



Department: Public Works
Cost Center: 5201
For Agenda of: 7/16/2024
Placement: Study Session
Estimated Time: 120 Minutes

FROM: Matt Horn, Public Works Director
Prepared By: Alex Fuchs, Mobility Services Business Manager

SUBJECT: STUDY SESSION: SLO TRANSIT SHORT-RANGE TRANSIT PLAN UPDATE STUDY SESSION

RECOMMENDATION

Receive a presentation on the progress of SLO Transit's Short-Range Transit Plan update, including service alternatives analysis, provide direction regarding which service alternatives to incorporate into the plan update, and provide direction to staff to return in fall 2024 with a draft plan for Council's review.

POLICY CONTEXT

Federal statutes require that the San Luis Obispo Council of Governments (SLOCOG) develop and periodically update a long-range Regional Transportation Plan (RTP) and a Transportation Improvement Plan. The Transportation Improvement Plan is referred to in the San Luis Obispo region as the Federal Transportation Improvement Plan (FTIP). The FTIP implements the RTP through the programming of federal funds to transportation projects identified in the RTP. SLOCOG requires each transit agency receiving federal funding through the FTIP to prepare and adopt a Short-Range Transit Plan (SRTP) every five years.

Policy 3.1.2 (City Bus Service) of the City's General Plan Circulation Element states that the City will improve and expand bus service to make the system more convenient and accessible for everyone. The policy also states that the City will attempt to maintain and improve all transit standards identified in the City's SRTP. Program 3.2.1 (Transit Plans) of the City's General Plan Circulation Element states that the City will continue to implement the SRTP and coordinate with SLOCOG on implementing the RTP. Program 3.2.3 (Commuter Bus Service) of the City's General Plan Circulation Element states that the City will work with the San Luis Obispo Regional Transit Authority (RTA) to maintain and expand commuter bus service to and from the City of San Luis Obispo during peak commute periods consistent with the SRTP and the RTP.

REPORT-IN-BRIEF

Every five years, the City is required to complete an update to its Short-Range Transit Plan (SRTP). The SRTP serves as SLO Transit's business plan for the five-year period and provides operating and capital project recommendations to help achieve the City's transportation goals. The City and San Luis Obispo Regional Transit Authority (RTA) kicked off a joint SRTP update in September 2023. The update is roughly at the halfway mark with the completion of the fourth of eight working papers. Working Paper 4 analyzes service alternatives to better meet current and future community needs. Staff is requesting Council review the service alternatives and provide direction as to which should be incorporated in the draft SRTP.

DISCUSSION

Background

The previous Short-Range Transit Plan (2016 SRTP) was adopted in September 2016 and provided capital and operational recommendations for Fiscal Years (FYs) 2017 through 2021. The 2016 SRTP was the first joint SLO Transit and RTA plan update work effort. Multiple recommendations from the 2016 SRTP were implemented by the City, including implementation of the bi-directional fixed route system, creation of the Laguna Tripper service, later service on weekdays during the academic year, and an increase in pass and fare rates. The current SRTP update was scheduled to begin in 2020 but was delayed due to the COVID pandemic and staff turnover in the City's Transit program.

In June 2023, RTA released a Request for Proposals (RFP) for a joint SRTP update for RTA and SLO Transit. RTA received one bid response from LSC Transportation Consultants, Inc. (LSC)¹. LSC has extensive experience developing transit plans across the western United States and is the same firm that completed the 2016 SRTP. In September 2023, RTA executed an agreement with LSC for the joint SRTP update. LSC's approach to the work is projected to take 15 months and includes development of eight Working Papers that will be compiled into a draft plan. The Working Papers and their contents are outlined below.

- Working Paper 1 – Overview of Transit Services
- Working Paper 2 – Goals, Objectives, and Standards
- Working Paper 3 – Service and System Evaluation
- Working Paper 4 – Service Alternatives Analysis
- Working Paper 5 – Operating Budget and Financial Projections
- Working Paper 6 – Marketing Plans and Goals
- Working Paper 7 – Capital Improvement Plans
- Working Paper 8 – Joint Coordination between SLO Transit and RTA Analysis

¹ [LSC Transportation Consultants, Inc. Joint SRTP Proposal](#)

So far, LSC has produced Working Papers 1, 2, 3, and 4 and is on track to provide a full draft plan for staff's review in September 2024. Due to the size of the documents, links to Working Papers 1², 2³, and 3⁴ are provided in the footnotes of this report. Working Paper 4 – Service Alternatives Analysis – is included as Attachment A to this report. Staff anticipates returning to Council with a draft plan in November 2024 and a final plan for adoption in January 2025. The adopted plan's recommendations will be incorporated into the City's 2025-27 Financial Plan.

Summary of Working Paper 1 – Overview of Transit Services

Working Paper 1 provides an overview of the existing services, fare structure, and capital assets (fleet and facilities) for SLO Transit and for RTA. LSC also provides an overview of other public transit services in the region, including brief discussions of the various public transportation, nonprofit transportation, and private for-profit transportation providers. In Appendix A of the Working Paper, LSC summarizes regional, local, and agency specific plans and studies completed since the 2016 SRTP or currently underway.

Summary of Working Paper 2 – Goals, Objectives, and Standards

An important element in the success of any organization is a clear and concise set of goals and objectives, as well as the performance measures and standards needed to attain them. Working Paper 2 compares SLO Transit's FY 2022-23 performance against existing performance standards, analyzes peer transit agencies to inform development of revised performance standard recommendations, and then presents recommendations for SLO Transit's goals, objectives, and standards.

In the past two SRTPs, SLO Transit's performance measures were tied directly to the performance of peer agencies. Given the City's mode split objective of 7 percent of trips by transit by 2030 and 12 percent of trips by transit by 2035, Working Paper 2 recommends no longer linking SLO Transit's performance standards to peer transit agencies. Instead, in this SRTP, peer agency's performance will be used as a gauge to understand whether SLO Transit is performing within industry norms. Peer agencies were selected using three main criteria: university campus enrollment, city population, and number of buses in maximum fixed route service. Based on these criteria, Bloomington-Normal, IL; Pocatello, ID; Bowling Green, KY; Flagstaff, AZ; St. Cloud MN; and Pueblo, CO were selected as peer agencies.

Working Paper 2 recommends establishing a minimum standard and a higher, target maximum standard for the following key performance measures: productivity (passengers per vehicle revenue hour), cost-effectiveness (operating cost per passenger trip), and cost-efficiency (operating cost per vehicle revenue hour). These target standards are based on FY 2015-16 when ridership was at its highest point at just over 1.2 million boardings.

² [Working Paper 1 – Overview of Transit Services](#)

³ [Working Paper 2 – Goals, Objectives, and Standards](#)

⁴ [Working Paper 3 – Service and System Evaluation](#)

A significant increase in ridership is needed to achieve the City's mode split objectives while maintaining the required Farebox Recovery Ratio (FFR) of 20 percent. Working Paper 2 recommends minimum and target standards for key measurements to track progress toward meeting the mode split objectives while also meeting SLO Transit's FFR requirement. Below are the recommended measures for productivity, cost-effectiveness, and cost-efficiency standards.

- **Passengers per Vehicle Revenue Hour** – a minimum of 11.5 based on the peer average and a target standard of 36 based on ridership in FY 2015-16.
- **Operating Cost per Passenger Trip** – set a maximum of \$11.23 based on the peer average and a target standard of \$3.85 based on current system costs and ridership in FY 2015-16.
- **Operating Cost per Vehicle Revenue Hour** – set a maximum of \$145 based on FY 2022-23 actuals and a target standard of \$137.04 based on vehicle revenue hours and miles provided in FY 2015-16.

Productivity for transit systems is measured by the number of passengers transported per vehicle revenue hour. Based on FY 2015-16 ridership, LSC recommends SLO Transit maintain a minimum of 11.5 passengers per revenue hour with a target of 36 passengers per revenue hour. Cost-effectiveness is measured by dividing total operating costs by the total number of passengers trips taken annually. For SLO Transit, LSC recommends a maximum of \$11.23 per passenger with a target of \$3.85 per passenger. Cost-efficiency is measured by dividing total operating costs by the total number of hours when services are provided. LSC recommends a maximum of \$145 per hour with a target of \$137.04 per hour. These three performance measurements are useful to monitoring the impacts of service changes and whether the service changes are helping SLO Transit to increase ridership and meet the City's mode split objectives more effectively and efficiently.

Working Paper 2 includes other recommended changes to SLO Transit's performance standards based on the recently completed Transit Innovation Study. These recommended changes include increasing service frequency from 30 minutes at peak and 60 minutes at off-peak to 15 minutes at peak and 30 minutes at off-peak, expand fare and pass options, provide lighting at 100 percent of bus stops, and expand span of service⁵ hours on weekends. A full list of recommended performance standards can be found in Table 4 of Working Paper 2.

Summary of Working Paper 3 – Service and System Evaluation

Working Paper 3 is a key document in the preparation of the SRTP update as it identifies and analyzes existing and future public needs for transit services. The document covers demographic and economic factors related to transit demand, evaluates ten years of SLO Transit's operations and performance data, and the appendices present data from the onboard survey, community survey, and stakeholder workshop feedback.

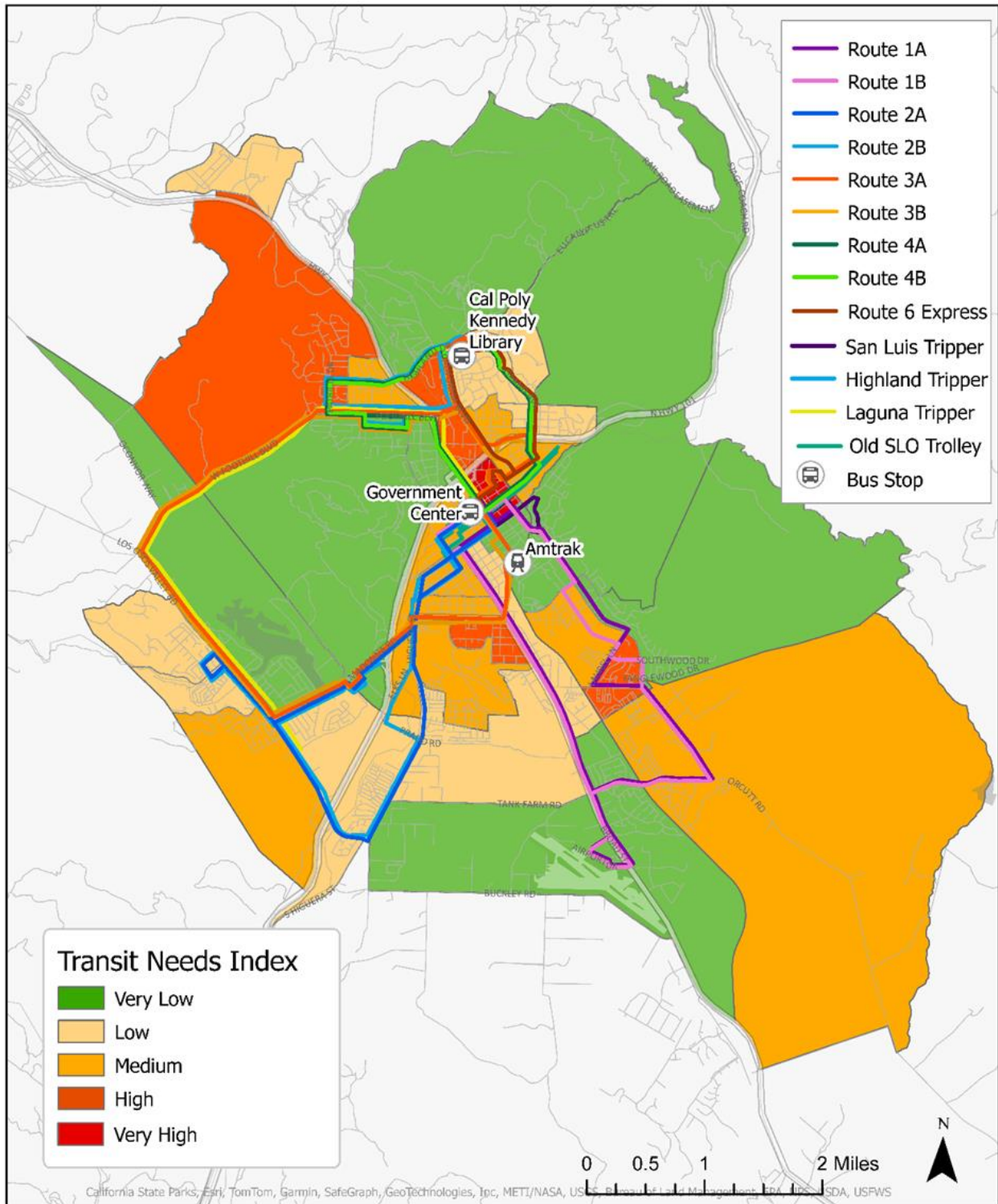
⁵ Span of Service means the number of hours during a day that transit service is provided.

Transit Needs Index Assessment

LSC performed a Transit Needs Index (TNI) assessment as part of the demographic and economic data analysis. A TNI shows which areas have the greatest relative need for transit services based on the concentration of transit-dependent residents. The transit-dependent individuals are typically considered to comprise youths, senior adults, persons with a disability, low-income persons, and persons who live in zero-vehicle households. All these areas are provided with some level of services by SLO Transit.

Census block groups encompassing the Downtown area and south-central San Luis Obispo have the overall highest TNI ranks, scoring either high or very high for most of the demographic categories considered. It makes sense that the Downtown area ranks very high on the TNI since most of the residential areas lack dedicated parking and/or are considered low-income housing like the Wineman Apartments building. Block groups with moderate transit need, based on the TNI, are found in northeastern, eastern, and southeastern San Luis Obispo, along S. Higuera Street, Foothill Boulevard, and Highland Drive, as well as near the southern portion of the Cal Poly campus. Figure 1 shows the TNI ranks for the census block groups that make up the City.

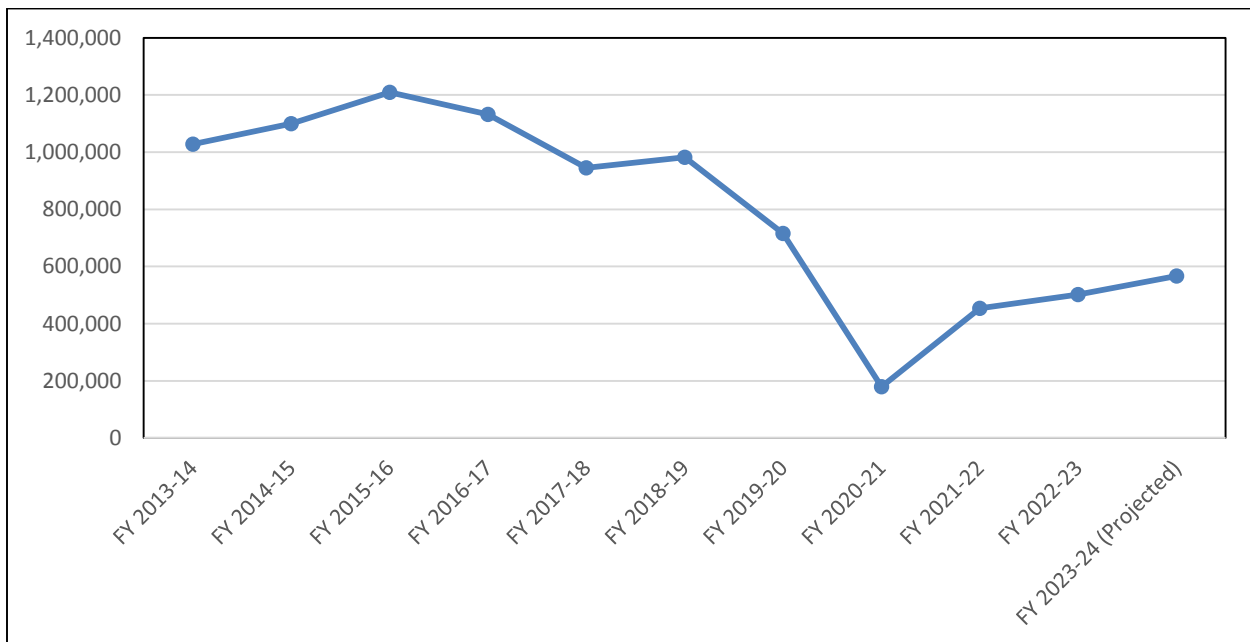
Figure 1 - City of San Luis Obispo Transit Needs Index Map



Ten-Year Trends Analysis

LSC’s ten-year trend analysis of SLO Transit’s operations reveals the significant impact the COVID pandemic and the nationwide driver shortage that followed had on ridership and service levels. Ridership peaked in FY 2015-16 with more than 1.2 million boardings then proceeded to decline slightly until FY 2018-19 with a significant decline in FY 2019-20 and FY 2020-21 due to the pandemic. Ridership recovered quickly in FY 2021-22 and FY 2022-23 but is still less than half when compared to FY 2015-16 data as shown in Figure 2.

Figure 2 - SLO Transit Annual Ridership (FY2013 - FY 2024)



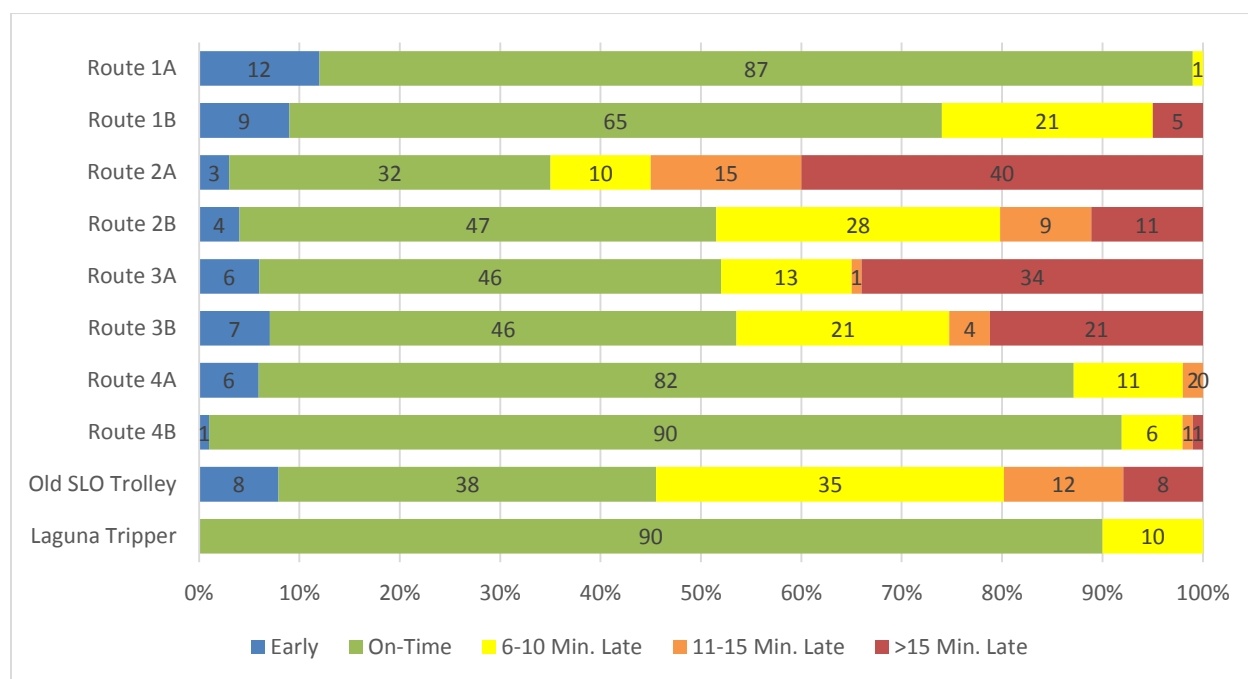
LSC’s trend analysis also shows that operating costs have increased 31 percent over the past ten years, which is similar to increase in the Consumer Price Index (CPI) over the same period. This indicates that SLO Transit’s operating costs have not increased more than inflation. Local revenue, which includes cash fares and funding from the Cal Poly Transit Service Agreement, has only increased by 14 percent over the past ten years. Service miles and service hours decreased by 14 percent and 6 percent, respectively, over the ten-year period. The reduction in miles and hours is due to service reductions made during the pandemic and the slow service restoration that followed due to driver shortages. As of the writing of this report, SLO Transit still has several services suspended including the San Luis Tripper, Highland Tripper, and Route 6 Express.

FY 2022-23 Operations and Performance

In FY 2022-23, Route 4A had the greatest ridership followed by Routes 3A, 2A, and 4B which is relatively consistent with prior years’ ridership trends. Higher ridership tends to be observed on the A routes versus B routes because the A routes operate more days of the week and for longer hours. Services oriented toward Cal Poly and K-12 students (Routes 3 and 4 and the Laguna Tripper) were the most productive and cost-efficient when comparing the proposed performance standards discussed in Working Paper 2.

On-time performance was also recorded as part of the October 2023 onboard surveying efforts. Based on the data collected and presented in Figure 3 in this report, Routes 1A, 4A, 4B, and the Laguna Tripper had the best on-time performance as they were on-time for 80 percent or more of the timepoint stops. Route 2A and the Old SLO Trolley had the largest proportions of timepoints for which the bus left late. Routes 2A, 3A, and 3B had the largest proportions of timepoints for which the bus left more than 15 minutes late. The data suggests that on-time performance is a challenge for SLO Transit, especially on Routes 2 and 3. On-time performance is an important aspect of service quality and reliability and the SRTP update will consider service modifications to improve on-time performance.

Figure 3 - On-Time Performance by Route



Since the peak of the pandemic in FY 2020-21, SLO Transit systemwide performance has slowly improved with the return of both local and Cal Poly ridership. However, it is likely that significant service modifications will be needed to increase SLO Transit ridership to the levels necessary to achieve the City of San Luis Obispo’s adopted transit mode split objectives. LSC’s performance analysis also reveals service inefficiencies that should be addressed to increase reliability and the community’s confidence in transit as a viable transportation option. Service alternatives meant to address the City’s mode split objective and improve service performance based on the data collected by LSC were analyzed and compiled into Working Paper 4.

Summary of Working Paper 4 – Service Alternatives Analysis

Preparation of service alternatives is one of the major components of any SRTP. The data and feedback documented in the first three working papers is used to develop service alternatives that will best address the current and future needs of the community. Many of the service alternatives analyzed in Working Paper are focused on increasing

ridership to help achieve the City's transit mode split objective. The impacts of the alternatives are presented separately in this working paper, but the combined impacts will be included in forthcoming Working Paper 5 – Operating Budget and Financial Projections and Working Paper 7 – Capital Improvement Plans.

The service alternatives are organized by the type of change proposed into four categories: (1) changes to service frequency, (2) changes to service hours, (3) Microtransit service, and (4) routing and service reestablishment alternatives. The various alternatives are then compared using the new performance standards recommended in Working Paper 2. Ridership and operating costs impacts are estimated based on FY 2022-23 actuals and FY 2023-24 projected figures.

Service Frequency Alternatives

The Transit Innovations Study recommended increasing service frequency to improve service quality and increase ridership. More frequent service was one of the most requested improvements during the onboard passenger survey (42 percent of respondents). The options discussed demonstrate the wide range of potential impacts that can result from increasing service frequency to differing extents. Table 1 summarizes the service frequency alternatives and potential impacts.

Service frequency is typically measured by the number of buses per hour or by time between buses on a particular route. This measurement is often referred to as headways⁶. For example, SLO Transit's 1A Route has one bus running per hour, so this route is considered to have hourly headways. Doubling service frequency on Route 1A would increase the number of buses running per hour and reduce the time between buses to 30-minute headways. Several of the service alternatives scenarios analyzed include doubling frequency on all routes or on select routes including scenarios where frequency is double for the entire service day or for portions of the service day.

⁶ Headway means the average interval of time between vehicles moving in the same direction on the same route

Table 1 - Service Frequency Alternatives

Service Alternative	Status Quo ⁷	Changes in Annual Service					
	Ridership	Ridership	Service Hours	Service Miles	Marginal Operating Cost	Cash Fares	Add'l Buses Needed
Increase Route 4 Service Frequency During Academic Year							
Route 4A (8:00 am to 10:00 am)	152,800	4,200	300	2,300	\$ 20,200	\$ 300	1
Route 4B (3:00 pm to 5:00 pm)	70,900	3,900	300	2,100	\$ 19,700	\$ 300	1
Double Service Frequency on Routes 1, 2, 3, and 4 (A & B)							
Full Service Day ⁸ , Year-Round	574,100 ⁹	208,300	33,500	347,000	\$ 2,455,000	\$ 83,500	8
8:00 am to 6:00 pm, Weekdays, Year-Round	574,100	119,700	19,600	234,200	\$ 1,505,800	\$ 48,000	8
Full Service Day, Weekdays, Academic Year	574,100	153,600	20,900	231,700	\$ 1,565,500	\$ 61,600	8
Double Service Frequency on Routes 1A, 2A, 3A, 4A							
Full Service Day, Weekdays, Academic Year	383,700	89,600	11,300	133,800	\$ 865,400	\$ 35,900	4
Double Service Frequency on Routes 3A, 3B, 4A, 4B							
Full Service Day, Weekdays, Academic Year	384,100	101,200	11,600	136,100	\$ 885,600	\$ 40,600	4

Route 4 is the most popular service and provides direct connection between Cal Poly, the Foothill Blvd. area, and the downtown. Increased service frequency on Route 4 would primarily benefit Cal Poly students, faculty, staff, and general riders that access the campus. SLO Transit would likely see a marginal increase in cash fares since Cal Poly riders are covered under a Transit Service Agreement (TSA) with Cal Poly. The current TSA term is from July 1, 2024, through June 30, 2027, with an annual payment of \$750,000 to the City for services provided.

The TSA allows for the City or for Cal Poly to request reopening the agreement if (1) Cal Poly ridership increases or decreases by 10% or more in a year or (2) if the City increases the fare box rate of 25% over the duration of the agreement. Changes to Cal Poly ridership resulting from any service alternatives will be monitored to see if this triggers the ability to reopen the agreement for further negotiations.

LSC analyzed five different scenarios in which service frequency is doubled across select or all fixed routes at different periods throughout the year. Doubling the frequency would result in service every 25 to 30 minutes and would directly address the top recommendation of the Transit Innovation Study. However, doubling service as analyzed under all five scenarios would also require significant operating and capital investments. Operating costs would increase between \$865,400 and \$2.45 million annually and capital costs would require purchase of four to eight additional buses.

⁷ Based on FY 2023-24 actual ridership through March 31, 2024 projected through the end of the year

⁸ Full Service Day means the total number of hours a day that transit service is provided.

⁹ System-Wide

Span of Service Alternatives

The next set of alternatives focus on the hours that transit services operate also referred to as “span of service.” Passengers requested multiple changes to the span of service during the onboard passenger survey; the most requested service improvements were later evening service (54 percent of respondents), more frequent service (42 percent), additional Saturday service (39 percent), and additional Sunday service (32 percent). Table 2 summarizes the span of service alternatives and potential impacts.

Table 2 - Span of Service Alternatives

Service Alternative	Status Quo	Changes in Annual Service					
	Ridership	Ridership	Service Hours	Service Miles	Marginal Operating Cost	Cash Fares	Add'l Buses Needed
Extend Weekday Evening Service on A Routes							
Extend Service to 12:00 am, Academic Year	383,700	5,100	1,000	10,900	\$ 74,500	\$ 2,000	0
Extend Service to 10:00 pm, Non-Academic Year	383,700	2,200	700	7,000	\$ 50,700	\$ 900	0
Expand Service on B Routes							
Operate B Routes on Weekends, 7:45 am to 8:00 pm	178,700	39,600	3,200	46,100	\$ 263,100	\$ 15,900	0
Operate 3B and 4B on Weekends	178,700	29,400	1,600	25,300	\$ 136,700	\$ 11,800	0
Extend Routes 1B and 2B until 10:00 pm, Weekdays, Academic Year	178,700	4,000	1,400	14,500	\$ 102,600	\$ 1,600	0
Provide Academic Year Service Levels Year-Round							
	574,100	16,300	2,300	26,400	\$ 174,300	\$ 6,500	0

To provide residents with a later-night transit option, two alternatives for extending service on Routes 1A, 2A, 3A, and 4A were considered. Currently, the last departures on weekdays during the academic year on the A Routes occur at 9:15 PM (Routes 1A and 2A), 10:15 PM (Route 3A) and 10:30 (Route 4A). Based on late evening ridership on transit services at other California universities, this additional service is estimated to increase ridership by 5,100 boardings per year. This alternative would not require an additional bus to operate, but it would increase annual operating cost by \$80,200.

During the non-academic year, the last runs start at 7:15 PM on Routes 1A, 2A, and 3A and 7:30 PM on Route 4A. Extending service until 10:00 PM would require operating two additional runs on Routes 1, 2, and 3, and three additional runs on Route 4. Based on ridership from comparative agencies during academic and non-academic periods, these additional runs would generate 2,200 passenger-trips per year, increase annual operating costs increased by \$50,700, and would result in a minimal increase in cash fare revenue. No additional buses would be required.

Three route B service expansion scenarios were analyzed including operation of all B routes on the weekends, operation of only Routes 3B and 4B on the weekends, and extending Routes 1B and 2B on weekdays. Both scenarios analyzing operation of the B routes on weekends is estimated to result in significant increases to ridership but also to service miles and to operating costs. Extension of Routes 1B and 2B on weekdays is estimated to slightly increase ridership but would have a significant impact on operating costs. None of the three scenarios require additional buses since the existing fleet is sufficient to provide the service.

Lastly, Cal Poly plans to transition to a semester system beginning Fall 2026 which means class sessions would begin earlier and end later than under the current quarter system. There may also be more opportunities for students to attend summer classes through a semester system. LSC analyzed the potential impacts of providing academic service levels year-round. This scenario would increase annual vehicle-hours and annual vehicle-miles but also increase ridership and cash fares. Annual operating costs would be increased by \$174,300 however no additional buses would be required. This option also has the benefit of providing more consistent year-round driver schedules, which has the potential to increase driver retention.

As stated above, any service alternatives that result in an increase to Cal Poly ridership would allow the City to request a reopening of the TSA to further negotiations. Staff already tracks Cal Poly ridership and any implemented service changes would be easy to monitor.

Microtransit Service Alternatives

Microtransit utilizes the app-based technology developed for transportation network companies like Uber and Lyft to provide real-time, on-demand transit service. In recent years, many public transit agencies have begun using Microtransit to provide transit coverage over areas not served efficiently by fixed routes. Microtransit has also been found to be effective in areas with high demand for short trips. Most Microtransit passengers request rides and pay fares through an app or over the phone. Table 3 summarizes the Microtransit service alternatives and potential impacts.

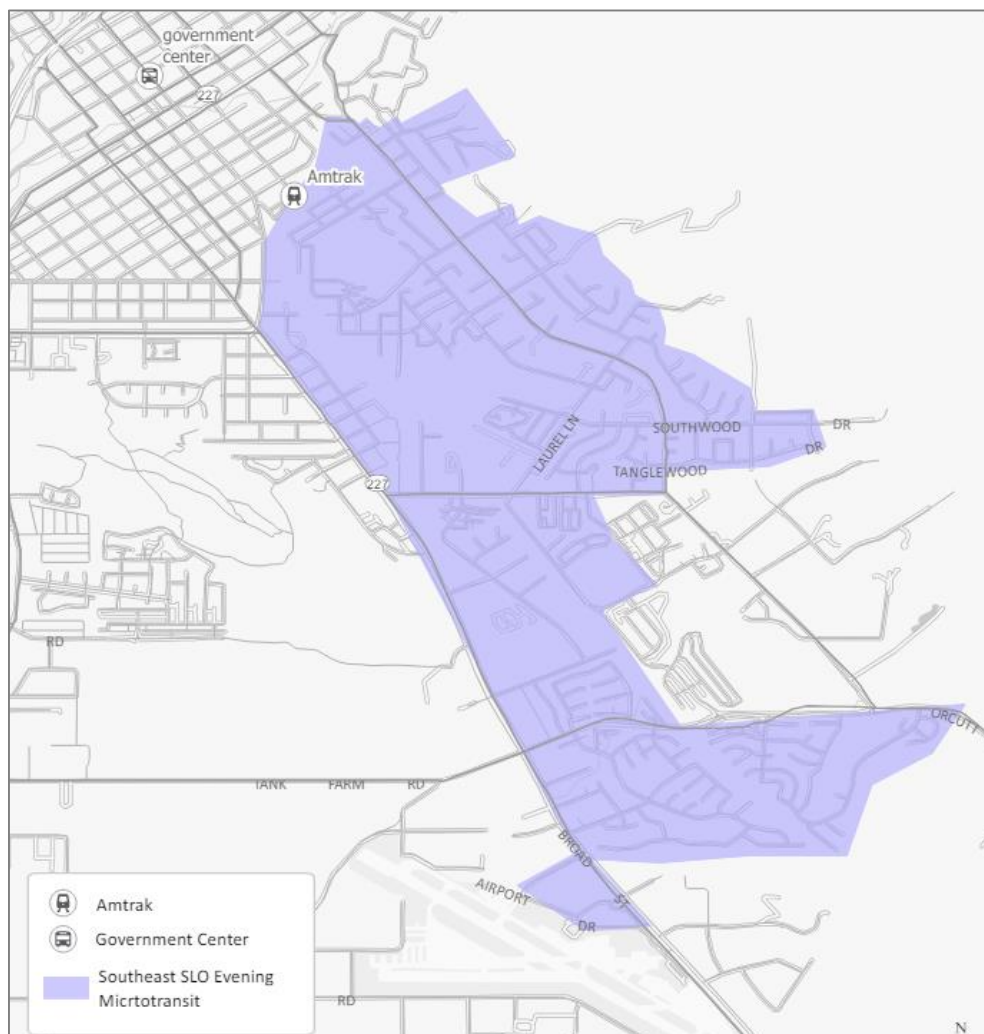
Table 3 - Microtransit Service Alternatives

Service Alternative	Status Quo	Changes in Annual Service					
	Ridership	Ridership	Service Hours	Service Miles	Marginal Operating Cost	Cash Fares	Add'l Buses Needed
Evening Microtransit, Southeast SLO							
7:00 pm to 10:00 pm, weekdays, Year-Round	55,900	100	500	8,800	\$ 33,600	\$ 200	2
Late Night Microtransit, Citywide							
10:00 pm to 12:00am, Weekdays, Academic Year	574,100	4,700	1,400	17,500	\$ 122,800	\$ 11,100	3
10:00 pm to 12:00am, 7 Days/Week, Academic Year	574,100	7,100	1,700	21,625	\$ 160,600	\$ 11,100	3

As part of this alternative, replacing Route 1A with Microtransit service between the hours of 7:00 PM and 9:00 PM on a year-round basis was reviewed. Routes 1A and 1B serve residences in southeast San Luis Obispo as well as the San Luis Airport. Figure 4 presents an example Microtransit service in the southeast service area of the City. In order to serve the level of transit demand currently seen on Route 1A during the evening hours, two vehicles would be needed to provide service.

This would cost an additional \$33,600 annually in operating costs (including the costs of the annual technology license). As SLO Transit does not currently have small vehicles in their fleet, two vans would also need to be procured to operate this service. There would be a small increase in ridership over the existing Route 1A evening ridership by around 100 trips per year but, as development progresses along Tank Farm Rd., Microtransit service area could be expanded. However, as demand for service increases, another vehicle would be required, which would further increase costs.

Figure 4 - Microtransit in Southeast Service Area



Microtransit could be provided to the entire city as a “Late Night” service. SLO Transit services are not available past 11:00 PM and only Routes 3 and 4 operate this late during the academic year. As part of this alternative, Microtransit would be available between 10:00 PM and midnight during the academic year. This alternative assumes that three vans would be used for an annual operating cost between \$122,800 and \$160,600 annually depending on the days of service. Ridership was estimated by reviewing ridership by hour on other Microtransit services and would result in modest increases.

If implemented, staff recommends that Microtransit be provided as a one-to-two-year pilot program once the necessary vehicles and management software is obtained. A pilot program could be implemented by leasing vehicles and associated software from a transit service provider so that the City does not have to buy vehicles. The current agreement with Transdev, the City’s transit operations and maintenance services provider, expires on June 30, 2025 and allows for a one-year extension through June 30, 2026. An option for a Microtransit pilot program can be included in the next Request for Proposals for transit operations and maintenance services.

Route Realignment and Service Reestablishment Alternatives

LSC analyzed routing realignments based on the performance data and survey feedback collected and analyzed as part of Working Paper 3. LSC also analyzed impacts of reestablishing tripper and express services provided prior to the onset of the pandemic. SLO Transit plans to reestablish these services and this analysis provides insight into potential revenue, costs, and ridership changes associated with the reestablishment. Table 4 summarizes the route realignment and service reinstatement alternatives and potential impacts.

Table 4 – Route Realignment and Service Reinstatement Alternatives

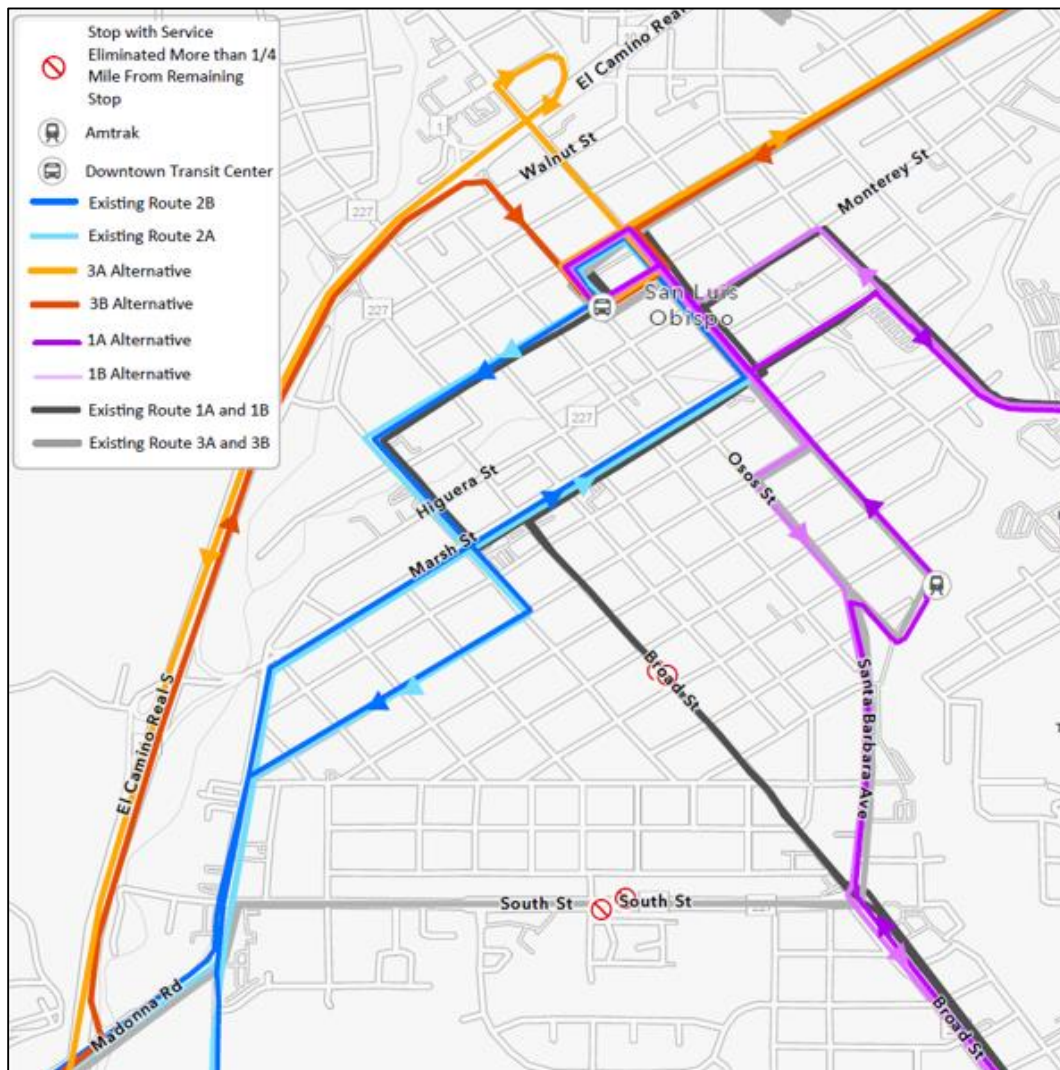
Service Alternative	Status Quo	Changes in Annual Service					
	Ridership	Ridership	Service Hours	Service Miles	Marginal Operating Cost	Cash Fares	Add'l Buses Needed
Revise Route 1 and 3 in Downtown Area							
	236,300	17,700	0	-2,500	-\$ 5,600	\$ 9,600	0
Reinstate Route 6 Express							
	0	2,200	100	1,000	\$ 7,200	\$ 900	1
Reinstate SLO Tripper							
	0	7,100	280	1,430	\$ 17,200	\$ 2,800	1
Reinstate Highland Tripper							
	0	6,600	230	2,430	\$ 17,000	\$ 2,600	1

Working Paper 3 demonstrated that on-time performance is a major issue for most of SLO Transit’s routes. LSC considered several routing realignments to Routes 1A, 1B, 2A, 2B, 3A, and 3B to improve on-time performance. LSC determined the best scenario to improve on-time performance would be to realign Routes 3A and 3B onto US 101 between the Downtown Transit Center and the Madonna Street interchange and shift Routes 1A and 1B onto the exiting Routes 3A/3B routes between Broad Street/High Street and the Downtown Transit Center. Figure 5 below shows the proposed realignments of Routes 1 and 3 and their existing routes.

Service would be fully eliminated from a total of four existing stops and reduce service between the downtown Transit Center and central downtown San Luis Obispo by rerouting Route 1 out of the area. However, as the current Route 1 schedule is very close to the Route 2 schedule in both directions, this would not significantly reduce the convenience of transit service. This option would also reduce the travel times between southwest San Luis Obispo and the Downtown Transit Center.

Improving the dependability of Route 3 would also improve the connections to other routes at the Transit Center. Overall, the proposed realignment would increase ridership, decrease operating costs, and generate additional cash fare revenue. No additional buses would be required.

Figure 5 - Routes 1 and 3 Realignment



Reinstatement of Route 6 Express would provide direct connection between Cal Poly and downtown on Famer's Market nights. Reinstatement of the tripper services would provide direct service to the high school via the SLO Tripper and service between Cal Poly and the Foothill Blvd neighborhood. The three services would result in modest increases to ridership and to operating costs. Operating costs for reinstatement of these services is already included in the Transit Fund's annual operating budget.

Service Alternatives Preliminary LSC and Staff Recommendations

An analysis using the proposed performance standards identified in Working Paper 2 show that the following service alternatives have the greatest potential to enhance services while meeting both the passengers per vehicle revenue hour and operating cost per passenger trip standards. Based on their analysis, LSC recommends including the following alternatives in the development of the draft plan.

LSC Recommended Alternatives:

1. Realign Routes 1 and 3 in downtown San Luis Obispo;
2. Provide B route service on weekend days year-round;
3. Increase Route 4A service frequency on weekday mornings in the academic year;
4. Increase Route 4B service frequency on weekday afternoons in the academic year; and
5. Reinstate Route 6 Express, SLO Tripper, and Highland Tripper services.

Staff concurs with LSC Recommendation #1 to realign Routes 1 and 3 in downtown San Luis Obispo as this change is believed to help address observed on-time performance issues. On time performance for SLO Transit is important to instill a sense of trust and reliability for users and increase confidence that SLO Transit customers can depend on the services that SLO Transit provides. This recommendation is estimated to have a minor savings in operating costs of \$5,600 a year and will not require any additional transit vehicles.

Staff concurs with LSC Recommendation #2 to provide B route service on weekend days year-round as this was a highly requested in SLOCOG's Transit Needs Assessment as well as through the outreach conducted as part of the SRTP update. There is concern that adding weekend services could not increase ridership for SLO Transit but may only spread out current ridership across more trips. Staff is recommending that if this service augmentation is supported by Council that Council consider this to be phased in as a last order of service augmentation. This recommendation is estimated to increase annual operating cost by \$263,100 and will not require any additional transit vehicles.

Staff concurs with LSC Recommendation #3 to increase Route 4A service frequency on weekday mornings in the academic year and LSC Recommendation #4 to increase Route 4B service frequency on weekday afternoons in the academic year as these routes are the best performing and the highest demand routes for SLO Transit service. This recommendation is estimated to increase annual operating cost by \$39,900 and requires one additional transit vehicle.

Staff concurs with LSC Recommendation #5 to reinstate Route 6 Express, SLO Tripper, and Highland Tripper services as doing so aligns with the City's goal of restoring transit services to pre-pandemic levels. This recommendation is estimated to increase annual operating cost by \$41,400 and requires one additional transit vehicle.

Selecting the appropriate level of services provided to the community through the SRTP requires consideration of community desires, anticipated community usage, transit operating costs and capital expenditures related to acquiring and maintaining transit vehicles. While it is anticipated that SLO Transit revenues will increase with increased level of service provided to the community, expenditures related to operating cost and capital needs are anticipated to be greater. To reduce the impact to capital expenditures for service augmentation, staff is considering and would appreciate Council's guidance on whether keeping the appropriate number of transit buses in service longer to address this immediate need is acceptable. While both SLO Transit and the Council has been aggressively replacing aging transit vehicles with new Zero Emission Buses some of the existing buses could be maintained in the fleet longer to augment services.

Study Session Feedback

Now that Council has received an update on the SRTP progress and reviewed the service alternatives analysis, staff is requesting direction as to which service alternatives to incorporate into the draft plan. Below are several questions staff has included to help initiate the feedback discussion.

1. Does Council agree with LSC and Staff's preliminary recommendations to include some or all the above listed service alternatives in the draft plan?
2. Does Council support the concept of addressing increased number of necessary transit vehicles by keeping in service existing buses that would have normally been removed from the inventory?
3. Does Council want to pursue a Microtransit pilot program as part of the SRTP update? If so, should the program overlay Microtransit over the entire service area or for specific route(s)?
4. With Cal Poly moving to a semester system in Fall 2026, SLO Transit could operate academic service year-round since Cal Poly would be in session for more of the year compared to their current quarter system. Would Council like to include in the draft plan implementation of any service changes to coincide with Cal Poly transition to a semester system?

Next Steps

LSC will update the service alternatives analysis section based on Council's feedback and include operational and capital costs assumptions for the service alternatives in Working Paper 5 - Operating Budget and Financial Projections and Working Paper 7 – Capital Improvement Plans. City staff, RTA, and LSC will also finalize a date in September for the third Joint MTC and RTAC meeting to present the recommended service alternatives and associated operating and capital costs.

Previous Council Action

1. January 23, 2024 – Council received and filed Transit Innovation Study and directed staff to finalize the report and begin implementation.
2. June 6, 2023 – Adoption of the 2023-25 Financial Plan and FY 2023-24 Budget which includes the Climate Action, Open Space, and Sustainable Transportation Major City Goal.
3. December 13, 2022 – Council adopted the Climate Action Plan 2023-27 Work Program which reaffirms direction to achieve the mode split objectives by 2030 and directs staff to incorporate the Transit Innovation Study findings into the Short-Range Transit Plan update.
4. August 18, 2020 – Council adopted the Climate Action Plan for Community Recovery establishing the 7% of trips by transit mode split objective by 2030.
5. September 20, 2016 – Council adopted the 2016 Short-Range Transit Plan.

Public Engagement

LSC and staff have conducted extensive outreach for the SRTP update as outlined below.

- Onboard Surveys were collected between October 23 and October 27, 2023, on all SLO Transit fixed route and tripper services. A total of 427 survey responses were received.
- In-person Stakeholder Workshop was held at the Ludwick Community Center on November 8, 2023, and included individuals from RTA, the City of San Luis Obispo, Cal Poly, and City of Paso Robles.
- Community (online) Surveys were collected between November 14 and December 12, 2023, using a Survey Monkey instrument developed by LSC and using the City's Open City Hall program. A total of 254 survey responses were received.
- Virtual Stakeholder Workshop was held on January 18, 2024, and included individuals from RTA, the City of San Luis Obispo, Transdev (the City's transit operations and maintenance contractor), SLOCOG, Cal Poly, Cuesta College, City of Paso Robles, City of Grover Beach, and California Department of Transportation (Caltrans).
- Joint Mass Transportation Committee (MTC) and Regional Transit Advisory Committee (RTAC) meeting was held on March 13, 2024, to present the results from Working Papers 1, 2, and 3 and to solicit feedback from committee members and the public as to which service alternatives should be analyzed in Working Paper 4.
- Joint Mass Transportation Committee (MTC) and Regional Transit Advisory Committee (RTAC) meeting was held on June 5, 2024, to present and solicit feedback on the initial service alternatives analysis that will be included in Working Paper 4.
- Community Workshops were held on June 5, 2024, in San Luis Obispo and on June 6, 2024, in Paso Robles and in Nipomo to present and receive feedback from the public on the initial service alternatives analysis.
- City Council Study Session on July 16, 2024, provides another opportunity for the public to provide input through written correspondence and through public testimony.

Each of these engagement efforts have included news releases prepared and distributed by the City's communication team, print flyers on bus and at public facilities downtown, and updates posted to SLO Transit's and to RTA's respective webpages. A third Joint MTC and RTAC meeting is tentatively scheduled for September 2024 to present the remaining Working Papers. The joint meeting also serves as an opportunity for the public to attend and provide feedback.

CONCURRENCE

The City’s Mass Transportation Committee and RTA’s Regional Transit Advisory Committee held a joint meeting on June 5, 2024, to review and provide feedback the service alternatives analysis. Committee members expressed interest in increasing weekend service and running the academic service year-round once Cal Poly moves to a semester system. One member suggested offering Microtransit services on weekends instead of fixed route to help fill in service gaps. An SRTP update working group consisting of City, RTA, and SLOCOG staff representatives have reviewed and commented on Working Papers 1, 2, 3, and 4.

ENVIRONMENTAL REVIEW

The California Environmental Quality Act (CEQA) does not apply to the recommended action in this report, because the action does not constitute a “Project” under CEQA Guidelines Sec. 15378. Projects carried out as part of the final adopted Short-Range Transit Plan must comply with state and local laws including environmental review or finding of exemption.

FISCAL IMPACT

Budgeted: N/A

Budget Year: N/A

Funding Identified: N/A

Fiscal Analysis:

Funding Sources	Total Budget Available	Current Funding Request	Remaining Balance	Annual Ongoing Cost
Transit Fund	\$ 0	\$ 0	\$ 0	\$ 0
State				
Federal				
Fees				
Other:				
Total	\$ 0	\$ 0	\$ 0	\$ 0

The recommended action in this report does not have an immediate impact on the Transit Fund or the General Fund. The final SRTP will provide a five-year fiscally constrained operating and capital budgets for FY 2025-26 through FY 2029-30. The operating and capital budgets provided by the plan will be incorporated into the 2025-27 Financial Plan and will inform future financial planning processes.

ALTERNATIVES

Council could choose not to provide direction on which service alternatives to include in the Short-Range Transit Plan update. Staff does not recommend this alternative because the plan should accurately reflect Council's vision for the future transit services in the City and align with previous Council actions.

ATTACHMENTS

A - Working Paper 4 – Service Alternatives Analysis



City of San Luis Obispo Transit Short Range Transit Plans

Working Paper 4 - Service Alternatives

Prepared for
SLO Transit

June 21, 2024

Prepared by LSC Transportation Consultants



City of San Luis Obispo Transit Short Range Transit Plans

Working Paper 4: Service Alternatives

Prepared for

City of San Luis Obispo
990 Palm Street
San Luis Obispo, CA 93401

Prepared by

LSC Transportation Consultants, Inc.
2690 Lake Forest Road, Ste. C
Tahoe City, CA 96145

June 21, 2024

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SLO TRANSIT SERVICE ALTERNATIVES

INTRODUCTION

In this chapter, service alternatives for SLO Transit are presented. The alternatives are based on public input and the recommendations of related studies, including the recent *SLO Transit Innovations (Transit Innovations) Study (2024)*. Given the City’s goal of achieving a 7 percent transit mode split by 2030 and 12 percent transit mode split by 2035, many of the service alternatives are designed to increase ridership. Each alternative is evaluated as a stand-alone option in this chapter; the combined impacts of the recommended plan elements will be detailed in the Draft SLO Transit SRTP.

The following discussion of SLO Transit service alternatives is organized by the type of change proposed. Changes to service frequency are discussed first, followed by potential changes to service hours. Then, options for introducing microtransit service to San Luis Obispo are presented, followed by routing alternatives. The various alternatives are then compared using the new performance standards recommended in WP2. For each alternative, the impacts on ridership and operating costs are estimated. Ridership and cost estimates assume implementation in FY 2025-26 and are based on the following parameters:

1. The projected SLO Transit FY 2025-26 operating budget, as presented in the City of San Luis Obispo 2023-25 Financial Plan Supplement, was used to estimate the operating costs of each existing service assuming no change to service levels (“status quo” scenario). The per-hour and per-mile costs were then used to estimate the cost impacts of the various alternatives, per the following equation:

$$\begin{aligned} \text{Change in SLO Transit Marginal Operating Cost} &= \$50.22 \times \text{Change in Vehicle Service Hours} \\ &+ \$2.23 \times \text{Change in Vehicle Service Miles} \end{aligned}$$

For the alternatives evaluations which follow, operating cost estimates represent “marginal” costs. In other words, fixed costs are excluded from the analysis unless identified specifically. The reason for looking at marginal costs of potential changes or improvements is that fixed costs (such as administrative staff salaries, utilities and supplies) will not change if service levels are increased or decreased. However, fuel/maintenance costs (cost per mile) and driver salary costs (costs per hour) will increase incrementally as vehicle hours and miles are increased. Fixed costs and capital costs will be included in the discussion when the Draft Financial Plan is prepared.

2. Ridership estimates are based on projected full-year SLO Transit FY 2023-24 ridership, expected population growth in San Luis Obispo County during the next two years, ridership data from peer systems, and standard transit demand elasticity factors, depending on the alternative. Elasticity is an economic term which measures the change in behavior of one variable in response to the change in a related variable. For example, if service levels are doubled, historical data has shown that ridership will not double, but rather increase by around 47 percent. Elasticity factors vary for different variables such as headways, total travel time or transfer time. Variation has also been found in urban areas vs. suburban areas or during peak or non-peak periods. *The Transit Cooperative Research Program (TCRP) Report 95 Traveler Response to Transportation System*

Changes Chapter 9 – Transit Scheduling and Frequency is a good resource for transit elasticity factors.

3. Service was assumed to include 180 academic year weekdays, 81 non-academic year weekdays, 52 Saturdays/holidays, and 52 Sundays, unless otherwise noted.
4. The assumed average cash fares received per boarding on each route are shown in Table 1. The average cash fare values were calculated by dividing the total annual cash fare revenue received on the route during FY 2022-23 by total annual boardings. The average cash fare estimates do not account for fees received from Cal Poly.

Table 1 : SLO Transit Average Cash Fare per Boarding by Route

FY 2022-23

	Boardings	Cash Fares	Average Cash Fare per Boarding
Route 1A	50,349	\$51,823.37	\$1.03
Route 1B	11,452	\$9,381.51	\$0.82
Route 2A	72,298	\$72,317.92	\$1.00
Route 2B	12,215	\$12,348.40	\$1.01
Route 3A	85,585	\$27,594.63	\$0.32
Route 3B	53,979	\$14,563.33	\$0.27
Route 4A	153,525	\$11,662.94	\$0.08
Route 4B	68,567	\$4,780.27	\$0.07
Laguna Tripper	7,032	\$2,048.69	\$0.29
Systemwide	515,002	\$206,521	\$0.40
Source: SLO Transit			

SERVICE FREQUENCY ALTERNATIVES

The Transit Innovations Study recommended increasing service frequency to improve service quality and increase ridership. Additionally, more frequent service was one of the most requested improvements during the onboard passenger survey (42 percent of respondents), corroborating that improving service frequency would likely benefit SLO Transit ridership. This section considers alternatives to increase SLO Transit service frequency. The options discussed demonstrate the wide range of potential impacts that can result from increasing service frequency to differing extents. The service frequency alternatives are summarized in Table 2.

Table 2: SLO Transit - Service Frequency and Span Alternatives

	Change in Annual Service						Additional Buses Needed
	Ridership	Service Hours	Service Miles	Marginal Operating Cost	Cash Fare Revenues ²	Operating Subsidy	
Status Quo¹							
Route 1A	55,900	5,300	50,700	\$379,100	\$57,500	\$321,600	
Route 1B	20,000	3,100	29,900	\$222,300	\$16,400	\$205,900	
Route 2A	80,300	5,300	57,900	\$395,100	\$80,300	\$314,800	
Route 2B	22,100	3,100	33,200	\$229,600	\$22,300	\$207,300	
Route 3A	94,700	6,300	82,400	\$499,900	\$30,500	\$469,400	
Route 3B	65,700	4,900	61,700	\$383,500	\$17,700	\$365,800	
Route 4A	152,800	5,500	47,800	\$382,600	\$11,600	\$371,000	
Route 4B	70,900	4,000	31,000	\$269,900	\$4,900	\$265,000	
Laguna Tripper	10,100	200	2,000	\$14,500	\$2,900	\$11,600	
Old SLO Trolley	1,600	300	1,800	\$19,100	\$600	\$18,500	
<i>System Total</i>	<i>574,100</i>	<i>38,000</i>	<i>398,400</i>	<i>\$2,795,600</i>	<i>\$244,700</i>	<i>\$2,550,900</i>	
Service Frequency and Span Alternatives - Change from Status Quo³							
Increase Route 4 Frequency During Academic Year							
Increase Route 4A Frequency - 8:00 AM - 10:00 AM	4,200	300	2,300	\$20,200	\$300	\$19,900	1
Increase Route 4B Frequency - 3:00 PM - 5:00 PM	3,900	300	2,100	\$19,700	\$300	\$19,400	1
<i>Net Impact (Combined 4A and 4B)</i>	<i>8,100</i>	<i>600</i>	<i>4,400</i>	<i>\$39,900</i>	<i>\$600</i>	<i>\$39,300</i>	<i>1</i>
Double Service Frequency on Routes 1, 2, 3, 4 (A & B)							
Full Service Day, Year-Round	208,300	33,500	347,000	\$2,455,000	\$83,500	\$2,371,500	8
8:00 AM to 6:00 PM, Weekdays, Year-Round	119,700	19,600	234,200	\$1,505,800	\$48,000	\$1,457,800	8
Full Service Day, Weekdays, Academic Year	153,600	20,900	231,700	\$1,565,500	\$61,600	\$1,503,900	8
Double Service Frequency on Rts 1A, 2A, 3A, 4A							
Full Service Day, Weekdays, Academic Year	89,600	11,300	133,800	\$865,400	\$35,900	\$829,500	4
Double Service Frequency on Routes 3A, 3B, 4A, 4B							
Full Service Day, Weekdays, Academic Year	101,200	11,600	136,100	\$885,600	\$40,600	\$845,000	4
Extend Weekday Evening Service on A Routes							
Extend Service to 12:00 AM - Academic Year	5,100	1,000	10,900	\$74,500	\$2,000	\$72,500	0
Extend Service to 10:00 PM - Non-Academic Year	2,200	700	7,000	\$50,700	\$900	\$49,800	0
Expand Service on B Routes							
Operate B Routes on Weekends - 7:45 AM - 8:00 PM	39,600	3,200	46,000	\$263,100	\$15,900	\$247,200	0
Operate 3B and 4B on Weekends	29,400	1,600	25,300	\$136,700	\$11,800	\$124,900	0
Extend Routes 1B and 2B until 10:00 PM - Weekdays, Academic Year	4,000	1,400	14,500	\$102,600	\$1,600	\$101,000	0
Provide Academic Year Service Levels Year-Round							
	16,300	2,300	26,400	\$174,300	\$6,500	\$167,800	0
<p>Note 1: Status quo operations are based on FY 2023-24 ridership through 3/31/24 and expected annual population growth. Service estimates are based on FY 2022-23 operating parameters. Cost estimates are based on the projected FY 2025-26 SLO Transit budget and the SLO Transit cost model.</p> <p>Note 2: The average cash fare per boarding by route is detailed in Table 13.</p> <p>Note 3: Parameters and costs represent change over existing services. Estimates represent marginal costs and do not include fixed costs.</p>							

Increase Route 4 Frequency During Academic Year

Routes 4A and 4B serve northeast San Luis Obispo, connecting downtown and the Cal Poly campus with residential areas along Foothill Boulevard, Highland Drive and Grand Avenue. Service is operated on a 45-minute loop, using one bus in each direction. Route 4 is the most popular SLO Transit service; Route 4A is projected to provide upwards of 152,000 passenger-trips in FY 2025-26, and Route 4B is projected to provide 70,000 passenger-trips. Increasing service frequency during peak travel periods would likely further benefit ridership and improve connectivity between downtown and Cal Poly.

Increase Route 4A Frequency – 8:00 AM – 10:00 AM

Ridership is quite high on Route 4A (clockwise direction), particularly on the runs departing the Government Center at 8:15 AM, 10:30 AM and 11:15 AM, all of which were observed to carry more than 50 passengers. Given this high demand, the City could increase service frequency on weekday mornings during the academic year by adding two new runs departing the Government Center at 8:30 AM and 9:15 AM.

Operating the two additional Route 4A runs would increase the City's marginal operating cost by \$20,200 per year. An elasticity analysis based on existing ridership during this service period indicates that ridership would be increased by an estimated 4,200 boardings per year, generating \$300 in additional cash fares (not accounting for fare revenue agreement with Cal Poly). Note that there could be additional ridership generated by potential passengers that currently do not use the existing service due to crowding. This alternative would require an additional peak bus.

Increase Route 4B Frequency – 3:00 PM – 5:00 PM

Route 4B, which operates in the counterclockwise direction, carries particularly high passenger loads on the 4:00 PM and 4:45 PM runs (50 passengers each). Adding two additional runs departing the Government Center at 4:15 PM and 5:00 PM on weekdays in the academic year could expand capacity and improve convenience during the afternoon peak ridership period. The annual marginal operating subsidy for the two runs would be \$19,400 per year, based on the increase to service levels and fare revenue. Adding Route 4B service in the afternoon would require an additional peak bus (though this could be the same bus added for the 4A additional runs in the morning). It is estimated the runs would provide 3,900 passenger-trips per year.

Double Service Frequency on All Regular Routes

A more substantial service increase would be to double service frequency on all regular SLO Transit fixed routes (Routes 1 A/B, 2 A/B, 3 A/B, and 4 A/B). At present, SLO Transit service frequencies are relatively low for an urban transit system, consisting of hourly service on Routes 1, 2 and 3 and service every 45 minutes on Route 4. Doubling service would result in bus service every 30 minutes on Routes 1, 2 and 3A and every 22.5 minutes on Route 4. The increase in ridership would help to achieve sustainability goals, including the Transit Innovations Study goal to increase transit mode split to 7 percent by 2030. As discussed below, three options for doubling service frequency were considered.

Full Day, Year-Round

Doubling service frequency on all regular SLO Transit routes for the full-service day, year-round would result in a significant increase to the City's marginal operating cost; service levels would increase by 33,500 vehicle service hours and 347,000 vehicle service miles per year, requiring \$2.45 million in operating funds. Eight additional vehicles would also be needed throughout the entire service day, which would require the City to expand its existing fleet and hire more bus operators. The drastic increase to service frequency would also have a significant impact on ridership, as elasticity analyses indicate that systemwide ridership would grow by 208,300 passenger-trips per year, equal to a 40 percent increase in ridership on Routes 1 through 4.

The additional fleet would also expand the required capacity of the SLO Transit maintenance facility, with regard to bus storage, charging and maintenance work bays. Accommodating a doubling of frequency could also exceed the capacity of the Downtown Transit Center. At present, the 5-bus capacity of the DTC is adequate to serve the hourly service on Routes 1, 2 and 3 (as well as the other services) by offsetting the "A" buses 30 minutes from the "B" buses. Simply adding new runs 30 minutes off of the existing service times (to provide desirable consistent 30-minute headways) would result in six buses onsite for Routes 1 through 3, as well as up to two buses for Route 4, as well as less frequent buses for the tripper and express services. While the peak number of buses at the DTC could be reduced by changing the schedules for some or all of the additional services, this would result in unbalanced service times and a loss in transfer opportunities.

8:00 AM – 6:00 PM, Weekdays, Year-Round

SLO Transit ridership, like many transit systems, is lower in the early morning and later evening. To ensure the more effective use of resources, the City could double service frequency from 8:00 AM to 6:00 PM on weekdays only. This service enhancement would increase service levels by 19,600 vehicle service hours and 234,200 vehicle service miles annually at a marginal operating cost of \$1.5 million. To estimate the ridership impact, elasticity analyses for each route on the proportion of ridership that occurs from 8:00 AM to 6:00 PM. In sum, doubling service frequency during the weekday daytime hours would increase systemwide ridership by 119,700 passenger-trips per year, equal to a 23 percent increase in ridership on Routes 1 through 4. The implications on capital needs discussed for the first of these options would be the same for this option.

Full Day, Weekdays, Academic Year

Most SLO Transit ridership occurs during the Cal Poly academic year. Another means to double service frequency but concentrate resources during periods of high ridership would be to double service frequency on weekdays during the academic year. Annual service levels would increase by 20,900 vehicle service hours and 231,700 vehicle service miles. Elasticity analyses indicate that annual ridership would increase by 153,600 passenger-trips (a 30 percent increase in total ridership for Routes 1 through 4), therefore the net financial impact would be a \$1.56 million increase to the SLO Transit marginal operating subsidy. The capital needs to expand the fleet, fleet facilities and passenger facilities would be the same as discussed for the previous alternatives.

Double Service Frequency on All A Routes, Full Weekdays, Academic Year

In consideration of the high operating cost and capital impacts of full doubling of frequency, another option was evaluated that focuses on doubling frequency of the four “A” routes, leaving the “B” routes unchanged. This has the advantage of providing equitable improvement of service across the SLO Transit service area. This option focuses the service improvement across the full weekday span of service, within the academic year only. Ridership impacts were evaluated based on an elasticity analysis of the A routes only, with a reduction included to reflect the proportion of existing A route ridership that transfer to and from the B routes (based on the onboard survey). This option would require an additional 11,300 vehicle-hours and 133,800 vehicle miles of service annually. Ridership would be increased by 89,800 boardings per year. Total operating subsidy would be increased by \$829,500 annually, and four additional buses would need to be operated.

Double Service Frequency on Routes 3A, 3B, 4A, 4B, Full Weekdays, Academic Year

Another approach to a partial increase in service frequency would be to focus additional service on the two best performing of the four main routes, specifically Routes 3 and 4 (both A and B directions), for the full span of service in the academic year. This option would increase service by 11,600 vehicle-hours and 136,100 vehicle-miles per year. Considering the impact of no availability of direct transfers between Routes 3 and 4 and Routes 1 and 2, ridership would be increased by 101,200 boardings per year. Operating subsidy would be increased by \$845,000 annually, and four additional buses would need to be in operation at peak times.

SPAN OF SERVICE ALTERNATIVES

The next set of SLO Transit alternatives focus on the “span of service,” or the hours that transit services operate. Passengers requested multiple changes to the SLO Transit span of service during the onboard passenger survey; the most requested service improvements were later evening service (54 percent of respondents), more frequent service (42 percent), additional Saturday service (39 percent), and additional Sunday service (32 percent). The span of service alternatives are also summarized in Table 2.

Extend Weekday Evening Service on A Routes

To provide residents with a later-night transit option, two alternatives for extending service on Routes 1A, 2A, 3A, and 4A were considered.

Extend Service to 12:00 AM – Academic Year

Currently, the last departures on weekdays during the academic year on the A Routes occur at 9:15 PM (Routes 1A and 2A), 10:15 PM (Route 3A) and 10:30 (Route 4A), terminating the last runs 45 minutes later. Extending service on all four A Routes until midnight would add Route 1A and Route 2A departures at 10:15 PM and 11:15 PM and Route 3A and 3B departures at 11:15 PM. Based on late evening ridership on transit services at other California universities, this additional service is estimated to increase ridership by 5,100 boardings per year. While it would not require additional vehicles to operate, the increase in service hours and miles would result in an increase in operating cost of \$74,500 per year.

Extend Service to 10:00 PM – Non-Academic Year

During the non-academic year, the last runs start at 7:15 PM on Routes 1A, 2A, and 3A and 7:30 PM on Route 4A. Extending service until roughly 10:00 PM would require operating two additional runs on Routes 1A, 2A and 3A, and three additional runs on Route 4A. An evaluation of ridership by hour in the academic versus non-academic year as well as ridership patterns in typical small urban areas indicates that these additional runs would generate 2,200 passenger-trips per year. Annual operating costs would be increased by \$50,700. No additional buses would be required.

Expand Service on B Routes

Operate B Routes on Weekends – 7:45 AM – 8:00 PM

The four counterclockwise B routes do not operate on weekends. As a result, service is limited to the large one-way A routes. While the fact that some key corridors are served by more than one A route (such as DTC – Foothill Boulevard or DTC – Madonna Road) still provides some direct bi-directional service, other trips can require a long travel time around the majority of the one-way A loop. As an example, a trip between the DTC and Broad/Santa Barbara requires a 34-minute in-vehicle travel time on Route 4A, compared to only seven minutes when Route 4B is operating. In addition, some stops (such as the Amtrak Station) are served only on B routes and thus do not have any service on weekends. The reduction in service also effectively reduces the available frequency of service.

Operating all four B routes on Saturdays and Sundays (as well as holidays on which weekend service is provided) would incur an annual operating cost of \$263,100. An evaluation of the weekday versus weekend ridership on the A routes during the same service span as well as the existing weekday B ridership by route indicates that overall ridership would increase by 39,600 passenger-trips per year. Note that no additional buses would be required to provide this service expansion.

Operate Routes 3B and 4B on Weekends

Another option would be to focus the additional B Route weekend service on Routes 3 and 4, which have the highest ridership. This would result in an annual marginal operating cost increase of \$136,700 and an increase in annual ridership of 29,400. This option performs the best out of all the weekend options.

Extend Routes 1B and 2B until 10:00 PM – Weekdays, Academic Year

While Routes 3A and 4B provide departures up until 10:00 PM on weekdays during the academic year, the last Route 1B and Route 2B departures of the day currently is provided at 5:45 PM, reducing the convenience of transit services for the southern portions of San Luis Obispo by increasing travel times, reducing frequency and eliminating service to some stops. Consistent B route service could be provided throughout the city by operating an additional 4 daily trips of Routes 1B and 2B on academic weekdays, with the last departures at 9:45 PM.

An analysis of ridership on existing services on weekday evenings during the academic year indicates that operating these additional runs would serve approximately 4,000 additional passenger-trips per year.

While additional buses would not be required, annual operating costs would be increased by \$102,600 annually.

Provide Existing Academic Year Span of Service Year Round

Cal Poly administration has indicated plans to expand class offerings and associated student activity levels in the summer. While specific details have yet to be defined, it is worthwhile to evaluate the cost and baseline ridership impacts of providing the same span and level of service currently offered in the academic year over the entire year. This would increase annual vehicle-hours by approximately 2,400 and annual vehicle-miles by approximately 26,400. Baseline additional ridership is estimated based on existing average productivity in the non-academic year (7.1 passenger-trips per vehicle service hour), yielding a total increase of 16,300. Note that there may be additional increases in ridership generated by an increase in summer Cal Poly activity. Overall, annual operating costs would be increased by \$174,300. No additional fleet would be required. This option also has the benefit of providing more consistent year-round driver schedules, which has the potential to increase driver retention.

ROUTING AND MICROTRANSIT ALTERNATIVES

Another set of alternatives were considered regarding route realignments and the provision of microtransit service. These alternatives are summarized in Table 3.

Implement Evening Microtransit Pilot in Southeast San Luis Obispo

Microtransit is a relatively new form of demand response public transit. Through the use of technology and phone apps, it is possible for a passenger to request a ride “on-demand” within certain areas and certain times. The benefit of microtransit is that it is not limited to a set route with set stops, but rather passengers can be picked up at their curb and dropped off at the curb of their destination. This allows homes on the outlying edges of neighborhoods to be served more directly. The disadvantage of microtransit is that if there is high demand for service, there could be a 30-minute or longer wait for a ride. Passengers who depend on public transit to travel to work or appointments at specific times may find microtransit less convenient.

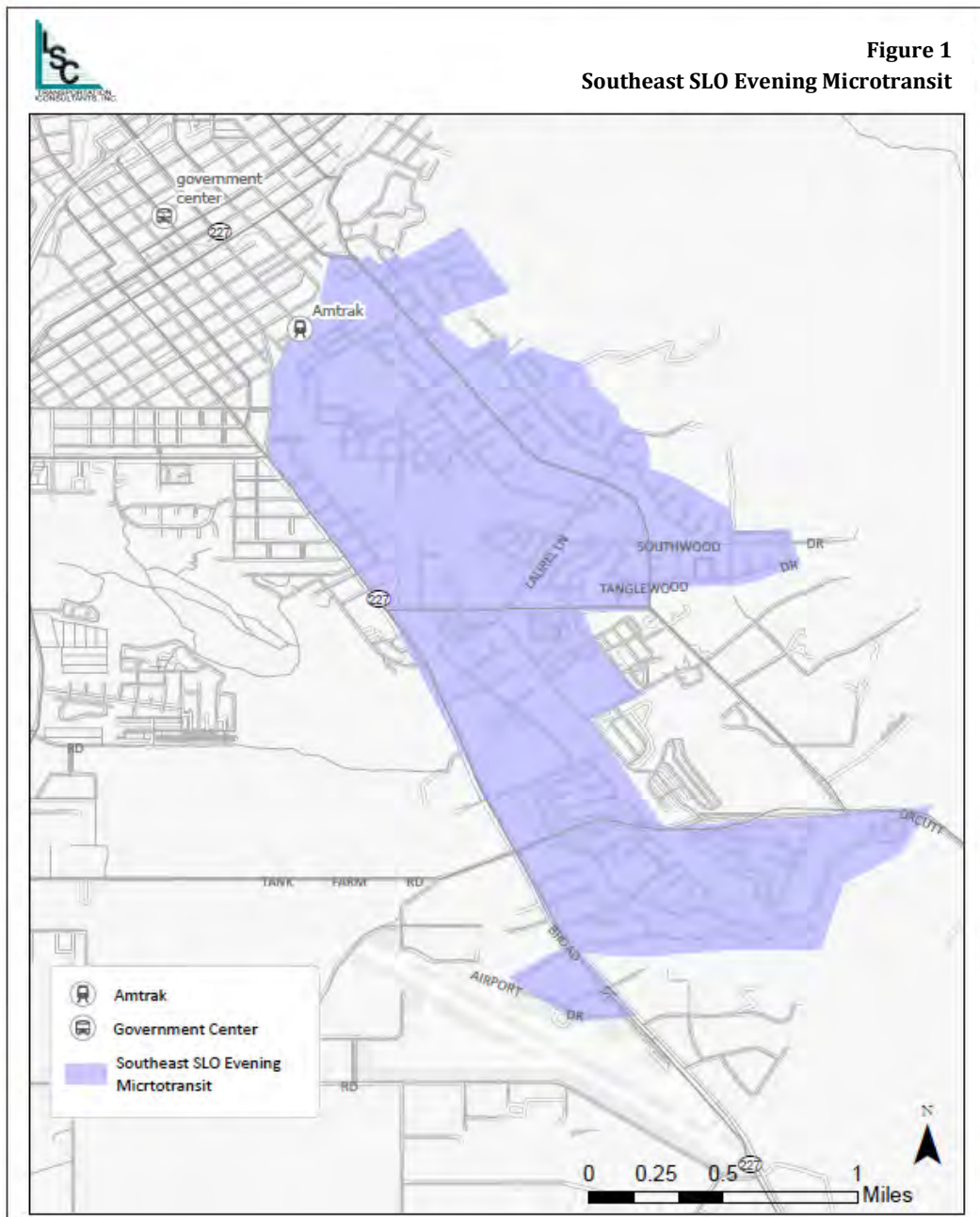
Microtransit has been successful in areas that are not easily served by a fixed route, low productive fixed routes or during the evenings and weekends, when there is less demand. Generally, SLO Transit Routes are very productive and therefore, it is not cost effective to replace the fixed routes with on-demand microtransit. However, the option of microtransit in the evening, when demand is typically lower, was explored.

As part of this alternative, replacing Route 1A with microtransit service between the hours of 7 PM and 9 PM on a year-round basis was reviewed. Currently, Route 1B ends service at 6:30 PM. Therefore, hourly service is only available in the clockwise direction between 7 PM and 9 PM. Routes 1A and 1B serve residences in southeast San Luis Obispo as well as the San Luis Airport. Figure 1 presents an example microtransit service area.

In order to serve the level of transit demand currently seen on Route 1A during the evening hours, two vehicles would be needed to provide service between 7 PM and 9 PM and only one vehicle would be

needed during the 9 PM hour. This would cost an additional \$33,600 annually in operating costs (including the costs of the annual technology license). As SLO Transit does not currently have small vehicles in their fleet, two vans would also need to be procured to operate this service.

Given the fact that curb to curb service would be available, around 250 more homes could be served directly with microtransit than with the fixed route. Therefore, there would be a small increase in ridership over the existing Route 1A evening ridership by around 100 trips per year. As development progresses along Tank Farm Road, this microtransit service area could be expanded. However, as demand for service increases, another vehicle would be required, further increasing costs.



Implement Late Night Microtransit Pilot - Academic Year

Microtransit could be more widely applied to the entire city as a “Late Night” service. SLO Transit services are not available past 11 PM and only Routes 3 and 4 operate this late during the academic year. The general geographic extent of a potential city-wide late night microtransit service area is displayed in Figure 2. As part of this alternative, microtransit would be available between 10 PM and midnight during the academic year. In order to maintain a reasonable level of cost, this alternative assumes that three vans would be used for an annual operating cost of \$122,800 if service is provided only on weekdays during the academic year and \$160,600 if service is provided 7 days a week during the academic year (only two peak vehicles would be required). Ridership was estimated by reviewing ridership by hour on other microtransit services. For the weekday scenario around 4,700 trips are estimated. If late night microtransit were operated 7 days/week, roughly 7,100 trips could be carried.

If implemented, this should be a one-to-two-year pilot program. Again, three vans would need to be procured, if the current contractor is used. Alternatively, some areas have had success in procuring a separate contractor who specializes in microtransit to operate as a “turnkey” service. Under this scenario, the City would not have to purchase new vehicles or the microtransit software, as it would be included in the total cost of the contract.

Reinstate Route 6X

Prior to COVID, Route 6X was operated on Thursday evenings during the academic year, connecting the Cal Poly Campus with the Downtown Transit Center on Thursday evenings (which the Farmers Market is in operation) from 6:00 PM to 9:00 PM. One bus was used to operate a loop route every half hour. Ridership averaged 2,600 passenger-trips per year. Considering the historic ridership and the changes in overall transit ridership since 2020, a reinstated service is estimated to serve 2,200 passenger-trips per year. The annual operating cost would be relatively modest, at \$7,200 annually.

Reinstate SLO Tripper

Prior to the pandemic, the SLO Tripper route consisted of 2 AM and 2 PM runs per school day connecting the Transit Center with SLO High School. If this route were reinstated, the current operating cost would be \$18,500 per year. San Luis Coastal Unified School District data indicates that the High School enrollment has increased by 3 percent since 2019. Applying this factor to the 2019 ridership, this service would carry approximately 7,100 passenger-trips per year and require an operating cost of \$17,200. An additional bus would need to be operated.

Figure 2
SLO Full City Microtransit

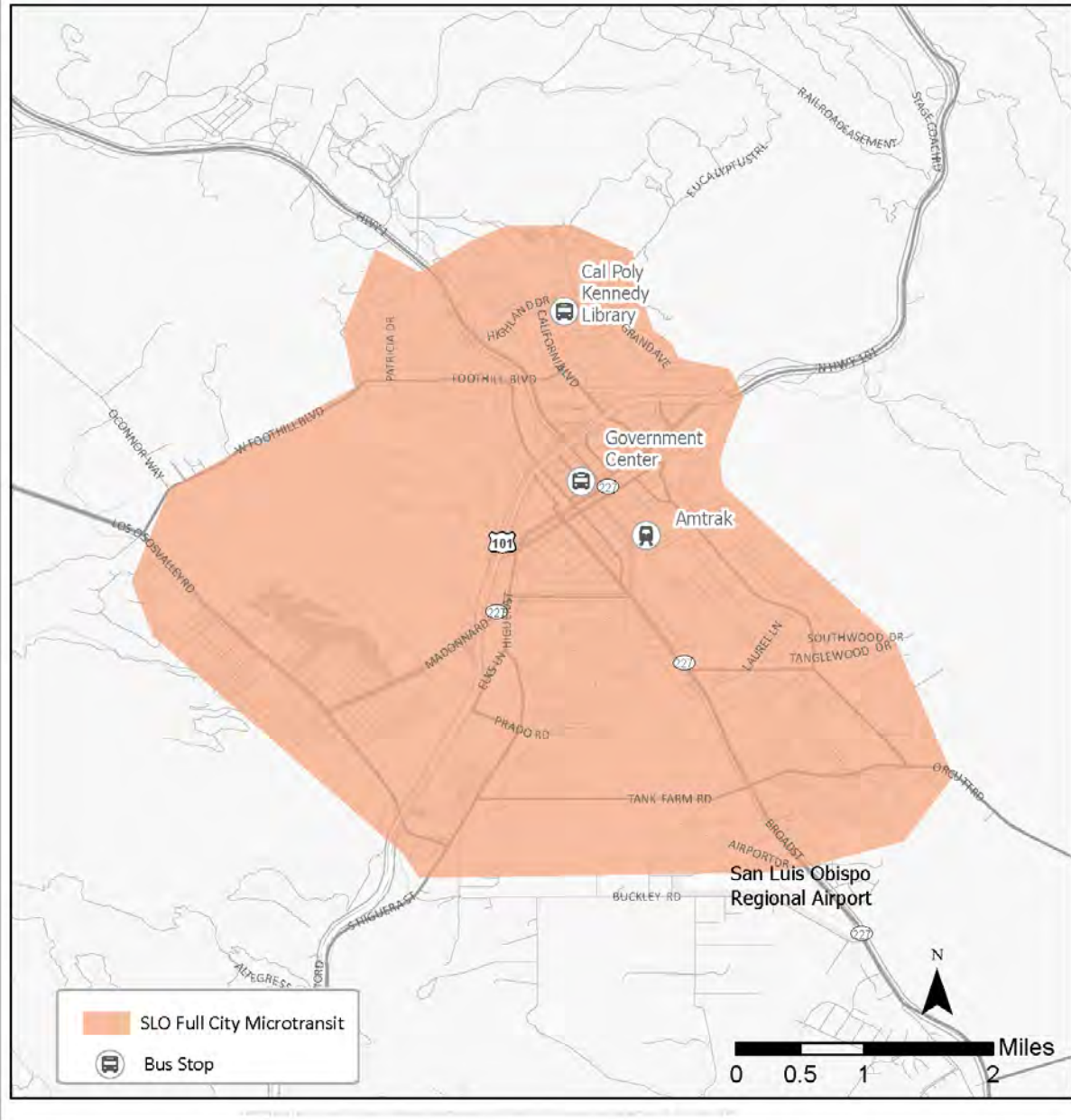


Table 3: SLO Transit - Routing and Microtransit Alternatives

	Change in Annual Service ⁽²⁾						
	Ridership	Service Hours	Service Miles	Marginal Operating Cost	Cash Fare Revenues ³	Operating Subsidy	Additional Vehicles Needed
Status Quo¹							
Route 1A	55,900	5,300	50,700	\$379,100	\$57,500	\$321,600	
Route 1B	20,000	3,100	29,900	\$222,300	\$16,400	\$205,900	
Route 2A	80,300	5,300	57,900	\$395,100	\$80,300	\$314,800	
Route 2B	22,100	3,100	33,200	\$229,600	\$22,300	\$207,300	
Route 3A	94,700	6,300	82,400	\$499,900	\$30,500	\$469,400	
Route 3B	65,700	4,900	61,700	\$383,500	\$17,700	\$365,800	
Route 4A	152,800	5,500	47,800	\$382,600	\$11,600	\$371,000	
Route 4B	70,900	4,000	31,000	\$269,900	\$4,900	\$265,000	
Laguna Tripper	10,100	200	2,000	\$14,500	\$2,900	\$11,600	
Old SLO Trolley	1,600	300	1,800	\$19,100	\$600	\$18,500	
<i>System Total</i>	<i>574,100</i>	<i>38,000</i>	<i>398,400</i>	<i>\$2,795,600</i>	<i>\$244,700</i>	<i>\$2,550,900</i>	
Routing and Microtransit Alternatives - Change from Status Quo²							
Implement Evening Microtransit Pilot in Southeast SLO⁴							
7:00 PM - 10:00 PM, Weekdays, Year-Round	100	500	8,800	\$33,600	\$200	\$33,400	2
Implement Late Night Microtransit Pilot - Weekdays, Academic Year⁴							
10:00 PM - 12:00 AM, Weekdays, Academic Year	4,700	1,400	17,500	\$122,800	\$11,100	\$111,700	3
10:00 PM - 12:00 AM, 7 Days/Week, Academic Year	7,100	1,700	21,625	\$160,600	\$11,100	\$149,500	3
Reinstate Route 6X	2,200	100	1,000	\$7,200	\$900	\$6,300	1
Reinstate SLO Tripper	7,100	280	1,430	\$17,200	\$2,800	\$14,400	1
Reinstate Highland Tripper	6,600	230	2,430	\$17,000	\$2,600	\$14,400	1
Revise Routes 1 and 3 in Downtown SLO							
<i>Route 1A</i>	<i>3,200</i>	<i>0</i>	<i>1,600</i>	<i>\$3,500</i>	<i>\$3,300</i>	<i>\$200</i>	<i>0</i>
<i>Route 1B</i>	<i>3,600</i>	<i>0</i>	<i>-600</i>	<i>-\$1,400</i>	<i>\$3,000</i>	<i>-\$4,400</i>	<i>0</i>
<i>Route 3A</i>	<i>6,900</i>	<i>0</i>	<i>0</i>	<i>\$0</i>	<i>\$2,200</i>	<i>-\$2,200</i>	<i>0</i>
<i>Route 3B</i>	<i>4,000</i>	<i>0</i>	<i>-3,500</i>	<i>-\$7,700</i>	<i>\$1,100</i>	<i>-\$8,800</i>	<i>0</i>
<i>Total</i>	<i>17,700</i>	<i>0</i>	<i>-2,500</i>	<i>-\$5,600</i>	<i>\$9,600</i>	<i>-\$15,200</i>	<i>0</i>
<p>Note 1: Status quo operations are based on FY 2023-24 ridership through 3/31/24 and expected annual population growth. Service estimates are</p> <p>Note 2: Parameters and costs represent change over existing services. Estimates represent marginal costs and do not include fixed costs.</p> <p>Note 3: The average cash fare per boarding by route is detailed in Table 13.</p> <p>Note 4: Assumes a general microtransit fare of \$4.00 per one-way trip, or an average fare of \$2.36 per passenger. Costs include \$4,500/year for app license for one vehicle.</p>							

Reinstate Highland Tripper

An additional tripper that has not been operated since the pandemic is the Highland Tripper. This is a short loop route connecting the Cal Poly campus with the housing areas to the west with three round-trips per school day, and provide additional capacity and service times in the peak AM travel period. Considering the previous ridership and the overall change in Cal Poly ridership since the pandemic, this service would currently carry roughly 6,600 annual passenger-trips. Reinstating this service would increase operating cost needs by \$17,000, and would require operation of an additional bus.

Revised Routes 1 and 3 in Downtown San Luis Obispo

As discussed in Technical Memorandum 3, the on-time performance of Routes 2 and 3 is poor. Over a total of 298 runs observed as part of this study, 65 percent of Route 2A runs were more than 5 minutes behind schedule, along with 49 percent of Route 2B runs, 48 percent of Route 3A runs and 47 percent of Route 3B runs. In addition to adding uncertainty to service times on each route, this low level of dependability results in missed transfers to/from other routes.

The following options were evaluated to potentially reduce running time and improve on-time performance:

Both Route 2A and 2B in the outbound direction could be streamlined somewhat by traveling along Higuera Street between Higuera/Nipomo and Higuera/Pismo, rather than using Nipomo Street and Pismo Street. This would reduce the route length by 0.2 miles and save roughly 1 minute of travel time. It would eliminate service to two existing stops (Nipomo at Pismo and Pismo at Archer, that serve 6 passenger-trips per day, or approximately 2,000 passengers per year. Given the limited reduction in travel time, this option is not considered further.

In the inbound direction, both Routes 2A and 2B operate a relatively direct route along Marsh Street to Santa Rosa Street, then travel west on Mill and south on Osos to the transit center. A faster option would be to enter US 101 northbound at the Marsh Street interchange and exit at Osos Street, which would reduce running time by approximately 4 minutes. However, existing stops at Marsh/Archer, Marsh/Broad, Marsh/Osos, and Santa Rosa/Higuera would be missed. These stops serve approximately 13 passengers per day, or 6,200 per year (70 percent on Route 2A and 30 percent on Route 2B). As this option would have a substantial impact on existing ridership and would eliminate much of the service between southwest downtown San Luis Obispo and the Transit Center, it is not considered further.

Routes 3A and 3B between the downtown transit center and Higuera Street/South Street both travel along South Street and Santa Barbara Street. Route 3B also serves the Amtrak Station at the end of Santa Rosa Street, while Route 3A travels along Osos Street. Routes could be shortened by using Pismo Street between Santa Rosa Street and Higuera Street on Route 3A and using Marsh Street on Route 3B. This would reduce Route 3A route length by 0.7 miles and reduce Route 3B route length by 0.9 miles. Service would be eliminated to 7 stops on Route 3A and 8 stops on Route 3B. Total ridership at these stops is currently roughly 31 passengers per day or 7,600 per year, evenly split between the two individual routes. However, given the slower running speeds in downtown compared with High Street and the southern portion of Santa Barbara Street, only roughly 1 minute of travel time would be saved in each direction. This option is not considered further, given the substantial impact on ridership and limited benefit to running time.

Another option would be to reroute Routes 3A and 3B onto US 101 between the Downtown Transit Center and the Madonna Street interchange and shift Routes 1A and 1B onto the exiting Routes 3A/3B routes between Broad Street/High Street and the Downtown Transit Center. This realignment is shown in Figure 2. This would reduce the running time of Route 3A by roughly 5 minutes and Route 3B by roughly 7 minutes, which would significantly improve the on-time performance of Routes 3A and 3B. Service would be fully eliminated from only a total of four existing stops. Setting aside those stops within a quarter mile walk of other remaining stops, those stops that lose all convenient service consists of the following:

- Broad at Islay (Route 1A)
- Broad at Leff (Route 1B)
- South at King W (Route 3A)
- South at King W (Route 3B)

The stops along Broad Street on Routes 1A/1B in total currently serve 2 passenger-trips per day or 800 per year, while the stops along South Street on Routes 3A/3B currently serve 7 passenger trips per day or 1,000 per year, for a total of 9 daily trips and 1,800 annual trips.

This realignment option would also reduce service between the downtown Transit Center and central downtown San Luis Obispo by rerouting Route 1 out of the area. However, as the current Route 1 schedule is very close to the Route 2 schedule in both directions, this would not significantly reduce the convenience of transit service. This option would also reduce the travel times between southwest San Luis Obispo and the Downtown Transit Center. Improving the dependability of Route 3A/3B would also improve the connections to other routes at the Transit Center. Running times on Route 1A/1B are not expected to change significantly; while the revised Route 1A is 0.3 miles longer than at present, it would avoid congestion in the lower downtown area.

As shown in Table 3, this strategy would not change vehicle-hours of service but would reduce annual vehicle-miles by 2,500. Ridership impact was estimated based on the ridership change associated with improvements in dependability, the changes in in-vehicle travel time, the loss of ridership at the four stops with elimination of service, as well as the shift in existing Routes 3A/3B ridership to Routes 1A/1B. Overall, annual ridership is estimated to increase by a total of 17,700 passenger boardings per year. Considering the operating costs savings generated by the reduction in mileage plus the additional passenger revenues, the net operating subsidy would be reduced by \$15,200 per year. No additional buses would be required.

PERFORMANCE ANALYSIS OF SLO TRANSIT SERVICE ALTERNATIVES

To evaluate the relative performance of the alternatives above, key impacts of each alternative were compared. The change from the status quo ridership, marginal operating cost, passengers carried per vehicle hour, and marginal operating cost per passenger were compared. This evaluation gives insight regarding the relative advantages and disadvantages of the alternatives. Table 4 and Figures 2-5 show the relative performance of the service alternatives. Green highlight in Table 4 indicates alternatives which meet performance standards developed as part of Working Paper #2.

Ridership

The impact of the various alternatives on annual ridership is shown in Figure 2. As indicated, the alternatives vary widely, ranging from very little change in ridership associated with providing evening microtransit service in southeast San Luis Obispo (replacing Route 1 service) up to 208,300 passenger-trips per year generated by doubling service throughout the year across the operating day. Excluding the options of doubling frequency, the greatest ridership increase is generated by operating the B routes on weekend days (39,600) followed by operating just Route 3B and 4B on weekends (29,400) and revising Routes 1 and 3 in downtown San Luis Obispo (17,700).

Table 4: SLO Transit - Service Alternatives Performance Analysis							
	Net Impact					Passenger-Trips per Vehicle Service Hour	Marginal Op. Cost per Passenger-Trip
	Annual Ridership	Service Hours	Service Miles	Annual Operating Cost ¹	Marginal Cost		
Increase Route 4 A/B Frequency During Academic Year							
Increase Route 4A Frequency - 8:00 AM - 10:00 AM	4,200	300	2,300	\$20,200		14.0	\$4.81
Increase Route 4B Frequency - 3:00 PM - 5:00 PM	3,900	300	2,100	\$19,700		13.0	\$5.05
Double Service Frequency on Routes 1, 2, 3, 4 (A & B)							
Full Service Day, Year-Round	208,300	33,500	347,000	\$2,455,000		6.2	\$11.79
8:00 AM to 6:00 PM, Weekdays, Year-Round	119,700	19,600	234,200	\$1,505,800		6.1	\$12.58
Full Service Day, Weekdays, Academic Year	153,600	20,900	231,700	\$1,565,500		7.3	\$10.19
Double Service Frequency on Routes 1, 2, 3, 4 (A Only)							
Full Service Day, Weekdays, Academic Year	89,600	11,300	133,800	\$865,400		7.9	\$9.66
Double Service Frequency on Routes 3, 4 (A & B)							
Full Service Day, Weekdays, Academic Year	101,200	11,600	136,100	\$885,600		8.7	\$8.75
Extend Weekday Evening Service on A Routes							
Extend Service to 12:00 AM - Academic Year	5,100	1,000	10,900	\$74,500		5.1	\$14.61
Extend Service to 10:00 PM - Non-Academic Year	2,200	700	7,000	\$50,700		3.1	\$23.05
Expand Service on B Routes							
Operate B Routes on Weekends Year Round - 7:45 AM - 8:00 PM	39,600	3,200	46,000	\$263,100		12.4	\$6.64
Operate 3B and 4B on Weekends	29,400	1,600	25,300	\$136,700		18.4	\$4.65
Extend Routes 1B and 2B until 10:00 PM - Weekdays, Academic Year	4,000	1,400	14,500	\$102,600		2.9	\$25.65
Provide Academic Year Service Levels Year-Round	16,300	2,300	26,400	\$174,300		7.1	\$10.69
Implement Evening Microtransit Service in SE SLO	100	500	8,800	\$33,600		0.20	\$336.00
Implement Late Night Microtransit - Weekdays	4,700	1,400	17,500	\$122,800		3.4	\$26.13
Implement Late Night Microtransit - 7 days/week	7,100	1,700	21,625	\$160,600		4.2	\$22.62
Reinstate Route 6X	2,200	100	1,000	\$7,200		22.0	\$3.27
Reinstate SLO Tripper	7,100	280	1,430	\$17,200		25.4	\$2.42
Reinstate Highland Tripper	6,600	230	2,430	\$17,000		28.7	\$2.58
Revise Routes 1 and 3 in Downtown SLO	17,700	0	-2,500	-5,600		NA	-\$0.32
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							

Figure 3: SLO Transit Service Alternatives - Impact on Annual Ridership

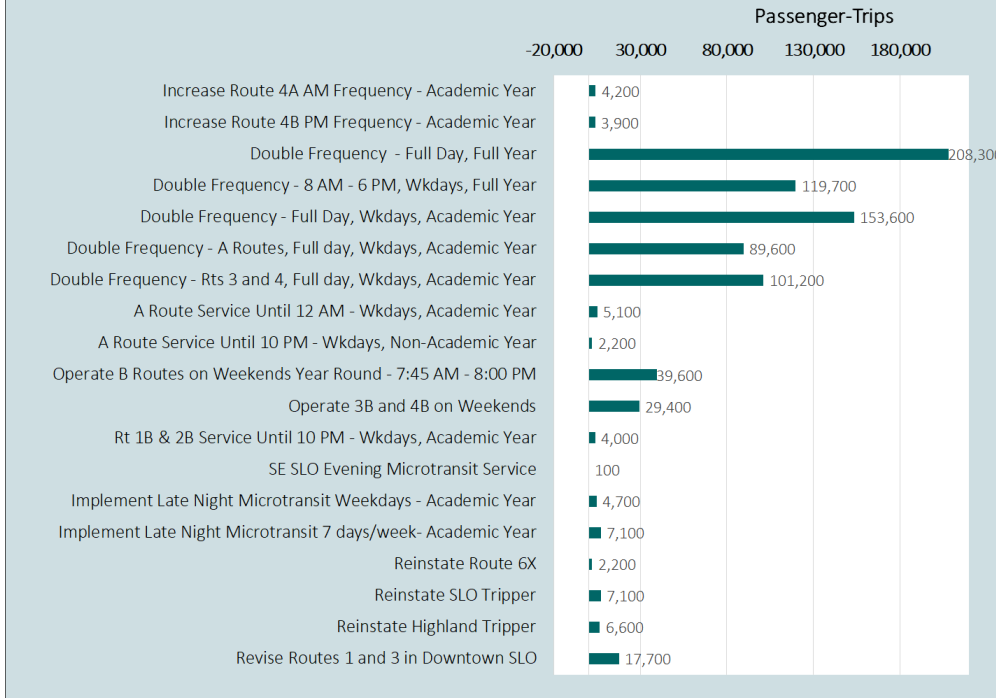
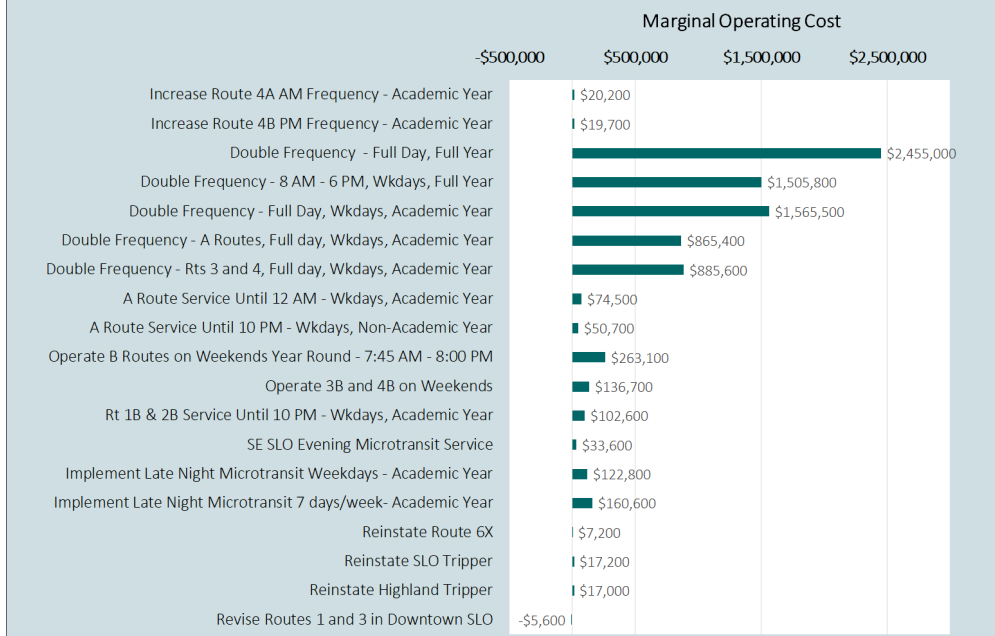
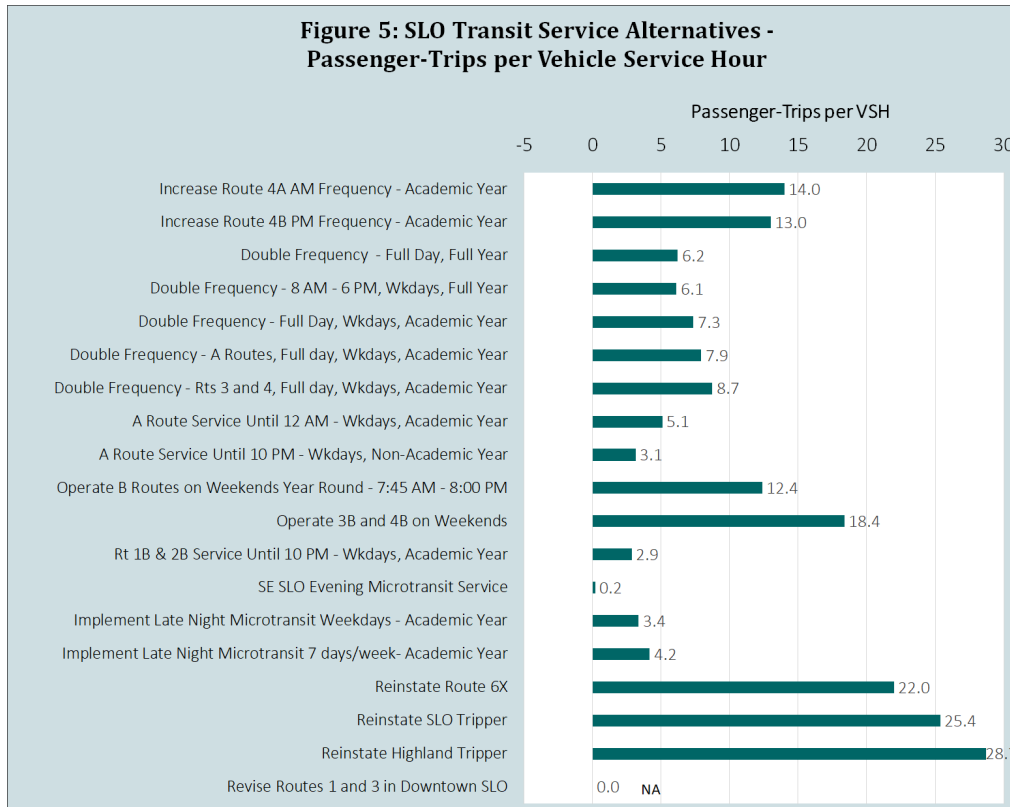


Figure 4: SLO Transit Service Alternatives - Impact on Annual Marginal Operating Cost





Marginal Operating Cost

Similar to the ridership impacts, the impact on annual marginal operating costs also vary widely, as shown in Figure 3. At the high end, the full doubling of transit service across all service periods over the year would increase operating costs by \$2.45 Million, while limiting the doubling of service frequency to the academic year would cost \$1.56 Million, and limiting to daytime hours through the full year would cost \$1.5 Million. Doubling frequency on just the A Routes or Routes 3 and 4 (both A and B) would cost on the order of \$865,400 and \$885,600, respectively.

On the other end, revising Routes 1 and 3 in downtown San Luis Obispo would yield a small overall reduction in annual operating cost of \$6,100. Beyond doubling frequency, other service alternatives that are relatively costly are operating B routes on weekends (\$263,100), implementing late night microtransit service (\$122,800) and operating Routes 1B and 2B on weekday evenings in the academic year (\$102,600).

Passenger-Trips per Vehicle Service Hour

A standard measure of the productivity of a transit service is the passenger-trips served per vehicle-hour of service. As shown in Figure 4, the “best” alternative by this measure is reinstating Highland Tripper, which would serve 28.7 passenger-trips per vehicle-hour. This is followed by reinstating the SLO Tripper and Route 6X. Operating Route 3B and 4B on Weekends (18.4), increasing Route 4A morning frequency in the academic year (14.0), increasing Route 4B afternoon frequency in the academic year (13.0) and operating the B routes on weekends (12.4) all meet productivity standards. The options that double

service frequency range from 6.1 to 8.7 passengers per vehicle service hour, with the most productive being doubling service on Routes 3 and 4 in the academic year only. The worst option by this measure is replacing evening Route 1 service with microtransit, which adds vehicle-hours but is not forecast to change ridership very much. Note that the revision of Routes 1 and 3 in downtown San Luis Obispo cannot be evaluated by this measure, as the number of vehicle-hours is not changed.

As discussed in *Working Paper 2*, the standard for this measure is a minimum of 11.5 passenger-trips per vehicle service hour. Those alternatives that meet this standard are reinstating Route 6X, Highland Tripper and SLO Tripper, increasing Route 4A frequency in the morning during the academic year, increasing Route 4B frequency in late afternoons during the academic year, and operating the B routes on weekends year-round, particularly 3B and 4B.

Marginal Operating Cost per Passenger-Trip

A final performance measure is the marginal operating cost per passenger-trip. This is a good measure of the financial performance of the various alternatives, with the better alternatives indicated by a lower value. Figure 5 indicates the “best” alternative by this measure is the revision of Routes 1 and 3 in downtown San Luis Obispo, which saves \$0.32 for every additional passenger-trip served (as it reduces costs while increasing ridership). At the other extreme, replacing Route 1 in the evening with microtransit requires a \$357 per new trip served, followed by implementing late night microtransit service (\$26.13), followed by Route 1B and 2B service until 10 PM (\$25.65). Considering the standard of no more than \$11.23 per passenger-trip, those that achieve the standard consist of:

- Routes 1 and 3 revisions in downtown San Luis Obispo
- Reinstating pre-COVID services such as Route 6X, Highland Tripper and SLO Tripper
- Increasing Route 4A frequency in the mornings during the academic year
- Increasing Route 4B frequency in the late afternoons in the academic year
- Operating the B routes on weekends year-round, 3B and 4B in particular
- Doubling frequency on all routes for a full-service day, weekdays, during the academic year
- Doubling frequency on the A routes for a full-service day, weekdays, during the academic year
- Doubling frequency on Routes 3A, 3B, 4A and 4B for a full-service day, weekdays during the academic year.
- Provide academic year service levels year-round

Summary

Based on this performance analysis the following service alternatives have the greatest potential to enhance the SLO Transit service and should be carried forward into the plan development process:

- Realigning Routes 1 and 3 in downtown San Luis Obispo.
- Providing B route service on weekend days year-round.
- Increasing Route 4A frequency on weekday mornings in the academic year.
- Increasing Route 4B frequency on weekday afternoons in the academic year.
- Reinstating pre-COVID routes: Route 6X, Highland Tripper and SLO Tripper.

While doubling service frequency would generate substantial ridership benefits, it would require significant new funding sources as well as consideration of capital fleet and facility needs. Doubling frequency on Routes 3A, 3B, 4A and 4B would have the lowest marginal operating cost per new passenger-trip served.