

TECHNICAL MEMORANDUM #3

October 16, 2026

Project# 32728

To: Gary Stockhoff, PE; Maya O'Neal

From: Amy Griffiths, PE, RSP₁; Nick Meltzer, PE; Susan Wright, PE, Andrew Mancini

RE: Benton Area Transit Rural Shuttle Service Feasibility Study

Subject: Alternative Route Development and Evaluation

Introduction

Benton Area Transit (BAT) currently provides a mix of fixed route services for the general public, and demand response transportation services for seniors and individuals with qualifying disabilities. However, BAT lacks the resources to provide regular, scheduled service for residents in its more rural areas. Prior surveys, long range plans, and the Coordinated Health and Human Services Plan have highlighted a clear need for additional transit services for rural residents. However, sufficient detail on community needs, possible route alternatives, funding options, and operational feasibility related to a rural shuttle service has not previously been explored. This study explores rural shuttle options to address barriers to mobility and improve access to essential services.

This memorandum summarizes draft alternatives developed to address the needs and opportunities documented in *Technical Memorandum (TM) #1: Plans Review and Data Analysis*.

Needs and Opportunities Summary

This section summarizes the needs and opportunities identified in *TM #1: Plans Review and Data Analysis*. This includes opportunities to serve rural county residents' needs by:

- Providing local and regional connections that serve rural communities and underserved populations, particularly Monroe and Alsea
- Addressing gaps in service coverage and eligibility, with existing demand-response service being limited to seniors and people with disabilities
- Increasing access to key destinations, especially grocery stores and non-emergency medical facilities
- Providing midday, weekday service
- Improving communication of transportation options to help facilitate transfers between services
- Reducing language and cultural barriers of transit agency information for minority populations

TM #1 also highlights that the dispersed land use pattern and limited roadway connectivity make it difficult to reach rural communities with existing demand-response services, which also make it challenging to develop efficient shuttle routes. The alternatives identified herein seek to balance the level of service provided with the funding that could be allocated to the service.

Methodology for Comparing Future Service Opportunities

Table 1 summarizes the evaluation criteria and performance measures identified to inform decisions around service alternatives as established in *TM #1: Plans Review and Data Analysis*. It also documents assumptions for measuring those performance measures to evaluate alternatives.¹

Table 1. Criteria and Methods for Evaluating Future Service Opportunities

Service Goal	Evaluation Criteria	Methodology and Assumptions
Customer-Focused Services	Route Mileage, Round Trip	Calculated via Remix trip planning software
	Total Trip Time & One-Way Trip Time	Approximate runtime of vehicles, considers Google Maps typical travel time for vehicles rounded up to the nearest 5 minutes, adds 3 minutes of dwell time per stop, and adds a layover buffer of 15% of this travel time to account for breaks for the driver, recovery from delays, and to allow time for a driver to change. One-way trip times exclude layover buffers to focus on the amount of time a rider traveling between the starting and ending destinations would be riding the shuttle.
	Trips Per Day Per Shuttle	Assumes up to 9 operating hours ² divided by the total trip time as estimated above
Accessibility and Connectivity	Communities served with regular, fixed-route service	-
	Population served in small communities	Excludes Philomath, Corvallis, and Junction City Based on 2026 values from World Population Review. ³
	Access to Key Destinations	Based on key destinations map in TM#1, includes hospitals, schools, grocery stores, parks, libraries, and city and county government buildings
Coordination	Connections to Other Routes/Providers within ¼ Mile of Transit Route	Based on existing transit services
Fiscally Sustainable	Cost per year, 2 round trips per day, 2 days each week	\$150/hour assumed for operating shuttle, based on recent service procurements

¹ This table modifies certain performance measures from what was originally developed in TM#1 to align with the available data and key goals that emerged through conversations with the public around specific service alternatives. Certain metrics, such as days and hours of operation, will be determined as part of the feasibility report based on feedback from the public.

² A nine-hour service window was assumed to align with BAT's current hours of service.

³ <https://worldpopulationreview.com/us-cities/oregon/>

Metrics are provided on the maximum possible number of round trips which can be operated using one vehicle in this window along with service that operates two round trips each day. In general, two round trips per day is the minimum frequency for service to effectively allow riders to attend appointments and run errands without requiring an overnight layover or alternate form of transportation; three or more round trips allow flexibility in how long passengers stay in their destination city before returning home.

Future Service Opportunities

This section identifies and describes potential service opportunities. The alternatives presented represent a range of potential approaches with different tradeoffs related to travel time, community coverage, connectivity, passenger convenience, operating cost, and implementation complexity.

All route alternatives are proposed as out-and-back routes, which tend to be easier for riders to understand and use. Routing and scheduling should keep in mind other transit providers' schedules to allow for easy transfers between routes; specific connections to consider are listed on the pages for individual routes.

Three primary alternatives were considered to provide service to fill gaps in service to southeastern, southwestern, and northwestern Benton County. Alternatives could be combined (e.g. one alternative two days a week and another alternative three days a week).

- Alternative 1: OR 99W Corridor
 - 1A: Corvallis-Monroe
 - 1B: Corvallis-Bellfountain-Alpine-Monroe
 - 1C: Corvallis-Monroe-Junction City
- Alternative 2: OR 34 Corridor
 - 2A: Corvallis-Philomath-Alsea
 - 2B: Philomath-Alsea
- Alternative 3: North County
 - 3A: Corvallis-Philomath-Wren-Blodgett-Summit
 - 3B: Corvallis-Philomath-Wren-Kings Valley

Each of these service alternatives is documented below.

ALTERNATIVE 1: OR 99W CORRIDOR

Alternative 1 is comprised of three sub-alternatives traveling north-south along OR 99W. These alternatives connect Corvallis to Monroe, with options that extend to Junction City or add a spur serving Bellfountain and Alpine.

Alternative 1A: Corvallis-Monroe

Alternative 1A is an out-and-back route that connects Monroe with Corvallis via direct service along OR 99W. This route takes approximately 30 minutes to travel between Corvallis and Monroe and 70 minutes per roundtrip including layover buffers.

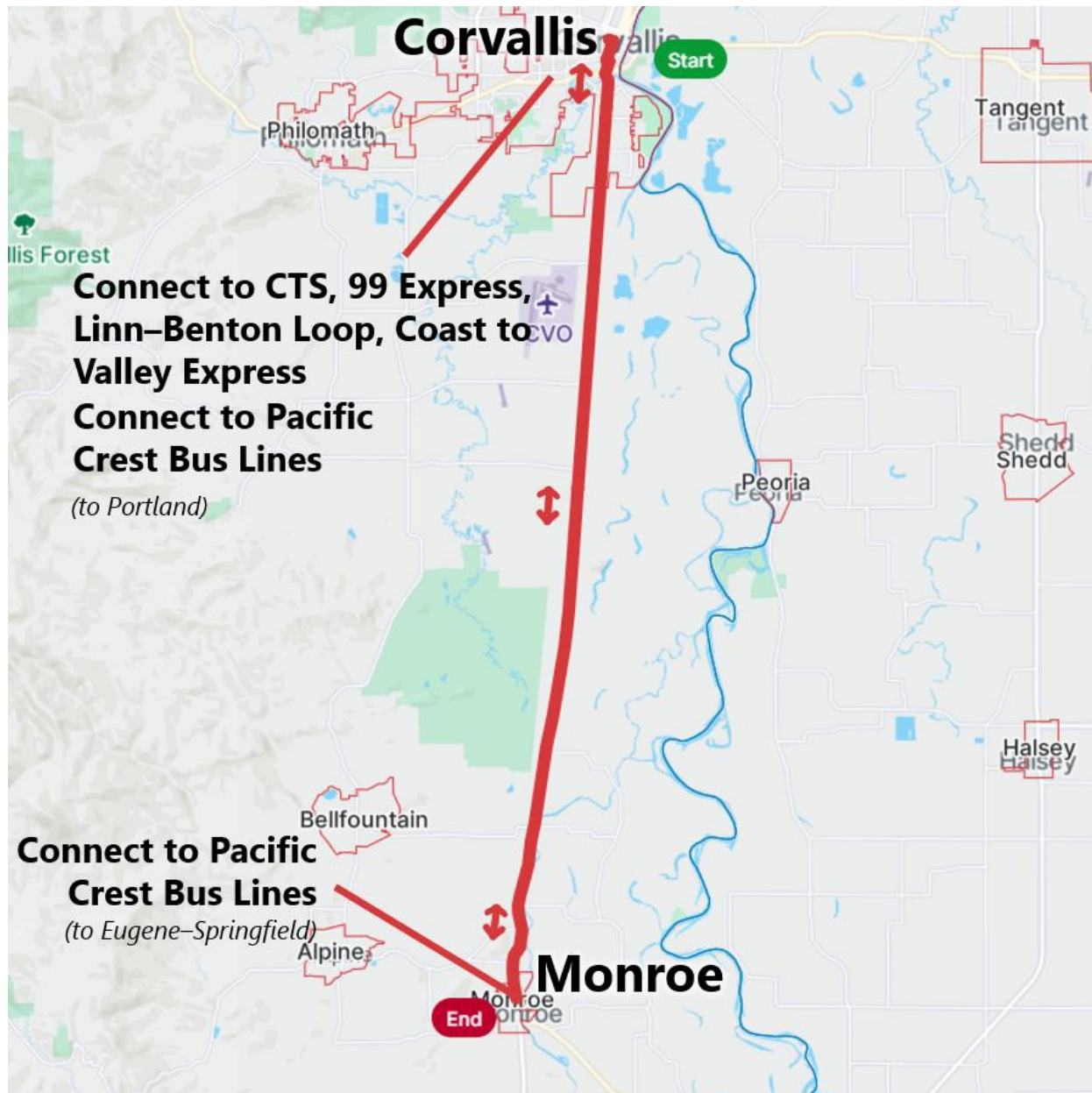
This alternative offers connections to Corvallis Transit System (CTS) service, 99 Express to Adair Village, the Linn–Benton Loop to North Albany and Albany, the Coast to Valley Express to Blodgett and Newport via US 20, and Pacific Crest Bus Lines service between Portland and Eugene–Springfield via OR 99W. If this alternative is selected coordination between these routes is encouraged to reduce the expected wait time for transferring passengers and enable radio communication between drivers in the event one route is running behind. This route would provide access for Monroe residents to services including grocery stores, retail offerings, a library, and government buildings, in Corvallis. Transfers to local CTS service in Corvallis would allow connections to the Good Samaritan Regional Medical Center.

The route of Alternative 1A is shown in Figure 1. Roundtrip estimates for this alternative include:

Mileage: 35 miles	Maximum number of trips per day per vehicle: 7 to 8 round trips ⁴
One-Way Trip Time (Excludes Layover Buffer): 30 minutes	Cost per year, 2 round trips, 2 days each week: \$37,000
Total Trip Time, Round Trip (Includes Layover Buffer): 70 minutes	Cost per year, 2 round trips, 5 days each week: \$91,000

⁴ Number of trips per day was calculated by dividing the number of operating hours by the total trip time (roundtrip) and then rounding down to the nearest whole trip. Rounding and layover buffers provides a more conservative idea of the number of trips that could be provided per day per vehicle. In this case, the calculated number of trips (7.7) indicates that it may be possible to achieve 8 trips per day. It is recommended that any potential routes and schedules be determined by testing the routes with the typical BAT vehicles.

Figure 1. Alternative 1A Route Map



Alternative 1B: Corvallis-Bellfountain-Alpine-Monroe

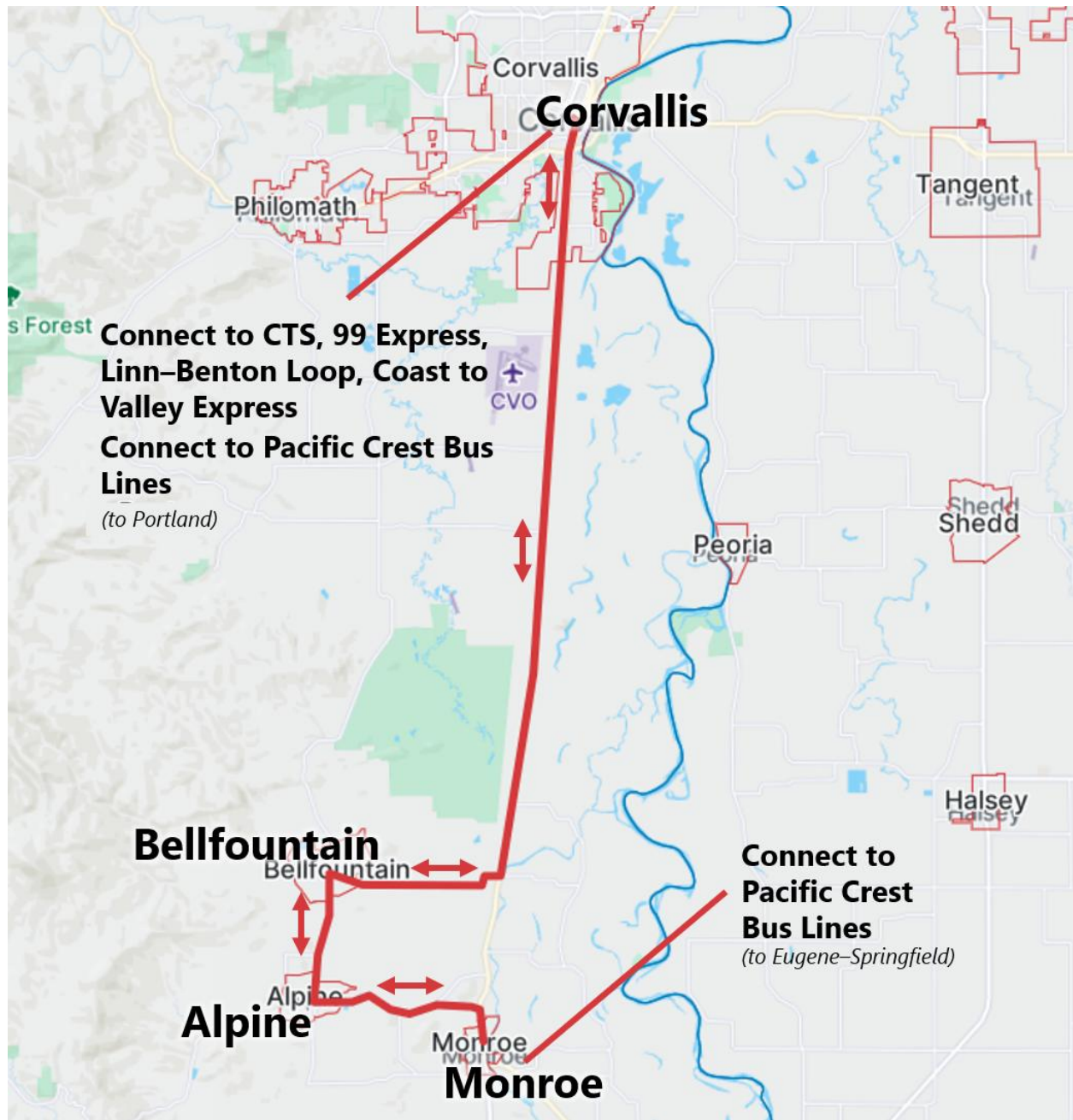
Alternative 1B is an out-and-back route that connects Monroe with Corvallis, with a deviation to Bellfountain and Alpine. This deviation adds approximately 15 minutes to travel times between Corvallis and Monroe, taking 45 minutes to travel this distance. The total travel time is 105 minutes per roundtrip including layover buffers.

Like Alternative 1A, this alternative offers connections to local Corvallis Transit System (CTS) service, 99 Express to Adair Village, the Linn–Benton Loop to North Albany and Albany, the Coast to Valley Express to Blodgett and Newport via US 20, and Pacific Crest Bus Lines service between Portland and Eugene–Springfield via OR 99W. If this alternative is selected coordination between these routes is encouraged to reduce the expected wait time for transferring passengers and enable radio communication between drivers in the event one route is running behind. This route would provide access for Bellfountain and Alpine residents—in addition to those in Monroe—to services including grocery stores, retail offerings, a library, and government buildings, in Corvallis. Transfers to local CTS service in Corvallis would allow connections to the Good Samaritan Regional Medical Center.

The route of Alternative 1B is shown in Figure 2. Roundtrip estimates for this alternative include:

Mileage: 48 miles	Maximum number of trips per day per vehicle: 5 round trips
One-Way Trip Time (Excludes Layover Buffer): 45 minutes	Cost per year, 2 round trips, 2 days each week: \$56,000
Total Trip Time, Round Trip (Includes Layover Buffer): 105 minutes	Cost per year, 2 round trips, 5 days each week: \$138,000

Figure 2. Alternative 1B Route Map



Alternative 1C: Corvallis-Monroe-Junction City

Alternative 1C extends the Corvallis-Monroe route from Alternative 1A to connect to Junction City. This extension maintains the 30-minute travel time between Corvallis and Monroe and takes 20 minutes to travel between Monroe and Junction City. The total travel time is 110 minutes per roundtrip including layover buffers.

Like Alternative 1A, this alternative offers connections to local Corvallis Transit System (CTS) service, 99 Express to Adair Village, the Linn-Benton Loop to North Albany and Albany, the Coast to Valley Express to Blodgett and Newport via US 20, and Pacific Crest Bus Lines service between Portland and Eugene-Springfield via OR 99W. This route would provide residents of Monroe access to services including grocery stores, a Bi-Mart, retail offerings, a library, and government buildings, in Corvallis. Transfers to local CTS service in Corvallis would allow connections to the Good Samaritan Regional Medical Center. Additionally, it provides residents of Monroe with access to Junction City, providing shorter travel times to a grocery store.

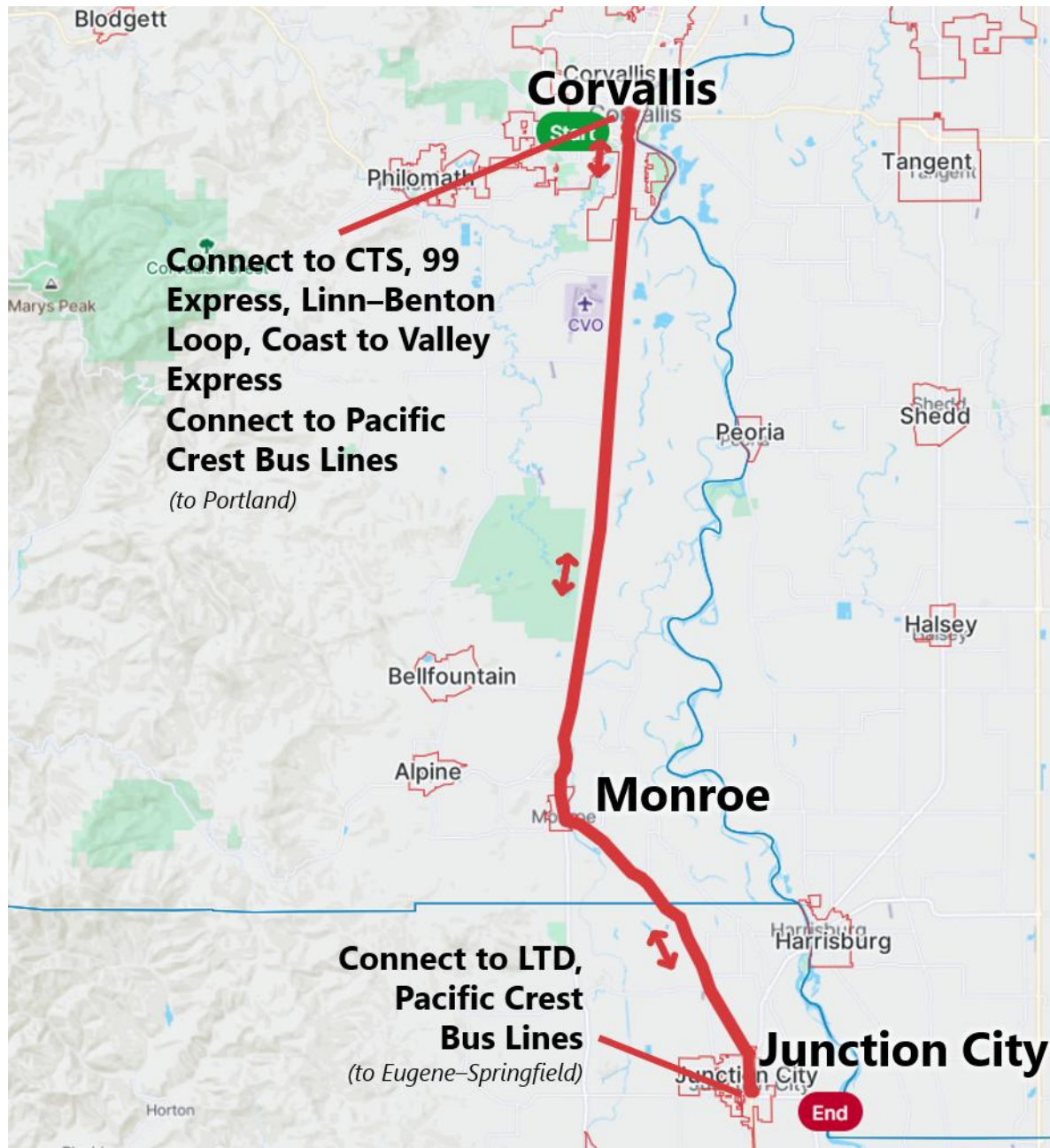
Lane Transit District Route 95 also operates between Junction City and Eugene-Springfield with several round trips daily. If this alternative is selected, coordination is encouraged between BAT and LTD to ensure transfers are maintained. While the segment of OR 99W between Monroe and Junction City is currently served by Pacific Crest Bus Lines, it is served only once daily and travels in the southbound direction in the afternoon. This means that residents wishing to run errands in Junction City must spend the night there, before returning by bus service the next morning.

The route of Alternative 1C is shown in Figure 3. Roundtrip estimates for this alternative include:

Mileage: 53 miles	Maximum number of trips per day per vehicle: 4 to 5 ⁵ round trips
One-Way Trip Time (Excludes Layover Buffer): 50 minutes	Cost per year, 2 round trips, 2 days each week: \$59,000
Total Trip Time, Round Trip (Includes Layover Buffer): 110 minutes	Cost per year, 2 round trips, 5 days each week: \$146,000

⁵ Number of trips per day was calculated by dividing the number of operating hours by the total trip time (roundtrip) and then rounding down to the nearest whole trip. Rounding and layover buffers provides a more conservative idea of the number of trips that could be provided per day per vehicle. In this case, the calculated number of trips (4.9) indicates that it may be possible to achieve 5 trips per day. It is recommended that any potential routes and schedules be determined by testing the routes with the typical BAT vehicles.

Figure 3. Alternative 1C Route Map



ALTERNATIVE 2: OR 34 CORRIDOR

Alternative 2 is comprised of two sub alternatives traveling along the OR 34 corridor to serve Alsea. Alsea does not currently have any fixed-route BAT service. These alternatives provide connections to Alsea, with one option traveling between Corvallis to Alsea and the other traveling between Philomath and Alsea.

Alternative 2A: Corvallis-Philomath-Alsea

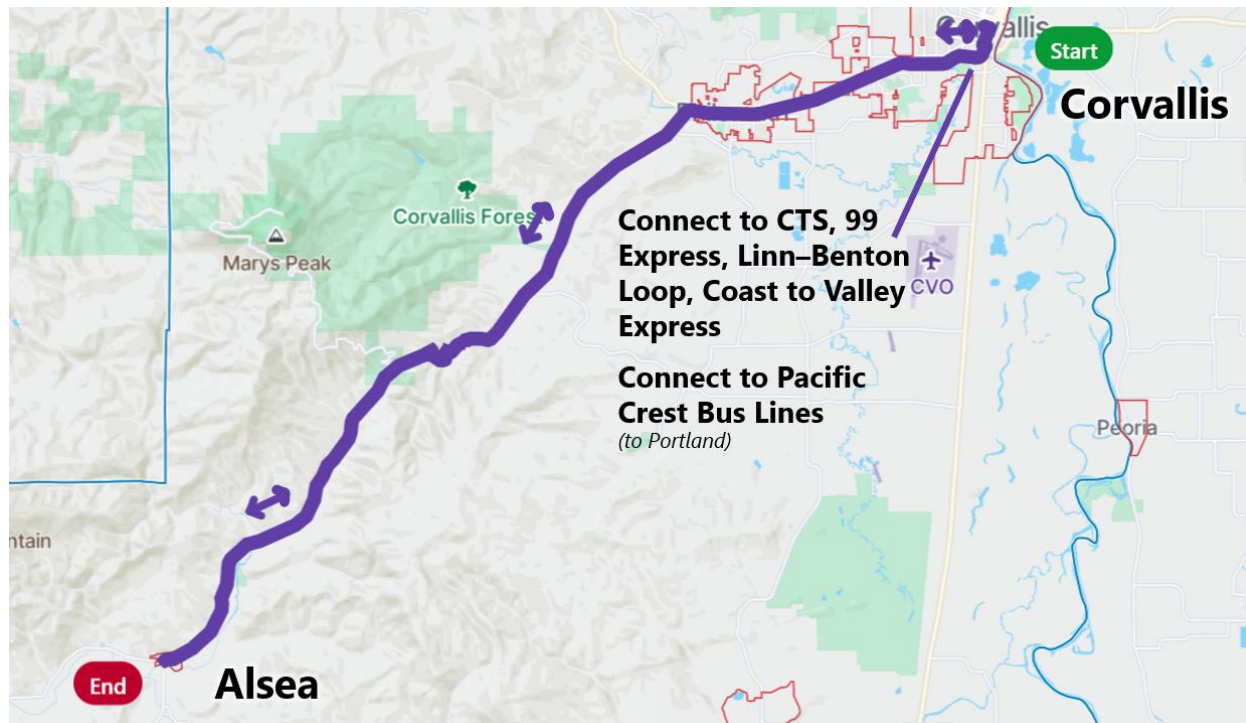
Alternative 2A is an out-and-back route that connects Alsea with Philomath and Corvallis. This route takes approximately 55 minutes to travel between Corvallis and Alsea and 125 minutes per roundtrip including layovers buffers.

This alternative offers connections to CTS to reach local destinations, the 99 Express to Adair Village, the Linn–Benton Loop to North Albany and Albany, the Coast to Valley Express to Blodgett and Newport via US 20, and Pacific Crest Bus Lines service between Portland and Eugene–Springfield via OR 99W. If this alternative is selected coordination between these routes is encouraged to reduce the expected wait time for transferring passengers and enable radio communication between drivers in the event one route is running behind. This route would provide access for Alsea residents to grocery stores and services including grocery stores, retail offerings, a library, and government buildings, in Corvallis. Transfers to local CTS service in Corvallis would allow connections to the Good Samaritan Regional Medical Center.

The route of Alternative 2A is shown in Figure 4. Roundtrip estimates for this alternative include:

Mileage: 48 miles	Maximum number of trips per day per vehicle: 4 round trips
One-Way Trip Time (Excludes Layover Buffer): 55 minutes	Cost per year, 2 round trips, 2 days each week: \$66,000
Total Trip Time, Round Trip (Includes Layover Buffer): 125 minutes	Cost per year, 2 round trips, 5 days each week: \$164,000

Figure 4. Alternative 2A Route Map



Alternative 2B: Philomath-Alsea

In comparison to Alternative 2A, Alternative 2B provides a shorter trip along the OR 34 corridor, with direct service between downtown Philomath and Corvallis. This route takes approximately 35 minutes to travel between Philomath and Alsea and 75 minutes per roundtrip including layover buffers.

This alternative still provides Alsea residents with access to a library, local restaurants, a post office, and groceries. Passengers could connect via hourly Philomath Connection service to additional retail and destinations in Corvallis. If this alternative is selected,= coordination between these routes is encouraged to reduce the expected wait time for transferring passengers and enable radio communication between drivers in the event one route is running behind.

The largest benefit of the shorter route in Alternative 2B is the opportunity to operate with higher frequency or to maintain resources to serve additional communities. However, it does not provide residents traveling to Corvallis the ease of a direct route.

The route of Alternative 2B is shown in Figure 5. Roundtrip estimates for this alternative include:

Mileage: 37 miles	Maximum number of trips per day per vehicle: 7 round trips
One-Way Trip Time (Excludes Layover Buffer): 35 minutes	Cost per year, 2 round trips, 2 days each week: \$40,000
Total Trip Time, Round Trip (Includes Layover Buffer): 75 minutes	Cost per year, 2 round trips, 5 days each week: \$99,000

Figure 5. Alternative 2B Route Map



ALTERNATIVE 3: NORTH COUNTY

Alternative 3 is comprised of two alternatives serving communities in northern Benton County. Both sub-alternatives connect Corvallis, Philomath, and Wren – with one also serving Blodgett and Summit and the other serving Hoskins and Kings Valley.

Alternative 3A: Corvallis-Philomath-Wren-Blodgett-Summit

Alternative 3A is an out-and-back route that serves the northwestern area of Benton County via US 20 and OR 180. This alternative connects Wren, Blodgett, and Summit with Corvallis and Philomath. This route takes approximately 60 minutes to travel between Corvallis and Summit and 140 minutes per roundtrip including layover buffers.

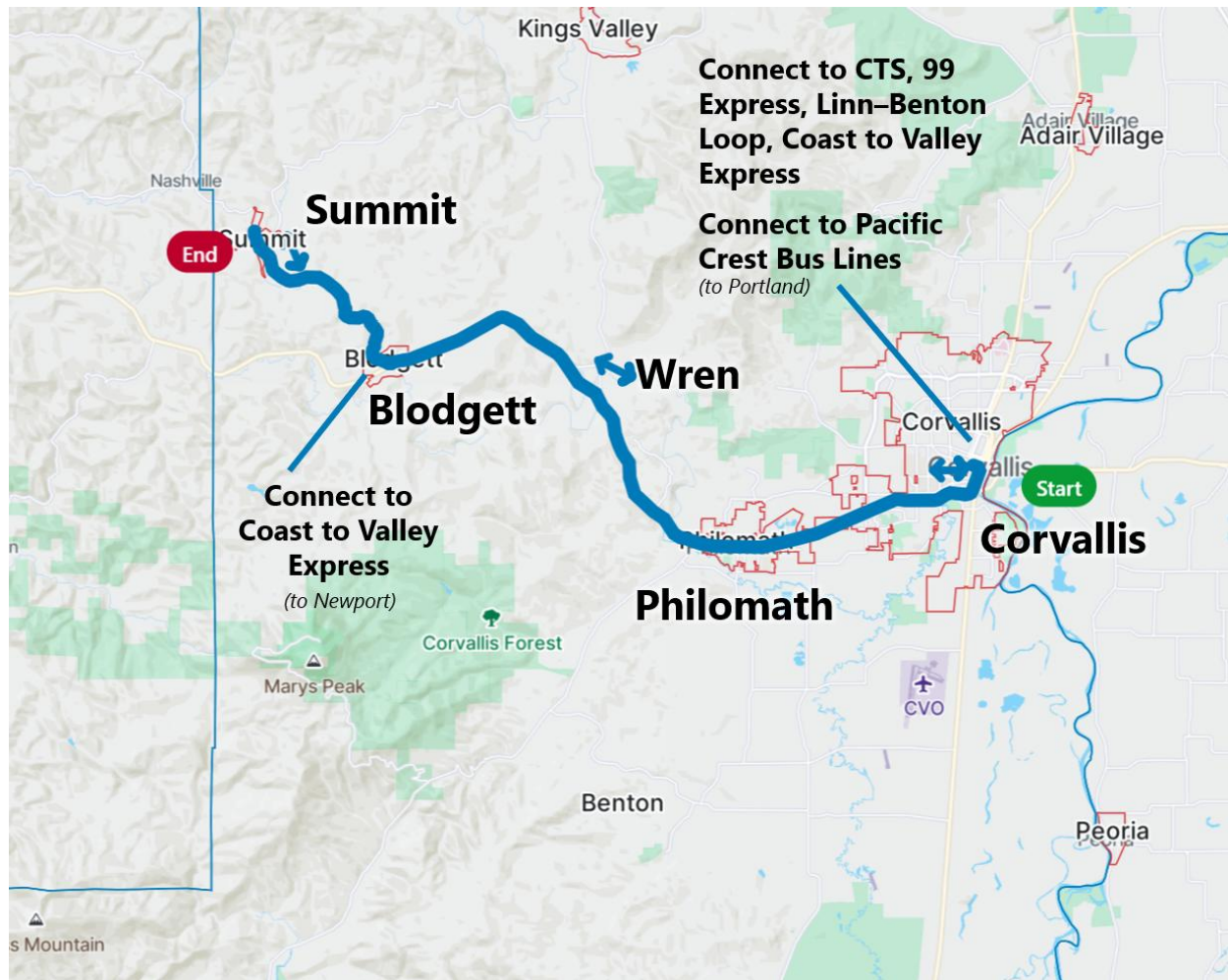
Blodgett currently receives four daily round trips between Newport and Albany, with service to Philomath and Corvallis, however this route extends the trip to provide additional transit service to Blodgett and add service to Summit. This route would provide residents in Wren, Blodgett, and Summit with connections to grocery stores, parks, groceries, and other essential destinations. It connects to CTS service in Corvallis to provide broader access to key destinations throughout Corvallis, including the Good Samaritan Regional Medical Center. It would also provide residents of Summit with access to the Coast to Valley Express connecting in Blodgett. If this alternative is selected coordination between these routes is encouraged to reduce the expected wait time for transferring passengers and enable radio communication between drivers in the event one route is running behind.

The route of Alternative 3A is shown in Figure 6. Roundtrip estimates for this alternative include:

Mileage: 43 miles	Maximum number of trips per day per vehicle: 3 to 4 round trips ⁶
One-Way Trip Time (Excludes Layover Buffer): 60 minutes	Cost per year, 2 round trips, 2 days each week: \$72,000
Total Trip Time, Round Trip (Includes Layover Buffer): 140 minutes	Cost per year, 2 round trips, 5 days each week: \$180,000

⁶ Number of trips per day was calculated by dividing the number of operating hours by the total trip time (roundtrip) and then rounding down to the nearest whole trip. Rounding and layover buffers provides a more conservative idea of the number of trips that could be provided per day per vehicle. In this case, the calculated number of trips (3.9) indicates that it may be possible to achieve 4 trips per day. It is recommended that any potential routes and schedules be determined by testing the routes with the typical BAT vehicles.

Figure 6. Alternative 3A Route Map



Alternative 3B: Corvallis-Philomath-Wren-Kings Valley

Like Alternative 3A, Alternative 3B connects northwestern Benton County to Philomath and Corvallis. Alternative 3B connects Wren and Kings Valley with Corvallis and Philomath. This route takes approximately 60 minutes to travel between Corvallis and Kings Valley and 140 minutes per roundtrip including layover buffers.

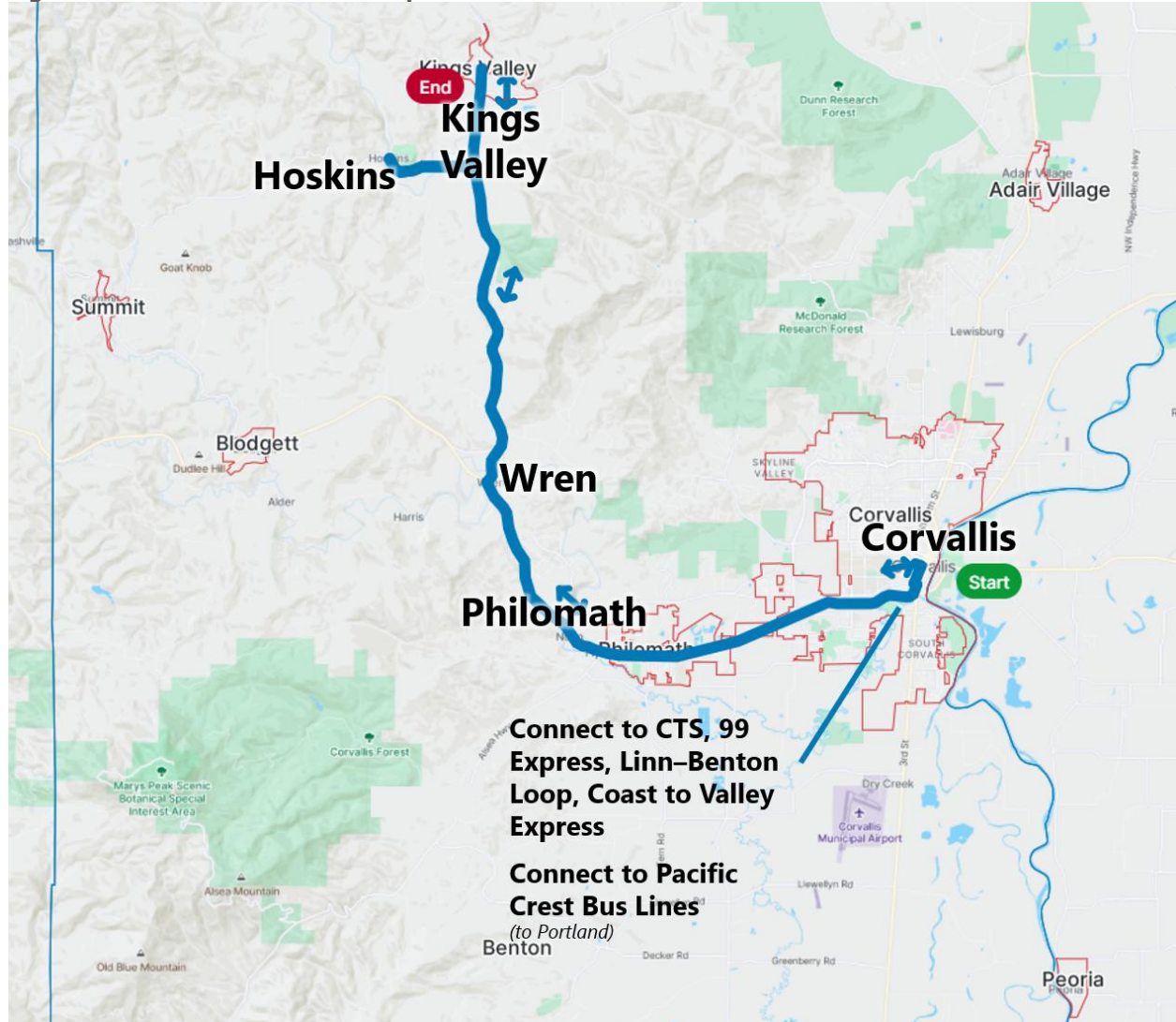
Kings Valley is not currently served by any fixed-route transit. This route would offer residents opportunities to reach grocery stores and retail stores in Philomath and Corvallis along with medical facilities and connecting transit service in Corvallis. A slight deviation to Fort Hoskins Historic Park would capture additional residents in the Hoskins area and connect riders to a local historical site.

The route of Alternative 3B is shown in Figure 7. Roundtrip estimates for this alternative include:

Mileage: 46 miles	Maximum number of trips per day per vehicle: 3 round trips ⁷
One-Way Trip Time (Excludes Layover Buffer): 60 minutes	Cost per year, 2 round trips, 2 days each week: \$72,000
Total Trip Time, Round Trip (Includes Layover Buffer): 140 minutes	Cost per year, 2 round trips, 5 days each week: \$180,000

⁷ Number of trips per day was calculated by dividing the number of operating hours by the total trip time (roundtrip) and then rounding down to the nearest whole trip. Rounding and layover buffers provides a more conservative idea of the number of trips that could be provided per day per vehicle. In this case, the calculated number of trips (3.9) indicates that it may be possible to achieve 4 trips per day. It is recommended that any potential routes and schedules be determined by testing the routes with the typical BAT vehicles.

Figure 7. Alternative 3B Route Map



Evaluation of Future Service Opportunities

Table 2 summarizes the alternatives and compares key metrics to existing service. As shown, increasing the number of cities served increases the number of individuals and communities with close access to transit, but this also increases the travel time. In order to expand geographic coverage with limited resources these routes could be packaged to provide access to different communities at various times of the day or days of the week.

Table 2. Comparison of Existing Service and Alternative Routes based on Evaluation Criteria

Service Goal	Evaluation Criteria	Alternative 1A: Corvallis-Monroe	Alternative 1B: Corvallis- Bellfountain-Alpine- Monroe	Alternative 1C: Corvallis-Monroe- Junction City	Alternative 2A: Corvallis-Philomath- Alsea	Alternative 2B: Philomath-Alsea	Alternative 3A: Corvallis-Philomath- Wren-Blodgett- Summit	Alternative 3B: Corvallis-Philomath- Wren-Kings Valley
Customer-Focused Services	Route Mileage, Round Trip	35 miles	48 miles	53 miles	48 miles	37 miles	43 miles	46 miles
	Total Trip Time, Round Trip (Includes Layover Buffer)	70 minutes	105 minutes	110 minutes	125 minutes	75 minutes	140 minutes	140 minutes
	One-Way Trip Time (Excludes Layover Buffer)	30 minutes	45 minutes	50 minutes	55 minutes	35 minutes	60 minutes	60 minutes
	Trips Per Day per Shuttle (Assumes 9 Operating Hours)	7 to 8 trips	5 trips	4 to 5 trips	4 trips	7 trips	3 to 4 trips	3 to 4 trips
Accessibility and Connectivity	Communities served with regular, fixed-route service ¹	Corvallis, Monroe	Corvallis, Bellfountain, Alpine, Monroe	Corvallis, Monroe, Junction City ¹	Corvallis, Philomath, Alsea	Philomath, Alsea	Corvallis, Philomath, Wren, Blodgett, Summit	Corvallis, Philomath, Wren, Hoskins, Kings Valley
	Population served in small communities	670	990	670	120	120	260	175
	Access to Key Destinations (without transfers)	6	7	10	10	5	7	8
Coordination	Connections to Other Routes/Providers within ¼ Mile of Transit Route	CTS, 99 Express, Linn–Benton Loop, Coast to Valley Express, Pacific Crest Bus Lines	CTS, 99 Express, Linn–Benton Loop, Coast to Valley Express, Pacific Crest Bus Lines	CTS, 99 Express, Linn–Benton Loop, Coast to Valley Express, Pacific Crest Bus Lines, LTD	CTS, 99 Express, Linn–Benton Loop, Coast to Valley Express, Pacific Crest Bus Lines	CTS, Coast to Valley Express	CTS, 99 Express, Linn–Benton Loop, Coast to Valley Express, Pacific Crest Bus Lines	CTS, 99 Express, Linn–Benton Loop, Coast to Valley Express, Pacific Crest Bus Lines
Fiscally Sustainable	Cost per year, 2 round trips per day, 2 days each week	\$37,000	\$56,000	\$59,000	\$66,000	\$40,000	\$72,000	\$72,000

¹Note that today Corvallis, Philomath, Blodgett, Monroe, Junction City are served with existing fixed route transit stops. Junction City is located in Lane County, but this community is listed, given its nature as a regional hub for South Benton County residents, with grocery stores, pharmacy services, and other essential retail.

Next Steps

The project team will hold workshops to gather feedback on the draft alternatives and their tradeoffs. This feedback will inform whether stops or routes need to be adjusted, preferences for selecting multiple routes operating different days of the week verses one route for all days operated, and other considerations for implementation. Based on this feedback, the project team will develop a draft feasibility report documenting the project approach, engagement findings, data analysis, service alternatives, and preliminary recommendations for the Benton County Board of Commissioners to consider.