Antelope Valley Transit Authority
2011 Line-by-Line Analysis
Chapter 4: Recommendations

4.0 Introduction

This chapter brings together the findings of the ridecheck, fieldwork by project team members, and discussions with AVTA transit staff to identify and analyze alternatives and make recommendations for transit improvements to AVTA transit network.

As noted in previous chapters, many AVTA routes perform very well in terms of ridership and productivity. This chapter identifies options that are intended to enhance productivity, provide more service where it is needed, improve service reliability, and achieve cost savings in light of reduced operating funding. AVTA's success in providing mobility to AVTA residents is reflected in requests for route extensions and/or new routes in neighborhoods not currently served.

The following section includes several major issues that are addressed in this line-by-line analysis of AVTA service. The discussion of each issue below provides a framework in which specific proposals are developed and assessed.

Section 4.1 summarizes issues and responses. Section 4.2 addresses alternatives and recommendations by route. Section 4.3 presents a package of recommended improvements, along with ridership and cost or savings estimates for each.

4.1 Strategic Alternatives in Response to Major Issues

This section discusses alternatives and proposes recommendations related to major issues identified by Antelope Valley Transit Authority at the outset of the line-by-line analysis.

More Frequent Service versus New Routes

Are there routes in AVTA system whose ridership warrants more frequent service? How important is service frequency on existing routes versus the establishment of new routes?

Given limited resources, a decision to establish a new route must be weighed against opportunities to provide more frequent service in areas where there is proven demand. This dilemma is common to all transit systems: do we provide greater coverage (operate service in all parts of the service area) or do we provide greater frequency (operate more service along high-demand routes)?

There is no single "right" answer to the coverage versus frequency question. The recommendations included in this report lean toward frequency rather than coverage, because (1) AVTA transit network operates in a large and generally low-density service area, making it cost-prohibitive to serve every neighborhood, (2) the ridecheck revealed several instances of overcrowding, and (3) several productive routes or route segments would benefit from additional service.

Schedules

Aside from changes to frequency of service, can the schedules be adapted to make it easier for customers to remember departure times? Are there opportunities for enhanced efficiency through scheduling techniques such as interlining?

The recommendations in this report address schedules for AVTA routes. Schedule adherence is an issue on several routes, and the ridecheck provides detailed data that can be used to prepare more appropriate schedules. Recommendations regarding schedules primarily address running time issues and may be thought of as "tweaks" to enhance service reliability rather than wholesale scheduling revisions.

Some routes operate at times that are difficult for the average transit rider to remember without consulting a schedule. Headways of every 15, 20, or 30 minutes are known as "clockface" headways (because a route serves any given stop at the same time each hour) and are usually easier for riders to remember. Only a few routes operate consistently on clockface headways.

Even with clockface headways, times change at certain points during the day due to break requirements for operators. To the extent possible, consistent schedules are proposed that minimize time changes due to operator breaks. A test of alternate ways of addressing operator breaks such as "operator drop backs" on one or two routes is suggested to determine whether this would be feasible on the AVTA network.

Overcrowding

Most instances of overcrowding are on Route 1. Table 4.1 lists the number of overcrowded trips (defined by a load of at least 125 percent of seated capacity) by route and time of day. The ridecheck found nine overcrowded trips on three AVTA routes. Route 1 had four northbound trips (two in the morning peak and two in the midday) and three southbound trips (two in the afternoon peak and one on Saturday) that were overcrowded. Two of these seven instances of overcrowding occurred after a "long headway" (i.e., when it has been 50 minutes instead of 30 minutes since the last bus). The Route 2 overcrowded Saturday trip was almost certainly shopping-related, while the Route 9 overcrowded trip occurred at the afternoon bell time for Pete Knight High School.

Table 4.1
Overcrowded Trips by Route and Time of Day

Route	# of Overcrowded Trips				
	Total	Weekday AM	Weekday Midday	Weekday PM	Saturday
1	7	2	2	2	1
2	1	0	0	0	1
9	1	0	0	1	0
Total	9	2	2	3	2

Source: Ridecheck Data, November 2009

The definition of an overcrowded trip deserves emphasis. On a 39-seat bus, 125 percent of seated capacity is 48.8, so a load of 49 or greater is overcrowded. This definition differentiates between standing loads, which reflect productive service on heavily-used routes, and "crush" loads.

Poor Performance

What actions can be taken to improve the productivity of poorly performing routes? Are there restructuring opportunities? Can headways be adjusted to reflect demand? Are there opportunities to trim routes by discontinuing unproductive early or late trips? At what point is route discontinuation a reasonable option?

Most AVTA routes are reasonably productive in terms of boardings per revenue hour of service. Previous AVTA studies proposed minimum weekday productivity levels varying by type of route:

- 25 boardings per revenue hour for core routes (Routes 1, 2, 3, 4, 11, 12, and school routes);
- 15 boardings per revenue hour for feeder routes (Routes 5, 6, 7, and 9);
- 12 boardings per revenue hour for rural routes (Lake Los Angeles Express).

Any route not meeting these minimum levels is a candidate for discontinuation, although there may be other options available to improve performance. As a point of comparison, the system average calculated from the ridecheck results is 26.4 boardings per revenue hour.

Route segments are also examined in this report. Productivity is generally lower at the residential ends of most transit routes, but in some cases the decrease is noticeably greater. One potential strategy to address this issue is to short-turn selected trips at a point where demand drops off on a given route.

Discontinuing unproductive early or late trips is frequently done by transit systems facing a budget deficit. The concept is a good one, but careful consideration is required before implementation. Late trips in particular often function as “safety valves” for passengers who occasionally must work late. Knowing that a late bus is available can be important factor in the decision to begin or continue transit use.

4.2 Alternatives and Recommendations for Existing AVTA Service

This section addresses existing Antelope Valley Transit Authority routes. Each route is considered in turn, with an evaluation of potential alternatives and a list of recommended actions. Costs are calculated using the 2012 unit cost of $67.47 per revenue hour.

Route 1

Route 1 tops all routes in ridership on weekdays, Saturday, and Sunday. The peak direction of ridership demand is northbound in the morning peak and southbound at other times of the day. Route 1 ranks highly in productivity, subsidy per passenger, and farebox recovery ratio, but is not the best in any category because of the high service levels on these routes.

Route 1 connects the major trip generators in Lancaster and Palmdale and serves the three major transfer locations within the AVTA route network (Lancaster City Park, Palmdale Transportation Center, and 47th Street East & Avenue S). With over 2,500 weekday boardings, Route 1 serves as the spine of the AVTA transit network.

Issues related to Route 1 include:

- Overcrowding. Seven of the nine instances of overcrowding occurred on this route.

- Long travel times. Route 1 has the longest one-way running time of any local route in the system. Portions of the route are congested and have multiple traffic signals (e.g., 10th Street West in the vicinity of the Antelope Valley Mall).

- Uneven headways. The prevailing headway during weekdays is 30 minutes, but there are several trips which operate 50 minutes apart. As noted earlier, a wider time gap between buses is one cause of overcrowding.

Three options are identified for Route 1:

1. ***No change – adjust running times only***. The route serves all major transfer points and the major north-south corridor in the Antelope Valley, with high ridership and good productivity. Under this and subsequent options, minor changes would be made to running times in the schedule. .

2. ***Provide consistent 30-minute service all day on weekdays***. This would require one additional bus.

3. ***Provide limited-stop service on this route in the morning and afternoon peak hours***. This option would not only reduce travel times on select trips, but would also improve frequencies in the peak morning hour to one bus every 15 minutes for passengers traveling between major stops. This would require three additional buses in the morning peak. One bus would operate limited-stop in both peak periods and provide local service in the midday; a second bus would operate local service in the afternoon peak; a third bus would be needed only in the morning peak.

4. ***Provide additional limited-stop service on this route in the morning and afternoon peak hours***. This option is a variation of Option 3, with additional limited-stop service in the peak periods.

5. **Establish a new Route 10** that would provide limited stop service, generally but not entirely following Route 1, between University of Antelope Valley and 47th Street East & Avenue S.

Table 4.2 summarizes the options identified for Route 1. Running time changes are included in all options.

Table 4.2
Options and Impacts for Route 1

Option	Change in Weekday Revenue Hours	Change in Sat/Sun Revenue Hours	Change in Annual Revenue Hours	Change in Annual Cost	Change in Peak Vehicles
1. Running time changes only	minimal	Minimal	minimal	minimal	0
2. 30-minute service	12.4	Minimal	3,166	$213,627	+1
3. Limited stop peak service/30 minute all day/ later service	15.9	Minimal	4,055	$273,557	+3
4. Limited stop peak service/30 minute all day	21.7	Minimal	5,542	$373,919	+3
5. New limited-stop Route 10	26.0	Minimal	6,659	$449,253	+1

An additional option related to Route 1 has been identified in the course of making final revisions to this document: operate limited-stop service all day at 30-minute headways, either via the current Route 1 or via Sierra Highway. A variation on this option is to extend the limited-stop service eastward beyond 47th Street East & Avenue S to Littlerock, where a small new transit center is under consideration in the vicinity of Pearblossom Highway & 82nd Street East. The preliminary estimate indicates that four additional buses would be required for all-day limited stop service at 30-minute headways and a fifth would be needed to extend limited-stop service to Littlerock.

The recommended option for Route 1 is Option 5: a new limited-stop Route 10, which would largely overlap the existing Route 1 but would provide a much faster service. One additional peak bus is required. The cost of this change is almost $450,000.

Routes 2 and 3

Routes 2 and 3 operate as an interlined pair between the Antelope Valley Mall and 47th Street East and Avenue S. Route 2 has many more riders on weekdays (1,518 versus 849 on Route 3) and has more than double Route 3's ridership on weekends. Route 2 operates via Palmdale Boulevard, which is a stronger transit corridor than Avenue R which is served by Route 3. Route 2 ranks third in ridership and second in productivity on weekdays, while Route 3 ranks 6th in ridership and 10th in productivity. On weekends, Route 2 ranks second in ridership and leads all routes in productivity while Route 3 is 5th in ridership and 6th or 7th in productivity

The major issue on these routes is that the same level of service is offered because the routes are interlined, but the demand is very different for these two routes. Interlining is often a creative means to avoid lengthy turnaround loops at the ends of routes. However, by changing the routing in the vicinity of 47th Street East and Avenue S, the interline can be broken and the two routes can operate independently of each other.

A second issue is Palmdale High School, a major trip generator on Route 3. On the ridecheck, the 6:40 a.m. eastbound trip and the 1:30 p.m. westbound trip are the trips with significant

ridership activity at the high school. Trip times have been changed slightly since the ridecheck, but any change should ensure that the high school is served by Route 3 at bell times.

Three options are identified for Routes 2 and 3:

1. ***No change – adjust running times only***. Under this and subsequent options, minor changes would be made to running times in the schedule. .

2. ***Operate each route separately without interlining and maintain current headways***. This would allow for future changes to each route based on different levels of demand. Figure 4.1 shows the proposed routing changes to enable the routes to be split. Eastbound Route 2 would continue south on 40th Street East and turn east on Avenue S to 47th Street East. Eastbound Route 3 would continue east on Avenue R and south on 47th Street East to Avenue S. Westbound routing is unchanged on both routes.

3. ***Operate each route separately without interlining and reduce service on Route 3 to one bus every hour***. This option would adjust service levels in line with current demand for service on the two routes. This would reduce the number of buses required on the two routes by two buses.

4. ***Operate each route separately without interlining, increase service on Route 2 to one bus every 15 minutes, and reduce service on Route 3 to one bus every hour***. This option would further adjust service levels in line with current demand for service on the two routes. This would require an additional two buses.

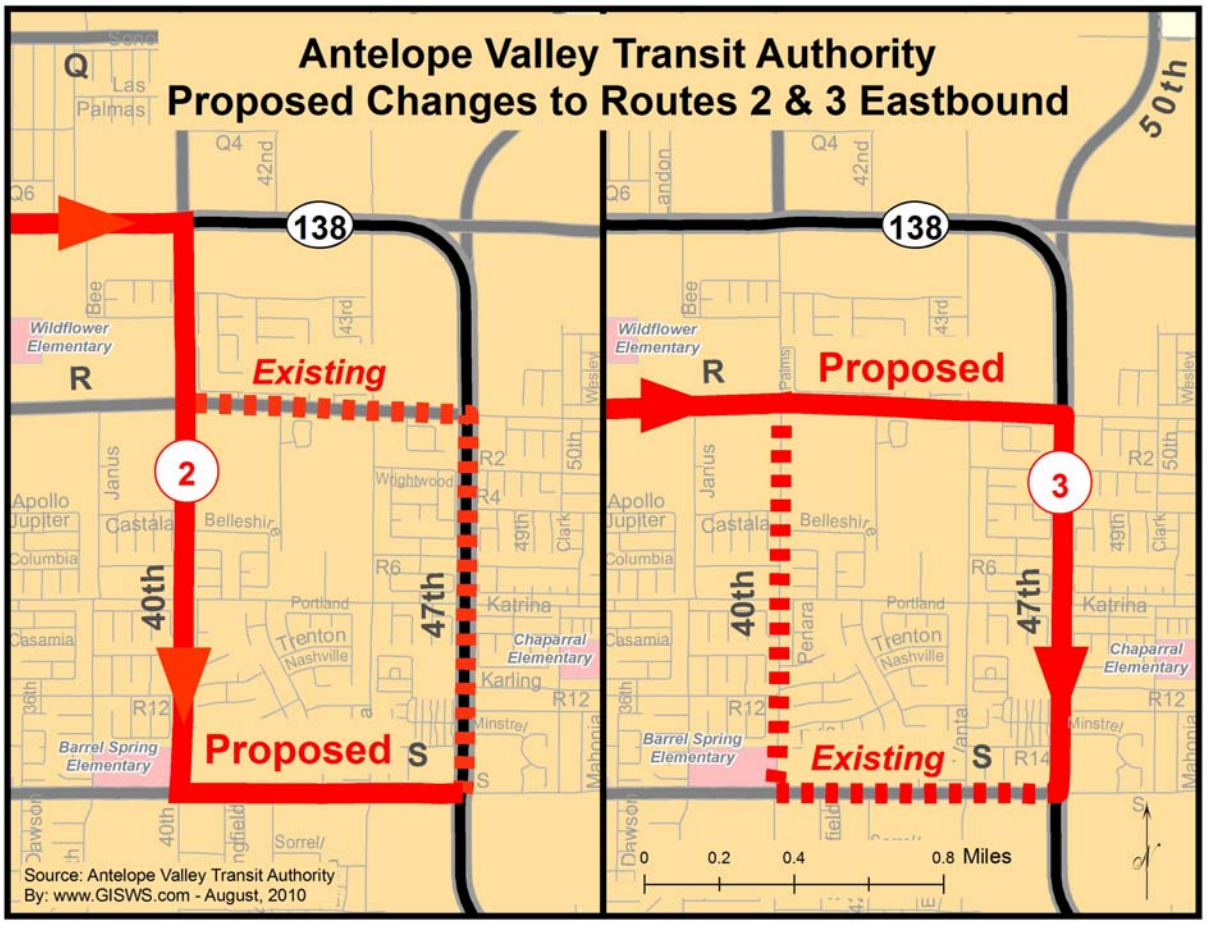
5. ***Operate each route separately without interlining, increase service on Route 2 to one bus every 15 minutes, and maintain 30-minute service on Route 3***. This option focuses on increased service to Route 2 while maintaining Route 3 service at its current level. Four additional buses are required.

Table 4.3 summarizes the options identified for Routes 2 and 3. Running time changes are included in all options.

Table 4.3
Options and Impacts for Routes 2 and 3

Option	Change in Weekday Revenue Hours	Change in Sat/Sun Revenue Hours	Change in Annual Revenue Hours	Change in Annual Cost	Change in Peak Vehicles
1. Running time changes only	minimal	minimal	minimal	minimal	0
2. Separate routes, same headway	minimal	minimal	minimal	minimal	0
3. Route 3 operates hourly	-21.5	minimal	-5,478	-$369,618	-2
4. Route 2 15 minutes; Route 3 hourly	15.3	minimal	3,910	$263,808	+2
5. Route 2 15 minutes; Route 3 30 minutes	38.9	Minimal	9,924	$669,555	+4

Figure 4.1
Proposed Changes for Routes 2 and 3



The recommended option for Routes 2 and 3 is Option 5: break the interline, change the weekday headway on Route 2 to 15 minutes, and keep the weekday headway on Route 3 at 30 minutes. Four additional peak buses are required on these routes. The cost of this change is almost $670,000. Because of the high cost of this option, it is not proposed in the near-term but must await the identification of additional funding.

Route 4

Route 4 serves eastside Lancaster with a bus every 70 minutes. Route 4 carries over one thousand riders on weekdays, ranking 5th in ridership and 4th in productivity.

Ridership on Route 4 is somewhat surprising, given its relatively infrequent service. The route operates through neighborhoods with high orientation toward transit, and serves the County Courthouse and Department of Social Services. Weekday productivity is higher on Route 4 (34.7 boardings per revenue hour) than on Route 1 (33.0). A strong case can be made for additional service on this route

Two options are identified for Route 4:

1. ***No change – adjust running times only***. Under this and subsequent options, minor changes would be made to running times in the schedule. .

2. ***Improve headways to 30 minutes before 3:00 p.m. and 60 minutes after 3:00 p.m. on weekdays***. Ridership and productivity are much higher in the morning peak and midday time periods on Route 4. This change would require two additional peak-hour buses.

Table 4.4 summarizes the options identified for Route 4. Running time changes are included in all options.

Table 4.4
Options and Impacts for Route 4

Option	Change in Weekday Revenue Hours	Change in Sat/Sun Revenue Hours	Change in Annual Revenue Hours	Change in Annual Cost	Change in Peak Vehicles
1. Running time changes only	minimal	minimal	minimal	minimal	0
2. Increased frequency	17.6	minimal	4,488	$302,805	+2

The recommended option for Route 4 is Option 2: improve headways to 30 minutes before 3 p.m. and 60 minutes after 3 p.m. on weekdays. Two additional peak buses are required. The cost of this change is slightly over $300,000. Because of the high cost of this option, it is not proposed in the near-term but must await the identification of additional funding.

Route 5

Route 5 primarily serves residential neighborhoods in the western part of AVTA's service area. It ranks relatively low in ridership and in the middle of the pack in productivity. It operates at a consistent 60-minute headway throughout the day. This route serves its purpose and performs as expected.

Two options are identified for Route 5:

1. ***No change – adjust running times only***. Under this and subsequent options, minor changes would be made to running times in the schedule. .

2. ***Reroute the bus via Avenue L and 60th Street West to serve Quartz Hill High School***. The proposed routing would replace the current routing via 50th Street West and Avenue M. There is significant passenger activity at current stops along 50th Street West, particularly at Avenue L-8 and Avenue L-12.

The recommended option for Route 5 is Option 1: adjust running times. The passenger activity along 50th Street West suggests that more might be lost than gained by rerouting the bus to Quartz Hill High School, which is already served by Route 7. The passenger activity on both routes along 50th Street suggests independent demand for each route rather than transferring between routes.

Route 6

Route 6 serves a suburban to rural area, connecting 47th Street East and Avenue S with Littlerock and Sun Village. Route 6 ranks in the lower half of AVTA routes in terms of ridership and productivity.

Transit orientation is low all along this route, with low residential densities and few trip generators aside from the retail concentration at 47th Street East and Avenue S. Littlerock High School and Almondale Middle School do not generate sufficient ridership to justify a 40-foot bus in service

Two options have been identified for Route 6:

1. ***No change – adjust running times only***. Under this and subsequent options, minor changes would be made to running times in the schedule. .

2. ***Replace Route 6 with enhanced demand-response service***. With the implementation of AVTA's ITS program, it becomes possible to schedule demand-response trips in close to real time (i.e., within one to two hours). The Littlerock area is an excellent place to operate a demonstration "smart demand-response" service. This service is more appropriate to the level of ridership demand and transit orientation than a big-bus fixed route.

3. ***Reroute the segment of Route 6 between 82nd Street East & Pearblossom Highway and 87th Street East & Avenue U via Pearblossom Highway and 87th Street East.*** This change streamlines the route and provides additional service along Pearblossom in the Charlie Brown Farms area. See Figure 4.2.

4. **Extend Route 6 to Avenue S and 70th Street East, replacing a portion of Route 9**. This option would continue local service to Pete Knight High School, allowing Route 9 to be discontinued.

Table 4.5 summarizes the options identified for Route 6. Running time changes are included in Options 1, 3, and 4. Option 2 changes are estimated with the assumption that existing demand-response services can accommodate about half of the current demand for service in this area.

Figure 4.2
Potential Rerouting of Route 6 (Option 3)

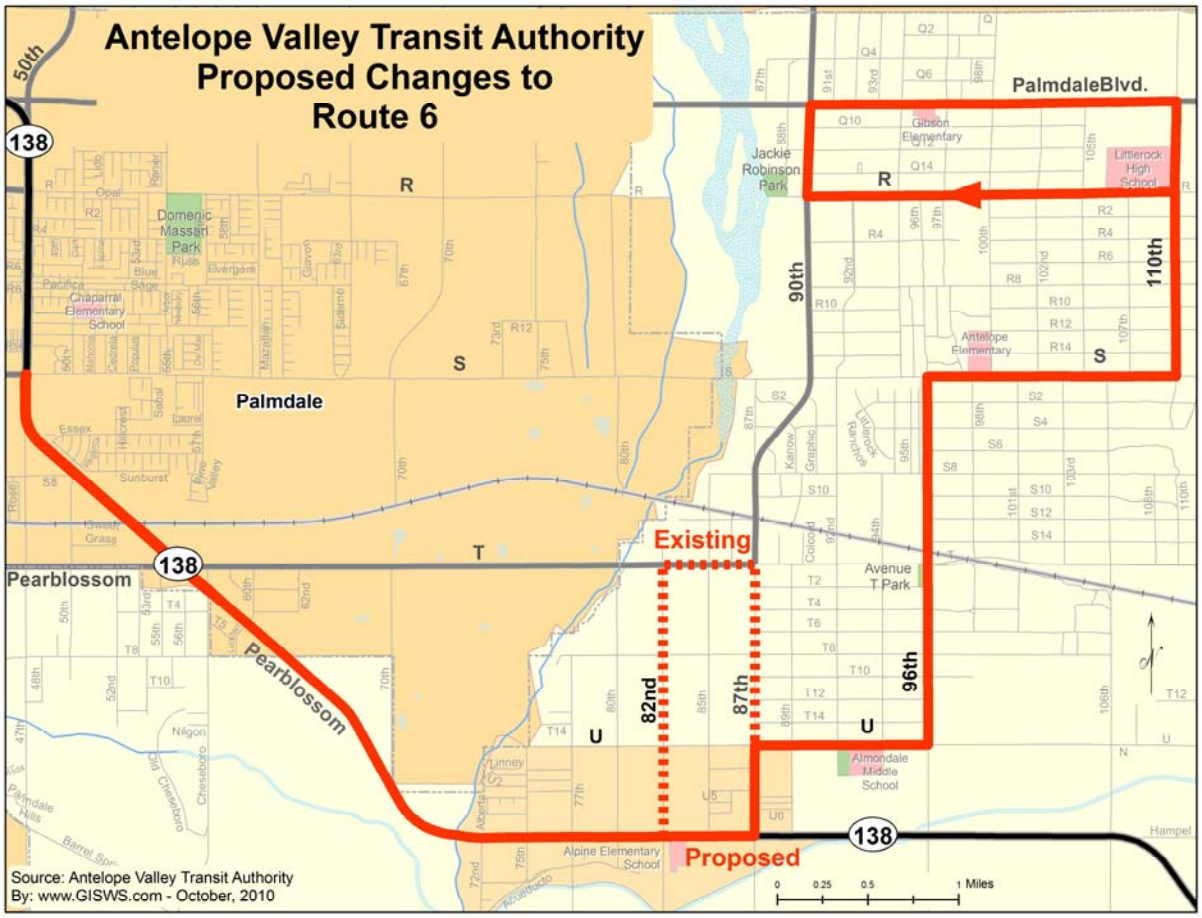


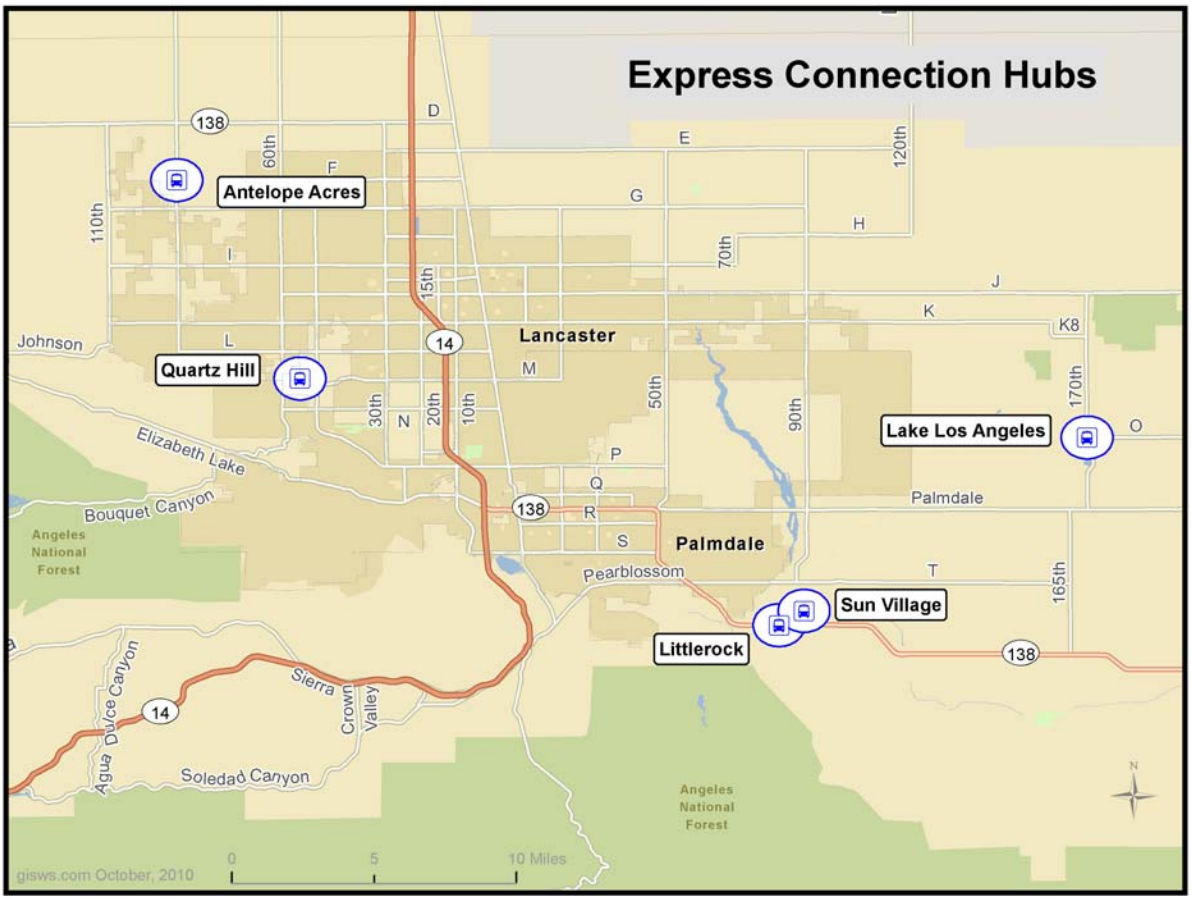
Table 4.5
Options and Impacts for Route 6

Option	Change in Weekday Revenue Hours	Change in Sat/Sun Revenue Hours	Change in Annual Revenue Hours	Change in Annual Cost	Change in Peak Vehicles
1. Running time changes only	minimal	minimal	minimal	minimal	0
2. Replace with demand-response service	-14.8 bus +7.4 DR	-11.8 bus +5.9 DR	-1,789	-$120,704	-1
3. Reroute via Pearblossom and 87th St E	minimal	minimal	minimal	minimal	0
3. Extend to 90th St E & Av S	+2.0	+1.8	+694	+$46,806	0

The preliminary recommendation for Route 6 was Option 2. In further discussions, however, the concept of testing the "smart demand-response" concept in an area currently unserved by fixed-

route transit emerged as the most sensible way to proceed, instead of replacing an existing fixed route by an untested concept. Figure 4.3 presents potential sites for small transit centers in outlying areas of AVTA's service area. A "smart demand-response" service centered on one of these hubs in an unserved area would test the feasibility of this type of service. A new or extended fixed-route would connect the hub with the rest of the AVTA route network.

Figure 4.3
Potential Sites for Small Transit Centers in Outlying Areas



The recommended near-term option for Route 6 is Option 4: extend the route to Avenue S and 90th Street East to replace a portion of existing Route 9 service. If the "smart demand-response" concept proves feasible and attractive to riders, Option 2 could be considered in the future. Option 3 (see Figure 4.3) might also prove to be feasible, but is not recommended at this time.

Route 7

Route 7 serves Quartz Hill and adjacent neighborhoods. Route 7 ranks in the middle among AVTA routes in terms of weekday ridership and productivity. It is one of the longer routes in AVTA network. Route 7 serves the industrial area along Avenue H in Lancaster, High Desert Hospital, Quartz Hill High School, the Antelope Valley Mall, and Palmdale Transportation Center. The headway for Route 7 varies between 63 and 70 minutes on weekdays and between 65 and 68 minutes on weekends.

Only one option is identified for Route 7.

1. ***No change – adjust running times only***. Under this option, minor changes would be made to running times in the schedule.

Route 7 has improved in ridership and performance over the years, and no changes are proposed.

Route 9

Route 9 serves mostly residential neighborhoods on the east side of Palmdale. Its primary purpose is to serve Pete Knight High School on 70th Street East. Twenty-five (25) percent of all boardings take place at the high school. Route 9 ranks in the middle among AVTA routes in terms of weekday ridership and in the lower half in terms of productivity. Its weekend performance is poor: Route 9 ranks last among all Saturday and all Sunday routes in productivity.

Four options have been identified for Route 9:

1. ***No change – adjust running times only***. Under this option, minor changes would be made to running times in the schedule. .

2. ***Discontinue Route 9 on weekends***. The low productivity of weekend service (4.8 boardings per revenue hour on Saturday, 3.8 on Sunday) supports this option.

3. ***Discontinue Route 9 and replace with a new school-only route***. Pete Knight High School is the primary reason for the existence of Route 9. A supplemental route operating at bell times only would be instituted in place of Route 9 under this option.

4. ***Reduce Route 9 weekday service to one bus every two hours***. This option keeps Route 9 in service all day at a reduced level of service. The school trips will occur at the same times as in the current schedule.

5. ***Replace Route 9 with a rerouted Lake Los Angeles Express***. This option would reroute the Lake Los Angeles Express to serve the portion of Route 9 south of Palmdale Boulevard, via 47th Street East, Avenue S, and 70th Street East. The Lake Los Angeles schedule would be revised to ensure that school trips occur at the same times as in the current Route 9 schedule.

Table 4.6 summarizes the options identified for Route 9. Running time changes are included in Options 1, 2, and 4.

Table 4.6
Options and Impacts for Route 9

Option	Change in Weekday Revenue Hours	Change in Sat/Sun Revenue Hours	Change in Annual Revenue Hours	Change in Annual Cost	Change in Peak Vehicles
1. Running time changes only	minimal	minimal	minimal	minimal	0
2. Discontinue weekend service	Minimal	-12.4	-2,683	-$205,909	0
3. Discontinue Route 9; replace with supplemental service	-30.1	-12.4	-9,044	-$610,187	-1
4. Reduce weekday service	-14.9	minimal	-3,804	-$256,639	-1
5. Replace with rerouted LLA Express	-31.2	-12.4	-9,239	-$623,344	-2

The recommended near-term option for Route 9 is Option 3: discontinue Route 9 and replace with supplemental service to Pete Knight High School. This recommendation is advanced in conjunction with the Route 6 recommendation to extend that route to Avenue S and 90th Street East to cover a segment of the discontinued Route 9. The Route 9/supplemental service change would reduce the peak bus requirement by one bus. The estimated savings as a result of this change is over $610,000.

Routes 11 and 12

Routes 11 and 12 operate as an interlined pair between Lancaster City Park and 40th Street East and Avenue I. Both routes rank in the top five of all AVTA routes in ridership and productivity. Route 12 has more riders on weekdays (2,133 versus 1,482 on Route 11) but weekend ridership is very similar on both routes. Route 12 is the only route of the two to serve Antelope Valley College, Lancaster High School, and Wal-Mart, while Route 11 is the only route of the two to serve the Senior Center and Antelope Valley High School.

The major issue on these routes is that they are both circuitous: passengers bound for east Lancaster from Lancaster City Park must first travel west before going east. However, much of the travel on these routes is east-west along Avenue I and Avenue J, or north-south from Lancaster City Park to Avenue I or Avenue J. The interline does not present the issues noted earlier for Routes 2 and 3 because demand is not dramatically different, through-riding occurs (i.e., a rider boards Route 11 in east Lancaster and rides through to Route 12 and vice versa), and there is no alternate turnaround that could minimize running time.

Four options are identified for Route 11. Running time changes are included in all options.

1. ***No change – adjust running times only***. Under this option, minor changes would be made to running times in the schedule. .

2. ***Reroute Route 11 via 10th Street West between Lancaster City Park and the Senior Center, continue Route 12 south via 30th Street West to Rancho Vista Boulevard,***

and extend Route 4 west from LCP to Antelope Valley College. This would rationalize service on these routes: Route 11 would be more direct between LCP and east Lancaster; Route 12 would be an L-shaped route along Avenue J and 30th Street West, and Route 4 would replace Route 12 as the connection between LCP and Antelope Valley College. The disadvantages include no service on Avenue I west of 10th Street West, no service on 15th Street West, little demand along 30th Street West south of Antelope Valley College, and added cost for the Route 4 extension and possibly for the Route 12 extension.

3. ***Reroute Route 11 via 15th Street West and Avenue I or Lancaster Boulevard to the Senior Center***. This ameliorates some of the disadvantages of option 2, but still leaves Avenue I west of 15th Street West unserved.

4. ***Create a 30th Street West – Avenue I route and a Lancaster City Park – 15th Street West – Avenue J route to replace the current Routes 11 and 12.*** This option maintains service to all key destinations on Routes 11 and 12 in a simplified fashion. The only intersecting point on these two new routes would be at Avenue I and 40th Street East. The connection between LCP and Antelope Valley College is lost under this option, unless Route 4 is extended west as in Option 2.

The recommendation for Routes 11 and 12 is Option 1. The other options either add unnecessary cost or leave important segments unserved.

Lake Los Angeles Express

The Lake Los Angeles Express connects Lake Los Angeles with Lancaster and Palmdale. Most of the stops on the route are in Lake Los Angeles, with express or limited-stop operation along Avenue J and Palmdale Boulevard. The Lake Los Angeles Express ranks among the bottom five AVTA routes in terms of ridership and productivity, due to its length and ex-urban service area.

The current schedule is somewhat confusing. All trips operating through Lake Los Angeles, with the result that service does not alternate evenly between Lancaster and Palmdale. As a result, instead of a consistent two-hour headway, the headways alternates between one and three hours. If the buses could turn around at Town Center Plaza, this could be corrected; however, this change would have a negative effect on riders traveling within Lake Los Angeles.

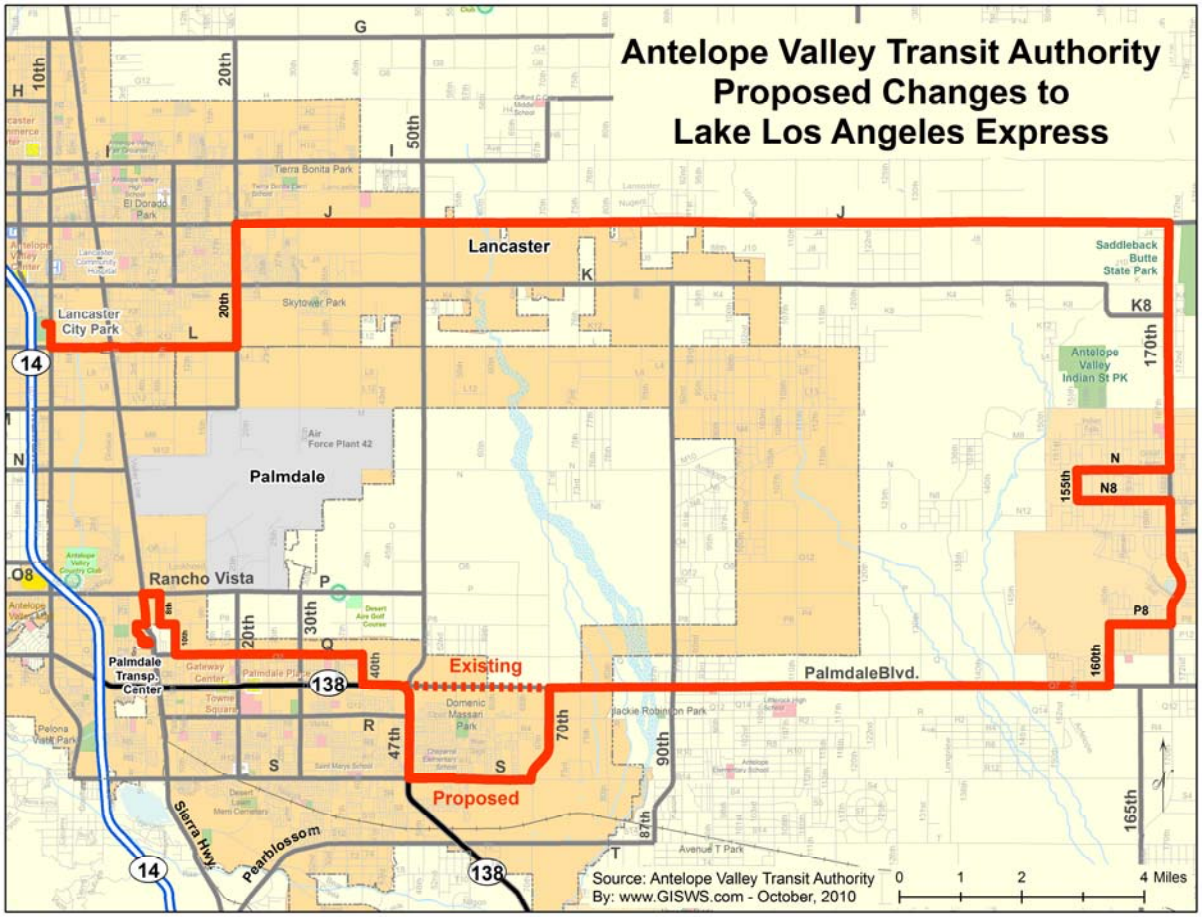
Two options are identified for the Lake Los Angeles shuttle.

1. ***No change – adjust running times only***. Under this option, minor changes would be made to running times in the schedule.

2. **Reroute the Lake Los Angeles Express in Palmdale to replace the current Route 9**. The Lake Los Angeles route would operate in local service between Palmdale Transportation Center and 70th Street East & Palmdale Boulevard, via 47th Street East, Avenue S, and 70th Street East. Route 9 would be discontinued. Current Lake Los Angeles passengers would benefit from a new direct connection to the Wal-Mart and other retail stores at 47th Street East & Avenue S. Figure 4.4 shows the proposed new routing.

Changes in operating cost are minimal under either option. Option 1 is recommended: adjust running times. Option 2 is intriguing but requires additional study to ensure that the Lake Los Angeles Express can accommodate additional ridership and running time, particularly at bell times at Pete Knight High School.

Figure 4.4
Proposed Changes to the Lake Los Angeles Express Route



4.3 Impacts of Recommendations

Table 4.7 presents daily and annual impacts of proposed short-term changes. Given the current fiscal environment, proposed changes to Routes 2/3 and 4 are not included in Table 4.7; implementation of these changes is not feasible at this time. n the immediate future, AVTA will implement changes to Routes 6, 8, 9/98, and 10.

The proposed short-term changes result in an annual operating decrease of $330,000 and a reduction of one peak vehicle.

Table 4.7
Impacts of Recommendations

Route	Change in Revenue Hours			Change in Cost			Change in peak vehicles
	Weekday	Weekend	Annual	Weekday	Weekend	Annual	
Route 1	0.0	0.0	0	$0	$0	$0	0
Route 2/3	0.0	0.0	0	$0	$0	$0	0
Route 4	0.0	0.0	0	$0	$0	$0	0
Route 5	0.0	0.0	0	$0	$0	$0	0
Route 6	2.0	1.8	694	$135	$119	$46,806	0
Route 7	0.0	0.0	0	$0	$0	$0	0
Route 8	-12.5	0.0	-3,188	-$843	$0	-$215,061	-1
Route 9/98	-30.1	-12.4	-9,044	-$2,030	-$838	-$610,187	-1
Route 10	26.0	0.0	6,659	$1,755	$0	$449,253	1
Route 11	0.0	0.0	0	$0	$0	$0	0
Route 12	0.0	0.0	0	$0	$0	$0	0
LLA Express	0.0	0.0	0	$0	$0	$0	0
Total	-14.6	-10.7	-4,879	-$983	-$719	-$329,189	-1