internal security-related purposes.

Project Eligibility: Proposition C Rail & Bus Security funds can be used for new rail line security, security incentives, transit services and facilities, security improvement, special demonstration projects, or security contingency reserve projects.

Apportionment Method: Transit Security funds are allocated to "included" and "eligible" operators based on unlinked passenger trips (i.e. boardings).
Forecast Method: Funds are forecasted by multiplying the estimated Proposition C Transit Security (5%) funding pool with Santa Clarita's estimated share of unlinked passenger trips among "included" and "eligible" operators. Since the funding pool is derived from sales taxes, the funding pool was estimated by applying MTA's 2007 fund estimate to MTA's estimated sales tax growth rate. MTA's sales tax growth rate in calculated as the rolling average of sales tax growth for the previous 12 years. Thus, the growth assumption for this funding source is consistent with MTA's. Unlinked passenger

trips are assumed to increase or decrease based on the percent difference in boardings between 2004 and 2005 (used for MTA's 2006 and 2007 funding estimate, respectively).

Proposition A & C Interest

Description: Proposition A & C interest revenue is generated from the interest on funds in the Proposition A and Proposition C revenue accounts. These funds may be allocated to MTA and the municipal operators through the annual budget process.

Policies & Guidelines: Proposition A & C interest revenue is allocated at the discretion of the MTA Board. If any portion is allocated to MTA operations, then the municipal operators receive their share on a "fair share" basis of the Formula Allocation Procedure. These funds are allocated on a "fair share" basis in addition to the Formula Allocation Procedure (FAP). The formula for allocating "fair share" funds is different from the FAP.

Project Eligibility: Proposition A & C interest guidelines were adopted by the MTA Board in March 1996. However, the Formula Allocation Procedure must be used when: there is mitigation of an MTA operations shortfall or existing bus operations or capital programs that historically use the Formula Allocation Procedure; the funds are utilized in an indirect manner resulting in additional funds for the above-mentioned categories, or; the Board elects to use the funds for new programs or services in conjunction with the municipal operators and other affected jurisdictions.

Apportionment Method: Depending on the use of the funds determined by the MTA Board, Proposition A & C Interest funds are apportioned at the Board's discretion, through a version of the FAP, or by a method determined by the Board.

Forecast Method: Funds are forecasted by using a rolling average of funding amounts for the previous seven years. Thus, the 2008 forecast is based on historical and budget data, and these data are used in forecast years through 2014.

Fare Revenue

Description: Fare revenue reflects payments by passengers for local fixed route, commute connection, and regional express; and Dial-a-Ride (DAR) service.

Policies & Guidelines: Regular cash fare is $1.00 for motor bus and $2.00 for DAR, with discounts for senior and disabled passengers. Transfers within the system are free, and $0.25 to other systems. Multi-use cards and monthly passes are available.

Project Eligibility: Any project at the discretion of the City.

Apportionment Method: At the discretion of the City.

Forecast Method: Fare revenue was estimated for local, commuter express, and DAR service by multiplying the average fare for each service with estimated passenger boardings (the average fare takes into account the base fare, discounts for reduced fares, and discounts related to pass sales). It was assumed that SCT's base fare would increase by 12% in 2008 and 2011 (a 12% increase to the

base fare results in an average fare increase of approximately 7% for local service and 10% for commuter service).

Operating Revenue

Description: Operating revenues are funds from miscellaneous funding sources related to operations. These include lease and rental income, parking fees, and the Transit Mitigation Fee.

Policies & Guidelines: At the discretion of the City.

Project Eligibility: Any project at the discretion of the City.

Apportionment Method: At the discretion of the City.

Forecast Method: Rolling average of the previous seven years.

County Share Contribution

Description: Los Angeles County's share of SCT service provided to unincorporated areas of the County.

Policies & Guidelines: Based on agreement between SCT and Los Angeles County.

Project Eligibility: Any project at the discretion of the City.

Apportionment Method: Based on the amount of service hours operated in Los Angeles County.

Forecast Method: Based on agreement between SCT and Los Angeles County. A County Participation Ratio is calculated based on the number of service hours operated in Los Angeles County. The ratio is applied to total O&M costs and some capital for those routes that operate in both Santa Clarita and the County. For the cash flow model, it was assumed that the current County Participation Ratios would be the same in the future.

FTA Section 5307 Urbanized Area

Description: This program makes Federal resources available to urbanized areas and to Governors for transit capital and operating assistance in urbanized areas and for transportation related planning. Federal regulations allow preventive maintenance costs to be funded with Section 5307 formula funds.

Santa Clarita draws Section 5307 funds from two urbanized areas: 1) Los Angeles-Long Beach-Santa Ana; and 2) Santa Clarita.
Policies & Guidelines: Funds are allocated nationally by formula to each urbanized area based on national guidelines. For the Los Angeles UZA, MTA distributes the funds based on the Capital Allocation Procedure and inclusion in the MTA Budget. The Capital Allocation Procedure specifies that 84% is distributed by formula and 16% to discretionary capital projects. In accordance with federal requirements, 1% of the countywide allocation of Section 5307 bus capital funds is set-aside for Transit Enhancement Activities (TEA) qualifying projects. All discretionary funds are distributed

to eligible projects by the MTA Bus Operating Subcommittees' annual selection process involving all countywide bus operators and as concurred by the MTA Board of Directors.

The funds for the Santa Clarita UZA are distributed directly to Santa Clarita through the Governor's office, and are not subject to the one percent TEA set-aside.

Project Eligibility: Eligible purposes include planning, engineering design and evaluation of transit projects and other technical transportation-related studies; capital investments in bus and bus-related activities such as replacement of buses, overhaul of buses, rebuilding of buses, crime prevention and security equipment and construction of maintenance and passenger facilities; and capital investments in new and existing fixed guideway systems including rolling stock, overhaul and rebuilding of vehicles, track, signals, communications, and computer hardware and software. All preventive maintenance and some Americans with Disabilities Act complementary paratransit service costs are considered capital costs.

Funds subject to the one percent TEA set-aside must be used for transit enhancement activities such as historic preservation, landscaping, public art, pedestrian access, bicycle access, and enhanced access for persons with disabilities.

Apportionment Method: Per federal guidelines, funds for the Los Angeles UZA (which has a population greater than 200,000) are apportioned based on a combination of bus revenue vehicle miles, bus passenger miles, fixed guideway revenue vehicle miles, and fixed guideway route miles as well as population and population density. MTA apportions the 5037 funds for the Los Angeles UZA pursuant to the current Capital Allocation Procedure [84% allocation prescribed by formula and 16% discretionary (which includes 1% TEA set-aside)].

Funds for the Santa Clarita UZA (which has a population between 50,000 and 199,999) are apportioned based on population and population density (in calculating population density, the Santa Clarita service area was assumed to be 54 square miles based on data from the National transit Database). Funds for the Santa Clarita UZA have not restrictions and can be used for any project subject to federal guidelines.

Forecast Method: Given that it is not possible to predict funding levels given the complexity of the federal formula and the numerous transit operators involved, 84% formula funds for the Los Angeles UZA were forecasted assuming that there would be no changes to funding levels until the end of the current federal Safe, Accountable, Flexible, and Efficient Transportation Equity Act - A Legacy for Users (SAFETEA-LU) in 2009. In 2010, funding was increased at 1.4% annually to match the expected growth in the Federal Highway Trust Fund. In 2010, funding was assumed to increase again by double the Federal Highway Trust Fund growth rate (2.8%) due to another re-authorization. After 2010, funding was increased at 1.4% annually to match the expected growth in the Federal Highway Trust Fund. These assumptions are consistent with those may be MTA.

The 16% Discretionary and 1% TEA funds are forecasted by using a rolling average of funding amounts for the previous three years (three years were used instead of seven years because data are inconsistent over the longer period due to the creation of the Santa Clarita UZA). Thus, the 2008 forecast is based on historical and budget data, and these data are used in forecast years through 2010.

Given that it is not possible to predict funding levels given the complexity of the federal formula and the numerous transit operators involved, funds for the Santa Clarita UZA were forecasted based on one-half of the growth rate of population plus population times population density (Population + (Population x Population Density). This assumption applies to all years until the end of the current federal Safe, Accountable, Flexible, and Efficient Transportation Equity Act - A Legacy for Users (SAFETEA-LU) in 2009. In 2010, funding is increased at 1.4% annually to match the expected growth in the Federal Highway Trust Fund plus one-half of the growth rate of population plus population times population density. In 2010, funding was assumed to increase again by double the Federal Highway Trust Fund growth rate (2.8%) due to another re-authorization, plus one-half of the growth rate of population plus population times population density. After 2010, funding was increased at 1.4% annually to match the expected growth in the Federal Highway Trust Fund, plus one-half of the growth rate of population plus population times population density

FTA Section 5308 Clean Fuels

Description: The Clean Fuels Formula Grant Program is designed to accelerate the deployment of advanced bus technologies. The program offers an opportunity to incorporate low-emission vehicles into the mainstream of the nation's transit fleets and supports FTA's efforts to advance emerging clean-fuel technologies. Additionally, this program was developed to assist transit systems in purchasing low emissions buses and related equipment, constructing alternative fuel fueling facilities, modifying existing garage facilities to accommodate clean fuel vehicles and assisting in the utilization of biodiesel fuel.

Policies & Guidelines: The FTA develops policies and guidelines for projects selected by Congress. Up to 25 percent of funds can be used for "Clean Diesel" buses. A bus built with lightweight composite materials can also be qualified as a clean fuels bus for this program.

Project Eligibility: Eligible projects include the purchase or lease of clean fuel buses (including buses that employ a lightweight composite primary structure), the construction or lease of clean fuel buses or electrical recharging facilities and related equipment for such buses, and construction or improvement of public transportation facilities to accommodate clean fuel buses.

Apportionment Method: Funds are allocated at the discretion of the Secretary of Transportation, although Congress fully earmarks all available funding. This program was previously funded under the FTA 5309 Bus and Bus Facilities program.

Forecast Method: As a discretionary fund source, it is difficult to forecast the amount of Section 5308 Clean Fuels funding that will be available in the future. In the cash flow model, it is assumed that 80% of replacement and expansion vehicle costs would be funded with Section 5308 Clean Fuels, Section 5309 Bus and Bus Facilities, and/or Congestion Mitigation & Air Quality (CMAQ) funds. In reality, the fund source (or combination) used will depend on available funds and eligibility of the capital project. As funds have been earmarked by Congress through 2009, these funds would not become available until at least 2010.

FTA Section 5309 Bus & Bus Facilities

Description: Section 5309 Bus and Bus Facilities Discretionary Program funds are to be used for capital projects that will benefit the transit system. In a typical year, approximately half of Section

5309 Bus and Bus Facilities funds are spent for construction or rehabilitation of facilities and half for acquisition of vehicles.

Policies & Guidelines: The FTA develops policies and guidelines for projects selected by Congress.

Project Eligibility: Projects funded through the Section 5309 Bus and Bus Facilities Discretionary Program include: purchase of buses for fleet and service expansion, bus-related equipment, paratransit vehicles, construction of bus-related facilities, transfer facilities, bus malls, and transportation centers, bus preventive maintenance, and passenger amenities such as passenger shelters and bus stop signs, accessory and miscellaneous equipment such as mobile radio units, supervisory vehicles, fareboxes, computers, shop and garage equipment, and costs incurred in arranging innovative financing for eligible projects.

Apportionment Method: Funds are allocated at the discretion of the Secretary of Transportation, although Congress fully earmarks all available funding.

Forecast Method: As a discretionary fund source, it is difficult to forecast the amount of Section 5309 Bus and Bus Facilities funding that will be available in the future. In the cash flow model, it is assumed that 80% of replacement and expansion vehicle costs would be funded with Section 5308 Clean Fuels, Section 5309 Bus and Bus Facilities, and/or Congestion Mitigation & Air Quality (CMAQ) funds. In reality, the fund source (or combination) used will depend on available funds and eligibility of the capital project. SCT is eligible to receive these funds and has used them in the past. As funds have been earmarked by Congress through 2009, these funds would not become available until at least 2010.

FTA Section 5316 Job Access and Reverse Commute (JARC)

Description: Job Access grants are intended to provide new transit service to assist welfare recipients and other low-income individuals in getting to jobs, training, and child care. Reverse Commute grants are designed to develop transit services to transport workers to suburban job sites.

Policies & Guidelines: A recipient of JARC funds must certify that projects selected were derived from a locally developed, coordinated public transit-human services transportation plan; and, the plan was developed through a process that included representatives of public, private and non-profit transportation and human service providers; participation by the public; and included those representing the needs of welfare recipients and eligible low-income individuals.

Project Eligibility: Eligible activities for Job Access grants include capital and operating costs of equipment, facilities, and associated capital maintenance items related to providing access to jobs. Also included are the costs of promoting the use of transit by workers with nontraditional work schedules, promoting the use of transit vouchers, and promoting the use of employer-provided transportation including the transit benefits. For Reverse Commute grants, the following activities are eligible—operating costs, capital costs and other costs associated with reverse commute by bus, train, carpool, vans or other transit service.

Apportionment Method: Funding is to be allocated by formula and provides that 60% of funds available be allocated to UZAs with populations of 200,000 or more persons (Los Angeles UZA) and 20% to urbanized areas with populations ranging from 50,000 to 200,000 persons (Santa Clarita

UZA). Formula allocations are based upon the population of welfare recipients and eligible low-income individuals in a state or metropolitan area. These figures are drawn from Census 2000 figures. States and designated recipients must solicit grant applications and select projects competitively.

The JARC program is a statewide competitive formula grant programs. Applicants may include local government agencies, Metropolitan Planning Organizations (MPOs), social services agencies, tribal governments, private and public transit operators and nonprofit organizations. Applicants apply for funds based upon their population. Areas with population over 200,000 send their applications to their MPO, which selects projects for grant funding from the Federal Transit Administration (FTA). Caltrans selects projects for grant funding from FTA for applicants in areas with 50,000 to 200,000 populations, and for areas with populations of 50,000 or less.

Forecast Method: Recipients must apply for funds through Caltrans. Caltrans is awaiting a final rule from FTA before determining how JARC funds will be distributed, but they will be on a competitive basis. SCT received a JARC grant in 2004 for $396,504 to fund a guaranteed ride home program. Since it is beyond the scope of this project to determine the population of welfare recipients and eligible low-income individuals, the amount assumed for SCT was on a per capita basis based on the 2004 grant. Since SCT has not yet applied for a JARC grant, it is assumed that funding will not start until 2008.

FTA Section 5317 New Freedoms

Description: The purpose of this program is to encourage services and facility improvements, and to provide new public transportation services and public transportation alternatives beyond those currently required by the Americans with Disabilities Act. These improvements should assist individuals with disabilities with transportation, including transportation to and from jobs and employment support services. The program provides a new formula grant program for associated capital and operating costs.

Policies & Guidelines: New Freedom funds may be used for 80 percent of capital expenses and 50 percent of operating expenses. There is no limitation on the amount of funds that can be used for operating expenses. Funding is available for transportation services provided by public, non-profit, or private-for-profit operators. Assistance may be provided for a variety of transportation services and strategies directed at assisting persons with disabilities address unmet transportation needs.

Project Eligibility: Funds are available to support the capital and operating costs of new public transportation services and public transportation alternatives that are beyond those required by the Americans with Disabilities Act, such as: Purchasing vehicles and supporting accessible taxi, ride-sharing, and vanpooling programs; Providing paratransit services beyond minimum requirements (3/4-mile to either side of a fixed route), including for routes that run seasonally; Making accessibility improvements to existing transit and intermodal stations not designated as key stations; Supporting voucher programs for transportation services offered by human service providers; Supporting volunteer driver and aide programs; Acquisition of transportation services by a contract, lease, or other arrangement; Supporting mobility management and coordination programs among public transportation providers and other human service agencies providing transportation.

Apportionment Method: Funding is to be allocated by formula and provides that 60% of funds available be allocated to UZAs with populations of 200,000 or more persons (Los Angeles UZA) and 20% to urbanized areas with populations ranging from 50,000 to 200,000 persons (Santa Clarita UZA). Formula allocations are based upon the number of persons with disabilities residing in a state or metropolitan area, including elderly persons with disabilities. These figures are drawn from Census 2000 figures. States and designated recipients must solicit grant applications and select projects competitively.

The New Freedoms program is a statewide competitive formula grant programs. Applicants may include local government agencies, Metropolitan Planning Organizations (MPOs), social services agencies, tribal governments, private and public transit operators and nonprofit organizations. Applicants apply for funds based upon their population. Areas with population over 200,000 send their applications to their MPO, which selects projects for grant funding from the Federal Transit Administration (FTA). Caltrans selects projects for grant funding from FTA for applicants in areas with 50,000 to 200,000 populations, and for areas with populations of 50,000 or less.

Forecast Method: Recipients must apply for funds through Caltrans. Caltrans is awaiting a final rule from FTA before determining how New Freedoms funds will be distributed, but they will be on a competitive basis. SCT received a JARC grant in 2004 for $396,504 to fund a guaranteed ride home program. Since it is beyond the scope of this project to determine number of persons with disabilities, the amount assumed for SCT was on a per capita basis based on the 2004 JARC grant, adjusted for FTA's appropriation of FTA funding. Since SCT has not yet applied for a New Freedoms grant, it is assumed that funding will not start until 2008.

Congestion Mitigation & Air Quality (CMAQ)

Description: The CMAQ program provides a flexible funding source to State and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act. Funding is available for areas that do not meet the National Ambient Air Quality Standards (non-attainment areas) as well as former non-attainment areas that are now in compliance (maintenance areas).

Policies & Guidelines: The formula for distribution of funds considers an area's population by county and the severity of its ozone and carbon monoxide problems within the non-attainment or maintenance area, with greater weight given to areas that are both carbon monoxide and ozone non-attainment/maintenance areas.

Project Eligibility: Typical projects include: public transit improvements, high occupancy vehicle lanes, employer-based transportation management plans and incentives, traffic flow improvement programs, fringe parking facilities servicing multiple occupancy vehicles, shared-ride services, and bicycle and pedestrian facilities.

Apportionment Method: Funds are distributed to MTA through the State Highway Account by Caltrans based on established formula. MTA distributes the funds locally through the Call for Projects. Funds may not be provided for projects that result in construction of new capacity available to single occupant vehicles.

Forecast Method: As a discretionary fund source, it is difficult to forecast the amount of CMAQ funding that will be available in the future. In the cash flow model, it is assumed that 80% of

replacement and expansion vehicle costs would be funded with Section 5308 Clean Fuels, Section 5309 Bus and Bus Facilities, and/or Congestion Mitigation & Air Quality (CMAQ) funds. In reality, the fund source (or combination) used will depend on available funds and eligibility of the capital project. SCT currently utilizes this funding source. As funds have been earmarked by Congress through 2009, these funds would not become available until at least 2010.

Appendix 3. Relationship between Transportation Development Plan and CAD/AVL Procurement

The purpose of this memo is to accelerate the discussion of issues that to be raised in later chapters of the TDP text. It would be highly worthwhile to coordinate the two efforts more closely. Given that SCT is considering moving forward with the issuance of an RFP for a fixed-route Computer Aided Dispatching/Automatic Vehicle Location/Scheduling (CAD/AVL/Scheduling) package, I would like to call attention to key interrelationships of the TDP with this ITS procurement.

Features the ITS should have to support the likely final TDP

The CAD/AVL/scheduling package can have a long life. Although servers and local PCs might change every few years, the other hardware and much of the software will be retained with only occasional routine upgrades and debugging patches. If the package doesn't have certain capabilities installed at the outset, it could be very costly and troublesome to add them later. Thus, the RFP should be written such that key capabilities are included at the outset, even if some of them remain latent for a while.

Here are three capabilities recommended to receive closer attention. With each item is an explanation of its importance:

1) <u>The desirability of hybrid operations capability.</u>

Hybrid services are those that are neither pure demand-responsive nor pure fixed route. Three examples are:

1. demand-responsive feeders to fixed routes
2. fixed route-deviations upon 1 to 2 hour advanced request, and
3. fixed routes that are dispatched from a terminal only when at least one person calls in to make a trip request prior to scheduled departure time.

These types of hybrid services have multiple potential applications:

- Santa Clarita has many communities with limited access to arterials due to walls and water runs. It is too far to walk to an arterial to catch a 40-foot bus for many of the residences situated far from an entrance. A bus could deviate in one entrance and out another, eliminating any stops along the arterial that are situated between these entrances.

- As can be seen in the tables in the draft chapters summarizing the current situation, DAR service is quite unproductive, usually only a few persons per hour. Installing the less costly alternative of route deviation in select locations would allow shifting of DAR to areas currently unserved or increase in the service span in existing areas, for the same operating budget.

- Fast growing areas with no prior service are difficult to assess when designing the initial routing. Even the best planners find that routes need to be changed once service is initiated. Route deviation capable scheduling software allows routes to be easily changed as demand reveals itself over time.

Popular deviation points can be become fixed stops while less popular stops become optional stops. Furthermore, as demand builds, the route can become a fixed route for higher demand periods of the day. Eventually, when a larger vehicle becomes necessary, the smaller vehicle can be reassigned to probe a new area to start the process anew.

- CAD technology is mature enough to be able to manage particular vehicles performing more than one variety of service plan over the course of a day. It is also realistic that the same area within Santa Clarita could have a combination of DAR, hybrid and/or fixed-route services depending upon the time of day. This would better match supply to demand. But, again, this necessitates an underlying hybrid-capable scheduling package that can support both manage vehicles and assign demand-responsive trips when there is more than one type of service option available.

2) Statistical analysis of archived data suitable for route planning.

The primary focus of the RFP is currently on real-time monitoring and operations. The second focus should be on use of the archived data. These two categories of uses reinforce one another in "Quality Feedback Loops." See the figure below.

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Although CAD/AVL vendors typically claim that they provide reports suitable for route planning, they don't unless specifically asked. Instead, they provide summary data such as total hours operated, total miles driven and logbook information (e.g. driver assignments to particular vehicles and logon/logoff times.)

The AVL subsystem generates an enormous amount of data usable for planning. Every time it routinely polls a vehicle (typically about every 30 to 60 seconds) it logs exact time and location. When the vehicle arrives at a stop, it logs exact time of doors opening and closing. If Automatic Passenger Counting (APC) is also installed, it stores boarding and alighting counts as well.

This data is highly useful for studying schedule adherence and demand by time of day. Multiple samples of the same scheduled run over many days would allow average and standard deviation statistical descriptors to be computed. At Santa Clarita Transit, frequent updates to these statistics would be especially useful:

- Fast growing traffic and population, and periodic opening of new roads causes fast changing travel time and demand statistics. This means that scheduled running times and headways should be changed regularly. But data gathering surveys to inform these changes are costly to do on a frequent basis without ITS.

- The array of services Santa Clarita Transit provides today and expects to provide tomorrow is quite varied (highway commuter, local, feeder, fixed route, DAR, subcontracted senior service). There are many possibilities for synergies between connecting services, for re-pairing of route segments and conversions of service types to increase productivity or better meet needs of market niches. However, it is very hard to evaluate the continued suitability of particular services and to consider conversion to other types without high-quality statistics that are collected on a frequent basis.

- Contract operator performance is very difficult to assess in Santa Clarita. Higher quality planning data allows easier determination of responsibility. For instance, traffic conditions may be beyond what the operator can control, in which case SCT and contractor can jointly develop new

schedules. These should balance the need for efficient schedules with short layovers with the need for realistic schedules that can be met for a high percentage of runs. On the other hand, there may also be factors the contract operator should be able to control. These include late pullouts, vehicle breakdowns, driver shortages, etc.

- High-quality statistical data forms the basis for high-quality predictive algorithms when Real-Time Passenger Information (RTPI) is in place and when designing optimal traffic signal timing to passively favor transit and Transit Signal Priority (TSP) to actively favor transit.

3) Easy addition of peripherals.

Even when not of a high priority today, additional features should still be considered early on. These often can be easy to install later if provision is made. This entails reference to the appropriate interfacing standards. It also requires specification of sufficient reserve capacity in communications and data storage systems for future growth of functionality.

Interactive Voice Recognition (IVR) is already included in the RFP, but there might be other features SCT will want to add over time. For example, SCT might want to install a Maintenance Management System (MMS) that is connected to various vehicle sensors. This enables real-time monitoring of vehicles for incipient failures. If it is serious, an alarm will show up on the CAD system. A mid-day replacement of a vehicle can be arranged. If it is less urgent, the appropriate maintenance staff can be staged to perform evening repairs.

As with other ITS applications, there is a post-processing side to MMS in addition to real-time monitoring. Statistical data about engine and other vital signs allows development of optimal intervals for maintenance and component replacement. The benefits include more reliable service, fewer costly repairs, fewer unnecessary parts purchases and lower inventory levels. This same database is also highly useful if there is a change in contract operator, as the incumbent may leave with extensive vehicle records.

Issues with the current state of the scheduling software market

There are also market competition issues that need to be considered when timing the release of an RFP. An inadequate selection of vendors may necessitate the use of an undesirable one. This vendor may provide poor customer support, may cause delays in system implementation and/or may charge monopoly prices for initial purchase and for system upkeep. Although use of a turnkey procurement model increases the chances of delivery on time because of the financial incentives and accountability placed upon the system integrator, it can not guarantee it. Recent experience shows numerous late software installations even using a turnkey model.

SCT has an immediate need for a CAD/AVL system for its fixed-route operations, in particular to be able to monitor service quality and contract operator performance. Thus, it is tempting to proceed with an RFP that will deliver a limited product to address these most immediate needs. On the other hand, if features likely to be needed to support the TDP will be needed within a few years, these should also be specified now and pilot testing of these latent features should be part of the acceptance process.

To address the urgent need to monitor service quality, there is an interim solution. Portable GPS/data logging units can be installed on a sample of the fleet to generate a sample of schedule adherence statistics. This could be done for a very modest amount of investment capital (a few thousand dollars) but would require staff time to download and analyze the captured data.

Unfortunately, the current number of scheduling software vendors is limited. There are several for pure demand-responsive operations, but only two, *Trapeze* and *Giro*, for medium to large fixed-route operators. (There is a third, *Versyss*, but their marketing seems to be totally ineffective, which suggests their customer support would be as well.) When it comes to route-deviation capability, only *Trapeze* has one that is both in revenue service and integrated with a CAD/AVL system. There are several other firms which claim that they have scheduling software, but these are generic and tend to be problematic for use in a transit-specific environment. Transit has a unique bidding and operating hour tracking/payment system using "platform hours". Nor have these firms developed transit-specific post-processing packages. Moreover, these software systems are largely untested in connection with ITS.

It is in SCT's interest to generate some competition for *Trapeze*. If route-deviation were to be added to the RFP specifications, *Giro* is presently the only firm likely to respond besides Trapeze. Furthermore, *Giro* would only respond if at least one previous ITS-assisted route deviation application was not a rigid requirement. It would, however, respond if it were allowed to perfect the route-deviation modifications during an installation of *Hastus,* their fixed-route package. (This is according to Daniel Pelletier, Senior Account Manager at *Giro*.)

Some additional issues related to ITS

Below is an outline of additional details to be discussed and additional issues that are raised by the introduction of ITS in support of the TDP. These will be addressed at length in the text of the TDP. But they are raised here in case any seem of special interest to SCT staff for more immediate discussion.

A) How the installation of a CAD/AVL/Scheduling package can improve real-time operations:

Fixed route

- active intervention using rehearsed recovery strategies during delays
- active holding/dispatching at TCs to improve transfer reliability
- transit signal priority at key bottlenecks
- real-time passenger information updates
- more frequent updates of schedules based on regular statistical analysis improves schedule realism
- possible use of one or two standby vehicles during peak hours for insertions when needed for crowding or for anticipated failures to make transfer points
- covert alarm for driver and passenger security
- better monitoring of contractor operations by SCT staff
- Option -- monitoring of vehicle vital signs to improve service reliability

Demand-responsive

- development of quasi-routes or skeleton-routes based on statistical analysis
- filling in these quasi-routes daily with occasional riders
- re-optimization of each vehicle's route and issuing of new manifests when there are major delays, additions, cancellations, etc.
- using DAR vans open to the general public only in fringe/very low demand areas to connect with fixed route services (checkpoint service) or to make a very local trip (zone service)
- dispatcher can override computer advice to assign either route-deviation or demand-responsive vehicle
- in order to prevent abuse, fare can be higher for non ADA-eligible or those under 60 if they want to request a deviation

B) How the installation of CAD/AVL can improve planning

- much easier and more frequent schedule adherence checking
- much easier and more frequent passenger counts
- identification of chronic delay and overcrowding points
- better selection of appropriate service by time of day and location
- assignment of appropriate vehicle size by time of day and route
- "what-if" analysis of new potential schedules if scheduling package has travel-time analysis and/or passenger count analysis re-optimizing modules

C) Institutional and re-organizational issues

SCT staff capabilities

- obtain in-house capability to either do dispatching or closely supervise dispatching by contractor
- obtain in-house capability to analyze post-processed archived data (which includes full GIS capability instead of using the Technical Services Dept.)
- obtain in-house capability to use scheduling software to their full capability (requires some engineering, math or operations research background)

SCT responsibilities

- possibly generate runcuts for vehicles and crews instead of contractor
- possibly do all call-taking and scheduling of DAR and future route-deviations with own call-taking staff

D) Vehicle issues

Current fleet does not include 30-foot long vehicles.

- these will be needed in the future if deviations are done into neighborhoods
- traditional argument is that one needs 40 footers for peak trips anyway and thus it is simplest to just use them all day (This is addressed by using the 30 footers on a variety of uses over the day -- *MetroLink* feeders at peak hours, lower demand routes most of the day, night substitutes for larger buses when deviations are allowed, sharing with the Senior Center operator for subscription trips having high ridership, etc.)

Adequate vehicle accommodation at stops and holding points

- places where buses/vans must queue should be improved to accommodate passing (such as the Adult Day Care Center)

Vehicle ownership

- installation of expensive equipment in a privately-owned fleet?
- complexity of a mixed ownership fleet when doing hybrid services
- ownership of all maintenance-related data if a contractor is replaced