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MEMORANDUM

To: Alex Fuchs, City of San Luis Obispo
From: Genevieve Evans, AICP, LSC Transportation Consultants, Inc.
Date: October 11, 2024
RE: Additional SLO Transit Service Alternatives to Better Serve Southern San Luis Obispo

This memo provides LSC's analysis of SLO Transit fixed route service options to better serve two new developments in the southern portion of San Luis Obispo, as well as to address other operational issues. A review of the new developments is first presented, followed by an evaluation of a series of transit service options.

New Developments

There are two major projects currently under development in the southern portion of San Luis Obispo that merit consideration for expanded transit service.

San Luis Ranch

At full buildout, the San Luis Ranch development along Madonna Road will include a total of 604 dwelling units. This includes 299 high-density housing units, 34 affordable housing units, and 83 medium-density units, all of which have a higher potential to generate transit ridership. The higher-density residential development is concentrated along Madonna Road and is already served by SLO Transit. Under an agreement with Cal Poly, up to 300 students will soon be living in this area.

As an aside, the nearest existing stops to the high-density area are located along Madonna Road within a reasonable 5-minute walk distance. While the westbound stop (just west of Dalido Drive has a shelter, the eastbound stop (just east of Oceanaire Drive does not. As this will be the stop used by Cal Poly students while waiting for a bus to campus, a shelter at this stop would be beneficial.

Avila Ranch

Avila Ranch is a mixed-use residential/neighborhood commercial development under development along the north side of Buckley Road in southern San Luis Obispo. At buildout, it will include a total of 720 units, consisting of 125 higher-density units (24 units to the acre), 494 medium-density units (up to 20 units to the acre), and 101 lower-density units (7 units to the acre) as well as a small 15,000 square foot neighborhood commercial center.

The denser residential areas with the highest potential for transit ridership are in the northern portion of the site, along an extension of Eastwood Lane as well as along the east side of Horizon Lane in the northeast corner of the site. This development is at least a half-mile walk to the nearest existing SLO Transit stop (on South Higuera Street).

Service Alternatives

Alternatives are first presented that provide improved service to San Luis Ranch, as this project is farther along in the development process. Alternatives that also would serve Avila Ranch are presented next.

An important consideration in these alternatives beyond serving the new developments is addressing the existing poor service reliability of Routes 2A and 2B. LSC's observations of on-time performance indicate that a majority (65 percent) of Route 2A runs are 6 or more minutes behind schedule, with 40 percent more than 15 minutes late. While Route 2B's reliability is better, 49 percent of runs still operate at least 6 minutes late and 11 percent are more than 15 minutes late.

Revise Route 2A/2B to Serve San Luis Ranch – 90 Minute Frequency

One option to serve San Luis Ranch would be to revise Routes 2A and 2B to better serve the development by traveling along Froom Ranch Way between Dalido Drive and Los Osos Valley Road, rather than Madonna Road, as shown in Figure A. While Route 2 service to the stops near Madonna/Oceanaire would be eliminated, these stops would still be served by Route 3 (which currently generates 88 percent of the ridership at these stops). This would increase the Route 2A length by 0.8 miles while cutting 0.1 miles from Route 2B, respectively. To accommodate the additional running time as well as to solve the existing poor on-time performance, the route cycle time would be increased from 60 to 90 minutes. Operating the existing two buses would result in a 90-minute service frequency, which is typically considered a poor level of service for urban transit in mid-sized to larger urban areas.

As shown in Table A, this option would not change the annual vehicle hours used for Route 2 service (two buses would be in operation throughout the existing span of service). The net decrease in mileage would reduce operating costs by \$61,500 per year.

This alternative would have several impacts on ridership:

- Service to San Luis Ranch would be improved. However, since much of the high-density housing is already served by the stops along Madonna Street, this would be a relatively modest ridership benefit.
- The improvement in on-time reliability would increase ridership, as passengers (and potential passengers) have been proven to be very sensitive to poor service reliability. The document Valuing Transit Service Quality Improvements (Victoria Transport Policy Institute, 2023) indicates that "Increased transit travel speeds can be valued based on average time costs, but reliability improvements should be valued at a higher rate, reflecting the high costs of unexpected delay. Each minute of delay beyond a "normal" two or three-minute delay should be valued at 3-5 times the standard in-vehicle travel time." At present, Route 2A has about 10 minutes of excessive

delay (on average) and Route 2B has about 5.5 minutes. This is perceived by the passenger as at least 30 minutes of travel time for Route 2A and 17 minutes for Route 2B. Providing a much more reliable transit service would therefore have a substantial ridership benefit.

- Ridership would be reduced due to the reduction in frequency from 60 minutes to 90 minutes. This can be found through elasticity analysis to have a moderate reduction in ridership.
- The resulting service would no longer provide “clockface headways” whereby the bus serves any particular stop at the same time after each hour over the day. This has been found to be a substantial benefit to riders (and thus an increase in ridership) as it is easy to learn and remember service times. In addition, the current consistent transfer opportunities at the Transit Center would no longer be provided. Direct timed transfers would vary hour by hour, with an overall increase in the need to wait between buses. One strategy would be to schedule these runs to provide direction connections at the Transit Center to Route 4B in the AM hours and Route 4A in the PM hours, allowing trips to and from Cal Poly with minimal delays at the Transit Center. Overall, however, the changed schedule would have a moderate additional reduction in ridership.

In sum, this alternative is forecast to increase Route 2 ridership by 11,000 passenger boardings per year, with the benefits of increased reliability and additional service to San Luis Ranch outweighing the reductions from reduced frequency and consistency of schedule.

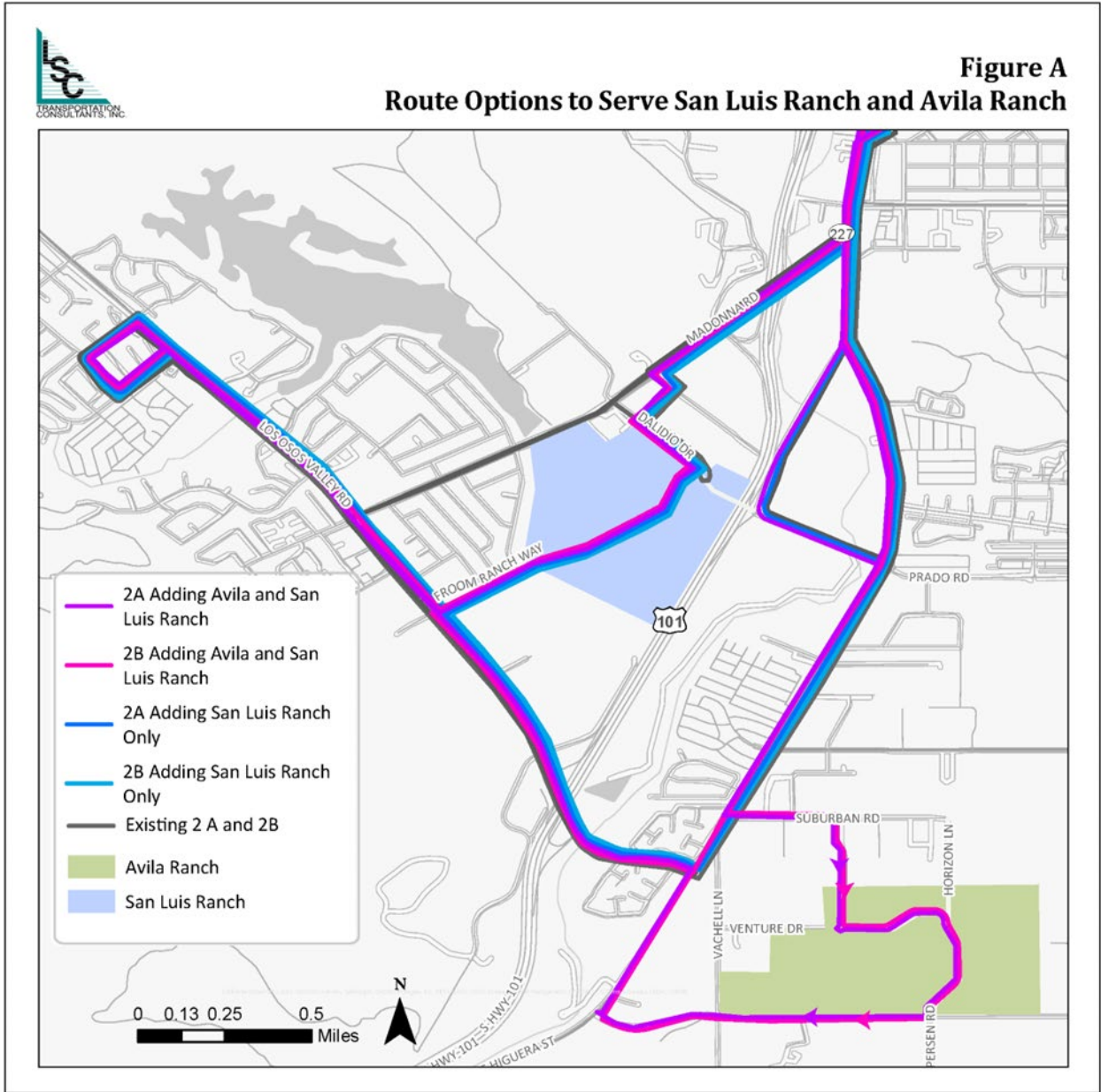
Revise Route 2A/2B to Serve San Luis Ranch – 45 Minute Frequency

This option would be identical to the previous alternative, except that two additional buses would be used to provide service every 45 minutes. This would avoid the reduction in ridership associated with the change in headways and provide greater opportunity for connections at the Transit Center but at a substantial operating cost. As shown in Table A, a ridership increase of 65,000 boardings per year over existing ridership would be generated, but the annual operating cost would be increased by \$462,600 and two additional buses would need to be in operation.

Revise Route 2A/2B to Serve San Luis Ranch and Eliminate Descanso Street Loop – 60 Minute Frequency

Another option would be to revise Routes 2A and 2B to better serve San Luis Ranch but also eliminate the service along Los Osos Valley Road north of Froom Ranch Road to the turnabout loop using Profumo Canyon Road, Del Rio Avenue, and Descanso Street. Eliminating service on this “Descanso Street Loop” would reduce the route length by 2.5 miles and reduce running time by approximately 7 minutes. This would solve roughly half of the existing on-time performance problem on Routes 2A and 2B if the routes are operated on the existing 60-minute cycle length. Annual operating costs would be reduced by \$33,000.

All service would be eliminated to only two stops (along Del Rio Avenue at Profumo Canyon Road and at Descanso Street). Ridership at these stops is modest, totaling only roughly 7 passenger boardings per day. These passengers would need to walk at least an additional 850 feet to access the nearest stop on Los Osos Valley Road. The stops along Los Osos Valley Road would still be served by Route 3, though service frequency would be reduced from four times per hour to two times per hour. Approximately 10,200 annual boardings currently generated by Route 2A/2B in this area would be eliminated. However, considering the ridership increase resulting from more reliable service throughout Routes 2A/2B and service to San Luis Ranch, the overall impact of this alternative would be a net increase of 18,000 passenger boardings per year.



	Change in Annual Service ⁽²⁾						
	Ridership	Service Hours	Service Miles	Marginal Operating Cost	Cash Fare Revenues	Operating Subsidy	Additional Vehicles Needed
Revise Route 2A/2B to Serve San Luis Ranch - 90 Minute Headways	11,000	0	-27,600	-\$61,500	\$11,000	-\$72,500	0
Revise Route 2A/2B to Serve San Luis Ranch - 45 Minute Headways	65,000	7,500	38,600	\$462,600	\$65,100	\$397,500	2
Revise Route 2A/2B to Serve San Luis Ranch & Cut Descanso Loop - 60 Minute Headways	18,000	0	-14,800	-\$33,000	\$18,000	-\$51,000	0
Extend Route 2A/2B to Serve San Luis Ranch and Avila Ranch - 90 Minute Headways	21,000	0	-14,300	-\$31,800	\$21,000	-\$52,800	0
Extend Route 2A/2B to Serve San Luis Ranch and Avila Ranch - 45 Minute Headways	80,000	7,500	62,000	\$514,700	\$80,200	\$434,500	2
New Avila Ranch Direct Route -- 60 Minute Headway	34,800	5,300	49,300	\$375,900	\$34,900	\$341,000	1
New Broad - Avila Ranch - S. Higuera Loop Route -- 60 Minute Headway	53,000	8,400	87,400	\$616,400	\$53,100	\$563,300	2

Revise Route 2A/2B to Serve San Luis Ranch and Avila Ranch – 90 Minute Frequency

By extending the Route 2 cycle length to 90 minutes, there would be more than adequate time to also extend the route to serve Avila Ranch, as shown in Figure A. To reduce the number of stops that would need to be established, both Routes 2A and 2B would serve a clockwise loop around Suburban Road, Eastwood Lane, the extension of Ventura Drive, the extension of Horizon Lane, and Buckley Road and before returning north on South Higuera Street. Route 2A would be 14 miles in length while Route 2B would be 12.8 miles in length. This option would operate the same number of vehicle-hours of service as today, but the net effect of the fewer runs and longer route would be a reduction in annual vehicle-miles of 14,300, yielding a reduction in annual operating cost of \$31,900. The net impact on ridership generated by the reduction in frequency, improved reliability, and additional service area would be an increase of 21,000 boardings per year.

Revise Route 2A/2B to Serve San Luis Ranch and Avila Ranch – 45 Minute Frequency

Adding two additional buses into Route 2A/2B service would provide service along an expanded route every 45 minutes. Ridership would be increased by a substantial 80,000 boardings per year. However, annual operating costs would be increased by \$514,700 and an additional two buses would be needed in operation.

Establish New Avila Ranch Direct Route – 60 Minute Frequency

Another option would be to establish a new route specifically to serve Avila Ranch. As shown in Figure B, this route would use the existing Route 2 alignment south from downtown along South Higuera Street and make a clockwise loop around Suburban Road, Eastwood Lane, the extension of Ventura Drive, the extension of Horizon Lane, Buckley Road, and Vachelli Lane before returning north on South Higuera Street. This route is 8.8 miles in length and can be reliably served in an hour cycle length.

In addition to providing service to Avila Ranch, this option has the benefit of doubling service along the South Higuera Street corridor which has substantial ridership (roughly 2.5 times the ridership along the Broad Street corridor along Routes 1A/1B). This route also could serve the Elks Lane/Prado Road loop off of S. Higuera Street currently served by Route 2A, thereby reducing running time and improving the on-time performance of Route 2A. Note that serving this loop in the northbound direction would require a traffic signal at Elks Lane / S. Higuera Street to allow buses to reliably turn onto S. Higuera Street northbound.

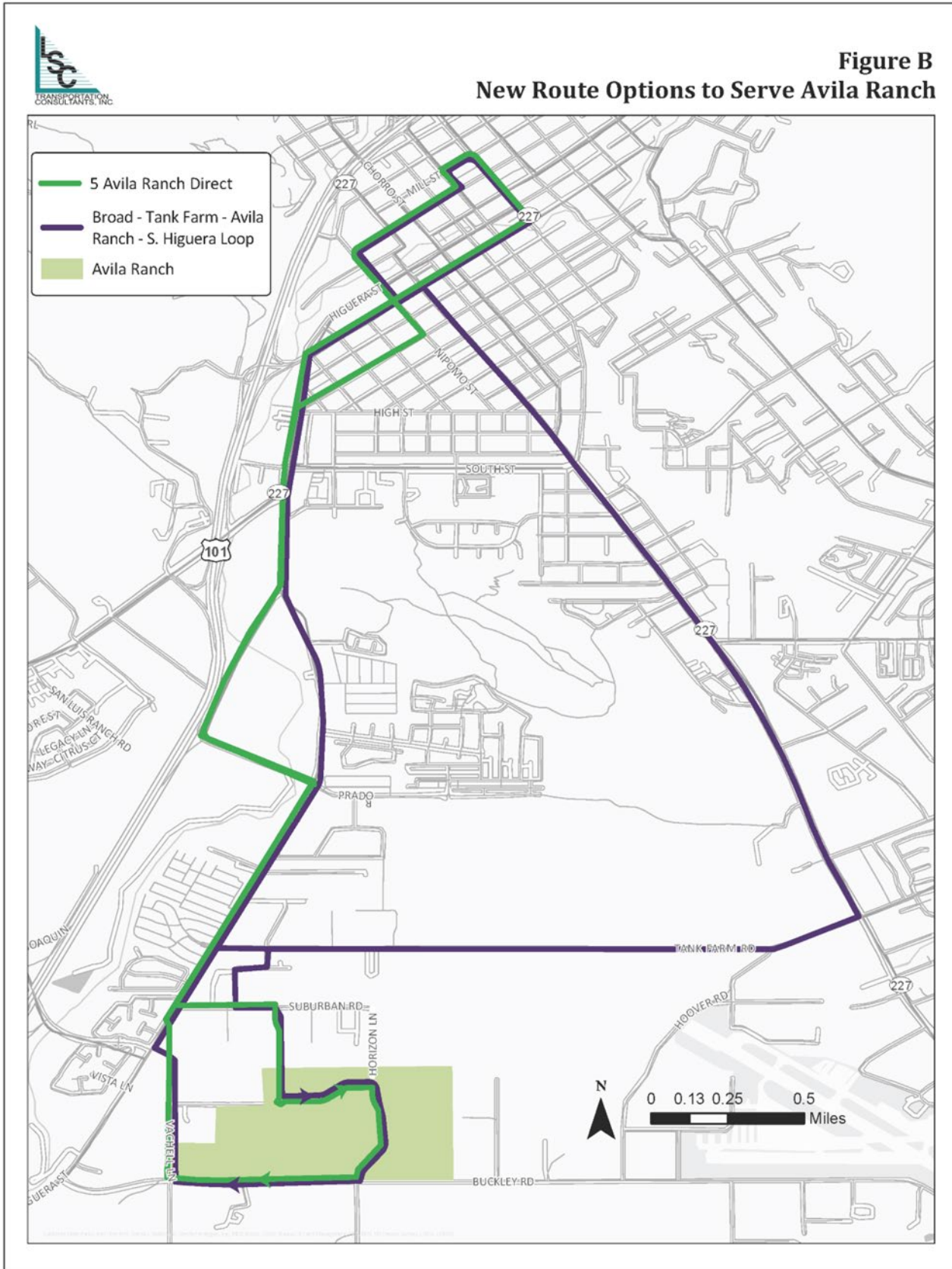
This option has the benefit of only requiring a single additional bus to serve Avila Ranch without resulting in a 90-minute service frequency. Assuming service is provided over the same span as the existing Route 2A span, annual operating costs would be increased by \$375,900, while ridership would be increased by 34,800 boardings per year.

Broad Street / Tank Farm Road / S. Higuera Loop Route to Serve Avila Ranch

A final option would be to create a large bi-directional route using Broad Street between the Transit Center and Tank Farm Road, Tank Farm Road, Long Street, Cross Street, and Short Street to access the Avila Ranch area and South Higuera Street to the Transit Center. As shown in Figure B, this route is 10.4 miles long, though the relatively high speeds along the long stretch of Tank Farm Road with no ridership potential would allow it to operate in a 60-minute cycle length.

It is assumed that one direction would be operated over the same span as Route 2A and the other over the same span as Route 2B, resulting in an annual operating cost of \$616,400. Two additional buses would be required at peak times.

Ridership would be generated by providing half-hourly service along both the Broad Street and South Higuera Street corridors, by serving Avila Ranch, as well as by providing a new more convenient connection for transit travel between southwest and southeast San Luis Obispo. Overall, ridership is forecast to increase by 53,000 boardings per year.



Service Alternatives Performance Analysis

Table B presents an evaluation of the performance of the additional service alternatives. This follows the methodology discussed in *Technical Memorandum Four: Service Alternatives* and applies the performance standards of a minimum of 11.5 passenger-trips per vehicle-hour and marginal operating costs that do not exceed \$11.23 per passenger-trip. A review of these results indicates the following:

- All of these alternatives meet the cost-effectiveness standard with the exception of the Broad Street – Avila Ranch – South Higuera loop route.
- The three options that increase ridership while not adding vehicle-hours (90-minute service to San Luis Ranch, 60-minute service to San Luis Ranch and cutting the Descanso loop, and 90-minute service to San Luis Ranch and Avila Ranch) perform particularly well as they reduce costs (by reducing vehicle-miles of service) while expanding ridership. These three options also help meet overall service productivity standards by increasing ridership without adding vehicle-hours.
- Of the options that serve Avila Ranch while avoiding 90-minute service frequency, the best performance is provided by the 45-minute service on an expanded Route 2A/2B. While the productivity figure of 10.7 passenger-trips per vehicle-hour does not achieve the standard of 11.5, it is close.
- A new direct route along South Higuera Street serving Avila Ranch would have slightly better performance than the large bi-directional loop using South Higuera Street, Tank Farm Road, and Broad Street, and would be substantially less expensive. However, this cannot be implemented until a new traffic signal is in place at Elks Road and S. Higuera.

	Net Impact					
	Annual Ridership	Service Hours	Service Miles	Annual Marginal Operating Cost ¹	Passenger-Trips per Vehicle Service Hour	Marginal Op. Cost per Passenger-Trip
Revise Route 2A/2B to Serve San Luis Ranch - 90 Minute Headways	11,000	0	-27,600	-\$61,500	Note 2	-\$5.59
Revise Route 2A/2B to Serve San Luis Ranch - 45 Minute Headways	65,000	7,500	38,600	\$462,600	8.7	\$7.12
Revise Route 2A/2B to Serve San Luis Ranch & Cut Descanso Loop - 60 Minute Headways	18,000	0	-14,800	-\$33,000	Note 2	-\$1.83
Extend Route 2A/2B to Serve San Luis Ranch and Avila Ranch - 90 Minute Headways	21,000	0	-14,300	-\$31,800	Note 2	-\$1.51
Extend Route 2A/2B to Serve San Luis Ranch and Avila Ranch - 45 Minute Headways	80,000	7,500	62,000	\$514,700	10.7	\$6.43
New Avila Ranch Direct Route -- 60 Minute Headway	34,800	5,300	49,300	\$375,900	6.6	\$10.80
New Broad - Avila Ranch - S. Higuera Loop Route -- 60 Minute Headway	53,000	8,400	87,400	\$616,400	6.3	\$11.63
Alternatives meeting performance standards shaded in green. Note that alternatives meet standards by increasing ridership at a greater rate than costs, eliminating a service not meeting standards, or increasing ridership while decreasing costs.				Recommended Performance Standards	11.5	\$11.23

Note 1: Does not include fixed costs
 Note 2: As there is an increase in ridership with no change in vehicle-hours, this measure calculates as infinite.