Hermiston – Boardman Connector/ Boardman – Port of Morrow Circular

Confederated Tribes of the Umatilla Indian Reservation,
Morrow County, and Umatilla County

June 2021

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Prepared for:

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The development of the Hermiston – Boardman Connector and Boardman – Port of Morrow Circular plans was guided by the Project Management Team (PMT) and Stakeholder Group participants. Each individual devoted their time and effort to provide valuable input and feedback and their participation was instrumental in the development of the plan.

Project Management Team

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Stakeholder Group

The Stakeholder Group included over 50 representations of local cities and other government bodies, employers within the Port of Morrow and across the region, and representatives from health, education, and community organizations. Stakeholders provided insight throughout the project and dedicated personal time to the commitment.

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INTRODUCTION

Project Purpose

The Hermiston–Boardman Connector and Boardman–Port of Morrow Circular aim to make connections that will enable people to travel regionally and locally for employment, education, healthcare, and more. These transit services will help improve accessibility to major employment clusters in the area — in particular, the I-84/I-82/ Westland Road area and the Port of Morrow — and will enable critical last-mile connections from regional transit services. This project is developing a strategic plan for service to meet these needs, identifying travel needs, a preferred service model, and routing alternatives.

This project is being led by the Confederated Tribes of the Umatilla Indian Reservation's (CTUIR's) public transportation branch, Kayak Public Transit, and Morrow County's transit service The Loop, in partnership with Morrow County, Umatilla County, and the Port of Morrow. This document details the project's process, findings, and recommendations for a realistic, implementable service offering opportunities for the region's residents, employees, and visitors.

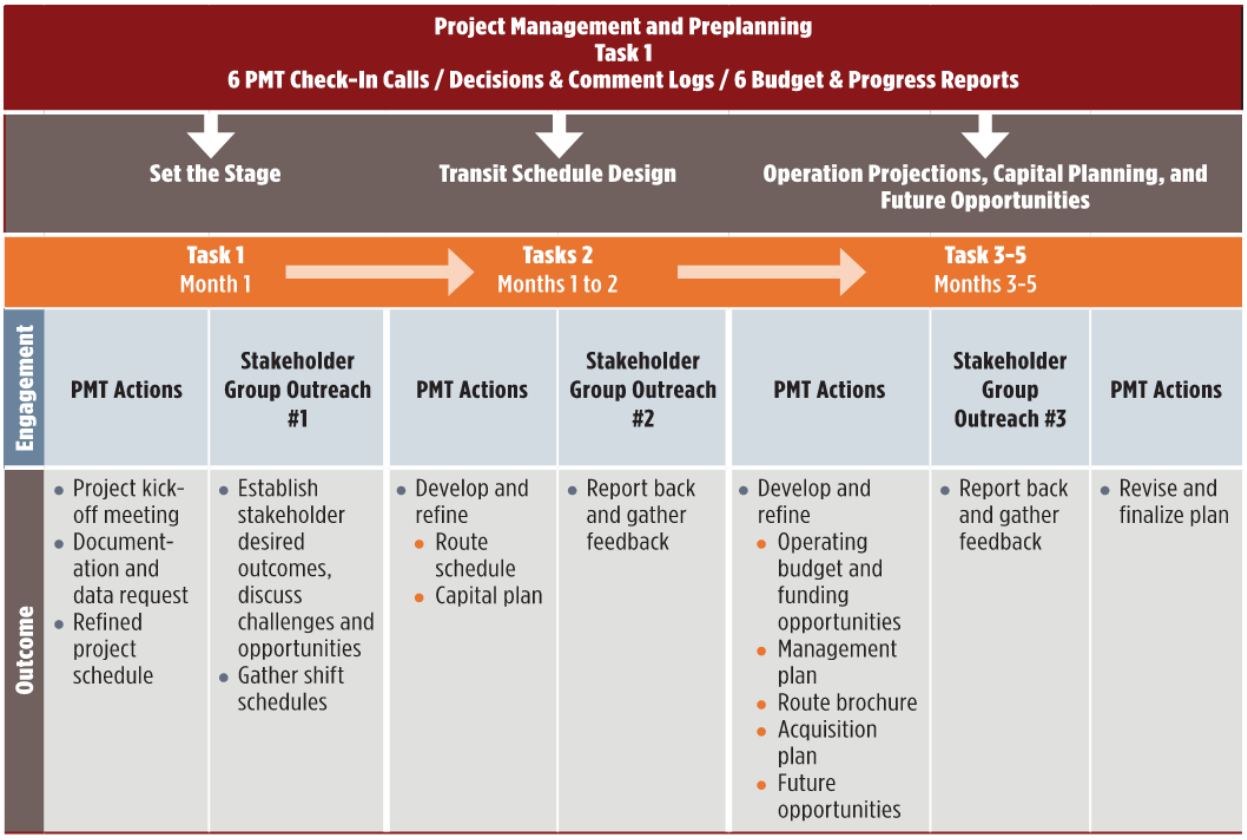
Project and Public Involvement Process

This project followed a process that gained consensus among CTUIR, Morrow County, Umatilla County, the Port of Morrow, and various stakeholders and community members. Table 1 and Figure 1 summarize the project process and public involvement activities. Regular checkpoints between the project management team and public ensured interim and end products that were achievable and fit the needs of the community.

Table 1. Public Involvement Process

Type of Activity	Activity Details and Purpose
Stakeholder Outreach #1 February 9th, 2021 February 11th, 2021 February 17th, 2021	Discuss and collect information by conducting three listening sessions with stakeholders, including a dedicated Port of Morrow employer session to understand operations, shift times and days, and employee needs. Understand opportunities identified by respondents in their community for bus connections and issues or concerns related to the development of the services.
Stakeholder Outreach #2 March 30th, 2021	Present the draft routes and schedules developed for the Hermiston – Boardman Connector and Boardman – Port of Morrow Circular and solicit feedback from stakeholders.
Stakeholder Outreach #3 June 22nd, 2021	Present the Draft Report to the stakeholders and conduct a 1-hour listening session

Figure 1. Project Process



Project Background

The need to increase the areas and connections served by transit within Morrow and Umatilla counties, particularly major rural employment clusters in the region, has been identified in several previous planning efforts. The potential transit solutions in the 2018 *Morrow County/Umatilla County Transit Development Strategy* include a solution to "significantly improve the accessibility to a major employment cluster." No fixed-route transit service is currently provided to Boardman and the Port of Morrow, although Morrow County does operate a demand-response service, The Loop, on weekdays.

Two high priority near-term transit service projects are identified in the transit development strategy:

- The **Hermiston – Boardman Connector** would directly link Umatilla County to Morrow County and the major employment clusters along portions of the US 730, US 395, and I-84 corridors. This service would provide better connectivity between the cities of Irrigon, Umatilla, Hermiston, Stanfield, and Echo and the regional employment base. Kayak Public Transit was identified as the potential implementation agency.
- The **Boardman – Port of Morrow Circular** would provide localized service within the Port of Morrow and would connect to the Hermiston – Boardman Connector. This service would improve access to businesses that are not centrally located within the Port of Morrow.

Port of Morrow, The Loop (Morrow County), or another service provider (unidentified, open to others) were identified as potential implementation agencies.

The transit development strategy also identified future connections between Heppner and Boardman, which would connect to both the Hermiston – Boardman Connector and the Boardman – Port of Morrow Circular, as well as long-term service needs connecting Arlington to Boardman and Pendleton to Kennewick.

Other local plans also identify the need for these services. The *City of Boardman Transportation System Plan* (TSP) identifies commute demands, in particular to Hermiston and the Tri-Cities area (Kennewick, Pasco, Richland) in Washington. The *City of Umatilla TSP* supports development of transit districts and increased transit services and facilities. The *City of Hermiston TSP* also supports increased transit services and highlights the need for regional travel. The *Morrow County, Umatilla County, and CTUIR Coordinated Human Services – Public Transportation Plans* also include project goals to increase job access for commuters between Boardman, Hermiston, Stanfield, and Tri-Cities. Data from Hermiston's employment taxi program shows high demands for low-income employees, in particular to grocery, retail, and restaurant employment in Hermiston.

Service Area Demographics

This section summarizes the existing general population characteristics, employment characteristics, and underrepresented populations of the cities of Boardman, Echo, Hermiston, Irrigon, Stanfield, and Umatilla.

Table 2 summarizes the current populations of cities in northern Morrow County and western Umatilla County that potentially could be served by one of the new transit services, based on the American Community Survey's 2019 5-year estimates. The 2017 *Port of Morrow Economic Impact Analysis* identified 8,452 permanent jobs at the Port of Morrow and Port-related businesses, which encompasses all Port sites (not just Boardman and the unincorporated areas nearby).

Table 2. City Population and Employment

City	Existing Population	Existing Employment
Boardman	3,439	1,673
Echo	735	339
Hermiston	17,423	7,735
Irrigon	2,053	865
Stanfield	2,722	1,215
Umatilla	7,162	2,137

The 2018 *Morrow County/Umatilla County Transit Development Strategy* provides pre-COVID-19 pandemic commute data. Table 3 illustrates the top three home cities of workers employed in northern Morrow and western Umatilla counties. Most workers who work in Boardman and Irrigon live in Boardman, followed by Hermiston and Irrigon. Most

workers who work in Hermiston and Umatilla live in Hermiston, followed by Umatilla and Pendleton. These data suggest that the Hermiston – Boardman Connector should prioritize connections between Boardman, Irrigon, and Hermiston. The Hermiston Hopper (Hopper) route currently provides a direct connection between Pendleton and Umatilla.

Approximately 63% of Morrow County's employees live outside the county, with the highest proportion in Umatilla County. In comparison, only 34% of Umatilla County's employees live outside the county. Most workers who work in Morrow County live in the City of Hermiston (11.5%) and most workers who work in Umatilla County live in the City of Pendleton (18%).

Table 3. Top Three Cities Where Workers Live Who are Employed in Morrow County and Umatilla County

Workers in:	Live in:
Boardman	1. Boardman
	2. Hermiston
	3. Irrigon
Irrigon	1. Boardman
	2. Hermiston
	3. Irrigon
Hermiston	1. Hermiston
	2. Umatilla
	3. Pendleton
Umatilla	1. Hermiston
	2. Umatilla
	3. Pendleton

Title VI and Underrepresented Populations

Title VI of the Civil Rights Act of 1964 prohibits discrimination in the provision of federally supported benefits and services, including public transportation service. The Title VI analysis presents information about the study area population's poverty status, age, racial/ethnic composition, English proficiency, and proportion of people with disabilities. Table 4 breaks down these Title VI metrics for each study area city and both counties and provides the state's average for comparison. This analysis provides information regarding populations who are typically more reliant on transit or have been historically underrepresented in planning processes.

Compared to Oregon as a whole, all study area cities have a higher percentage of households with incomes below 100% and 200% of the poverty level and a higher percentage of youth. The City of Umatilla ranks highest in all three metrics. All cities except Echo have a higher number of Hispanic/Latino residents than the State of Oregon as a whole. The cities of Boardman, Irrigon, and Stanfield have a higher number of American Indians or Alaskan Natives, and some other race alone, compared to the state

average. The percentage of people with limited English proficiency is higher than the state average in all cities except Echo, with the City of Umatilla having the highest percentage. Echo and Irrigon have a higher percentage of people with disabilities compared to Oregon as a whole.

Table 4. Title VI and Underrepresented Populations

		Oregon	Morrow County	Umatilla County	Boardman	Echo	Hermiston	Irrigon	Stanfield	Umatilla
Total Surveyed Population Estimate		4,052,019	11,273	72,376	3,439	729	17,229	2,042	2,702	4,979
Total Households		1,611,982	4,108	26,908	1,157	286	6,207	709	924	1,748
Income	Below 100% Poverty	13.2%	14.5%	17.9%	16.2%	19.6%	19.3%	16.1%	15.5%	26.1%
	Below 200% Poverty	30.8%	41.4%	41.0%	44.1%	41.3%	42.9%	45.5%	34.8%	62.7%
Age	Youth	21.0%	27.4%	26.6%	30.9%	24.4%	30.5%	29.0%	23.3%	35.4%
	Older Adults	17.2%	15.6%	15.6%	6.2%	11.0%	11.6%	14.2%	14.2%	7.3%
Race or Ethnicity	White	84.4%	89.6%	86.7%	87.7%	89.7%	87.9%	75.9%	82.6%	92.4%
	Black	1.9%	0.3%	0.6%	0.0%	1.0%	0.3%	0.8%	0.0%	2.9%
	American Indian or Alaskan Native	1.1%	1.4%	3.2%	1.7%	0.0%	0.8%	3.1%	1.3%	0.0%
	Asian	4.4%	0.6%	1.1%	1.0%	2.1%	0.4%	1.6%	0.0%	0.0%
	Hawaiian or Pacific Islander	0.4%	0.5%	0.3%	0.0%	0.4%	0.3%	1.4%	0.3%	0.0%
	Some other race alone	3.1%	4.5%	4.6%	7.6%	2.2%	7.4%	9.4%	10.5%	2.7%
	Two or more races	4.7%	3.1%	3.6%	2.0%	4.7%	3.0%	7.9%	5.3%	2.0%
	Hispanic or Latino of any race	13.0%	36.5%	27.2%	65.5%	5.6%	47.0%	45.3%	37.8%	50.6%
Persons with Limited English Proficiency		2.5%	6.2%	4.1%	13.1%	0.0%	6.3%	7.9%	7.6%	17.7%
Persons with Disability		14.4%	15.8%	16.2%	9.3%	15.0%	13.3%	16.1%	12.2%	12.9%

American Community Survey 2014–2019 5-Year Estimates; Tables S1602, S1810, S1701. Note that the City of Umatilla's census survey estimates are substantially lower than its estimated population.

SW 3rd/Orchard in Hermiston – Current Transit Stop

2. OPERATIONS PLAN

OPERATIONS PLAN

The operations plan section summarizes travel needs to be served, service model and routing alternatives, service span and frequency, and ridership estimates.

Travel Needs

This section presents the process used to develop alternatives for transit service for the Hermiston – Boardman Connector and Boardman – Port of Morrow Circular, considering locations of employment centers, commute demands, connecting transit services, and health-supporting, education, and other community resources that riders may access via transit.

Employment Centers

In general, key employment centers in the region are concentrated in or near the cities of Hermiston, Boardman, and Umatilla and in small areas near Irrigon, Stanfield, and Echo. Employment centers, as well as other community resources, are mapped in Figure 2, Figure 3, and Figure 4.

Hermiston – Boardman Connector

The Hermiston – Boardman Connector aims to bring people to jobs and employment opportunities near the Port of Morrow, but also provide opportunities to serve the South Hermiston Industrial area, I-84/I-82/Westland Road, and other employers in the region. Note that the City of Hermiston WORC program provides employees with service between Hermiston, Stanfield, Echo, and the Westland Road employment areas. Major employers that the Connector could serve include:

- Central Business Districts of the cities
- Port of Morrow (Connect to the Circular)
- Lamb Weston (Westland Road)
- Two Rivers Correctional Institution
- Columbia Basin Onion
- Home Depot
- Lamb Weston (Hermiston)
- Marlette Homes
- McDonalds
- MJs Labor Services
- Pacific Ag
- River Point Farms
- Shearer's Food
- Blue Mountain Community College
- Columbia River Health
- Good Shepherd Health Care System
- Hermiston BiMart
- Hermiston Grocery Outlet
- Hermiston Plaza (Safeway, DMV, Rite Aid)
- Walmart Distribution Center

Figure 2. Activity Centers and Employers – Overall

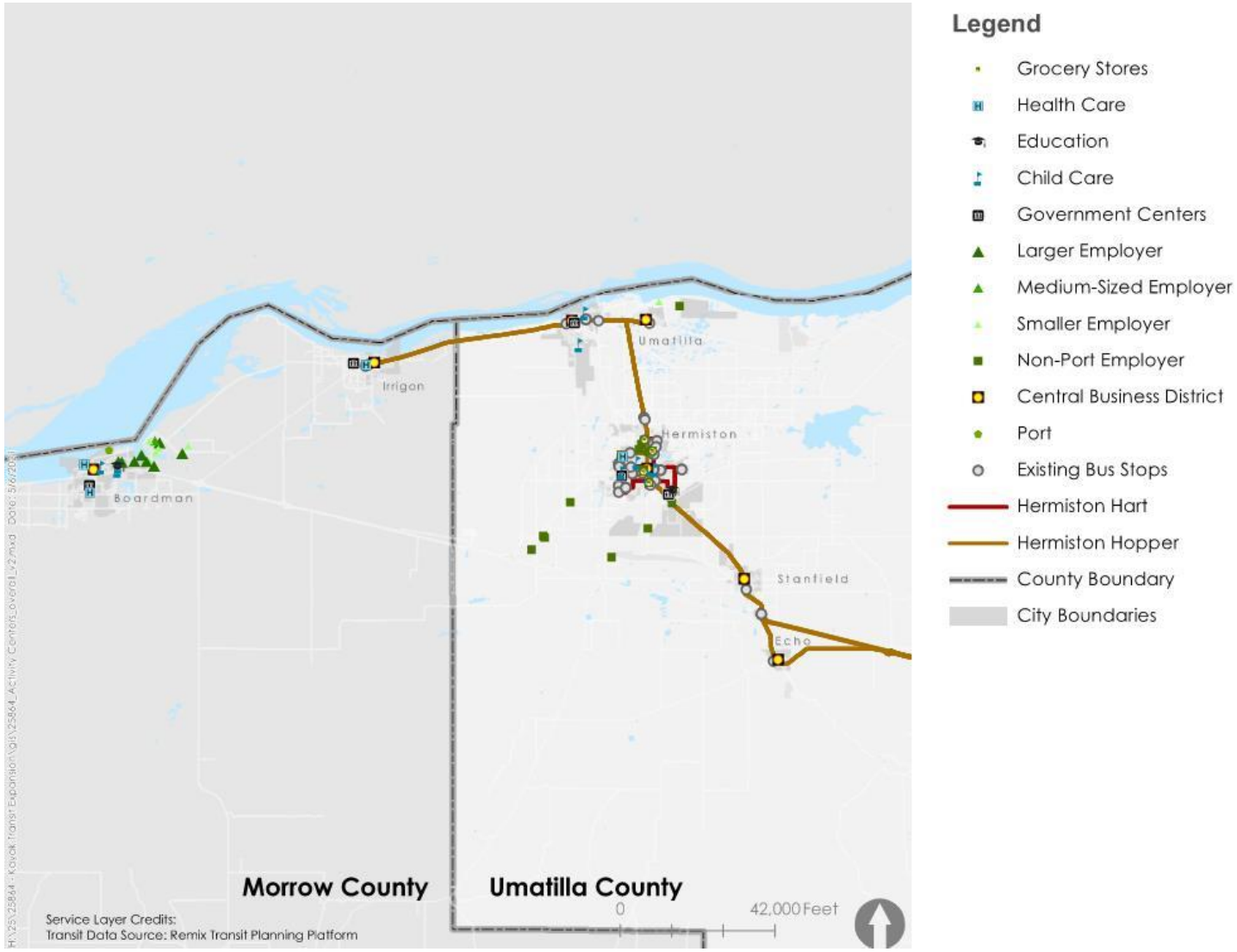


Figure 3. Activity Centers and Employers – Boardman

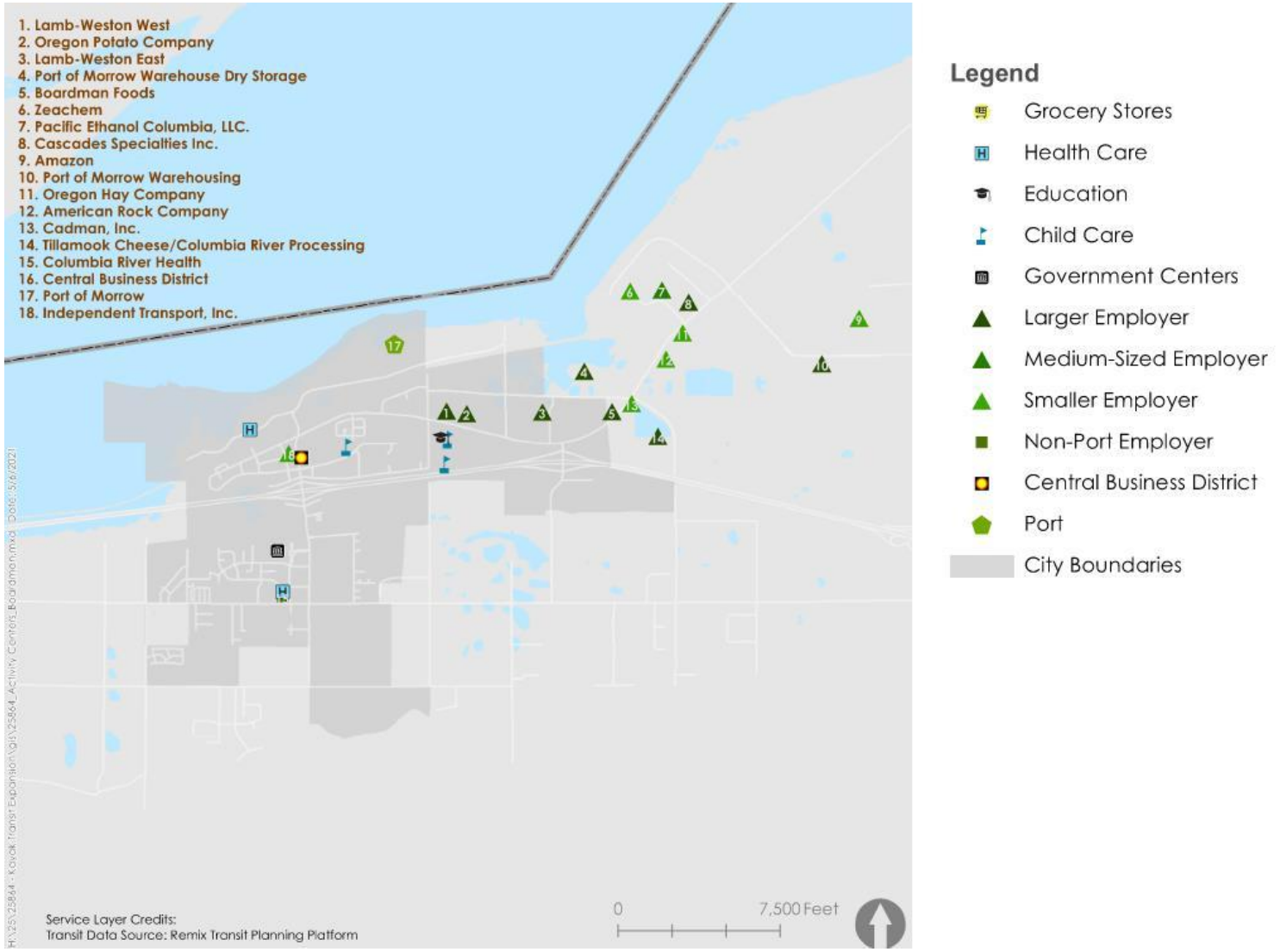
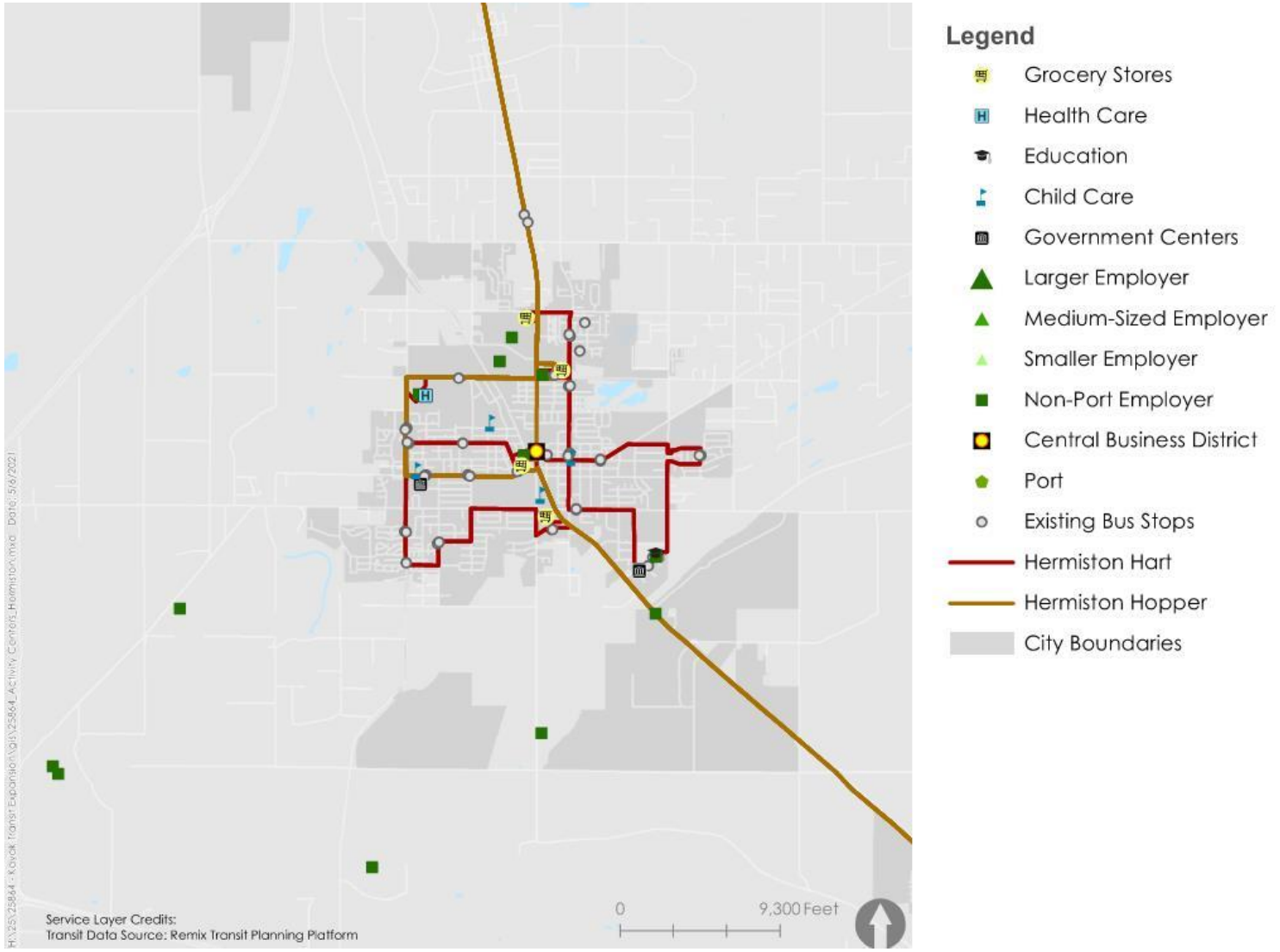


Figure 4. Activity Centers and Employers – Hermiston



Boardman – Port of Morrow Circular

The Boardman – Port of Morrow Circular aims to provide service within Boardman and the Port to facilitate transit connectivity and access during peak employer shift times. The Circular will also connect with the Hermiston – Boardman Connector to facilitate easy transfer opportunities to other cities. Large employers (bolded) and smaller employers that the Circular could serve include:

- Amazon
- American Rock
- Barenbrug USA
- Boardman Chip Company
- **Boardman Foods**
- Cadman Sand
- **Cascade Specialties, Inc.**
- **Columbia River Dairy***
- Independent Transport
- **Lamb-Weston**
- LTI, Inc.
- Morrow County Grain Growers
- **Oregon Potato Company**
- Oregon Hay Company
- Pacific Ethanol
- **Port of Morrow Warehouse**
- Tidewater
- **Tillamook – Columbia River Processing**
- **Threemile Canyon Farms***
- Zeachem

**Far from Boardman and Port of Morrow, off-map.*

Commute Demands

This section summarizes the commute patterns for the Hermiston – Boardman Connector and details the Port of Morrow shift data collected as part of Stakeholder Outreach #1.

Hermiston – Boardman Connector

As noted in the review of the 2018 Morrow County/Umatilla County Transit Development Strategy in the Project Background section, connections between Boardman, Hermiston, and Irrigon should be prioritized for the Hermiston – Boardman Connector. In considering impacts to the Hopper, the service should consider impacts of a transfer or direct connection to Umatilla, given the commute demand to Pendleton. Umatilla could also potentially serve as a transfer point for the return of transit service to the Tri-Cities, serving bi-directional commute demands between Oregon and Washington. The Tri-Cities connection to Umatilla and Hermiston was discontinued in 2014 due to budgetary limitations and is a highly requested route from the public.

Boardman – Port of Morrow Circular

Several employers provided information about where their employees live and what shift times they operated. Confirming census data, key home locations of employees were Boardman, Hermiston, Umatilla/McNary, Irrigon, Stanfield, and Kennewick, listed in order of the highest number of employees to lowest. Major shift times generally begin in the 5 AM to 8 AM range and end in the 4 PM to 7 PM range, though most employers

operate overnight shifts. Shifts are generally all days of the week. *More details on this information are included in Appendix A*.

Connecting Transit Services

Kayak Public Transit

Kayak Public Transit currently operates two routes within the service area.

The **HART** loops forwards and backwards on a fixed route through Hermiston five times in each direction every weekday. Demand-responsive ADA paratransit service is provided between locations within ¾ mile of the fixed route for persons with disabilities that prevent them from accessing the fixed route.

The **Hopper** is a commuter bus connecting the Umatilla Indian Reservation and Pendleton with Umatilla via Stanfield, Hermiston, and McNary. The Hopper operates four weekday round trips per day in the early morning, mid-morning, mid-afternoon, and early evening, with the two midday trips also serving Echo and Irrigon. Two round trips are provided on Saturday in the mid-morning and late afternoon. Timed connections to the HART are provided in Hermiston. Connections to other Kayak Public Transit routes can be made in Pendleton, Mission, the Wildhorse Resort & Casino, and the Arrowhead Travel Plaza.

Figure 5 shows the Hopper and HART's major stops, scheduled stop times, and travel times between stops.

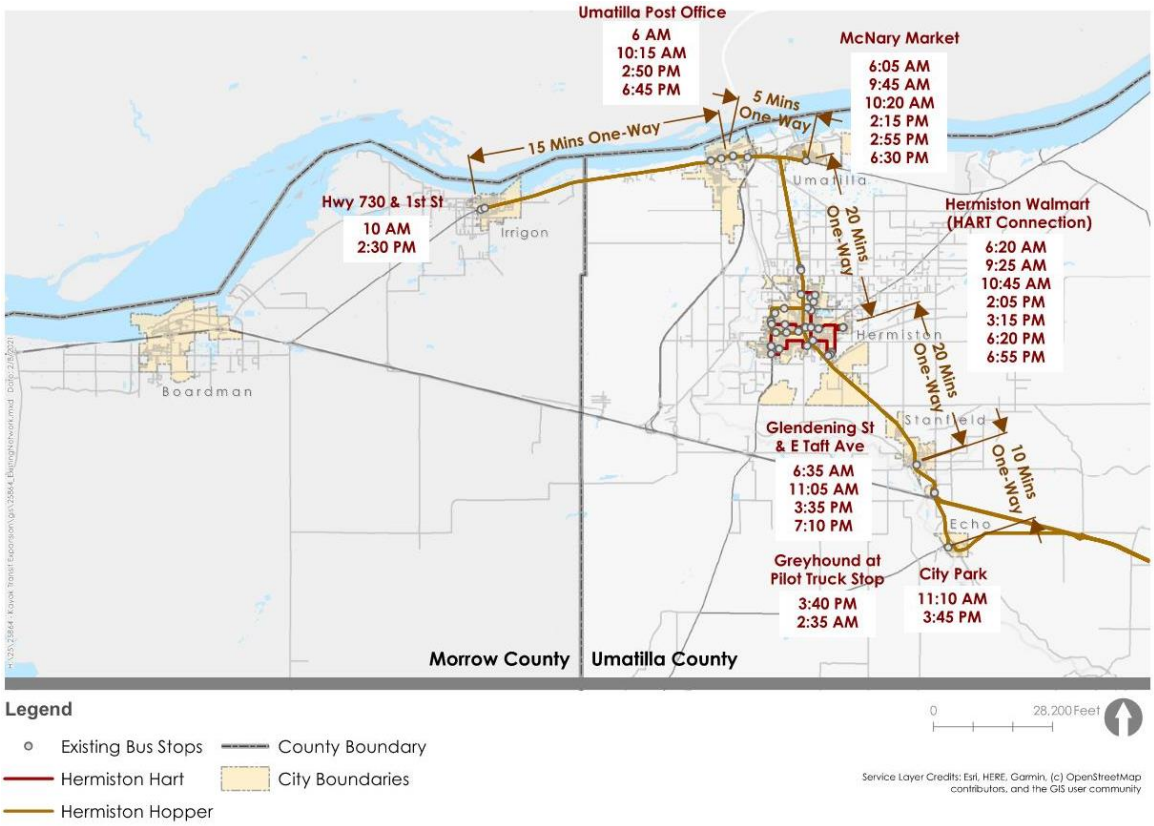
The Loop

Morrow County operates The Loop, demand-response service for residents of and visitors to Morrow County. Service is provided on weekdays, with offices open between 8 a.m. and noon and between 1 and 5 p.m. Services operate depending on demand, which varies, and can accommodate earlier morning or later evening rides. At present, due to the COVID-19 pandemic, service is limited to serving medical appointments and grocery shopping trips.

Greyhound

Greyhound intercity buses stop at the Pilot Travel Center south of Stanfield. The stop is served by a Greyhound route connecting Portland and Denver via Boise and Salt Lake City. The stop is also the end point of a connecting route to Pasco, Yakima, and Seattle.

Figure 5. Transit Routes, Major Stops, Schedules, and Travel Time between Stops



Health Supporting, Education and Other Community Resources

Entities to be considered for routing of the Hermiston – Boardman Connector and the Boardman – Port of Morrow Circular also include health-supporting destinations, education and community resources. Although employment destinations are a focus of both services, these resources are common draws to intercity and local bus services. In the region, these include:

- Blue Mountain Community College*
- Columbia River Health
- Community Health Improvement Partnership of Morrow County (CHIPOMC)
- Desert Sage Manor
- Good Shepherd Health Care System*
- Hermiston BiMart
- Hermiston Grocery Outlet
- Hermiston Plaza (Safeway, DMV)*
- Irrigon Medical Clinic
- Morrow County VA Clinic
- Morrow County School District
- Morrow County Planning Department
- Neal Early Learning Center
- SAGE Center
- Umatilla County Court
- Walmart Store*
- WIC Hermiston – Umatilla/Morrow Head Start

**Also a substantial employment center*

Service Model and Routing

This section introduces the service model and presents the process used to develop recommended alternatives for the Hermiston – Boardman Connector and the Port of Morrow Circular considering potential key stops, and routing. The development of the recommended alternatives for both services was informed by key employment centers and shift times, routing information, other existing and planned transit services, and stakeholder engagement.

Hermiston – Boardman Connector

Given the long distances between cities, employment centers, and other developed areas, the Hermiston – Boardman Connector is likely to be classified as an intercity or commuter bus service. The FTA defines routes that are classified as "commuter bus" routes using one of the definitions provided in 49 CFR §37.3:

- "Commuter bus service means fixed route bus service, characterized by service predominantly in one direction during peak periods, limited stops, use of multi-ride tickets, and routes of extended length, usually between the central business district and outlying suburbs."
- "Commuter bus service may also include other service, characterized by a limited route structure, limited stops, and a coordinated relationship to another mode of transportation."

Because the Hermiston – Boardman Connector is likely to serve multiple commute pairs with consistent travel in peak periods, the second definition of commuter bus is most applicable. It is also possible for different portions of a route to be classified in different ways. For example, a long, non-stop portion of a route along a freeway could be considered commuter bus service and not require complementary paratransit service, while a local portion of the route off the freeway that provides stops at regular intervals would require complementary paratransit service. As another example, deviated-route service can be provided for one part of a route, along with fixed-route plus complementary paratransit service for another part of the route. The Hermiston – Boardman Connector is likely to be a traditional fixed-route service, without deviation zones due to funding source classification and the long-distance service focus.

The Hermiston – Boardman Connector will likely have 3 stops or fewer in each community and riders may experience long wait times if the service operates with long headways. As such, stops desirably should have relatively high levels of passenger activity, amenities to make waiting comfortable and to attract ridership, and minimal distance from the main roads to minimize overall travel time. Additionally, these points should connect to other existing or planned transit services. These stops may include:

- Boardman
    - SAGE Center, located along Olson Road. The SAGE Center shares a location with the Boardman Chamber of Commerce and provides well-lit, shaded space to wait. In addition, the SAGE Center is close to many employers, Blue Mountain

Community College, and Boardman Rec Center. The proximity to the Port of Morrow would also make timed transfers for employee shifts easier; with connections to the Boardman – Port of Morrow Circular closer to the ultimate destination. This location has potential for a park-and-ride partnership. In addition, employers identified that many of their employees use a childcare facility at this location, which would make this an ideal transfer point between the services, though it requires coordination for quick drop-off/pick-up time. Additionally, the Hermiston – Boardman Connector may be able to stop at a few large employers on its way to and from the SAGE Center, depending on shift times.

  - Boardman City Hall, located at City Center Drive. Boardman City Hall includes community space and resources, proximity to other businesses such as banks, grocery stores, and a DHS office, and proximity to residential areas. However, this destination would increase travel times for intercity commuters to Port of Morrow jobs. This location has potential for a park-and-ride partnership.
  - Employers, throughout the Port of Morrow. The Hermiston – Boardman Connector could stop at 1-2 large employers or employers far from the SAGE Center on its way into the Boardman area. Doing so would provide a direct connection for those traveling via the Connector and decrease the demand on the Circular.
- Hermiston
  - Walmart, located along N 1st Avenue. The Walmart stop would provide a connection to both the Hopper and HART routes and access to the shopping center. In addition to grocery trips, the Walmart is a key employer in the region. This location has potential for a park-and-ride partnership.
  - SW 3rd Street & Orchard Avenue. This stop provides a connection to both the Hopper and HART routes and access to the Bi-Mart shopping center. Other nearby resources include the USPS office and Hermiston Municipal Court. This location may be challenging to provide a park-and-ride partnership, as large nearby parking lots are primarily schools with similarly-timed parking needs.
  - Hermiston Plaza, located along the Umatilla-Stanfield Highway. The Hermiston Plaza stop would provide a connection to the HART. Currently, the Hopper does not stop at the Plaza but passes by it. Providing a key stop on the Hopper route at the Hermiston Plaza will provide transfer opportunities as well as access to grocery stores, pharmacies and other activities.
- Other Stops
  - Echo, Irrigon, McNary, Stanfield, and Umatilla – Stops in these communities should be at the existing Hopper stops, both for connection purposes and as these stops are already centrally located to the communities and their resources. These stops include City Park in Echo, Highway 730/First Street in Irrigon, McNary Market in McNary, Glendening & E Taft in Stanfield, and City Hall in Umatilla. The Port of Entry in Umatilla has also been considered for relocation, and its site could be used as a park-and-ride location in the future.
  - Other – Depending on the recommended route, stops could be located in the South Hermiston Industrial area, Westland Road employment area, or elsewhere.

Remix transit planning software was used to develop routing alternatives. The PMT then recommended specific alternatives based on the evaluation of the initial alternatives. Remix provided estimated run times (based on an assumed 35 miles-per-hour average speed) and estimated mileage. A minimum layover buffer of 10% of the runtime was included in the total trip time for each route to account for breaks for the driver, recovery from delays, and/or time to change drivers.

Route and Stops

The following section provides information about the Early AM Route and Regular Route versions of the Preferred Routes. Each Preferred Route will serve the region for 12–18 hours per day, 6 days per week. As some of the first shifts at the Port of Morrow start at 5:00 AM, the Early AM Route would need to start at 4:00 AM in Hermiston to connect to the Boardman–Port of Morrow Circular at the SAGE Center at 4:40 AM. All Early AM and Regular Hermiston–Boardman Connector trips will provide a timed connection with the Early AM and Regular Boardman–Port of Morrow Circular, respectively.

Hermiston – Boardman Connector Early AM Route

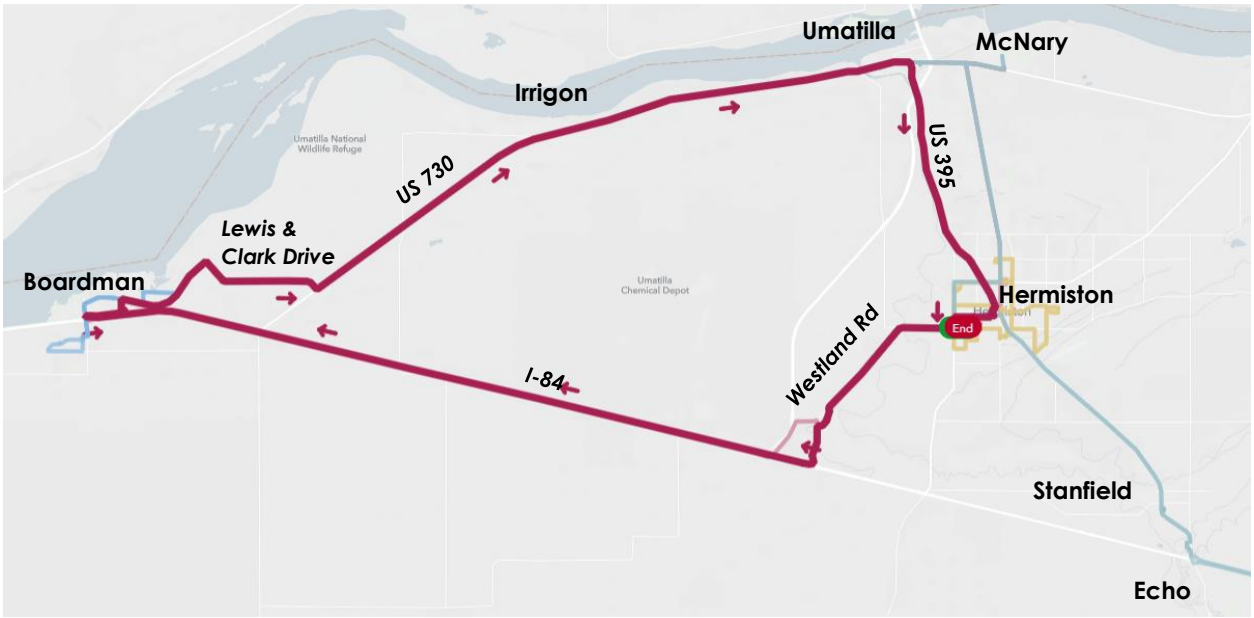
Ridership on the Early AM Routes is expected to be driven primarily by Port of Morrow employees. Therefore, Early AM Routes are designed to focus on the shortest and quickest travel paths between Hermiston and Boardman – Port of Morrow. As indicated later in this report, the Hopper route would stay the same in the AM, providing service to McNary.

Based on the employment data provided, employer shifts at the Port of Morrow start as early as 5:00 AM and continue through 7:00 AM. Therefore, Clockwise and Counterclockwise routes have been developed to maximize service times during this important morning period. The Counterclockwise route begins in Hermiston and uses Umatilla River Road, US 730, and Lewis and Clark Drive in the Port of Morrow before stopping at the Sage Center. It returns to Hermiston via I-84, County 1232 Road to minimize left-turns at interchanges, Westland Road, and Highland Avenue. The Clockwise route runs nearly the same route, but in the opposite direction. Both the Counterclockwise and Clockwise routes have 90-minute headways, with Counterclockwise runs arriving at the Sage Center at 4:40 AM, 6:10 AM, and 7:40 AM and Clockwise runs arriving at the SAGE Center near 5:25 AM, 6:55 AM, and 8:25 AM. While some of these runs do not provide perfectly timed arrivals with every Port of Morrow shift, coordination with employers may lead to changes in shift times to align with Connector timing. The Preferred Early AM Counterclockwise and Clockwise Routes are shown in Figure 6 and Figure 7. Estimated travel times for both routes are:

- Runtime – 75 minutes
- Recovery/Layover Buffer – 15 minutes
- Total Trip Time – 90 minutes

Figure 6. Hermiston–Boardman Connector Early AM Counterclockwise Route

Figure 7. Hermiston–Boardman Connector Early AM Clockwise Route



Hermiston – Boardman Connector Regular Route

The Regular Route is designed with similar Counterclockwise and Clockwise runs operating after the Early AM Route between 8:30 AM and the end of the service day around 9:20 PM. Both routes travel routings similar to the Early AM routes; however, they travel between Hermiston, McNary, and Umatilla via US 395. The regular Counterclockwise route has a 2-hour headway, with runs arriving at the SAGE Center at 9:22 AM, 11:22 AM, 1:22 PM, 3:22 PM, 5:22 PM, and 7:22 PM. The regular Clockwise route would operate at 2-hour headways with runs arriving at the SAGE Center at 10:20 AM,

12:20 PM, 2:20 PM, 4:20 PM, 6:20 PM, and 8:20 PM. The Preferred Regular Counterclockwise and Clockwise Routes are shown in Figure 8 and Figure 9. Estimated travel times for this route are:

- Runtime – 88 minutes
- Recovery/Layover Buffer – 32 minutes
- Total Trip Time – 120 minutes

Figure 8. Hermiston – Boardman Connector Regular Counterclockwise Route

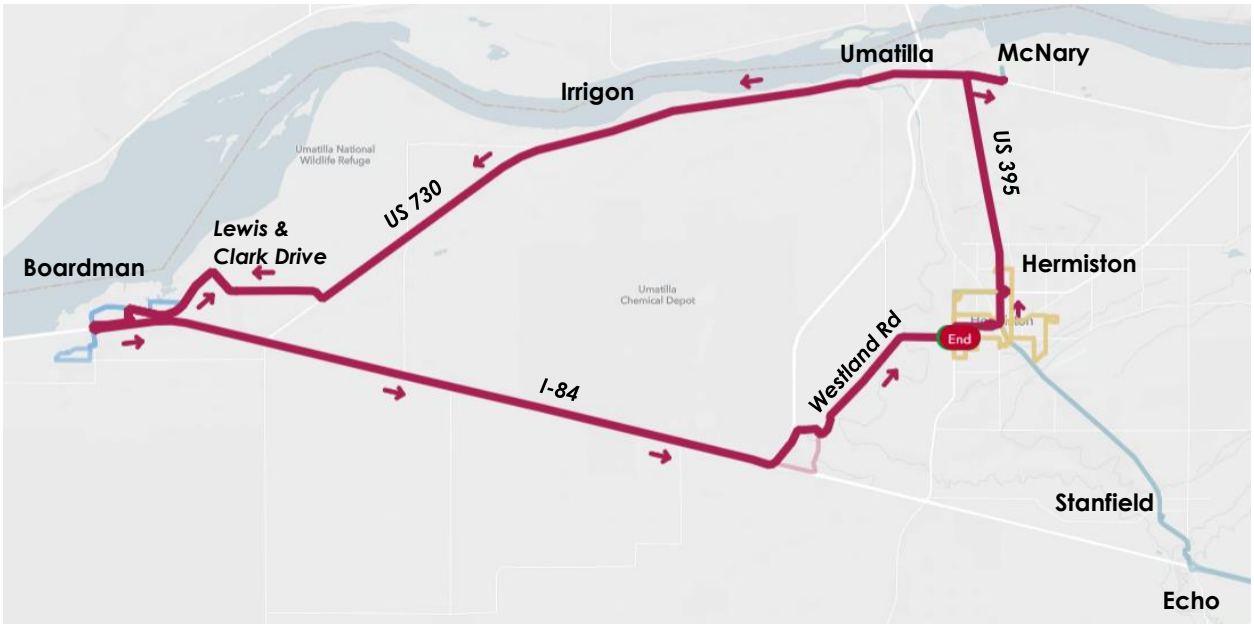


Figure 9. Hermiston – Boardman Connector Regular Clockwise Route

Long-Term Route Improvements

If more funding is available in the long term, Sunday trips can be added to the schedule to provide 7-days-a-week service. Kayak Public Transit currently does not provide Sunday service on any route, and would need to obtain additional dispatch, supervisory, maintenance, and other staff to support this service expansion. In addition, Umatilla/McNary and Stanfield/Echo are interested in obtaining local demand-response services. A future version of the Hermiston – Boardman Connector could look to connect to these services and operate the Early AM version of the route throughout the day, improving headways and relying on connections to demand-response for those not directly served by the route. *If funding is limited in the near- or long terms, a reduced funding option is shown in Appendix B.*

Boardman – Port of Morrow Circular

The Boardman – Port of Morrow Circular is intended to provide first/last-mile connections, in particular to Port of Morrow employers. This service will also provide transit options to the wider Boardman community. Given the varying shift needs of employers, and the dispersed and low-density land uses of both the Port of Morrow and Boardman, a deviated fixed-route service is recommended to provide the necessary scheduling and routing flexibility.

Under the requirements of the Americans with Disabilities Act (ADA), transit agencies that provide fixed-route transit service (not including intercity service) must also provide origin-to-destination "complementary paratransit" (demand-response) service for persons with disabilities that prevent them from accessing or using the fixed-route service. Among other conditions, this service must be available within ¾ mile of the fixed route during the same hours that fixed-route service operates. The service must either fill the gap from a person's origin or destination to a connecting transit service or provide the full trip of service. As noted previously, Morrow County operates the demand-response service The Loop, which could serve as the complementary demand-response for fixed-route transit during The Loop's hours of operation. However, if the Circular operates early in the morning to provide Port of Morrow shift service, the whole Circular route would need to be deviated fixed-route to satisfy complementary paratransit requirements.

If deviation is implemented, several best practices for service design should be followed. Deviated-route service works best when the typical number of deviation requests is relatively low (e.g., one or two per one-way trip), such that the schedule has time built in to accommodate deviations, but neither provides too much slack time that goes unused on most trips, nor experiences so many requests that buses cannot start their next trip on time. Desirable conditions for deviated-route service include the following:

- **Streamlined route patterns.** Direct and straight routes, as opposed to ones with more turns for coverage, provide extra time in the schedule that can be used to accommodate deviations, without necessarily requiring changes to the route headway

or endpoints. As ridership patterns stabilize, stops that have passenger activity on most trips continue to be served by the fixed route. At the same time, little-used stops that require out-of-direction travel can be eliminated from the fixed route. These former stops can continue to be served on an as-needed basis via a request for a route deviation, as well as by walking a little farther from the next-closest fixed-route stop.

- **Longer distances between stops.** Stops are desirably close enough to each other so as not shrink the area within walking distance of the route by too much, but far enough apart to minimize the amount of out-of-direction travel required when making a deviation. An average ¼-mile spacing provides a reasonable compromise.
- **Reduced/eliminated use of flag stops.** Small-city transit agencies with relatively low ridership demand often allow passengers to board or alight the bus at any safe location along the fixed route as a convenience to shorten walking distances. However, this policy is more difficult to maintain with deviated-route service, as the bus is only required to serve the fixed stops along the route, and may deviate from the fixed route between those stops as needed. As a result, a potential passenger waiting along the route between two designated stops may be bypassed if a deviation occurs along that section of the route. It is possible to avoid this issue by requiring the bus to turn around after deviating to rejoin the fixed route at the point it left it, but this approach is less-efficient time-wise and tends to reduce the number of deviations that can be made per trip. In addition, flag stops eventually become unsustainable as ridership increases, as the extra stops made along the route slow buses down too much.
- **Prioritizing ADA passengers for deviations.** Under the ADA, requests for complementary paratransit must be allowed to be made until the end of the day before the trip. Requiring other passengers to wait until the day of their trip to confirm a deviation request maximizes the capacity of deviated-route service to serve ADA passengers and thus minimizes the need for supplemental dial-a-ride service to avoid service denials to ADA passengers. When general passengers are allowed to request deviations, the agency may set a deadline for when the request can be made (e.g., no later than one hour in advance for pick-ups). Drivers may be allowed to make drop-offs on request, if the schedule permits.

The Boardman – Port of Morrow Circular should provide timed connections to the Hermiston – Boardman Connector.

Remix transit planning software was used to develop routing alternatives. The PMT then recommended specific alternatives based on the evaluation of the initial alternatives. Remix provided estimated run times (based on an assumed 12 miles-per-hour average speed) and estimated mileage. A minimum layover buffer of 10% of the runtime was included in the total trip time for each route to account for breaks for the driver, recovery from delays, and/or time to change drivers. All routes are assumed to deviate within the Port of Morrow.

Route and Stops

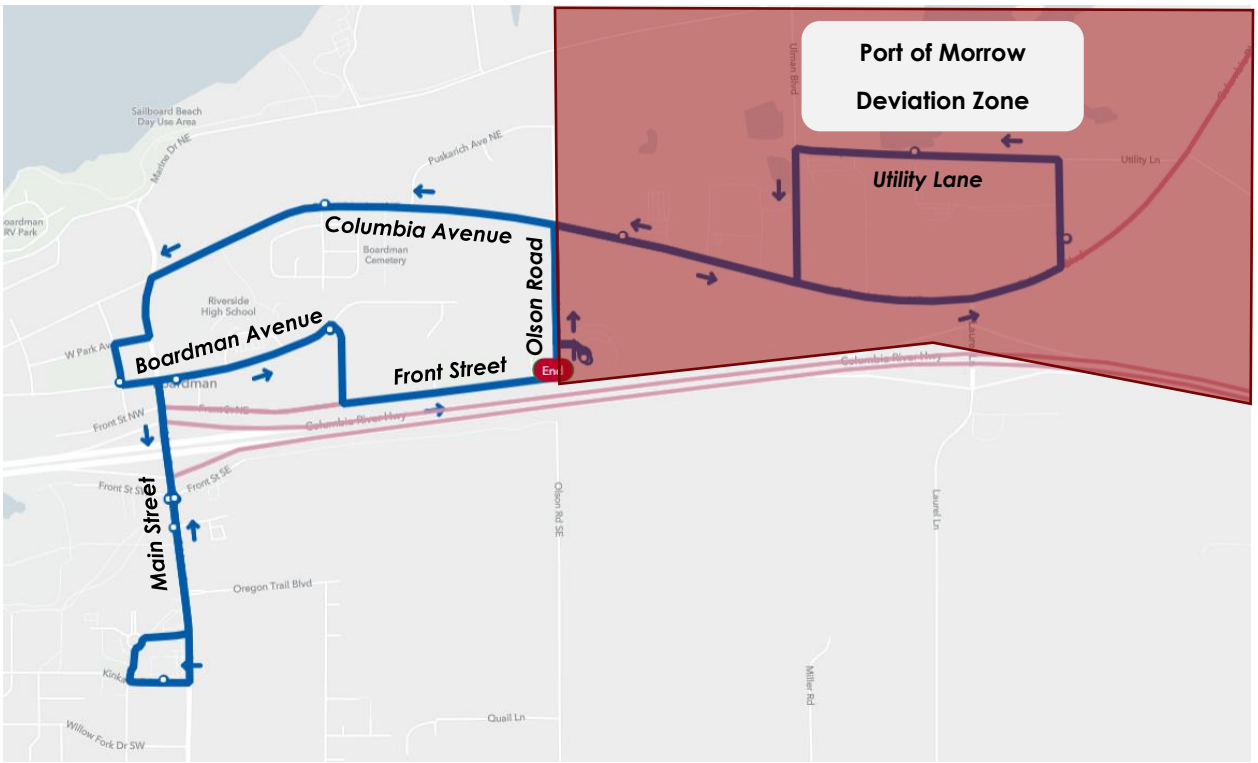
The following section provides information about the Early AM Route and Regular Route versions of the Preferred Circular. The routes will serve the region for 12–18 hours per day. Every trip will connect with the Hermiston–Boardman Connector.

Boardman–Port of Morrow Circular Early AM Route

The route would start at 4:22 AM, travel to south Boardman, and then back to the SAGE Center to connect to the Hermiston–Boardman Connector, allowing riders to either transfer between the Hermiston–Boardman Connector if needed or stay on the Boardman – Port of Morrow Circular to travel to the employment centers in the Port of Morrow for the first shifts of the day. The route's schedule includes time to deviate for 7 minutes in the Port of Morrow. The route deviates up to ¼ mile outside of the Port of Morrow, when The Loop isn't operating, as well. The Early AM Route runs for a total of 45 minutes starting at the SAGE Center arriving at 4:40 AM, 5:25 AM, 6:10 AM, 6:55 AM, 7:40 AM, and 8:25 AM, and departing again 5 minutes after arrival. The exception is the trip at 9:10 AM, which waits 15 minutes and then becomes the Regular Route. The Preferred Early AM Route is shown in Figure 10. Estimates for this alternative include:

- Runtime – 33 minutes
- Layover and Deviation Buffer – 12 minutes
- Total Trip Time – 45 minutes

Figure 10. Boardman – Port of Morrow Circular Early AM Route

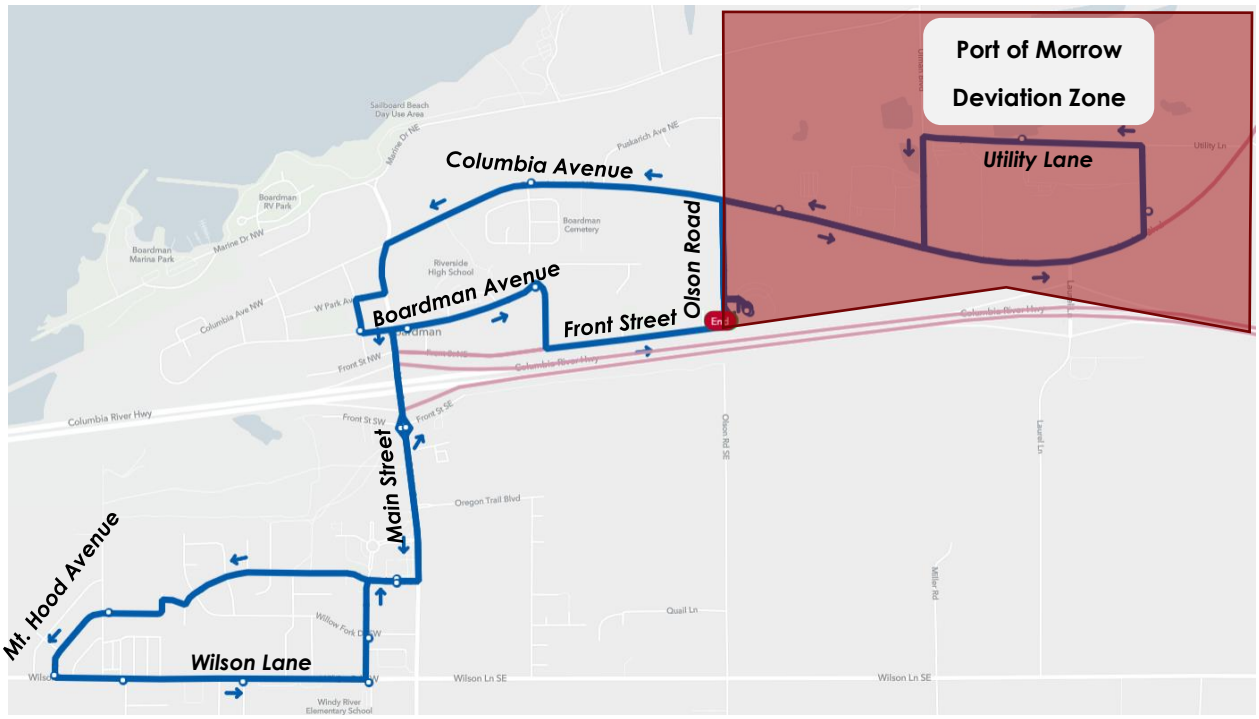


Boardman – Port of Morrow Circular Regular Route

The Regular Route is designed to operate after the early route, from 9:25 AM until the end of the service day around 8:15 PM. This route departs the SAGE Center, serves the Port of Morrow employment area, returns to the SAGE Center, and then continues through parts of the residential areas before returning to the SAGE Center. The route deviates for 12 minutes in the Port of Morrow. The regular route runs for a total of headways of 60 minutes (1 hour). It arrives at the SAGE Center in the end of every trip and departs after 5 minutes from the SAGE Center at the beginning of every trip at 9:25 AM, 10:25 AM, 11:25 AM, 12:25 PM, 1:25 PM, 2:25 PM, 3:25 PM, 4:25 PM, 5:25 PM, 6:25 PM, and 7:25 PM. The Preferred Regular Route is shown in Figure 11. Estimates for this alternative include:

- Runtime – 43 minutes
- Layover and Deviation Buffer – 17 minutes
- Total Trip Time – 60 minutes

Figure 11. Boardman – Port of Morrow Circular Regular Route



Service Span and Frequency

This section presents the service characteristics (e.g., days and hours of service, service frequency, schedule), network characteristics and evaluation of access of the Hermiston – Boardman Connector and Boardman – Port of Morrow Circular.

Hermiston – Boardman Connector

Table 5 and Table 6 show the near-term route schedules for weekday and Saturday service on the Preferred Early AM and Regular Routes. As shown in the table, if funding is limited, the 5:30 AM to 6:05 PM service is higher priority, as it captures both ends of many employers' shifts and allows connections to other transit services.

Table 5. Hermiston–Boardman Connector Counterclockwise Schedule

Stop		Early AM Route			Regular Route					
Priority		+1.5 hr	Higher Priority Runs – 13 Service Hours							+2.5 hr
Hermiston	SW 3rd St. / W Orchard Ave.	4:00	5:30	7:00	8:30	10:30	**12:30**	**2:30**	**4:30**	**6:30**
	Walmart	–	–	–	8:40	10:40	**12:40**	**2:40**	**4:40**	**6:40**
	Northwest Farm Supply	–	–	–	8:44	10:44	**12:44**	**2:44**	**4:44**	**6:44**
N/A	McNary Market	–	–	–	8:51	10:51	**12:51**	**2:51**	**4:51**	**6:51**
Umatilla	Post Office	–	–	–	8:55	10:55	**12:55**	**2:55**	**4:55**	**6:55**
	Recycling Depot	–	–	–	8:56	10:56	**12:56**	**2:56**	**4:56**	**6:56**
	6th Street/B Street	4:14	5:44	7:14	8:57	10:57	**12:57**	**2:57**	**4:57**	**6:57**
Irrigon	US 730 /First Street	4:22	5:52	7:22	9:06	11:06	**1:06**	**3:06**	**5:06**	**7:06**
N/A	Cascade Specialties	4:34	6:04	7:34	9:17	11:17	**1:17**	**3:17**	**5:17**	**7:17**
Boardman	Lamb Weston West or Boardman Foods	4:37	6:08	7:38	9:20	11:20	**1:20**	**3:20**	**5:20**	**7:20**
	SAGE Center (arrive)	4:40	6:10	7:40	9:22	11:22	**1:22**	**3:22**	**5:22**	**7:22**
	SAGE Center (depart)	4:47	6:17	7:47	9:30	11:30	**1:30**	**3:30**	**5:30**	**7:30**
	Boardman Ave/Main St	4:52	6:22	7:52	9:35	11:35	**1:35**	**3:35**	**5:35**	**7:35**
N/A	Lamb Weston (Westland Road)	5:10	6:40	8:10	9:53	**11:53**	**1:53**	**3:53**	**5:53**	**7:53**
Hermiston	SW 3rd St./ W Orchard Ave.	5:22	6:52	8:22	10:05	**12:05**	**2:05**	**4:05**	**6:05**	**8:05**

Bold times indicate PM.

Table 6. Hermiston–Boardman Connector Clockwise Schedule

Stop		Early AM Route	Regular Route						
Priority		+1.5 hr	Higher Priority Runs – 13 Service Hours						+2.5 hr
Hermiston	SW 3rd St. / W Orchard Ave.	4:50	6:20	7:50	9:45	11:45	**1:45**	**3:45**	**5:45**	**7:45**
N/A	Lamb Weston (Westland Road)	5:02	6:32	8:02	9:57	11:57	**1:57**	**3:57**	**5:57**	**7:57**
Boardman	Boardman Ave/Main St	5:20	6:50	8:20	10:15	**12:15**	**2:15**	**4:15**	**6:15**	**8:15**
	SAGE Center (arrive)	5:25	6:55	8:25	10:20	**12:20**	**2:20**	**4:20**	**6:20**	**8:20**
	SAGE Center (depart)	5:32	7:02	8:32	10:27	**12:27**	**2:27**	**4:27**	**6:27**	**8:27**
	Columbia River Processing	5:35	7:05	8:35	10:30	**12:30**	**2:30**	**4:30**	**6:30**	**8:30**
N/A	Port of Morrow Warehouse	5:38	7:08	8:38	10:33	**12:33**	**2:33**	**4:33**	**6:33**	**8:33**
Irrigon	US 730 / First Street	5:50	7:20	8:50	10:45	**12:45**	**2:45**	**4:45**	**6:45**	**8:45**
Umatilla	City Hall Village Square	5:59	7:29	8:59	10:54	**12:54**	**2:54**	**4:54**	**6:54**	**8:54**
	6th Street/Yrexa Avenue	6:00	7:30	9:00	10:55	**12:55**	**2:55**	**4:55**	**6:55**	**8:55**
N/A	McNary Market	–	–	–	11:00	**1:00**	**3:00**	**5:00**	**7:00**	**9:00**
N/A	KIE Supply Corporation	–	–	–	11:07	**1:07**	**3:07**	**5:07**	**7:07**	**9:07**
Hermiston	Walmart	–	–	–	11:11	**1:11**	**3:11**	**5:11**	**7:11**	**9:11**
	SW 3rd St./ W Orchard Ave.	6:12	7:42	9:12	11:20	**1:20**	**3:20**	**5:20**	**7:20**	**9:20**

Bold times indicate PM.

Hopper and HART Recommendations

In order to decrease transfer times and improve connections, Hopper and HART schedule modifications were considered. Table 7 shows the connection opportunities at SW 3rd Street/Orchard Avenue in Hermiston.

Hopper Schedule Modifications

- AM Trip: Begin the AM trip 30 minutes later to provide a timed transfer with the Hermiston–Boardman Connector on its way to Pendleton as the Connector goes to Boardman. No modifications to the route alignment are recommended for this trip. Maintaining the Umatilla connection has the additional benefit of reducing the need to transfer between buses, especially as there is a relatively high commute demand between Umatilla and Pendleton. The Hopper would start from SW 3rd Street/Orchard Avenue at 6:16 AM instead of 5:46 to head north (McNary/ Umatilla) and at 6:54 AM instead of 6:24 AM to head south (Pendleton).
- Mid-AM trip: Remove service between Umatilla and Irrigon, resulting in 30 minutes of travel time savings. This changes the route's return time to stop by SW 3rd Street/W Orchard

Avenue at 10:21 AM instead of 10:51 AM, allowing for transfers between the Hermiston-Boardman Connector on the Hopper's way to Pendleton. This change to the schedule also allows Boardman-to-Pendleton travelers to have a timed transfer. Alternatively, to avoid having the Hopper and Connector buses follow shortly after each other on the way back from Umatilla, the Hopper could return directly to Hermiston from Umatilla via the Umatilla River Road and have its layover in Hermiston instead of at the McNary Market.

- Mid-PM trip: Begin this run 20 minutes later and remove the Hermiston-to-Irrigon segment of the service, making SW 3rd Street/Orchard Avenue the terminus for this Hopper run. This change would schedule the Hopper to arrive at 2:18 PM instead of 1:58 PM to allow transfers between the Hermiston-Boardman Connector (arrives at 2:18 PM and departs at 2:30 PM). The timed transfer also maintains low transfer times for riders.
- PM trip: Remove the Hermiston-to-Irrigon segment, making SW 3rd Street/Orchard Avenue the terminus for this Hopper run. If the Hopper continued north from Hermiston, it would duplicate service with the Hermiston-Boardman Connector. The timed transfer also maintains low transfer times for riders.

HART Schedule Modifications

Wait times for transfers in both directions between the Connector and HART are generally 30 minutes or less. The HART schedule could be adjusted to time connections with the Hermiston-Boardman Connector (particularly the 10:16 am HART departure), but the transfer times that would result under the existing HART schedule are reasonable. Therefore, no significant HART schedule changes are recommended at this time.

Network, Travel Times, and Transfers

Figure 12 and Figure 13 show the approximate travel times and transfer times to connecting services of the Early AM and Regular Hermiston–Boardman Connector, respectively. As shown in Figure 12, it takes 14 minutes between Hermiston and Umatilla, 8 minutes between Umatilla and Irrigon, 18 minutes between Irrigon and Boardman (SAGE Center), and 35 minutes between Boardman and Hermiston on the Preferred Early AM Clockwise and Counterclockwise Hermiston – Boardman Connector. As shown in Figure 13, it takes 27 minutes one-way to travel between Hermiston and Umatilla, 9 minutes between Umatilla and Irrigon, 16 minutes between Irrigon and Boardman (SAGE Center), 18 minutes between Boardman (SAGE Center) to Irrigon; and 35 minutes between Boardman and Hermiston on the Preferred Regular Clockwise and Counterclockwise Hermiston – Boardman Connector. Timed connections to the Hopper are provided at SW 3rd Street/Orchard Ave for both versions of the Connector route.

Figure 14 and Figure 15 show the route taken by the Early AM and Regular Hermiston – Boardman Connector, respectively, within Hermiston. A focused view of the Boardman end of the routes is included with the Boardman – Port of Morrow Circular section later in this report.

Table 7. SW 3rd Street/Orchard Avenue Connection Opportunities

		SW 3rd Street/W Orchard Ave (Hermiston)																			
Hermiston–Boardman Connector		CC	CW	CC	CW	CC	CW	CC	CW	CC	CW	CC	CW	CC	CW	CC	CW	CC	CW	CC	CW
	Arrive	–	–	5:22	*6:12*	*6:52*	7:42	8:22	*9:12*	10:05	11:20	***12:05***	**1:20**	***2:05***	**3:20**	**4:05**	**5:20**	***6:05***	**7:20**	**8:05**	**9:20**
	Depart	4:00	4:50	5:30	*6:20*	*7:00*	7:50	8:30	*9:45*	10:30	11:45	***12:30***	**1:45**	***2:30***	**3:45**	**4:30**	**5:45**	***6:30***	**7:45**	–	–
Existing Hopper	*To Umatilla*	–	–	–	5:46	–	–	–	9:26	–	–	–	–	**1:58**	–	–	–	**6:15**	–	–	–
	To Pendleton	–	–	–	6:24	–	–	–	10:51	–	–	–	–	**3:23**	–	–	–	**6:59**	–	–	–
Proposed Hopper Modification	*Depart to McNary/ Umatilla*	–	–	–	*6:16*	–	–	–	*9:26*	–	–	–	–	–	–	–	–	–	–	–	–
	Arrive from Pendleton	–	–	–	–	–	–	–	–	–	–	–	–	***2:18***	–	–	–	***6:15***	–	–	–
	Depart to Pendleton	–	–	–	–	*6:54*	–	–		*10:21*	–	–	–	***2:30***	–	–	–	***6:29***	–	–	–
Existing HART		–	–	–	–	7:14	7:57	8:04 8:47	*9:26*	10:09 10:16	10:59	***12:19*** **1:02**	**1:09**	**1:52** **3:09**	**3:52** **3:58**	**4:42**	**5:19**	**6:03** ***6:08***	**6:52**	–	–

Bold times indicate PM.
Red italic times indicate opportunity for timed transfer to and from the Connector.
CC = counterclockwise, CW = clockwise.

Figure 12. Early AM Hermiston – Boardman Connector Network, Travel Times, and Transfers

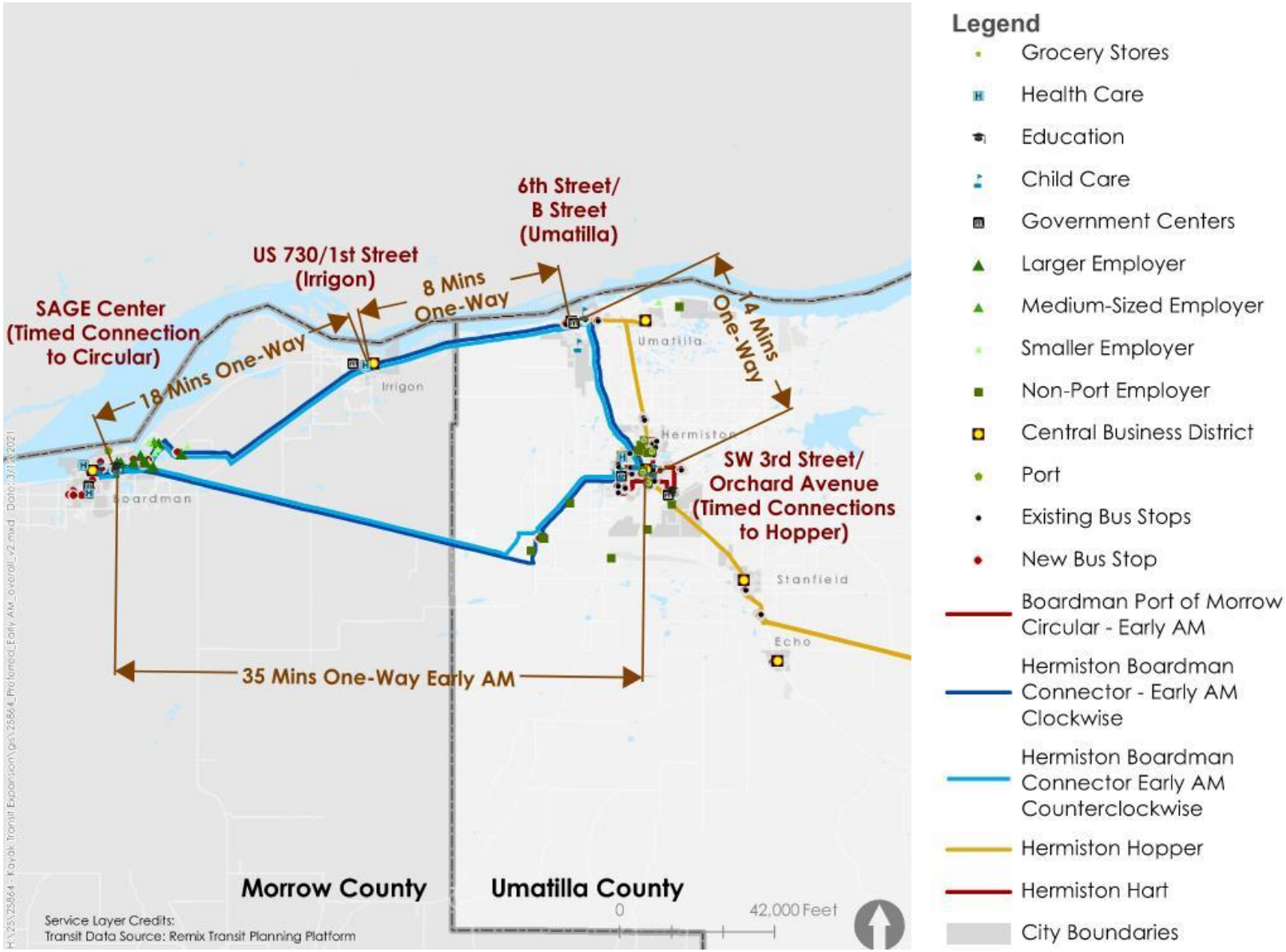


Figure 13. Regular Hermiston – Boardman Connector Network, Travel Times, and Transfers

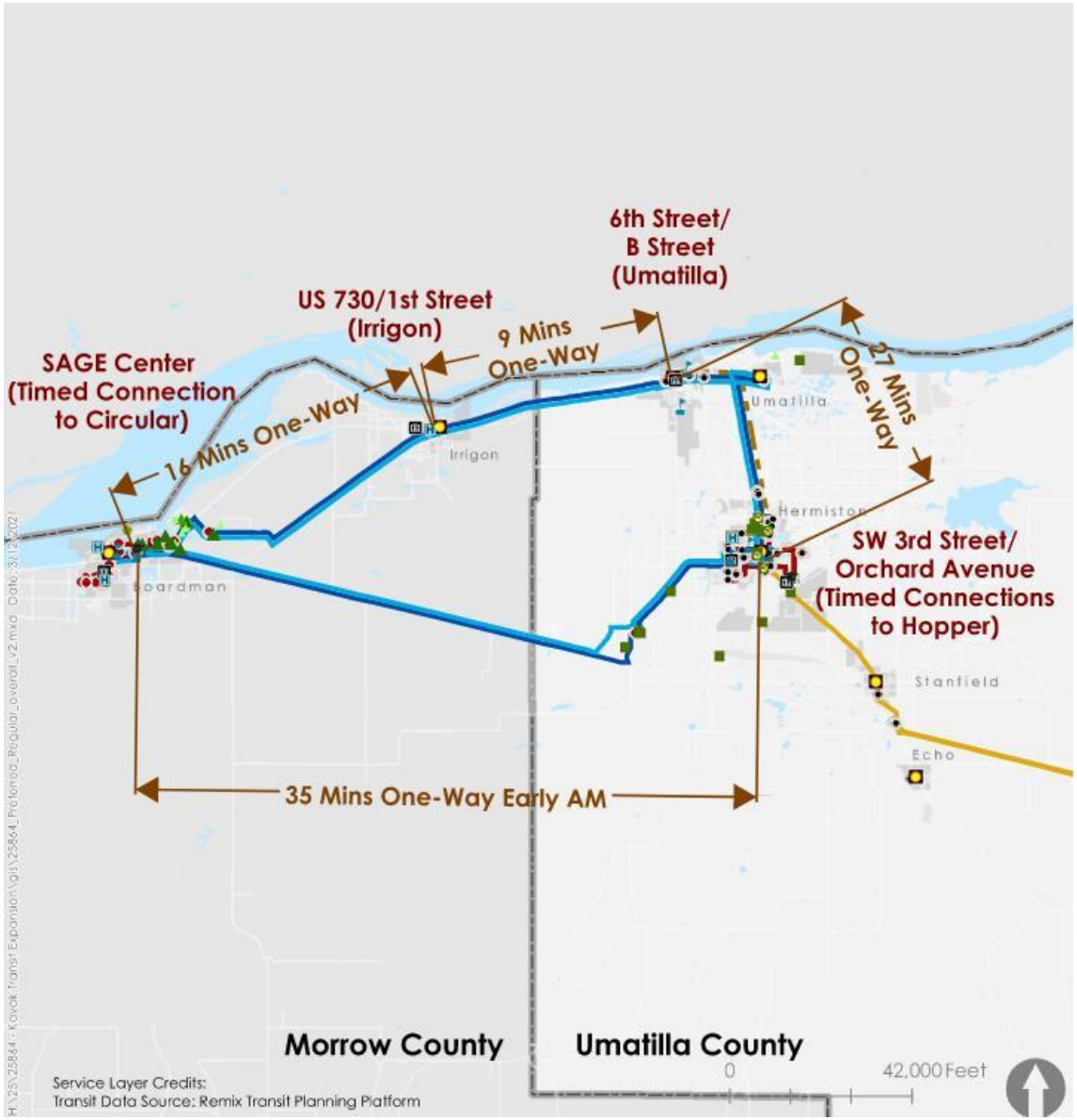


Figure 14. Early AM Hermiston – Boardman Connector: Hermiston Detail

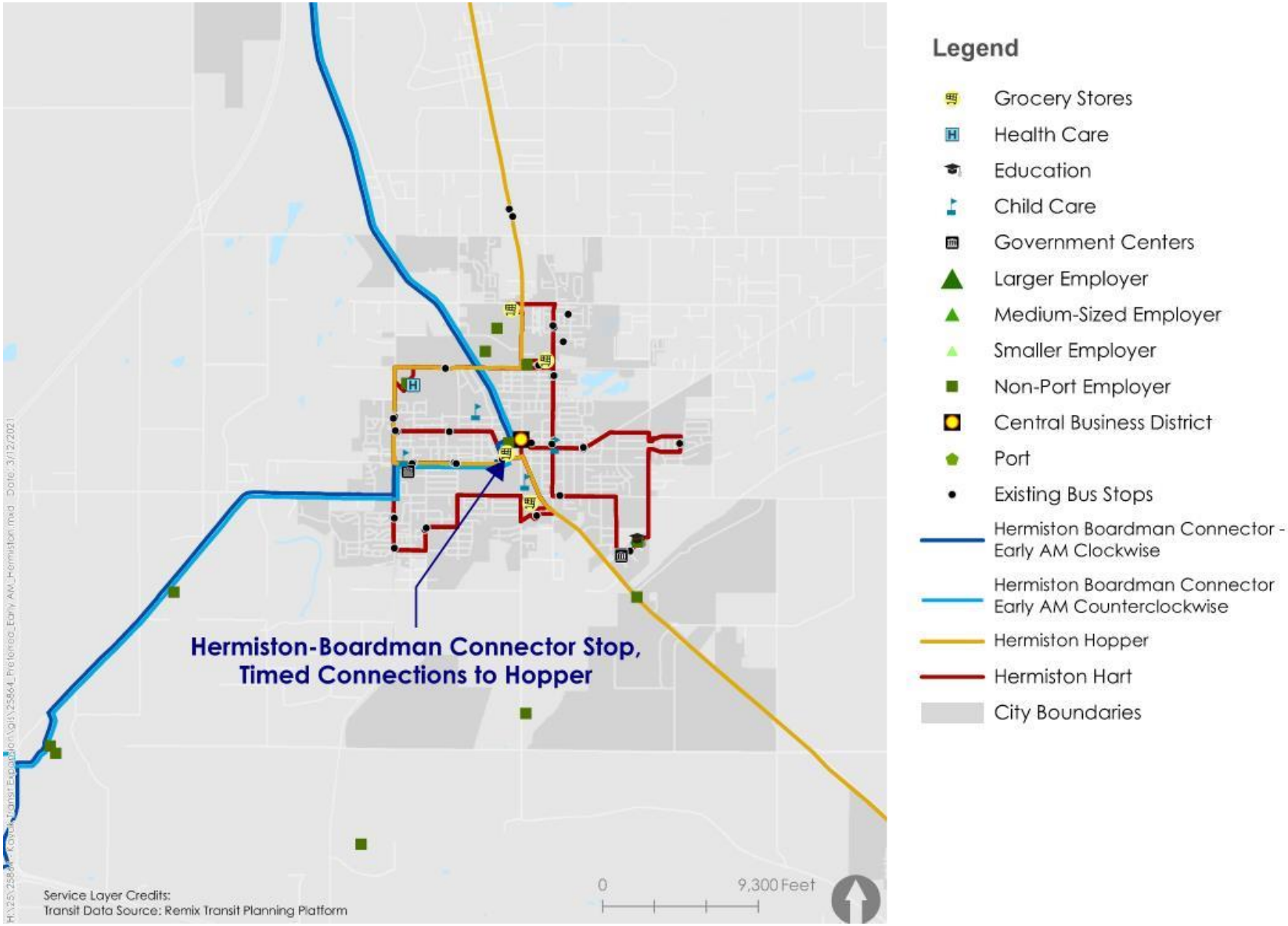
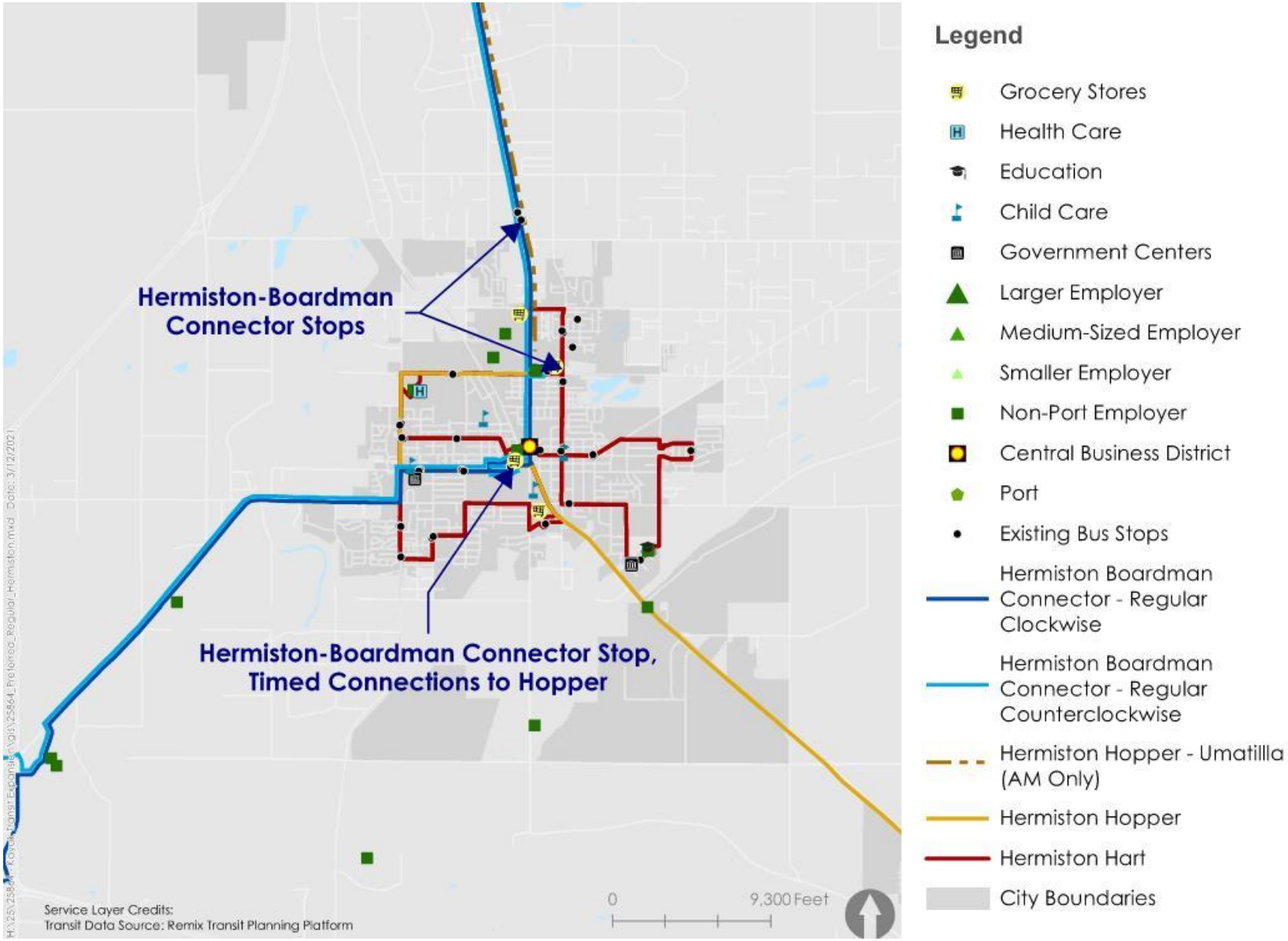


Figure 15. Regular Hermiston – Boardman Connector: Hermiston Detail



Evaluation of Access

Table 8 shows the existing amenities and infrastructure, including walking facility availability, biking facility availability, park-and-ride availability, and stop amenities at the proposed stops. As shown, many stops lack biking facilities, park-and-ride feasibility, and stop amenities. Improvements within communities could be prioritized near stops to make accessing transit more comfortable and convenient.

Table 8. Amenities and Infrastructure at Stops

	Stop	Walking Availability	Biking Availability	Park-and-Ride Availability	Stop Amenities
Hermiston	SW 3rd Street/W Orchard Ave	Good	Poor	Potential Future	Shelter; Trash Cans; Seating
	Walmart	Good	Good	Potential Future	Shelter; Restrooms; Trash Cans
	Northwest Farm Supply	Fair	Poor	None	Trash Cans
	KIE Supply Corporation	Fair	Poor	None	None
N/A	Lamb Weston (Westland Road)	Poor	Poor	Potential Future	None
	McNary Market	Fair	Poor	None	Shelter; Trash Cans
Umatilla	Post Office	Fair	Poor	None	None
	Recycling Depot	Good	Poor	None	Trash Cans
	6th Street/B Street	Good	Poor	None	Trash Cans
	City Hall Village Square	Good	Poor	None	Seating
	6th Street/Yrexa Avenue	Good	Poor	None	None
Irrigon	Highway 730 and First Street	Good	Poor	None	None
Boardman	Employment stops	Poor	Poor	Undesirable	None
	SAGE Center	Fair	Poor	None	Shelter; Restrooms; Trash Cans; Bike Racks; Seating
	Boardman Ave/Main St	Good	Fair	Potential Future	Trash Cans

Walking and Biking Rating: Good = sidewalks and crosswalks; bicycle lanes or sharrows; Fair = some sidewalks; adequate shoulder for biking; Poor = no facilities

Boardman – Port of Morrow Circular

Table 9 shows the near-term route schedule for weekday and Saturday service. As identified, the 5:25 AM to 7:15 PM service is higher priority, if funding is limited, to provide first/last-mile connections to the Port of Morrow employers. If more funding is available, additional early and late service could be added to provide more connectivity within the Boardman and Port of Morrow region.

Table 9. Port of Morrow Circular Schedule

Stop	Early AM Route		Regular Route																
	+1 hr		Higher Priority Runs – 13 Service Hours															+2 hr	
SAGE Center (Arrives)	–	4:40	5:25	6:10	6:55	7:40	8:25	9:10	10:20	11:20	**12:20**	**1:20**	**2:20**	**3:20**	**4:20**	**5:20**	**6:20**	**7:20**	**8:20**
SAGE Center (Departs)	–	4:45	5:30	6:15	7:00	7:45	8:30	9:25	10:25	11:25	**12:25**	**1:25**	**2:25**	**3:25**	**4:25**	**5:25**	**6:25**	**7:25**	**8:25**
Boardman Foods EB	–	4:52	5:37	6:22	7:07	7:52	8:37	9:31	10:31	11:31	**12:31**	**1:31**	**2:31**	**3:31**	**4:31**	**5:31**	**6:31**	**7:31**	**8:31**
Lamb-Weston East	–	4:54	5:39	6:24	7:09	7:54	8:39	9:33	10:33	11:33	**12:33**	**1:33**	**2:33**	**3:33**	**4:33**	**5:33**	**6:33**	**7:33**	**8:33**
Lamb Weston West	–	4:58	5:43	6:28	7:13	7:58	8:43	9:37	10:37	11:37	**12:37**	**1:37**	**2:37**	**3:37**	**4:37**	**5:37**	**6:37**	**7:37**	**8:37**
SAGE Center	4:22	5:07	5:52	6:37	7:22	8:07	8:52	9:52	10:52	11:52	**12:52**	**1:52**	**2:52**	**3:52**	**4:52**	**5:52**	**6:52**	**7:52**	**8:52**
Columbia Ave/2nd St	4:26	5:11	5:56	6:41	7:26	8:11	8:56	9:56	10:56	11:56	**12:56**	**1:56**	**2:56**	**3:56**	**4:56**	**5:56**	**6:56**	**7:56**	**8:56**
Boardman Post Office	4:29	5:14	5:59	6:44	7:29	8:14	8:59	9:59	10:59	11:59	**12:59**	**1:59**	**2:59**	**3:59**	**4:59**	**5:59**	**6:59**	**7:59**	**8:59**
Main St/Front St SB	4:30	5:15	6:00	6:45	7:30	8:15	9:00	10:00	11:00	12:00	**1:00**	**2:00**	**3:00**	**4:00**	**5:00**	**6:00**	**7:00**	**8:00**	**9:00**
Select Market/DHS	4:32	5:17	6:02	6:47	7:32	8:17	9:02	10:02	11:02	12:02	**1:02**	**2:02**	**3:02**	**4:02**	**5:02**	**6:02**	**7:02**	**8:02**	**9:02**
Faler Rd/Mt. Hood Ave	–	–	–	–	–	–	–	10:06	11:06	12:06	**1:06**	**2:06**	**3:06**	**4:06**	**5:06**	**6:06**	**7:06**	**8:06**	**9:06**
Mt. Hood Ave/Wilson Ln	–	–	–	–	–	–	–	10:07	11:07	12:07	**1:07**	**2:07**	**3:07**	**4:07**	**5:07**	**6:07**	**7:07**	**8:07**	**9:07**
Wilson Rd/River Ridge Dr	–	–	–	–	–	–	–	10:08	11:08	12:08	**1:08**	**2:08**	**3:08**	**4:08**	**5:08**	**6:08**	**7:08**	**8:08**	**9:08**
Wilson Rd/Anthony Rd	–	–	–	–	–	–	–	10:09	11:09	12:09	**1:09**	**2:09**	**3:09**	**4:09**	**5:09**	**6:09**	**7:09**	**8:09**	**9:09**
Tatone St/Wilson Rd	–	–	–	–	–	–	–	10:10	11:10	12:10	**1:10**	**2:10**	**3:10**	**4:10**	**5:10**	**6:10**	**7:10**	**8:10**	**9:10**
Tatone St/Willow Fork Dr	–	–	–	–	–	–	–	10:11	11:11	12:11	**1:11**	**2:11**	**3:11**	**4:11**	**5:11**	**6:11**	**7:11**	**8:11**	**9:11**
Select Market/DHS	4:32	5:17	6:02	6:47	7:32	8:17	9:02	10:12	11:12	12:12	**1:12**	**2:12**	**3:12**	**4:12**	**5:12**	**6:12**	**7:12**	**8:12**	**9:12**
Main St/Front St NB	4:34	5:19	6:04	6:49	7:34	8:19	9:04	10:14	11:14	12:14	**1:14**	**2:14**	**3:14**	**4:14**	**5:14**	**6:14**	**7:14**	**8:14**	**9:14**
C&D Drive-In	4:36	5:21	6:06	6:51	7:36	8:21	9:06	10:15	11:15	12:15	**1:15**	**2:15**	**3:15**	**4:15**	**5:15**	**6:15**	**7:15**	**8:15**	**9:15**
Boardman Ave/2nd Ave	4:37	5:22	6:07	6:52	7:37	8:22	9:07	10:16	11:16	12:16	**1:16**	**2:16**	**3:16**	**4:16**	**5:16**	**6:16**	**7:16**	**8:16**	**9:16**

Evaluation of Access

Table 10 shows the existing amenities and infrastructure, including walking facility availability, biking facility availability, park-and-ride potential, and stop amenities at the proposed stops. Walking and biking availability at stops are fair along Wilson Road in Boardman and good at Main Street/Boardman Avenue. As shown, many stops lack amenities given they'd be established through this service. Park-and-ride is not as critical of a criterion due to this route's local service purpose, although it could be provided at the SAGE Center for the Connector. Walking and biking improvements could be prioritized near stops and amenities could be improved to make accessing transit comfortable and convenient.

Table 10. Amenities and Infrastructure at Stops

Stop	Walking	Biking	Park-and-Ride	Stop Amenities
SAGE Center	Fair	Poor	Potential Future	Shelter; Restrooms; Trash Cans; Bike Racks; Seating
Employment Stops	Poor	Poor	Undesirable	None
Columbia Ave/2nd St	Fair	Poor	None	Shelter
Boardman Post Office	Fair	Fair	None	Trash Cans
Main St/Front St	Fair	Fair	None	Restrooms; Trash Cans
Select Market/DHS	Fair	Poor	None	Trash Cans
Faler Rd/Mt. Hood Ave	Poor	Poor	None	None
Mt. Hood Ave/Wilson Ln	Poor	Poor	None	None
Wilson Rd/River Ridge Dr	Fair	Fair	None	None
Wilson Rd/Anthony Rd	Fair	Fair	None	None
Tatone St/Wilson Rd	Fair	Fair	None	None
Tatone St/Willow Fork Dr	Poor	Poor	None	None
C&D Drive-In	Poor	Poor	None	Shelter; Restrooms; Trash Cans; Seating
Boardman Ave/2nd Ave	Poor	Poor	None	None

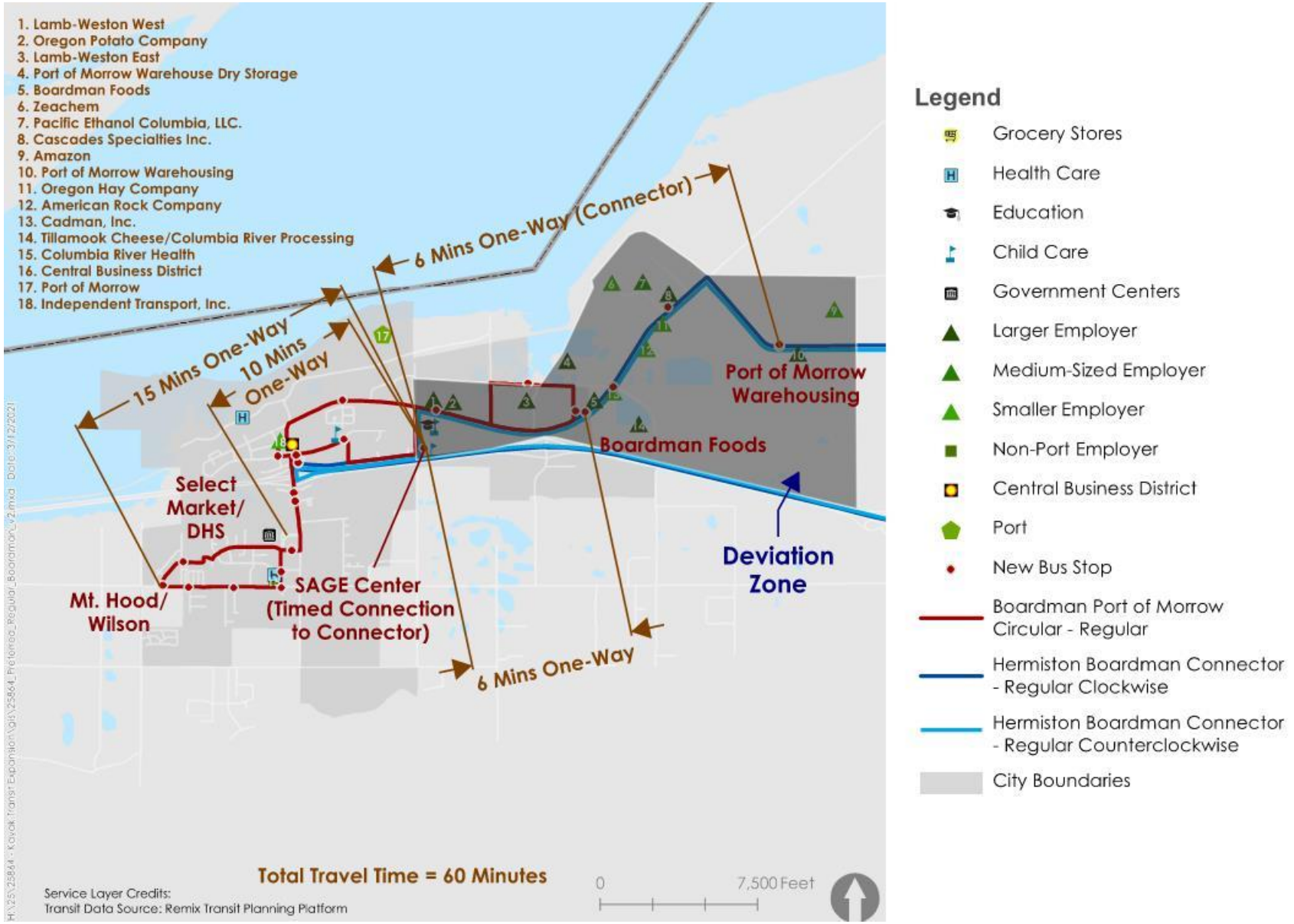
Walking and Biking Rating: Good = sidewalks and crosswalks; bicycle lanes or sharrows; Fair = some sidewalks; adequate shoulder for biking; Poor = no facilities

Network, Travel Times, and Transfers

Figure 16 and Figure 17 show the travel times and transfer times of the Early AM and Regular Boardman – Port of Morrow Circular. As shown, employees can generally travel between SAGE and the Port employers in 10 minutes or less and from SAGE to residential areas in 15 minutes with the Early AM Route and Regular Route. There are timed connections at the SAGE Center to the Connector for both routes, allowing riders to transfer between the services with little wait time.

Figure 16. Early AM Port of Morrow Circular

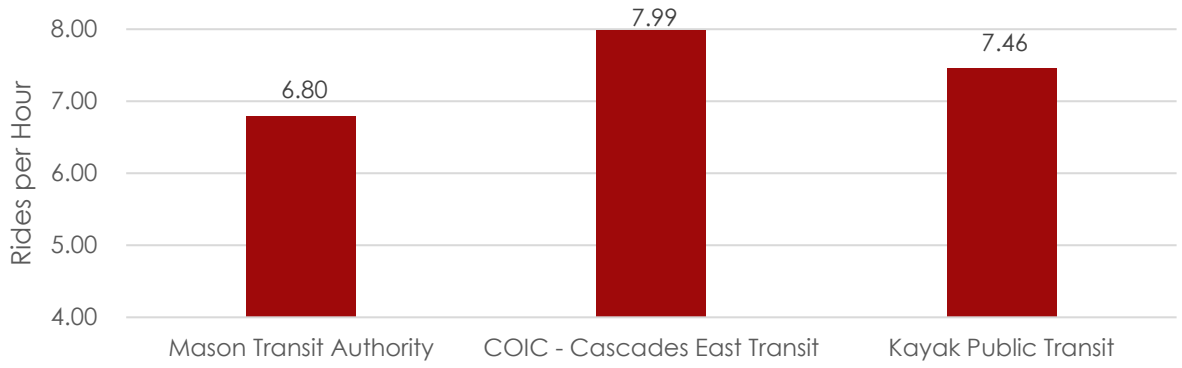
Figure 17. Regular Port of Morrow Circular



Ridership Estimates

To determine estimated ridership, the Hermiston – Boardman Connector characteristics were compared to similar services elsewhere in Oregon and Washington. Figure 18 shows ridership of the following commuter bus services: Mason Transit Authority's intercommunity services (Route 1 - Shelton/Belfair, Route 3 - Belfair/Bremerton and Route 6 - Shelton/Olympia) in Washington, Central Oregon Intergovernmental Council's (COIC's) Cascades East Transit intercommunity service, and Kayak Public Transit's intercommunity service. These routes generally operate during daytime hours (8 AM – 6 PM is typical). Late night and early morning service for Port of Morrow shifts may result in lower ridership, as those riding the service for non-commute purposes will likely be lower. As shown in the figure, rides per hour for COIC is 7.99, Kayak Public Transit is 7.46, and Mason Transit Authority is 6.80. The Hermiston – Boardman Connector will likely attract 6-8 rides per hour, depending on the service alternative and service hours.

Figure 18. Ridership Estimates of Similar Commuter Bus Services



For the Boardman – Port of Morrow Circular, potential transit demand was estimated using TCRP Report 161. In 2012, the Transportation Research Board (TRB) published a methodology to estimate small-city fixed-route transit demand through Transit Cooperative Research Program (TCRP) Web-Only Document 58 and Report 161. TCRP Report 161 is a workbook providing step-by-step procedures for quantifying the need for passenger transportation services and to quantify the demand that is likely to be generated given the service hours provided.

The purpose of this evaluation is to understand expected demand for a fixed-route system. It is important to note that the demand reported by this analysis is only a rough estimate based on the demographic makeup of Boardman. It is a very broad-brush analysis based on typical demographics factors that would indicate a propensity to use transit. It doesn't contain any specific land use variables and is generic for all small cities.

As shown in Table 11, the initial 12 to 18 hours of service is generally predicted to provide 6-6.5 rides per hour. The demand forecast increases non-linearly as more hours of service are provided, and does not take into consideration shift times or the higher employment in Boardman compared to other similarly sized cities.

Table 11. TCRP Report 161 Ridership Estimates

Hours per Day	Annual Revenue Hours[1]	TCRP 161 Estimated Ridership	Rides per Hour	Annual Operating Cost
12	4,368	28,900	6.62	$150,000
15	5,460	35,200	6.45	$200,000
18	6,552	41,500	6.33	$250,000

[1] All buses assumed to operate daily.

Hermiston City Hall Reconstruction
Potential Transit Stop

3. FINANCIAL PLAN

FINANCIAL PLAN

This section provides an overview of potential funding sources, projected operating budget, and potential funding scenarios to meet the operating budget. This section provides a rough estimate of capital funding for improvements such as bus stops, sidewalk facility, and bicycle facility improvements; an in-depth evaluation is included in the *Capital Plan* section.

Potential Funding Sources

Potential funding sources that CTUIR, Morrow County, and Umatilla County can tap include federal, state, and local sources. Some funding sources have already been identified and secured, such as Statewide Transportation Improvement Fund (STIF) formula funding. Other sources are being actively pursued, such as Morrow County seeking Federal Transit Administration (FTA) Section 5311 qualification and funding. These funding sources, as well as others not currently being pursued, can be used to support initial services and expand future service.

Federal Funding Opportunities

This section describes several federal funding opportunities. The primary federal operating funding sources are the Enhanced Mobility of Seniors & Individuals with Disabilities Formula Grant (Section 5310) and the Rural Area Formula Grant (Section 5311).

Section 5304/5305 – Statewide Planning and Planning Programs Grants

The 5304 and 5305 grant programs provides funding and procedural requirements for the following types of projects:

- Studies related to management, planning, operations, capital requirements, and economic feasibility of new services;
- Evaluation of previously financed projects;
- Peer reviews and exchanges of technical data in support of planning analyses;
- Planning activities preliminary to and in preparation for constructing, acquiring, or improving the operation of facilities and equipment.

The FTA apportions funds to states using a formula that considers the state's urbanized area population. ODOT expects to receive approximately $1,000,000 through this program during the FY21–23 biennium. ODOT accepts applications for these funds from eligible providers, which can include counties, cities, rural transit districts, and tribal governments, among others. A 20% local match is required, which can include the value of staff time devoted to the project. These funds could be used, for example, to evaluate the outcomes of the initial service; to plan future service changes or expansions; and to evaluate pedestrian access needs to bus stops.

Section 5310 – Enhanced Mobility of Seniors & Individuals with Disabilities Formula Grant

The 5310 operating grant provides formula funding to states and metropolitan areas for the purpose of meeting the transportation needs of seniors and people with disabilities. Funds are apportioned based on each state's share of the population for these two groups and funds. ODOT receives the portion of the funds set aside for small urban and rural areas and distributes these funds to transit providers through a competitive grant process. For FY20–22, ODOT received approximately $2.25 million. Morrow County received $13,500 to support operations, while the City of Pendleton received $23,200 for preventative maintenance and mobility management.

The purpose of the Section 5310 program is to improve mobility for seniors and people with disabilities by removing barriers to transportation service and expanding transportation mobility options. Eligible projects include both "traditional" capital investment and "nontraditional" investment beyond the requirements for Americans with Disabilities Act (ADA) complementary paratransit services. From the FTA, eligible activities include:

"Traditional Section 5310 project examples include:

- buses and vans
- wheelchair lifts, ramps, and securement devices
- transit-related information technology systems, including scheduling/routing/one-call systems
- mobility management programs
- acquisition of transportation services under a contract, lease, or other arrangement

Nontraditional Section 5310 project examples include:

- travel training
- volunteer driver programs
- building an accessible path to a bus stop, including curb-cuts, sidewalks, accessible pedestrian signals or other accessible features
- improving signage, or way-finding technology
- incremental cost of providing same day service or door-to-door service
- purchasing vehicles to support new accessible taxi, rides sharing and/or vanpooling programs
- mobility management programs"

Operations projects require a 50% local match, while other types of projects require a 20% local match.

Section 5311 – Rural Area Formula Grant

The Section 5311 grant program provides funding to small cities and rural areas with populations of less than 50,000 for transit capital, planning, and operations, including job access and reverse commute projects. Funds are apportioned to states based on a formula that includes land area, population, revenue vehicle miles, and low-income individuals in rural areas. ODOT receives the funds and distributes them to prequalified providers, which can include local and tribal governments and non-profit organizations. To be prequalified, providers must have a Drug and Alcohol Policy compliant with FTA 49CFR Part 655 and seek qualification through an application to the Public Transportation Advisory Committee (PTAC). Providers receive a $100,000 base allocation, which is then increased using a formula based on miles of rural service operated (60%) and number of rides provided (40%). For FY21–23, ODOT expects to distribute approximately $20.1 million statewide, with CTUIR receiving $674,369. Morrow County is currently pursuing general 5311 qualification and funding. The required local match is 43.92% for operations projects and 10.27% for all other project types.

In addition to the formula grant program, Section 5311 includes, among others, an Intercity Bus Program under Section 5311(f) and a Tribal Transit Program under Section 5311(c)(1)(b). ODOT combines FTA's intercity funding with Oregon's Statewide Transit Network Program, discussed in the State Funding Opportunities section below. The Tribal Transit Program is discussed in the next section.

Section 5311(c)(1)(b) – Tribal Transit Program

As a federally recognized tribe, CTUIR is eligible for formula funding under the Tribal Transit Program. The formula component of the program is funded nationally at $30 million annually; CTUIR's share in FY2019 was $455,203. Formula funds can be used for "capital, operating, planning, and administrative expenses for public transit projects that meet the growing needs of rural tribal communities," along with any other activity eligible under the main Section 5311 program, including purchasing transit services from other providers. No local match is required for formula funds.

The Tribal Transit Program also includes a competitive grant program funded at $5 million annually, which can be used for the same types of projects eligible for tribal formula funds. A 10% local match is required for competitive grants. In FY2019, CTUIR received a $36,593 competitive grant to purchase and install security infrastructure at several facilities.

Section 5339 – Bus and Bus Facilities

The 5339 grant provides funding for small city and rural transit providers to replace vehicles, expand the vehicle fleet, purchase bus-related equipment, construct or modify bus-related facilities, and install signs and shelters. This program provides funding for major capital improvements to rural transit systems that would not be achievable through formula allocations. Each state receives a base $1.75 million allocation per year, which is then increased based on population and service factors. ODOT then distributes its share of the funds to transit providers through a competitive grant process;

a total of $10.3 million was available during the FY20–22 biennium. The required local match is 15% for vehicles and 20% for all other types of eligible projects.

Surface Transportation Block Grant (STBG)

The STBG program provides flexible federal funding to best address state and local transportation needs, including Federal-aid highways, bridge and tunnel projects on public roads, pedestrian and bicycle infrastructure, and transit capital projects, such as fleet replacement. ODOT provides a STBG Fund Exchange program in which cities with populations between 5,000 and 200,000, and all counties, can exchange their federal funds for state funds at a rate of 90 cents in state funds for each dollar of federal funds (this rate applies to FY22 and beyond). Recipients can then use the state funds they receive to (1) provide local match for other federal grants or (2) implement their projects without being constrained by federal requirements that would accompany the use of federal funds. ODOT also transfers funds it receives from the STBG program into the state's STP Discretionary Bus Replacement Program, described in the State Funding Opportunities section below.

Other Federal Funding

The FTA periodically releases additional funding opportunities. In 2019, the FTA released the Integrated Mobility Innovation opportunity, providing $15 million for demonstration projects focused on Mobility on Demand, Strategic Transit Automation Research, and Mobility Payment Integration. For FY20, the FTA also announced the Mobility for All Pilot Program to invest in mobility options for older adults, individuals with disabilities, and people with low incomes, aimed to enable connections to jobs, education, and health services. The FTA also provides Section 5314 Technical Assistance and Workforce Development grants, which support technical assistance and educational activities that enable more effective and efficient delivery of transportation services, foster compliance with federal laws (including the ADA). These types of funding opportunities can help providers invest in innovative and effective practices and partnerships.

State Funding Opportunities

This section describes the various funding opportunities provided by the state of Oregon.

Special Transportation Fund (STF)

The STF was created in 1985 by the Oregon Legislature. Funds are allocated to 42 jurisdictions around the state based on population. The STF is funded by cigarette tax revenue, excess revenue earned from sales of photo ID cards, and other funds from ODOT. The STF Program provides a flexible, coordinated, reliable, and continuing source of revenue to support transportation services for seniors and people with disabilities of any age. The Oregon Legislature intended that STF funds be used to provide transportation services needed to access health, education, work, and social/recreational opportunities so that seniors and people with disabilities may live as independently and productively as possible. The funds may be used for any purpose directly related to transportation services, including transit operations, capital

equipment, planning, travel training, and other transit-related purposes. No local match is required.

In the 2019–2021 biennium, CTUIR and Morrow County received $135,400 each and Umatilla County received $384,991. The awards for the 2021–2023 biennium will be the final separate STF distribution, as the Oregon Legislature has directed that the STF be merged into the Statewide Transportation Improvement Fund (STIF) by July 1, 2023.

Statewide Transportation Improvement Fund (STIF)

Section 122 of Keep Oregon Moving (Oregon House Bill 2017) established the STIF, a new dedicated funding source for expanding public transportation service, funded through an 0.1 percent employee payroll tax in Oregon. HB 2017's goals included expanding access to jobs, improving mobility, relieving congestion, and reducing greenhouse gas emissions, while providing a special focus on low-income populations. STIF funds may be used for public transportation purposes that support the operations, planning, and administration of public transportation programs and may also be used as the local match for state and federal grants for public transportation service.

Most (90%) of STIF funds are distributed to Qualified Entities based on a formula, with CTUIR, Morrow County, and Umatilla County all receiving direct formula funds. Five percent of STIF funds are available via discretionary grants for flexible funding, while four percent are available via discretionary grants for projects enhancing intercommunity service and the statewide transit network. One percent of the funds are allocated for program administration and a technical resource center.

Table 12 shows the projected growth of STIF formula funding for CTUIR, Morrow County and Umatilla County. As shown, STIF funding for CTUIR is a fixed amount and is not projected to grow through 2023, whereas STIF funding for Morrow County and Umatilla County are projected to grow by 5.38% per year through 2023. These amounts do not include discretionary and intercommunity funds.

Table 12. STIF Formula Fund Projections for CTUIR, Morrow County and Umatilla County

STIF	2020	2021	2022	2023	Projected Growth 2022–2023
CTUIR	$100,000	$100,000	$100,000	$100,000	0.00%
Morrow County	$252,176	$282,687	$269,786	$284,300	5.38%
Umatilla County	$1,007,761	$1,153,532	$1,114,300	$1,174,250	5.38%

Source: https://www.oregon.gov/odot/RPTD/RPTD%20Committee%20Meeting%20Documents/STIF-Allocation-Estimates-Oct2020.pdf

The discretionary element of the STIF awarded over $10.5 million in grants during the 2019–2021 biennium. Eligible recipients include "Qualified Entities" as defined in OAR 732-040-0005(26) that provide public transportation services, as well as other "Public Transportation Service Providers" as defined in OAR 732-040-0005(24). CTUIR, Morrow County, and Umatilla County are Qualified Entities that provide public transportation services. The local match is typically a minimum of 20%, although certain projects may qualify for a 10% local match (e.g., providing access to rural communities, providing

service outside a provider's geographic jurisdiction, filling significant gaps in the Statewide Transit Network, benefitting multiple providers). Eligible projects include capital, planning, management, and transit-adjacent projects (e.g., infrastructure projects to improve transit user safety). Pilot operations projects are also eligible, but discretionary funds are not intended to be a source of ongoing operations funding, and applicants must provide a feasible financial plan for continued operations as part of their application for a pilot project.

STP Discretionary Bus Replacement Program

Oregon transfers federal STBG funds into Section 5310, Section 5311, and Section 5307 (Mass Transit Vehicle Program, used by large urban areas) and allocates funds to transit providers throughout Oregon through a competitive grant process. Funds must be used to replace existing vehicles that were purchased through ODOT and that have ODOT on the vehicle title as the first security interest holder. A local match of 10.27% is required. In the 2020–2022 biennium, ODOT allocated $5 million to the program; CTUIR received $236,761 to replace two vehicles. The Oregon Transportation Commission has committed to continuing this program for one more grant cycle.

Statewide Transit Network Program

This program is designed to support intercommunity and intercity transit services. It is funded partially by the STIF Intercommunity Discretionary Fund ($7.3 million in the 2019–2021 biennium) and partially by federal Section 5311(f) intercity funds ($1.3 million).

All entities that are eligible for STIF funding and provide intercommunity/intercity service are eligible to apply to the STIF Intercommunity Discretionary Fund. The required local match is the same as for STIF Discretionary grants: 20%, or 10% for specified project types; intercity service typically has characteristics that qualify for the 10% local match. CTUIR received $1,035,268 in the 2019–2021 biennium for its various intercity services.

Eligibility for 5311(f) funds is broader than for STIF funds, as eligible entities also include non-profit and private for-profit providers of intercity service. However, these funds also require a greater local match: 50% for operations projects and 20% for capital projects and project administration.

Local Funding Opportunities

This section describes several local funding opportunities. CTUIR, Morrow County, and Umatilla County should consider these funding sources as well as continue to work with employers, local organizations, communities, and stakeholders in the region to identify their travel needs and form partnerships that could aid in securing local funds to develop solutions for services.

Partnership Programs

Potential partnerships include cities prioritizing sidewalk and bicycle improvements near bus stops, incorporating the transit providers in development review to ensure bus facilities are planned for, and partnering with Port employers to facilitate connections from bus stops to building entrances. Such connections could include on-site sidewalks,

bikeshare or scootershare programs, or company vans picking up and dropping off at the SAGE Center or near the driveways. The Funding Scenarios section of this memorandum focuses primarily on these partnerships for local support. These partnerships would also count toward local match, which can be leveraged for state and federal funding programs. Partnerships with private companies are also referred to as Public-Private Partnerships.

Local Taxes and Fees

Many operators, particularly districts providing transit service, generate local funding through dedicated taxes for transit service. Cities and counties can also support transit through dedicated fees and taxes, or through general fund revenue. The following is a list of typical funding sources used throughout the state of Oregon:

- Property Taxes: Most municipalities collect property taxes assessed on the value of an owned property, a portion of which may be used to fund transit. Providers such as Basin Transit Service and Lincoln County Transportation Service District implement these taxes. The counties could consider pursuing a property tax.
- Business Taxes: These tax the net income of nearby businesses. Businesses benefit from their employees receiving consistent and reliable transportation and their customers receiving viable means to travel to the establishment.
- Tax Increment Financing: This method is used to capture additional property taxes generated in the vicinity of transit-specific improvements or areas. This type of funding can also be used to capture a portion of the increase in property value created by a particular transit investment.
- Tax Incentive Zones: Provide an indirect avenue for transit funding by potentially increasing sponsorship revenue by providing tax incentives for businesses and residents residing near transit oriented or transit friendly developments.
- Multimodal Impact Fees: These fees are similar to auto-focused Transportation Impact Fees (TIFs) but are dedicated to improvements to multimodal transportation options. Transit providers can also benefit from projects funded by auto-focused TIFs that improve roadway operations for all roadway users.
- Parking Fees/Fines: Provide incentives for users to use transit to reach desirable areas, such as downtown areas. The implementation of a parking strategy can increase transit ridership, as well as increase parking revenue.

Other Transit Provider Revenue

Other, usually relatively minor, funding sources include advertising/sponsorships and investment income. Advertising typically provides a consistent, small stream of revenue. Some transit providers sell sponsorships for facility names, individual transit vehicles, etc. Many transit providers receive small amounts of investment income from the Local Government Investment Pool (LGIP) on some of their long-term savings.

Operating Budget

The operating budget for the Hermiston – Boardman Connector includes driver costs, fuel, vehicle maintenance and insurance, and administrative and management staff that are typically rolled into a per-hour operating cost. The Boardman – Port of Morrow Circular includes hourly driver costs, fuel, vehicle maintenance and insurance, but not administrative costs. In addition, vehicles typically need to be replaced every several years, depending on the amount of mileage the vehicle accrues each year. This section presents operating cost projections at different levels of service.

Table 13 lists the cost assumptions factored into the operating budget. These costs include an hourly operating cost for regional (Connector) and local (Circular) services; estimated costs for non-fleet capital improvements; expected useful life (EUL) of the fleet vehicles; fleet local match estimate; the number of weekdays, Saturdays, and Sundays operated per year; and an annual growth rate for service operating and capital costs, per year. These assumptions were derived from CTUIR's and Morrow County's existing costs when available and estimated from similar systems otherwise.

Table 13. Cost Assumptions

Costs	2023
Regional Operating	$100
Local Operating	$35
Other Capital	$50,000
Regional Vehicle EUL (miles)	450,000
Regional Vehicle Match	$17,000
Local Vehicle EUL (miles)	200,000
Local Vehicle Match	$28,000
Weekdays	255
Saturdays	55
Sundays	55

Ordering vehicles for the new services will take several years. For planning purposes, 2023 is assumed to be the first feasible year of service. Table 14 shows the Year 2023 operating and fleet replacement cost based on different levels of service. The *Revised Draft Route Schedules* identified higher-priority service hours as 5:30 AM to 7:30 PM, with additional service that could be provided as early as 4 AM and late as 9:30 PM. In the longer term, Sunday service could be added. Generally, the Hermiston – Boardman Connector and Boardman – Port of Morrow Circular should operate the same hours.

As shown, weekday and Saturday, 5:30 AM to 7:00 PM service, would cost about $868,000 annually to operate for the Hermiston – Boardman Connector and $141,000 for the Boardman – Port of Morrow Circular. The Hermiston – Boardman Connector would operate about 228,000 annual service miles, or just over a vehicle's EUL if all miles were on the same vehicle. Therefore, the service would need to replace an average of one

vehicle per year, although these vehicles would typically be purchased in multiples every 2–3 years. CTUIR would need to save about $9,000 and Morrow County about $6,000 on average, annually, to meet the local match for fleet replacement. Vehicle replacement costs are assumed to increase in proportion to the increasing service hours and costs of other scenarios.

Table 14. Year 2023 Operating and Fleet Replacement Costs

Service	Operating Hours Scenario	Annual Service Hours	Operating Costs	Annual Service Miles	Annual Vehicle Local Match	Total 2023 Costs
Hermiston-Boardman Connector	Weekdays + Saturday; 5:30 AM to 7:30 PM	8,680	$868,000	228,656	$9,000	$877,000
	Weekdays + Saturday; 4:00 AM to 9:30 PM	10,850	$1,085,000	292,392	$11,000	$1,096,000
	All Days; 4:00 AM to 9:30 PM	12,775	$1,278,000	344,268	$13,000	$1,291,000
Boardman-Port of Morrow Circular	Weekdays + Saturday; 5:30 AM to 7:30 PM	4,030	$141,000	39,525	$6,000	$147,000
	Weekdays + Saturday; 4:20 AM to 9:20 PM	4,650	$163,000	49,631	$7,000	$170,000
	All Days; 4:20 AM to 9:20 PM	5,475	$192,000	58,437	$8,000	$200,000
Other Capital			$50,000	–	–	$50,000

Costs for operating services are anticipated to increase over time. Table 15 shows the projected five-year operating costs and Table 16 shows the long-term operating costs, with future years projected using a 3.5% annual cost increase.

Table 15. Projected Five-Year Operating and Fleet Replacement Costs

Service	Scenario	2023	2024	2025	2026	2027
Hermiston-Boardman Connector	Weekdays + Saturday; 5:30 AM to 7:30 PM	$877,000	$908,000	$941,000	$974,000	$1,009,000
	Weekdays + Saturday; 4:00 AM to 9:30 PM	$1,096,000	$1,135,000	$1,175,000	$1,217,000	$1,260,000
	All Days; 4:00 AM to 9:30 PM	$1,291,000	$1,336,000	$1,383,000	$1,432,000	$1,483,000
Boardman-Port of Morrow Circular	Weekdays + Saturday; 5:30 AM to 7:30 PM	$147,000	$153,000	$159,000	$165,000	$172,000
	Weekdays + Saturday; 4:20 AM to 9:20 PM	$170,000	$176,000	$183,000	$190,000	$198,000
	All Days; 4:20 AM to 9:20 PM	$200,000	$207,000	$215,000	$223,000	$232,000
Other Capital		$50,000	$50,000	$52,000	$54,000	$56,000
Weekdays + Saturday; Shorter Service Hours		$706,000	$1,074,000	$1,113,000	$1,154,000	$1,195,000
Weekdays + Saturday; Longer Service Hours		$858,000	$1,316,000	$1,363,000	$1,412,000	$1,463,000
All Days; Longer Service Hours		$1,001,000	$1,541,000	$1,595,000	$1,652,000	$1,711,000

Table 16. Projected Long-Term Operating and Fleet Replacement Costs

Service	Scenario	2023	2028	2033	2038	2043
Hermiston-Boardman Connector	Weekdays + Saturday; 5:30 AM to 7:30 PM	$877,000	$1,045,000	$1,243,000	$1,478,000	$1,756,000
	Weekdays + Saturday; 4:00 AM to 9:30 PM	$1,096,000	$1,305,000	$1,551,000	$1,844,000	$2,192,000
	All Days; 4:00 AM to 9:30 PM	$1,291,000	$1,535,000	$1,825,000	$2,168,000	$2,579,000
Boardman-Port of Morrow Circular	Weekdays + Saturday; 5:30 AM to 7:30 PM	$147,000	$179,000	$215,000	$257,000	$307,000
	Weekdays + Saturday; 4:20 AM to 9:20 PM	$170,000	$205,000	$247,000	$295,000	$351,000
	All Days; 4:20 AM to 9:20 PM	$200,000	$241,000	$288,000	$344,000	$409,000
Other Capital		$50,000	$50,000	$61,000	$76,000	$92,000
Weekdays + Saturday; Shorter Service Hours		$706,000	$1,074,000	$1,285,000	$1,534,000	$1,827,000
Weekdays + Saturday; Longer Service Hours		$858,000	$1,316,000	$1,571,000	$1,874,000	$2,231,000
All Days; Longer Service Hours		$1,001,000	$1,541,000	$1,837,000	$2,189,000	$2,604,000

Funding Scenarios

Primary funding sources for the first several years of service include FTA Section 5311 funding; STIF formula, discretionary, and intercommunity funds; and local and employer support. The following section describes the amounts and scenarios from the different funding sources and compares these to the operating budgets.

Table 17 shows the funding growth assumptions that factored into the operating budget. As shown in the *Potential Funding Sources* section, STIF Formula Funds are projected to grow over the next several years at a 5.38% annual rate. A conservative 4% growth rate was assumed for STIF funding sources. CTUIR currently receives FTA Section 5311 funds, and Morrow County is pursuing FTA Section 5311 qualification and funding, which is projected to grow nearly 2% annually, the historic growth rate for Section 5311 rural program funding. Per Oregon's formula for 5311 distribution, the increase in amount of service provided and ridership from the initial start of these services would also provide an upfront funding increase for CTUIR's 5311 distribution.

Local and employer contribution growth is estimated to grow near 3.5%. These contributions can include sidewalk and bicycle improvements near bus stops, improvements to bus stops themselves, or partnership rideshare, carpool, and vanpool programs. Cities, the counties, and employers implement many of these improvements and programs already and are not expected to contribute funding directly to the transit service providers. *Additional information on cooperative programs is included in Appendix C*.

Table 17. Funding Growth Assumptions

Growth Rates	
STIF Employment/Wage Growth	4.00%
5311 Growth	2.00%
Local and Employer Growth	3.50%

Table 18 shows the projected five-year revenue and Table 19 shows projected long-term revenue by source, as well as the sums by funding scenario. CTUIR, Morrow County, and Umatilla County provided their estimated 2023 contributions, which were increased based on the funding growth assumptions.

Funding Scenario 1 includes STIF Formula and local and employer support. These funding sources are considered highly stable and serve as a minimum level of funding that could be dedicated. Funding Scenario 2 adds 5311 funds from Morrow County, which is likely but not finalized as a funding source. Funding Scenario 3 adds STIF Discretionary Funding, including Intercommunity funds. The intercommunity funding can be granted continuously through the STIF program. However, the discretionary grants are likely in the short-term to get services started, but generally are not intended to provide long-term funding support.

Table 18. Projected Five-Year Revenues

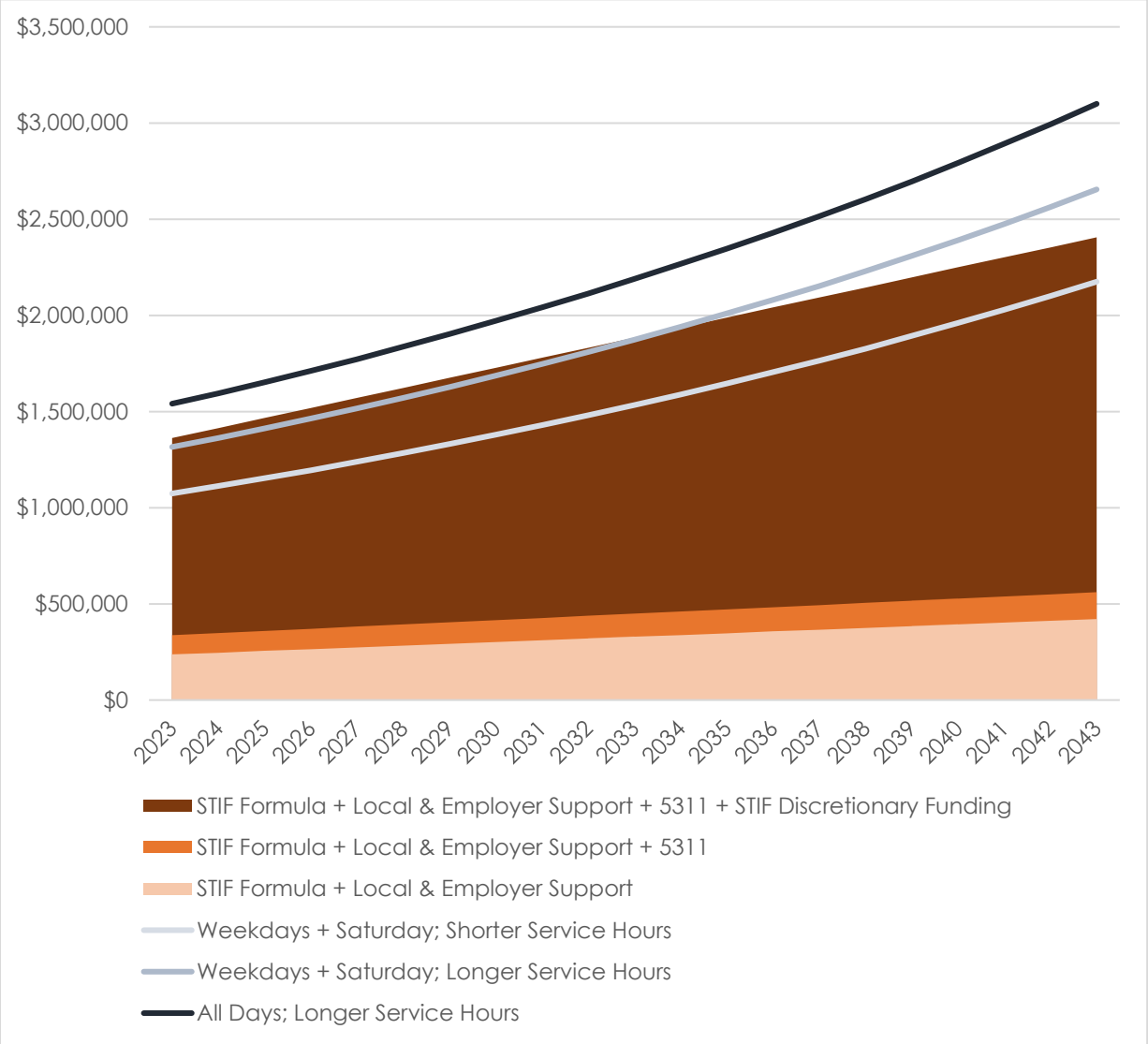
Year		2023	2024	2025	2026	2027
Local & Employer Support		$50,000	$52,000	$54,000	$55,000	$57,000
5311 Funds - Morrow - Circular		$100,000	$102,000	$104,000	$106,000	$108,000
STIF Formula - Morrow - Circular		$50,000	$60,000	$70,000	$80,000	$90,000
STIF Formula - Morrow - Connector		$50,000	$52,000	$54,000	$56,000	$58,000
STIF Formula - Umatilla - Connector		$86,755	$90,000	$94,000	$97,000	$101,000
STIF Discretionary - Morrow - Circular		$75,000	$78,000	$81,000	$84,000	$87,000
STIF Discretionary/Intercommunity Fund		$950,000	$988,000	$1,026,000	$1,064,000	$1,102,000
Scenario 1	STIF Formula + Local & Employer Support	$237,000	$246,000	$256,000	$264,000	$274,000
Scenario 2	STIF Formula + Local & Employer Support + 5311	$337,000	$348,000	$360,000	$370,000	$382,000
Scenario 3	STIF Formula + Local & Employer Support + 5311 + STIF Discretionary Funding	$1,362,000	$1,414,000	$1,467,000	$1,518,000	$1,571,000

Table 19. Projected Long-Term Revenues

Source		2023	2028	2033	2038	2043
Local & Employer Support		$50,000	$59,000	$68,000	$76,000	$85,000
5311 Funds - Morrow - Circular		$100,000	$110,000	$120,000	$130,000	$140,000
STIF Formula - Morrow - Circular		$50,000	$60,000	$70,000	$80,000	$90,000
STIF Formula - Morrow - Connector		$50,000	$60,000	$70,000	$80,000	$90,000
STIF Formula - Umatilla - Connector		$86,755	$104,000	$121,000	$139,000	$156,000
STIF Discretionary - Morrow - Circular		$950,000	$1,140,000	$1,330,000	$1,520,000	$1,710,000
STIF Discretionary/Intercommunity Fund		$50,000	$60,000	$70,000	$80,000	$90,000
Scenario 1	STIF Formula + Local & Employer Support	$237,000	$283,000	$329,000	$375,000	$421,000
Scenario 2	STIF Formula + Local & Employer Support + 5311	$337,000	$393,000	$449,000	$505,000	$561,000
Scenario 3	STIF Formula + Local & Employer Support + 5311 + STIF Discretionary Funding	$1,362,000	$1,623,000	$1,884,000	$2,145,000	$2,406,000

Figure 19 shows the projected operating budgets (lines) and funding scenarios (shaded areas) over time. As shown, the weekday and Saturday service options with both shorter and longer service hours could be supported by Funding Scenario 3 initially, but the costs of the longer service hours are expected to outpace available funding near 2034. Expanding service to Sunday would require additional funding in any year, especially as additional dispatch, supervisory, maintenance, and other staff would be needed to expand CTUIR and Morrow County service to days they do not currently operate on.

Figure 19. Projected Operating Budget and Funding Scenarios



Stafford Hansell Government Center
Potential Transit Center Area

4. MANAGEMENT PLAN

MANAGEMENT PLAN

A coordinated, targeted, and effective public information and marketing campaign would help publicize and encourage people to use transit. The following sections describe management, marketing, and customer information strategies for successful shuttle implementation.

Management Strategies

Management strategies are those that CTUIR and the counties can conduct behind-the-scenes for effective implementation.

- Partner with Employers. Continue to work with employers to identify shift times for employee travel needs to develop solutions for services. Market existing services through employers to encourage information sharing not only to employees but feedback from transit users as well.
- Explore Creating a Transportation Management Association (TMA) and/or Regional Transit Association (RTA). A TMA is a public–private partnership between government entities and businesses and organizations within a location to establish transportation-related policies and programs for the location. An RTA is a partnership primarily compromised of public entities such as neighboring transit service providers and local jurisdictions, such as cities and counties. Entities use TMAs and RTAs to better coordinate and manage their transportation challenges.
- Collaborate with Community-Based Organizations (CBOs) and health and human services organizations. Collaborate with stakeholders and CBOs, including but not limited to Columbia River Health, Community Health Improvement Partnership of Morrow County (CHIPOMC), Good Shepherd Health Care System, SAGE Center, VA Clinics, DHS locations, WIC and Head Start programs, and Desert Sage Manor, to identify changing travel needs and develop solutions for services.
- Promote Coordination between CTUIR, Morrow County, Umatilla County, Local and Regional Partners, and other Transit Providers. Coordination between local partners, including adjacent transit districts, local and regional transportation providers, and local jurisdictions, will lead to a comprehensive and efficient system in which users can travel seamlessly inter- and intra-regionally.
- Create Measurable Outcomes for Services to Promote Effective Monitoring and Increase Customer Satisfaction. The *Monitoring System Performance* section of this memo identifies ways to monitor performance over time to better evaluate service outcomes. Engage community members to improve customer satisfaction, retain existing riders, and attract new riders.

Monitoring System Performance

The following section provides a program to track transit service performance and the success of the plan's recommendations. The program is data-driven and is founded on performance measures that can be tracked on a regular basis through set benchmarks. In most cases, these performance measures are already tracked as part of Federal Transit Administration (FTA) reporting requirements. This program enables a dynamic system where service adjustments can be implemented and justified following performance evaluations.

Performance measures are divided into monitoring on an annual and a less-frequent (e.g., biennial) basis. Most of the recommended performance measures should be reviewed each year; the performance measures identified for less-frequent review are less likely to fluctuate meaningfully on an annual basis. As these performance measures are applied in the future, Morrow County, Umatilla County, and CTUIR may adjust how often specific performance measures are examined. Benchmarks also consider existing and future data availability.

Annual Review of Performance Measures

The following performance measures are recommended to be evaluated at least annually to understand how the new services are being used. All but one of these measures are typically already monitored for National Transit Database (NTD) reporting purposes.

- Capital costs: Examine annual capital costs directly to the service operator (CTUIR, Morrow County) and improvements by facility owners (Umatilla County, Morrow County, local cities, employers, other property owners). This information is useful for budgeting for vehicle replacements and additional transit-supportive infrastructure such as shelters, based on actual agency cost experience.
- Operating costs: Tracks annual operating costs for the services, tracked separately for the Connector and Circular. This information is useful for evaluating cost trends for future budgeting purposes, and for calculating other performance measures, such as cost per hour, that can be compared with other CTIUR routes and with peer agencies.
- Annual rides: Tracks total number of rides per year, tracked separately for the Connector and Circular. This information is useful for evaluating ridership trends, and for calculating other performance measures, such as rides per hour or cost per ride, that can be compared with other CTIUR routes and with peer agencies. Transit providers typically also track ridership more frequently (e.g., by month, by day of week) to help identify ridership patterns and trends.

- Revenue service hours: Tracks total number of hours of revenue service provided, tracked separately for the Connector and Circular. This measure is used to calculate rides and cost per hour.
- Rides per hour: Tracks average annual rides per hour (productivity), tracked separately for the Connector and Circular. Staff resources permitting, tracking annual productivity by scheduled trip is useful for identifying and supporting the need for schedule changes (e.g., addressing consistently over- or under-utilized trips), for identifying the need to purchase higher-capacity vehicles, and for targeting marketing efforts to increase ridership, among other uses.
- Cost per hour: Tracks average annual operating cost per revenue hour, tracked separately for the Connector and Circular. Cost per hour is a useful measure to compare to peer agencies, to check whether one's costs and cost trends are in line with, greater than, or less than one's peers.
- Number of Deviation Request Denials (Circular Only): Tracks the total number of deviation requests denied on the Boardman – Port of Morrow Circular, to help identify the need for schedule and/or route changes to maintain service reliability and attractiveness. In addition, although more labor-intensive, tracking where and how frequently deviation requests are made can be useful for making route adjustments to serve high-demand trip origins and destinations.

Less-Frequent Review of Performance Measures

The following performance measures are either (1) less likely to change in a significant way on an annual basis and do not need to be tracked each year, or (2) are time-intensive to evaluate on an annual basis.

- System ease of use: Tracks improvements made to travel between communities or transit providers, such as technology improvements (trip-planning, real-time tracking apps) and timed transfers between different transit providers.
- Walking and bicycling access: Tracks the percentage of stops having a sidewalk/path, bicycle lane/path, and/or crossings connecting to the stop.

Peer Comparison

While every transit provider has unique service area and operating characteristics, comparing a provider's performance to that of similar providers can help managers and decision-makers gauge whether changes in performance match the experience of similar agencies, or may be due to actions on the provider's part (either something to correct or something to continue, depending on how performance changed). Transit agencies that receive federal funding are required to report information about service miles, service hours, and ridership, among others, to the NTD. Peer comparisons were conducted for CTUIR and Morrow County to understand existing and potential

performance using the most-recent year of available data, 2018. Peers were primarily identified using the process described in *TCRP Report 141: A Guidebook on Performance Measurement and Peer Comparison in the Transit Industry*, which uses factors such as type of service provided, amount of service provided, geographic characteristics, and more.

Hermiston – Boardman Connector (CTUIR)

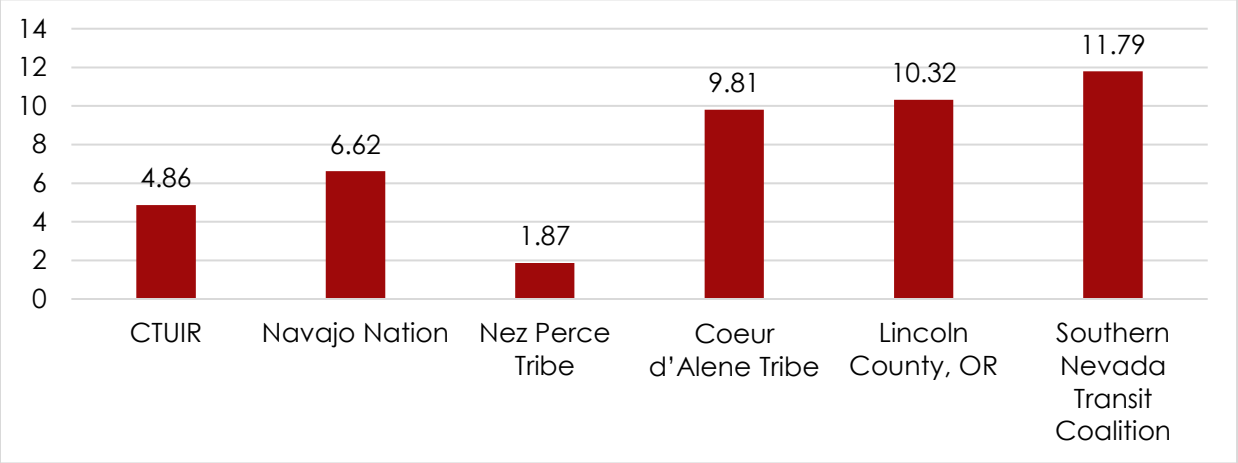
Peers for CTUIR were identified using the rural transit peer-identification method developed by the National Rural Transit Assistance Program and implemented in the online Rural Integrated NTD tool. This tool applies a peer-matching process similar to that described for urban systems in *TCRP Report 141: A Guidebook on Performance Measurement and Peer Comparison in the Transit Industry*. It considers such factors as provider type (e.g., tribal, county, transit district), annual vehicle miles operated, percent local funding, and more. The tool was used to identify three similar tribal operators (neglecting the factor that considers the population of the provider's headquarters, as Pendleton is considerably larger than most tribal provider headquarter cities). The tool was also used to identify two similar non-tribal operators.

The selected tribal providers are the Navajo Nation, the Nez Perce Tribe, and the Coeur d'Alene Tribe. The selected non-tribal providers are the Lincoln County Transportation Service District (Newport, OR) and the Southern Nevada Transit Coalition (Laughlin, NV). Table 20 provides the peer comparison evaluation and Figure 20 shows rides per hour for the peer providers. As shown, CTUIR serves fewer rides per hour than all of its peers except for the Nez Perce Tribe.

Table 20. Transit Provider Comparison (2018) for CTUIR

Data	CTUIR	Navajo Nation	Nez Perce Tribe	Coeur d'Alene Tribe	Lincoln County, OR	Southern Nevada Transit Coalition
Operates Commuter Bus?	Yes	Yes	No	No	Yes	Yes
% Local Funding	23.4%	24.7%	15.1%	30.6%	32.4%	21.7%
% Fixed Route	100%	100%	93.1%	92.5%	77.9%	79.4%
Annual Vehicle Miles	418,955	690,252	300,488	675.469	504,181	409,997
Annual Revenue Hours	15,018	19,486	8,679	25,861	31,198	24,917
Annual Rides	72,971	129,000	16,230	253,721	321,833	293,783
Rides per Hour	4.86	6.62	1.87	9.81	10.32	11.79
Cost per Hour	$94.24	$118.36	$118.85	$51.91	$60.09	$88.99

Figure 20. Rides per hour for CTUIR and comparable systems



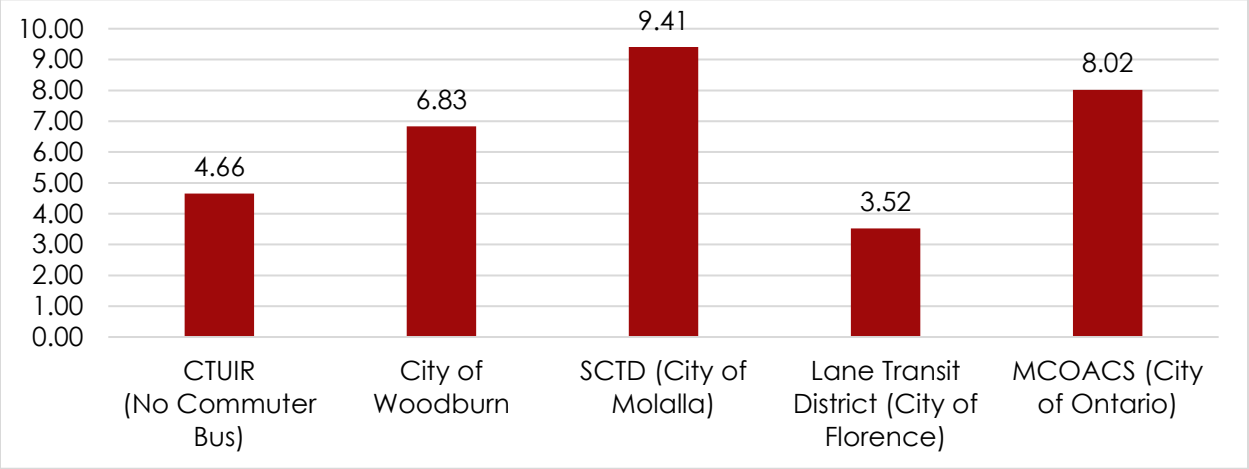
Boardman – Port of Morrow Circular (Morrow County)

Morrow County does not currently report data to NTD, given that it has not historically received federal funding that requires NTD reporting. Therefore, several providers who provide service similar to the proposed service were selected. These peers were matched based on an estimated 5,000 service hours and about 50,000 annual service miles for the Port of Morrow Circular. This analysis only looked at local bus service (i.e., not commuter bus or demand-response as reported to NTD). Similar providers include CTUIR's local services, the City of Woodburn, South Clackamas Transportation District's (SCTD's) Molalla service, Lane Transit District's Florence service, and Malheur Council on Aging and Community Service's (MCOACS's) Ontario service. All of these services connect to regional transit service. Table 21 provides the peer comparison evaluation and Figure 21 shows rides per hour for the peer providers. Table 21 also shows city populations and employments for each jurisdiction, with the Boardman numbers not including unincorporated Port of Morrow employment. As shown, similar-sized providers typically generate 4-10 rides per hour. Ridership is generally higher in communities with high employment such as Boardman.

Table 21. Transit Provider Comparison (2018) for Boardman – Port of Morrow Circular

Data	Boardman/Port of Morrow	CTUIR (No Commuter Bus)	City of Woodburn	SCTD (City of Molalla)	Lane Transit District (City of Florence)	MCOACS (City of Ontario)
Population	3,439	Hermiston - 17,423 Mission - 850	25,738	9,155	8,921	10,966
Employment	6,283+	Hermiston - 7,305 Mission - 2,101	9,517	2,570	3,112	8,542
Annual Service Miles	50,000	92,832	45,023	17,104	27,177	65,023
Annual Service Hours	5,000	5,256	3,048	2,547	2,173	3,012
Annual Rides	—	24,485	20,831	23,968	7,651	24,150
Rides per Hour	—	4.66	6.83	9.41	3.52	8.02

Figure 21. Rides per Hour for Boardman – Port of Morrow Circular Comparable Services



Marketing, Information, and Customer Feedback Strategy

The following describes actions to improve customer service and information that can be implemented in the short term and that should be maintained on a long-term basis:

- Develop Transit Service Branding. Branding is the foundation of the marketing strategy and provides an identity and image to potential customers. It helps create immediate recognition of all aspects of the service. Key elements of visible marketing tools include the name, logo, vehicle colors and graphics, and bus stop signage and facilities. For maximum effort, it is important to consistently use colors and graphics. A distinctive base color used consistently on transit vehicles and facilities becomes the "color of the bus" in the community. Vehicle graphics, bus stop signage, shelters, and benches create visibility throughout the community and their style, color, and quality should be consistent. Bus stops and shelters are a convenient place to provide additional information about routes, schedules, and deviation zones. While CTUIR and Morrow County have existing branding for some of their services, highlighting these services at new bus stops and facilities will be helpful in marketing services.
- Provide Maps and Brochures in a Single User-Friendly Brochure. Printed brochures and pamphlets can be designed and distributed to various target audiences to promote the transit services. The main element of this kind of promotion is the different style of communication depending on distinct target groups while encouraging all to use the same transit service. A printed brochure or pamphlet should include a route map or maps showing all routes with deviation zones, bus stop locations, landmarks, and key destinations clearly depicted. How-to-ride information, including how to request a deviation, should be included. Contact information, including website, telephone number, and reference to a trip planning app (if available) should be provided. Providing information in other

languages spoken in the community (e.g., Spanish) helps reach members of the community who speak English as a second language.

- Provide Real-Time Information, Trip-Planning Technologies, and Support Mobile Application Technologies. Real-time information, including real-time bus arrival and route information, helps improve the ridership experience by reducing passenger wait times at the stop (passengers know when they should leave for the stop) and provides confidence that a bus has not been missed. With the introduction of deviated-route service, bus arrival times at stops become more approximate, depending on whether or not a deviation was made earlier in the trip. With 45-60 minute headways creating long waits if a bus is missed, real-time information helps reassure riders that their bus is on the way. A mobile/smartphone presence has become increasingly important. As automatic vehicle location (AVL) technology is installed on buses, providing real-time AVL data feeds could make real-time bus locations available on applications such as Google Maps and Transit, and could potentially be integrated into Morrow County, Umatilla County, and CTUIR's websites. Information on all routes can be provided via the websites or smartphones through "push" technologies such as text messages and through telephone support. Oregon Department of Transportation (ODOT) provides support in converting real-time bus arrival information for compatibility with applications such as Google Maps and Transit.
- Invest in Training Programs. The faces of the transit operator are the bus operators and customer service staff. Ongoing investment in training resources will help staff continue to contribute to the region's positive image.
- Advertise. Advertising via different medias can help attract a range of riders. Newspaper display advertising of the services is a great tool to introduce and promote the service that can lead to high ridership. Securing a Transportation Options Innovation Grant from ODOT could help with advertising efforts. Other ways of promoting the service includes radio communication, television advertising, social media like Facebook and Next Door, and email blasts.

Boardman Pool & Rec Center
Potential Transit Center Area

5. CAPITAL PLAN

CAPITAL PLAN

This section provides an overview of the capital needs for the Hermiston – Boardman Connector and Boardman – Port of Morrow Circular, including bus stop improvements and fleet considerations. Safe and comfortable facilities can improve the rider experience and increase ridership by improving stop visibility, providing protection from poor weather, and improving access to transit.

The information in this section also considers other future transit services. The 2018 Morrow County/Umatilla County Transit Development Strategy includes Heppner–Boardman and Pendleton–Kennewick (potentially via I-82 and/or US 395) as high-priority transit needs and Arlington–Boardman as a medium priority. These other services may increase demands at transit stops established through the Hermiston – Boardman Connector and Boardman – Port of Morrow Circular and/or trigger the need for major transit centers, park-and-rides, and vehicle storage and maintenance facilities.

Capital Needs Plan

This section provides the short-term and long-term capital needs, with a detailed breakdown for the first 3 years of operation in the *Capital Acquisitions Plan* section.

Bus Stops

Waiting at a bus stop is generally the first part of a rider's journey on a transit system, and a visible, safe, and comfortable stop is critical. Bus stops can be as large as transit centers and as small as a stop with signage. Bicycle and pedestrian access needs can include facilities along roadways, crossings, and bicycle storage. Park-and-rides can provide a useful location for riders to transfer to regional services. The following describes the types of facilities that may be applicable for the Hermiston – Boardman Connector and Boardman – Port of Morrow Circular.

Bus Stops Amenities

The following summarizes potential bus stop amenities, cost ranges[1], and uses:

- **Signage**: The cost for new bus stop signage and a pole, installed, can range from $300 to $1,000, depending on the material and the installation conditions. Generally, every stop should have signage identifying it.
- **Benches**: Benches should be considered for stops with at least three boardings per day, although other factors, such as the proximity to senior housing and nearby businesses willing to contribute to the costs, should be factored into the decision as well. Installed benches vary in price from $500 to $1,500.

[1]*Cost estimates are sourced from Transit in Small Cities: A Primer for Planning, Siting, and Designing Transit Facilities in Oregon* https://digital.osl.state.or.us/islandora/object/osl:10551

- **Trash Cans**: The cost for a trash can averages about $750 in materials, not including installation. Trash cans are often installed alongside shelters, providing cost savings. Installation should also consider maintenance and the need to regularly empty cans.
- **Bike Racks**: Bike racks are typically most beneficial at regional transfer locations, such as the Hermiston – Boardman Connector. Bike racks typically cost $1,000 in materials. Bicycle accommodation should also consider the demand to load bicycles onto transit vehicles for first/last-mile connections.
- **Shelters**: Passenger shelters add to the comfort of using transit and are generally popular with riders. An "off the shelf" passenger shelter costs about $6,000 plus installation. In addition to initial capital costs, passenger shelters will incur maintenance costs for cleaning, repair, and replacement. The cost estimate does not include the concrete pad, if needed. Given their higher cost, shelters may be less feasible to implement, and may be reserved for stops with ten or more boardings per day.
- **Transit Centers and Major Transit Stops**: Transit centers provide a transfer point for bus routes, while major transit stops are typically provided at major activity centers. In addition to providing greater passenger amenities that improve rider comfort, transit centers and major transit stops provide visibility for the transit service, reminding residents and visitors of the availability of the service within their community. They can include higher-level amenities such as restrooms and indoor waiting areas, large covered waiting zones, and more. While no transit centers are present in the study areas, the 3rd/Orchard Stop and Walmart Stop, served by both the existing Hopper and HART services, could be considered major transit stops.

Table 22 summarizes existing, recommended short-term (within the first 3 years), long-term (beyond 3 years), and not recommended (N/A) improvements at identified stops. The recommendations seek to establish at least one stop with higher levels of amenities in each community, often at an existing public facility or major activity center. As services and ridership patterns stabilize, the service providers and local jurisdictions can further refine and prioritize the long-term improvements. Shelters are considered existing if they are immediately adjacent to the stop; restrooms are considered existing if they are publicly available, or in the case of employment stops, available to the employees. Some amenities, such as restrooms at the Recycling Depot and 6th Street/B Street stops, are intended to be one restroom servicing both stops, which are across the street from each other.

Table 22. Amenities at Stops

Stop	Benches	Shelters	Trash Cans	Bike Racks	Restrooms
SW 3rd Street/W Orchard Ave	Ex	Ex	Ex	Short-Term	Short-Term
Walmart	Short-Term	Short-Term	Ex	Short-Term	Long-Term
Northwest Farm Supply	Long-Term	Long-Term	Ex	Long-Term	N/A
KIE Supply Corporation	Long-Term	Long-Term	Long-Term	Long-Term	N/A
Lamb Weston (Westland Road)	Short-Term	Long-Term	Long-Term	Long-Term	N/A
McNary Market	Short-Term	Ex	Ex	Short-Term	Long-Term
Post Office	Long-Term	Long-Term	Long-Term	Long-Term	N/A
Recycling Depot	Short-Term	Short-Term	Ex	Short-Term	Long-Term
6th Street/B Street	Short-Term	Short-Term	Ex	Short-Term	Long-Term
City Hall Village Square	Ex	Long-Term	Long-Term	Long-Term	N/A
6th Street/Yrexa Avenue	Short-Term	Long-Term	Long-Term	Long-Term	N/A
Highway 730 and First Street	Short-Term	Short-Term	Short-Term	Short-Term	Long-Term
Employment stops	Short-Term	Long-Term	Long-Term	Long-Term	Ex
SAGE Center	Ex	Ex	Ex	Ex	Ex
Boardman Ave/Main St	Short-Term	Short-Term	Ex	Short-Term	N/A
Columbia Ave/2nd St	Short-Term	Ex	Short-Term	Short-Term	N/A
Boardman Post Office	Short-Term	Short-Term	Ex	Short-Term	Long-Term
Main St/Front St	Short-Term	Short-Term	Ex	Short-Term	N/A
Select Market/DHS	Short-Term	Short-Term	Ex	Short-Term	Long-Term
Faler Rd/Mt. Hood Ave	Long-Term	Long-Term	Long-Term	Long-Term	N/A
Mt. Hood Ave/Wilson Ln	Short-Term	Short-Term	Short-Term	Short-Term	N/A
Wilson Rd/River Ridge Dr	Long-Term	Long-Term	Long-Term	Long-Term	N/A
Wilson Rd/Anthony Rd	Short-Term	Long-Term	Long-Term	Long-Term	N/A
Tatone St/Wilson Rd	Short-Term	Long-Term	Long-Term	Long-Term	N/A
Tatone St/Willow Fork Dr	Long-Term	Long-Term	Long-Term	Long-Term	N/A
C&D Drive-In	Ex	Ex	Ex	Short-Term	N/A
Boardman Ave/2nd Ave	Short-Term	Long-Term	Long-Term	Long-Term	N/A

Ex: Existing amenity
Short-Term: Within the next 3 years
Long-Term: Beyond 3 years, preferably within 20 years, dependent on demand as transit service stabilizes.
N/A: Not recommended for future improvement.

These stops represent general locations and can shift based on service needs and discussions with property and business owners. For example, the 3rd/Orchard stop represents a major activity center in Hermiston, and ongoing conversations with City of Hermiston staff may identify a different location for a future transit center in Hermiston. For example, a future option may include Hermiston City Hall, which is planned for reconstruction and has the potential to include elements such as bus bays and sheltered waiting areas. A transit center could also be developed in the open areas near Port Drive and SE 9th Street, providing a connection to Blue Mountain Community College, DHS, and Umatilla County Circuit Court – Hermiston Branch, with a smaller stop still providing service to central Hermiston. Other vacant land, such as near Good

Shepherd Health Care System and Walmart, could also be developed as a transit center. The Umatilla Port of Entry has also been discussed as a potential future transit center and/or vehicle storage and maintenance location, if the Port of Entry is relocated in the future. Morrow County is actively seeking a location for a new maintenance facility, which could potentially serve as a transit center as well. This site is to be determined in partnership with the City of Boardman and businesses.

Bicycle and Pedestrian Access

Virtually every bus rider is also a pedestrian, and bicycles provide an important "last mile" option for transit, particularly for regional riders who may be fairly dispersed. CTUIR and Morrow County can work with local public works authorities to prioritize pedestrian and bicycle improvements that serve transit stops and encourage cities to modify their plans, if-needed.

It is of particular importance and a legal requirement to provide for access by persons with disabilities. Transit centers, shelters, and new or relocated bus stops should be designed to meet the requirements of the Americans with Disabilities Act (ADA). It is recommended that cities, the County, and Oregon Department of Transportation (ODOT) prioritize street corners near transit centers and shelters for ADA ramps.

Locations identified for improvements near recommended bus stops in previous planning efforts include:

- Morrow County TSP – calls for an overpass over I-84 at Olson Road, which could include pedestrian and bicycle facilities.
- City of Irrigon TSP – recommends sidewalks and/or paths on US 730 between First Street and 11th Street, and along First Street, Division Road, 7th Street, and 11th Street.
- City of Boardman TSP – recommends extending NE Boardman Avenue to Olson Road, and extending Third Street, Second Street, Chaperell Drive, Kinkade Road, and Anderson Road, which could include pedestrian and bicycle facilities. The City of Boardman is also planning a footbridge crossing the railroad near the Port Offices.
- City of Boardman Multi-Use Path Plans – recommends a new multi-use path on Columbia Avenue between Main Street and Olson Road and to the south of Wilson Lane, as an extension of Faler Road.
- Heritage Trail Map – The Heritage Trail includes existing and proposed trails extending east–west from Boardman to Irrigon and Umatilla, primarily along the river. The existing path follows the riverfront in Boardman and then continues on the north side of Marine Drive about to Olson Road (on the north side of the railroad). The proposed alignment would continue along Marine Drive, to Ullman Boulevard, Columbia Avenue, US 730, and River Lane, then along a riverfront path leading to the north end of Pleasant View Road and on into Umatilla County.
- Umatilla County TSP – identifies sidewalk improvements for Bensel Road, Bud Draper Road, Roxury Lane, Beach Access Road, Powerline Road, Umatilla River Road, Ford Road, 3rd Street, Scapelhorn Road, and Power City Road in the City of Umatilla. Identifies bicycle pathways for Bud Draper, McNary Beach Recreation Area, Powerline Road to "F" Street, and Powerline Road.

- City of Umatilla TSP – recommends that US 730's cross-section include 6' sidewalks, 5' planter strips, and 6' bike lanes with 8' parking lanes throughout the corridor. Collector street cross-sections also include sidewalks and bicycle lanes; intersecting collector streets include Powerline Drive, B Street, F Street, Switzler Drive, County 1275 Road, Brownell Boulevard, Power City Road, Devore Road, Wildwood Lane, Pomoro Drive, and Willamette Street.
- City of Hermiston TSP – identifies the need for sidewalks on all urban streets, bikeways on urban major collectors and arterials, and wide shoulders on rural collectors and arterials.

Table 23 summarizes local planning efforts and recommends stop-by-stop improvements for pedestrian and bicycle access. Stops are categorized by short-term priorities, consistent with the stops identified for higher-level amenities, and long-term priorities.

Table 23. Pedestrian and Bicycle Infrastructure at Stops

Stop	Walking Availability	Biking Availability	Priority	Recommended Improvements
SW 3rd Street/ W Orchard Ave	Good	Poor	Short-Term	Provide bicycle facilities, such as bike lanes, along local and arterial roadways.
Walmart	Good	Good	Short-Term	None
Northwest Farm Supply	Fair	Poor	Long-Term	Widen US 395 shoulders for bicycle use and/or provide parallel path.
KIE Supply Corporation	Fair	Poor	Long-Term	Widen US 395 shoulders for bicycle use and/or provide parallel path. Improve sidewalks on west side of US 395.
Lamb Weston (Westland Road)	Poor	Poor	Long-Term	Provide pedestrian and bicycle facilities between designated stops and other employment in the area.
McNary Market	Fair	Poor	Short-Term	Provide sidewalks and bicycle lanes along Willamette Avenue, extending to such connecting roadways as Walla Walla Street and Lewis Street.
Post Office	Fair	Poor	Long-Term	Widen US 730 shoulders for bicycle use and/or provide parallel path.
6th Street/ Yrexa Avenue	Good	Poor	Short-Term	Widen US 730 shoulders for bicycle use and/or provide parallel path. Provide sidewalks along Yrexa Avenue, connecting to nearby residential and commercial properties.
Recycling Depot	Good	Poor	Short-Term	
City Hall Village Square	Good	Poor	Long-Term	Widen US 730 shoulders for bicycle use and/or provide parallel path.
6th Street/ B Street	Good	Poor	Short-Term	Widen US 730 shoulders for bicycle use and/or provide parallel path. Provide sidewalks along cross streets, connecting to nearby residential and commercial properties, Nugent Park Trails.

Stop	Walking Availability	Biking Availability	Priority	Recommended Improvements
Highway 730 and First Street	Good	Poor	Short-Term	Widen US 730 shoulders for bicycle use and/or provide parallel path to the west, connect to existing bicycle lane off Columbia Lane to the east. Provide sidewalks along US 730.
Employment stops	Poor	Poor	Long-Term	Provide improved connections from driveways to building entries.
SAGE Center	Fair	Poor	Short-Term	Extend sidewalk and bicycle facilities to Columbia Avenue, along Columbia Avenue.
Boardman Ave/ Main St	Good	Fair	Short-Term	Extend sidewalks along Boardman Avenue, improve bicycle facilities as-needed.
C&D Drive-In	Good	Fair	Short-Term	
Columbia Ave/ 2nd St	Fair	Poor	Long-Term	Extend sidewalks along Columbia Avenue and 2nd Street, improve bicycle facilities along Columbia Avenue.
Boardman Post Office	Fair	Fair	Short-Term	Extend sidewalks along Boardman Avenue and NW 1st Street, improve bicycle facilities as-needed.
Main St/ Front St	Fair	Fair	Short-Term	Extend sidewalks along Front Street.
Select Market/ DHS	Fair	Poor	Short-Term	Extend sidewalks along Kinkade Road, sidewalks and bicycle lanes along Tatone Street.
Faler Rd/ Mt. Hood Ave	Poor	Poor	Long-Term	Construct sidewalks and crosswalks, starting at the intersection and extending to residential properties.
Mt. Hood Ave/ Wilson Ln	Poor	Poor	Short-Term	Construct sidewalks and crosswalks, starting at the intersection and extending to residential properties.
Wilson Rd/ River Ridge Dr	Fair	Fair	Long-Term	Construct sidewalks and crosswalks, starting at the intersection and extending to residential properties.
Wilson Rd/ Anthony Rd	Fair	Fair	Long-Term	Construct crosswalks.
Tatone St/ Wilson Rd	Fair	Fair	Long-Term	Install curb ramps on northeast intersection corner.
Tatone St/ Willow Fork Dr	Poor	Poor	Long-Term	Construct sidewalks along Tatone Street.
Boardman Ave/ 2nd Ave	Good	Poor	Long-Term	Improve bicycle facilities along Boardman Avenue.

Walking and Biking Rating: Good = sidewalks and crosswalks; bicycle lanes or sharrows; Fair = some sidewalks; adequate shoulder for biking; Poor = no facilities

Park-and-Ride Lots

Park-and-ride lots are typically feasible in situations where there is either a parking charge or parking shortages at the rider's destination, or if there is a substantial savings in travel cost or time by using transit. As parking is typically free throughout the area, an interest in using all-day parking to save cost or time, or for short-term parking for pick-up/drop-off, are the more likely drivers for park-and-ride demands. Park-and-ride locations could include:

- **Hermiston** – New park-and-ride locations could include a new facility near Port Drive and SE 9th Street, Good Shepherd Health Care System, Walmart, and/or another location as identified in partnership with the City of Hermiston. Existing parking lots could be used as pick-up/drop-off locations, while partnerships with businesses with underused weekday parking has potential to support all-day parking. These locations could also serve as park-and-ride(s) for future Pendleton – Kennewick service. Port Drive and SE 9th Street are particularly opportunistic, already zoned for light industrial/outlying commercial and positioned near the Gettman Road/Railway Alternative Transportation Enhancement (GRATE) Project, improving access and efficiency for buses in the area. Additionally, the new Hermiston City Hall will have public amenities available and can be considered for a pick-up/drop-off transit center.
- **Umatilla** – In the short-term, parking occupancy near City Hall could be evaluated for potential use for park-and-ride. The Umatilla Port of Entry potentially could be modified to provide pick-up/drop-off or all-day parking space. This location could also serve as park-and-ride for future Pendleton – Kennewick service.
- **Irrigon** – The properties near US 730 and First Avenue have large, undefined paved and gravel areas. Repaving and striping these lots could make them feasible park-and-ride or pick-up/drop-off areas. Parking could also be coordinated outside of city limits for all-day parking.
- **Boardman** – The SAGE Center or other nearby properties are recommended as the transfer point for the Hermiston – Boardman Connector and Boardman – Port of Morrow Circular, and could also be promising park-and-ride sites for these and future Heppner – Boardman and Arlington – Boardman services. Within central Boardman, space near Boardman Avenue/1st Street or City Center Drive/Main Street could be developed for transit facilities.

Vehicle Fleet

Maintaining an operational fleet with the amenities and sizing to meet the area's needs will help to improve ridership and the existing rider experience, improve system performance, and maintain service reliability. This section describes the vehicle types, fleet size and replacement rate, and storage and maintenance needs for the services.

Vehicle Types

The types of vehicles operated for service should consider the passenger load, amenities such as bike racks, fueling types, and low-floor/kneeling models. All vehicles should be ADA accessible. Considerations include:

- **Passenger Load** – The vehicle fleet will need to provide capacity for peak ridership times and consider the fuel cost savings of a smaller vehicle. The *Strategic Plan* estimated Hermiston – Boardman Connector ridership near 6–8 rides per hour and the Boardman – Port of Morrow Circular at 6-7 rides per hour. These estimates were averages, and the services are likely to see periods of higher ridership, such as those that may occur during shift changes. The service providers could monitor time-of-day ridership to assess future vehicle sizing needs.
- **Bike Racks** – Riders will need bike racks on vehicles if they need to bike on both the first- and last-mile of their journey or if secure bicycle storage is not available at bus stops. It is recommended that buses be equipped with front racks accommodating 2 bicycles to start, with rack usage monitored to assess future needs.
- **Fuel Type** –A bus with hybrid-electric propulsion costs $150,000 to $200,000 more than a similar bus with diesel propulsion but will generally reduce fuel costs by approximately 25 to 30 percent. A bus with compressed natural gas (CNG) costs $25,000 to $50,000 more than a similar bus with diesel propulsion but will generally reduce fuel costs by approximately 25 to 45 percent. Challenges in using hybrid-electric and CNG are the additional cost of purchasing new vehicles relative to diesel vehicles and the need for charging/dual fueling facilities.
- **Low Floor** – Low-floor buses eliminate the steps in the vehicle, provide easier access for riders, speed boarding and alighting, and are much easier for drivers to operate than traditional lifts. Eventually, as part of the normal bus replacement schedule and as sidewalk infrastructure improves, CTUIR and Morrow County can replace high-floor buses with low-floor models.

Fleet Size and Replacement

Properly-maintained and replaced vehicles reduce the likelihood of vehicle breakdowns and/or disruptions to service.

For determining fleet size, a 20 percent spare ratio is recommended. CTUIR will have three vehicles for the Hermiston – Boardman Connector. The Hermiston – Boardman Connector will only require two vehicles at a time to operate, and thus the third provides a spare for CTUIR. Additionally, as CTUIR already operates a fleet, vehicles could be shared across these services. Morrow County will need to consider its spare ratio needs and how vehicles could or could not be shared with existing The Loop services. As the services expand, CTUIR and Morrow County should obtain additional vehicles as needed to maintain this spare ratio.

Table 24 shows the fleet replacement needs based on the annual service miles. The Hermiston – Boardman Connector operates vehicles with an expected useful life (EUL) of 450,000 miles. Depending on the amounts of service, CTUIR will need to replace 2–3 vehicles every several years. For example, CTUIR will need to replace 2 vehicles in 2026 if operating fewer hours of service or 3 vehicles in 2026 if operating more hours of service. The Boardman – Port of Morrow Circular operated vehicles with an EUL of 200,000 miles and will need to replace a vehicle about every 4 years, depending on the amount of service provided.

Table 24. Fleet Replacement

Service	Operating Hours Scenarios	Annual Service Miles	2023	2024	2025	2026	2027
Hermiston-Boardman Connector	Weekdays + Saturday; 5:30 AM to 7:30 PM	228,656	0.51	1.02	1.52	2.03	2.54
	Weekdays + Saturday; 4:00 AM to 9:30 PM	292,392	0.65	1.30	1.95	2.60	3.25
	All Days; 4:00 AM to 9:30 PM	344,268	0.77	1.53	2.30	3.06	3.83
Boardman-Port of Morrow Circular	Weekdays + Saturday; 5:30 AM to 7:30 PM	39,525	0.20	0.40	0.59	0.79	0.99
	Weekdays + Saturday; 4:20 AM to 9:20 PM	49,631	0.25	0.50	0.74	0.99	1.24
	All Days; 4:20 AM to 9:20 PM	58,437	0.29	0.58	0.88	1.17	1.46

Note: Values represent the equivalent useful life of one vehicle accumulated in a given year. For example, for the "all days" scenario for the Hermiston–Boardman Connector, all 3 vehicles would need be replaced in 2026 if used equally.

Storage and Maintenance Needs

Locating vehicle storage and maintenance facilities near the area(s) where vehicles are used can help reduce "deadhead" miles and hours. Deadheading occurs when a vehicle travels without passengers between its storage location and the start/end of its route. Reducing deadheading reduces costs due to vehicle wear and tear, fuel, and driver time. Locating maintenance facilities near service areas also helps reduce response time if a vehicle breaks down. CTUIR currently conducts their vehicle maintenance and storage in Mission, while Morrow County stores their vehicles at the Boardman Senior Center and Irrigon Senior Center, which are both at capatiy. Constructing new storage and maintenance facilities, or partnering with local jurisdictions to share existing space, such as at the Hermiston Public Works yard, would help reduce deadheading. Routine planned vehicle maintenance at CTUIR's facility can also be accommodated by swapping vehicles between the Hermiston – Boardman Connector and Hopper routes, allowing the vehicle undergoing maintenance to travel in service to and from Mission, rather than deadheading. Given the amount of future service planned, a future vehicle storage and possible vehicle maintenance location in Boardman with partnership between Morrow County and CTUIR would serve the area well. This partnership could also include the ports, cities, or other partners that would benefit from these facilities.

Capital Acquisitions Plan

This section provides the detailed capital acquisitions breakdown for the first 3 years of operation.

Bus Stop and Access Improvements

This section summaries the timing for stop and pedestrian and bicycle recommendations. Table 25 summarizes the other recommended stop improvements by year and improvement type, in addition to signage at all stops. Table 26 summarizes stop-by-stop improvements for pedestrian and bicycle access, consistent in priority with Table 25 recommendations. Stops were prioritized based on anticipated ridership, with at least one stop prioritized in each community. In the case of 3rd/Orchard, the

improvements are anticipated to occur when the stop is relocated and a new major stop is identified in Hermiston. Overall, these stops represent general locations and can shift based on service needs and discussions with nearby property and business owners.

Table 25. Improvement Timeline within 3 Years

Stop	Benches	Shelters	Trash Cans	Bike Racks	Restrooms
SW 3rd Street/W Orchard Ave	Ex	Ex	Ex	3	3
Walmart	1	1	Ex	1	-
Lamb Weston (Westland Road)	2	-	-	-	-
McNary Market	2	Ex	Ex	2	-
Recycling Depot	1	1	Ex	1	-
6th Street/B Street	1	1	Ex	1	-
6th Street/Yrexa Avenue	3	-	-	-	-
Highway 730 and First Street	1	1	3	1	-
Employment Stops	2	-	-	-	-
Boardman Ave/Main St	1	1	Ex	1	-
Columbia Ave/2nd St	3	Ex	3	3	-
Boardman Post Office	2	2	Ex	2	-
Main St/Front St	3	3	Ex	3	-
Select Market/DHS	1	1	Ex	1	-
Mt. Hood Ave/Wilson Ln	2	2	3	2	-
Wilson Rd/Anthony Rd	3	-	-	-	-
Tatone St/Wilson Rd	2	-	-	-	-
C&D Drive-In	Ex	Ex	Ex	1	-
Boardman Ave/2nd Ave	2	-	-	-	-

Ex: Existing amenity

Table 26. Pedestrian and Bicycle Infrastructure at Stops

Stop	Year	Recommended Improvements
SW 3rd Street/ W Orchard Ave	3	Provide bicycle facilities, such as bike lanes, along local and arterial roadways.
Walmart	1	None
McNary Market	2	Provide sidewalks and bicycle lanes along Willamette Avenue, extending to connecting roadways such as Walla Walla Street and Lewis Street.
6th Street/ Yrexa Avenue	1	Widen US 730 shoulders for bicycle use and/or provide parallel path. Provide sidewalks along Yrexa Avenue, connecting to nearby residential and commercial properties.
Recycling Depot		
6th Street/ B Street	1	Widen US 730 shoulders for bicycle use and/or provide parallel path. Provide sidewalks along cross streets, connecting to nearby residential and commercial properties, Nugent Park Trails.
Highway 730 and First Street	1	Widen US 730 shoulders for bicycle use and/or provide parallel path to the west, connect to existing bicycle lane off Columbia Lane to the east. Provide sidewalks along US 730.

Stop	Year	Recommended Improvements
SAGE Center	1	Extend sidewalk and bicycle facilities to Columbia Avenue, and provide along Columbia Avenue.
Boardman Ave/ Main St	1	Extend sidewalks along Boardman Avenue, improve bicycle facilities as-needed.
C&D Drive-In		
Boardman Post Office	2	Extend sidewalks along Boardman Avenue and NW 1st Street, improve bicycle facilities as-needed.
Main St/ Front St	3	Extend sidewalks along Front Street.
Select Market/ DHS	1	Extend sidewalks along Kinkade Road, sidewalks and bicycle lanes along Tatone Street.
Mt. Hood Ave/ Wilson Ln	2	Construct sidewalks and crosswalks, starting at the intersection and extending to residential properties.

Transit Centers and Park-and-Rides

Major infrastructure changes, beyond a potential new Hermiston transit center, are not anticipated to occur in the first three years. However, CTUIR and Morrow County can partner with jurisdictions to identify locations for future facilities and begin planning, property acquisition, and partnership agreements. As noted in the *Capital Needs Plan* section, existing parking occupancy near SW 3rd Street/ Orchard Avenue, Walmart, Umatilla City Hall, US 730 and First Street, and SAGE Center can be evaluated for consideration for pick-up/drop-off and all-day parking availability. Morrow County is planning for major transit infrastructure investment projects in the Boardman area. Morrow County will be applying for Section 5339 funding and other sources to fund the construction of the facility.

Vehicle Fleet

The *Capital Needs Plan* section identified that batch vehicle replacement is likely not needed in the first 3 years of service for both the Hermiston – Boardman Connector and Boardman – Port of Morrow Circular. However, the agencies should still plan to save funds for local match for vehicle replacement near year 4. Similar to transit centers and park-and-rides, new vehicle maintenance and storage facilities are not anticipated in the first 3 years, but partnerships to use existing facilities could be established.

Capital Financial Plan

This section provides cost estimates for smaller bus stop improvements and identifies funding sources for all improvements identified in this memorandum. The costs for larger improvements, such as transit centers and storage and maintenance facilities, can vary depending on land needs, existing utilities, and desired facility size, and thus were not estimated. Pedestrian and bicycle improvements would typically be completed by local jurisdictions; these were prioritized, but costs are not quantified in this report.

Cost Estimates

Table 27 shows itemized bus stop improvement costs, the number of units recommended in the short-term (less than 3 years) and the number of units recommended in the long-term (beyond 3 years), as identified in the *Bus Stop Amenities* section. As shown, costs are estimated to be near $120,000 in the short term and $125,500 in the long term. These costs are for initial installation and do not include maintenance and replacement. Costs include materials and installation estimates. Cost savings can be found by coordinating the installation of these improvements alongside other public works projects, such as sidewalk repairs.

Table 27. Bus Stop Improvement Costs

Hermiston – Boardman Connector	Unit Cost	Short-Term Units	Short-Term Cost	Long-Term Units	Long-Term Cost
Signage	$750	14	$10,500	0	$0
Bench	$1,000	8	$8,000	3	$3,000
Shelter	$7,500	4	$30,000	7	$52,500
Trash Can	$750	1	$750	6	$4,500
Bike Racks (at Stops)	$1,000	6	$6,000	7	$7,000
		Total	$55,250	Total	$67,000
Boardman – Port of Morrow Circular	**Unit Cost**	**Short-Term Units**	**Short-Term Cost**	**Long-Term Units**	**Long-Term Cost**
Signage	$750	13	$9,750	0	$0
Bench	$1,000	9	$9,000	3	$3,000
Shelter	$7,500	5	$37,500	6	$45,000
Trash Can	$750	2	$1,500	6	$4,500
Bike Racks (at Stops)	$1,000	7	$7,000	6	$6,000
		Total	$64,750	Total	$58,500

Table 28 shows itemized bus stop improvement costs for the first 3 years of service. As shown, costs are highest in the first year in order to establish attractive and comfortable bus stops. These costs are for initial installation and do not include maintenance and replacement. Costs include materials and installation estimates. Cost savings can be found by coordinating the installation of these improvements alongside other public works projects, such as sidewalk repairs.

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Table 28. Bus Stop Improvement Costs – First 3 Years

Hermiston – Boardman Connector	Unit Cost	Year 1 Units	Year 1 Cost	Year 2 Units	Year 2 Cost	Year 3 Units	Year 3 Cost
Signage	$750	27	$12,750	0	$0	0	$0
Bench	$1,000	4	$4,000	3	$3,000	1	$1,000
Shelter	$7,500	4	$30,000	0	$0	0	$0
Trash Can	$750	0	$0	0	$0	1	$750
Bike Racks (at Stops)	$1,000	4	$4,000	1	$1,000	1	$1,000
		Total	$50,750	-	$4,000	-	$2,750
Boardman – Port of Morrow Circular	**Unit Cost**	**Year 1 Units**	**Year 1 Cost**	**Year 2 Units**	**Year 2 Cost**	**Year 3 Units**	**Year 3 Cost**
Signage	$750	10	$7,500	0	$0	0	$0
Bench	$1,000	2	$2,000	4	$4,000	3	$3,000
Shelter	$7,500	2	$15,000	2	$15,000	1	$7,500
Trash Can	$750	0	$0	0	$0	2	$1,500
Bike Racks (at Stops)	$1,000	3	$3,000	2	$2,000	2	$2,000
		Total	$27,500	-	$21,000	-	$14,000

Potential Funding Sources

As described in the *Financial Plan* section, several federal, state, and local funding sources are available for capital improvements. Table 29 summarizes which funding sources are applicable to which improvements.

Table 29. Funding Eligibility for Improvements

Item	5310	5311	5339	STBG	STF/ STIF	STP	Statewide Transit Network	Local Jurisdictions/ Partnerships	Public-Private Partnerships
Signage	X	X	X	X	X			X	X
Bench	X	X	X	X	X			X	X
Shelter	X	X	X	X	X			X	X
Trash Can		X		X	X			X	X
Bike Racks (at Stops)		X		X	X			X	X
Transit Centers		X	X	X	X		X	X	X
Pedestrian Facilities	X	X		X	X			X	X
Bicycle Facilities		X		X	X			X	X
Park-and-Ride Lots		X		X	X		X	X	X
Fleet Replacement		X	X		X	X			
Vehicle Maintenance and Storage		X	X		X		X	X	X

Columbia Avenue South Side Pedestrian Path

6. NEXT STEPS AND REFERENCES

NEXT STEPS AND REFERENCES

This Report was reviewed with the Project Management Team, revised, and presented to the Stakeholder Group for feedback. Their feedback informed this Final Report, which will guide the process to establish and monitor service. Immediate implementation steps for service include:

- **Pursue** funding through the identified funding sources or others that arise to support operating and capital costs.
- **Coordinate** with local jurisdictions, businesses, and property owners to establish stops and seek bus stop and access improvements.
- **Develop** marketing and advertising materials in conjunction with partners.
- **Improve** local coordination, potentially through dedicated staff at transit agencies and/or designated liaisons at the local agencies.
- **Plan** for property acquisitions and/or capital improvement of existing properties for regional facilities such as transit centers, park-and-rides, and vehicle maintenance and storage facilities as described in this Report.
- **Refine** the transit schedules through ground-truthing prior to implementation.
- **Monitor** system performance and demand over time and consider adjustments to service.

Content developed in this report was based on the following interim deliverables:

- Reference A – Strategic Plan
- Reference B – Detailed Route Schedules
- Reference C – Operating Budget and Funding Opportunities
- Reference D – Management Plan
- Reference E – Capital Needs Plan
- Reference F – Capital Acquisitions Plan

Appendix A. Employee Data

Table 30. Employer Shift Times

Employer	Shift Start	Shift End	Days of Week	Number of Employees	Comments
ALTO Columbia (Pacific Ethanol)	6-7 AM	6-7 PM	All Days	30-35	This site runs 24/7
Lamb Weston	7:00 AM	7:00 PM			East and West Plants
	7:00 PM	7:00 AM			
	5:45 AM	4:00 PM			Lamb Weston Center Packaging
	3:45 PM	2:00 AM			
	6:00 AM	6:00 PM			
	7:45 PM	6:00 AM			
	6:30 AM	4:30 PM			Lamb Weston Center Warehouse
	3:00 PM	1:30 AM			
	11:00 PM	9:30 AM			
Port of Morrow Warehousing	5:00 AM	3:30 PM			
	7:00 AM	5:30 PM			
	2:00 PM	12:30 AM			
	3:00 PM	1:30 AM			
	9:00 PM	7:30 AM			
	10:00 PM	8:30 AM			
Oregon Potato	8:00 AM	4:00 PM	All Days	160-185	Most employees in day shift, least in grave shift.
	4:00 PM	12:00 AM			
	12:00 AM	8:00 AM			
Threemile Canyon Farm	4:00 AM	4:00 PM	All Days	350	Dairy Farm
	5:00 AM	4:00 PM		250	Calf Farm
	7:00 AM	5:00 PM		600	Other Farm – Winter
	5:00 AM	7:00 PM			Other Farm – Other Seasons
Tillamook – Columbia River Processing	5:00 AM	5:30 PM	All Days	25-75	
	5:30 AM	6:00 PM			
	6:00 AM	6:00 PM		10-20	
	5:00 PM	5:30 AM		25-75	
	5:30 PM	5:00 AM			
	6:00 PM	6:00 AM		10-20	

Table 31. Employer Home Locations

Zip Code	General Location	Boardman Foods	Threemile Canyon Farms
35244		1	
90277		1	
97006		1	
97035		1	
97301		1	
97741		1	
97756		1	
97801	Pendleton	1	5
97818	Boardman	132	300
97836	Heppner	2	3
97838	Hermiston	48	150
97843		1	
97844	Irrigon	27	50
97875	Stanfield	5	20
97882	Umatilla, McNary	20	75
98944		1	
99301		1	
99336	Kennewick	2	10
99337	Kennewick, Finley	2	
99352		1	
Totals		250	Approx. 600

Appendix B. Limited Funding Alternative

The following section provides information about a reduced-funding Early AM Route and Regular Route.

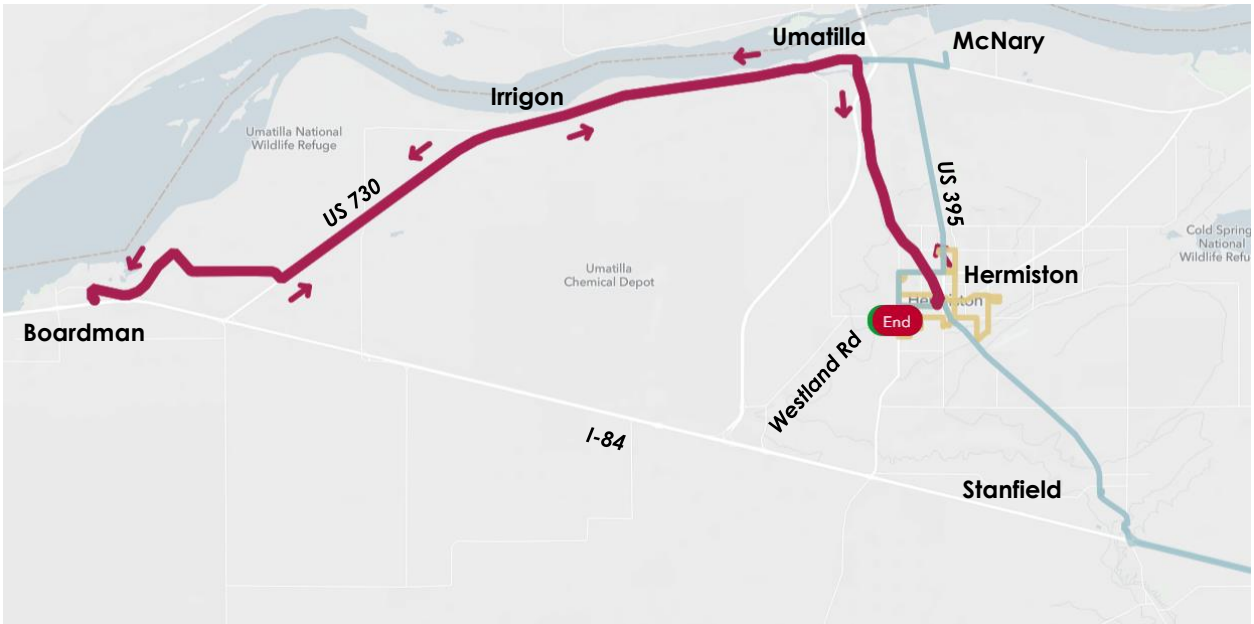
Hermiston-Boardman Connector Limited Early AM Route

If service is provided early in the morning, ridership is expected to be driven by Port of Morrow employees. Therefore, Early AM Routes skips KIE Supply/NW Farm Supply, Walmart, McNary Market, and Umatilla-Stanfield Highway, instead using Umatilla River Road between Hermiston and Umatilla. As indicated later in this report, the Hopper route would stay the same in the AM, providing service to McNary.

Based on the employment data provided, some of the first employer shifts at the Port of Morrow start at 5:00 AM. This route would start at 4:00 AM and connect to the Boardman–Port of Morrow Circular at the SAGE Center at 4:40 AM, allowing riders to get off at the employment stops or transfer to the Circular in time for a 5:00 AM shift. The early route has a 90-minute headway, arriving at the SAGE Center at 4:40 AM, 6:10 AM, and 7:40 AM. Some of these times do not provide a perfectly-timed arrival to Port shifts, but coordination with employers may lead to changes in shift times to align with Connector timing. The Limited Early AM Route is shown in Figure 22 and its schedule is shown in Table 32. Estimated travel times for this route are:

- Runtime – 80 minutes
- Recovery/Layover Buffer – 10 minutes
- Total Trip Time – 90 minutes

Figure 22. Hermiston–Boardman Connector Route Limited Early AM Route



Hermiston-Boardman Connector Limited Route

The Regular Route is designed to operate between 8:30 AM, after the Early AM Route until the end of the service day around 8:15 PM. This route travels from Hermiston to McNary and Umatilla via US 395 and continues on to Irrigon and Boardman via US 730. The regular route would operate at 2-hour headways and would arrive at the SAGE Center at 9:22 AM, 11:22 AM, 1:22 PM, 3:22 PM, 5:22 PM and 7:22 PM. The Limited Regular Route is shown in Figure 23 and its schedule is shown in Table 32. Estimated travel times for this route are:

- Runtime – 105 minutes
- Recovery/Layover Buffer – 15 minutes
- Total Trip Time – 120 minutes

Figure 23. Hermiston-Boardman Connector Limited Regular Route

Table 32 shows the near-term route schedule for weekday and Saturday service on the Limited Early AM and Regular Routes. As shown in the table, if funding is limited, the 5:30 AM to 6:15 PM service is higher priority, as it would capture both sides of many employers' shifts and it allows connections to other transit services. If more funding is available, one earlier and later trip could be added to the schedule to provide more shift coverage.

Table 32. Hermiston–Boardman Connector Limited Schedule

Stop		Early AM Route	Regular Route							
Priority		*+1.5 hr*	*Higher Priority Runs – 13 Service Hours*							*+2.5 hr*
Hermiston	**SW 3rd St. / W Orchard Ave.**	4:00	5:30	7:00	8:30	10:30	**12:30**	**2:30**	**4:30**	**6:30**
	Walmart	–	–	–	8:40	10:40	**12:40**	**2:40**	**4:40**	**6:40**
N/A	**Northwest Farm Supply**	–	–	–	8:44	10:44	**12:44**	**2:44**	**4:44**	**6:44**
N/A	**McNary Market**	–	–	–	8:51	10:51	**12:51**	**2:51**	**4:51**	**6:51**
Umatilla	**Post Office**	–	–	–	8:55	10:55	**12:55**	**2:55**	**4:55**	**6:55**
	Recycling Depot	–	–	–	8:56	10:56	**12:56**	**2:56**	**4:56**	**6:56**
	6th Street/B Street	4:14	5:44	7:14	8:57	10:57	**12:57**	**2:57**	**4:57**	**6:57**
Irrigon	**US 730 / First Street**	4:22	5:52	7:22	9:06	11:06	**1:06**	**3:06**	**5:06**	**7:06**
N/A	**Cascade Specialties**	4:34	6:04	7:34	9:17	11:17	**1:17**	**3:17**	**5:17**	**7:17**
Boardman	**Lamb Weston West or Boardman Foods**	4:37	6:08	7:38	9:20	11:20	**1:20**	**3:20**	**5:20**	**7:20**
	SAGE Center (arrive)	4:40	6:10	7:40	9:22	11:22	**1:22**	**3:22**	**5:22**	**7:22**
	SAGE Center (depart)	4:42	6:12	7:42	9:25	11:25	**1:25**	**3:25**	**5:25**	**7:25**
	Columbia River Processing	4:45	6:15	7:45	9:28	11:28	**1:28**	**3:28**	**5:28**	**7:28**
N/A	**Port of Morrow Warehouse**	4:48	6:18	7:48	9:31	11:31	**1:31**	**3:31**	**5:31**	**7:31**
Irrigon	**US 730 / First Street**	5:00	6:30	8:00	9:43	11:43	**1:43**	**3:43**	**5:43**	**7:43**
Umatilla	**City Hall Village Square**	5:09	6:39	8:09	9:52	11:52	**1:52**	**3:52**	**5:52**	**7:52**
	6th Street/Yrexa Avenue	5:10	6:40	8:10	9:53	11:53	**1:53**	**3:53**	**5:53**	**7:53**
N/A	**McNary Market**	–	–	–	9:57	11:57	**1:57**	**3:57**	**5:57**	**7:57**
N/A	**KIE Supply Corporation**	–	–	–	10:04	**12:04**	**2:04**	**4:04**	**6:04**	**8:04**
Hermiston	**Walmart**	–	–	–	10:08	**12:08**	**2:08**	**4:08**	**6:08**	**8:08**
	SW 3rd St./ W Orchard Ave.	5:22	6:52	8:22	10:18	**12:18**	**2:18**	**4:18**	**6:18**	**8:18**

Bold times indicate PM.

Appendix C. Transportation Options

As part of Umatilla County Coordinated Human Service Plan, the following strategy was identified to promote transportation options in the region:

Table 33. Transportation Options Strategy

Development of rideshare, carpool, and vanpool or workforce on-demand ride cooperative programs			
Target Need			
Due to the geographically size of Morrow and Umatilla Counties, resident workers must travel a substantial distance to reach employment/industry clusters located in Hermiston, Pendleton and the Port of Morrow. In addition, there are industry clusters in isolated locations outside the core industry area at the Port of Morrow. There may be a variety of situations where a fixed route bus is probably not the best way to serve residents workers due to irregular shifts, overtime requirements or family situations. When industry employers identify transportation issues or need from their workers, they can pick a transit option program. A manual with rules and restrictions on utilizing and maintaining the service may need to be developed. The program could provide a sustainable, reliable and cost-effective form of transportation to resident workers throughout the two counties.			
Rideshare, carpool and vanpool program	***WORC Program***		
Rideshare, carpool and vanpool programs can help ease transit need to Morrow or Umatilla Counties resident workers by working directly with employers to develop the program. A rideshare, carpool and vanpool program can be arranged by the employers to serve resident workers. The program would be arranged between the employer and employees and the rider costs paid through payroll deductions to off-set the cost of the service. Suggest development of manual with rules and restrictions on utilizing the service. Operating hours and service areas may be defined and not serve all shifts.	Workforce On-Demand Ride Cooperative (WORC) program is a transit option to help ease transit needs to Morrow or Umatilla Counties resident workers. The WORC program would be developed as a company program to serve resident workers. The service can be operated by a local taxi company or a hired transportation company. The program would be arranged between the employer and employees and the rider costs paid through payroll deductions to off-set the cost of the service. Suggest development of manual with rules and restrictions on utilizing the service. Operating hours and service areas may be defined and not serve all shifts.		
Suggested Strategy			
1. When industry leaders identify a transit need for resident workers and seek to launch a program to assist with transportation to/from workers home. 2. Develop a transit option program that works in collaboration with employees identifying shifts schedules, costs for the program (capital purchases and maintenance) and cost allocations between the employers/employees. 3. Startup assistance may be needed through county transit funding. 4. Monitor process and repeat throughout the county as needed.			
Responsible Party	***Timeframe***	***Level of Effort***	***Cost***
Morrow or Umatilla Counties Public Transit	1-3 years or on-going	Medium	$