

## TECHNICAL MEMORANDUM #4: UNMET TRANSIT NEEDS

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**Project:** UPTD Transit Master Plan

**Subject:** Unmet Transit Needs Update (Subtask 4.7)

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### INTRODUCTION

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This memorandum identifies existing and future transit needs based on Task 1 outreach efforts and a gap analysis based on UPTD goals and benchmarks from Memos #2 and #3. This memorandum also identifies the recommended service models that could address these needs. Particular emphasis is placed on connecting incorporated cities.

### TRANSIT NEEDS AND MARKETS

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Potential needs were identified primarily through considerations of gaps identified in the population and land use conditions, previous planning processes, the existing service analysis conducted as part of *Memo #1: Existing System Conditions*, and gaps identified through public involvement and outreach. Potential needs have been grouped by transit markets and service enhancements and efficiencies.

## Transit Markets

The transit markets identified for Douglas County consist of the following:

- **Existing transit users within Roseburg:** Existing riders, nonriders, and drivers all noted a desire for more service within Roseburg. Several key activity centers were identified that are not served by current routes. UPTD is in the process of reconfiguring Roseburg routes and providing service to these key activity centers. The need for additional or modified service within Roseburg should be monitored.
- **Additional or modified service in Riddle and Sutherlin:** The analysis identified that ridership within Riddle and Sutherlin was relatively low compared to the expected travel demand. Additional and/or modified service within these communities could help increase ridership.
- **Tourism and recreation:** Several survey respondents and Board members identified the potential for tourism or recreation-oriented transit services. Ideas included service to the coast (currently, service to Reedsport is only provided to Coos Bay and Florence by Coos County Area Transit [CCAT]), the Eugene Airport, and Umpqua National Forest. Services to these destinations would also serve residents and employees, and not just tourists.
- **Growing populations inside Urban Growth Boundaries (UGBs) and large cities:** Most growth in Douglas County is expected to occur inside UGBs and in the larger cities in Douglas County; therefore, the market for intracity and intercity travel is likely to increase.
- **Transit-dependent populations in rural areas:** High proportions of potential transit-dependent populations live in rural areas; many of these rural areas do not have access to fixed-route transit. The rural nature (e.g., low-density land use, limited roadway connections) makes these populations hard to serve efficiently with transit services.

## Service Enhancements and Efficiencies

The following improvements were identified as needs not specific to geographic or demographic transit markets. These improvements could help improve existing rider experience, draw new ridership, and improve efficiencies of partnerships and UPTD's operations.

- **Increase service frequency, extend service hours, and provide weekend service:** The highest-priority improvements for survey respondents were increased frequency, extended service hours, and weekend service. Non-riders stated that they do not use transit services due to service coverage and frequency. Increased frequency could be phased in over time, providing higher frequency during peak travel demand periods first.
- **Improved education, marketing, and partnerships:** Compared to several of its peers, UPTD provides fewer rides per hour and rides per mile. Lower efficiency may be an outcome of the geographic and demographic layout of the community, but looking toward other transit providers can help to highlight marketing opportunities. For example, both Lincoln County Transit Service District (LCTSD) and Sunset Empire Transportation District (SETD) are part of the NWOTA transit alliance, marketing services and coordinating with adjacent providers to increase awareness and ridership. Improved partnership with South Lane Wheels, CCAT, and other providers may help to boost all providers' services. Improved website service showing adjacent provider connections, routes, and service times may help to boost transit ridership.
- **Update vehicle fleet:** UPTD's fueling costs have been increasing substantially with the change in fuel prices. Cleaner fuel sources, such as electrification, could be considered for future vehicle purchases and facilities. The upfront higher cost may be worth lower and more stable fuel costs. Clean fuels are also a goal of the City of Roseburg, a major partner for UPTD. In addition to fueling, many of UPTD's vehicles are in poor condition or near the end of their expected useful life (EUL) and in need of replacement.

- **Improved travel times:** Providing transit services competitive with driving a personal vehicle is a goal for UPTD. Seeking ways to improve travel times, such as bus-on-shoulder operations, signal improvements prioritizing transit vehicles, or route optimization may help reduce travel times on transit. Improved travel times is especially important during peak periods to enhance transit as a competitive alternative to driving.
- **Bus stop amenities and access:** Individual bus stops could be improved with amenities, sidewalk access, bike facility access, park-and-ride access, and more. Specific improvements identified through outreach include shelters, updated information boards, and benches.
- **Update tools and technology:** Tools that respondents felt would increase the convenience of their trips include more fare payment options, mobile trip-planning tools, real-time vehicle arrival information, and more bicycle racks. Difficulty planning trips was cited in non-riders' responses as a barrier to using transit service.

## TRANSIT CORRIDORS

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This section identifies appropriate service models to meet identified area and corridor needs based on the existing and future land use, demographic composition, travel demand, findings from other planning processes, and public involvement.

### Service Types and Characteristics

Public transportation service is generally designed with several factors in mind. These include:

- The characteristics and travel needs of potential riders (e.g., key origins and destinations within the service area);
- The trade-offs the community is willing to make in providing service (e.g., balancing geographic coverage and frequency); and
- The surrounding land use context and intensity of development (e.g., population and employment densities).

The service model may focus on one or several types of services, including:

- **Local fixed-route services:** These services tend to be the most visible and are increasingly cost-efficient as ridership increases. Local service provides connections within communities, generally with relatively closely spaced stops. Local service is suitable in areas with higher population and/or employment densities. The Americans with Disabilities Act (ADA) requires complementary paratransit service within  $\frac{3}{4}$  mile of the fixed route during the hours that fixed-route service operates, which entails extra costs.
- **Deviated fixed-route services:** These services combine elements of fixed-route and demand-response service (e.g., a route serves specific stops at specific times) but is allowed to deviate from the route to pick up and drop off passengers. Some small-city systems with relatively low ridership use flexible routes to eliminate the need for ADA paratransit service (as the ability to deviate serves some needs of people with limited mobility), with the trade-off that additional time must be provided in the schedule to accommodate these deviations. UPTD does not currently provide deviated fixed-route services. Deviation areas can be defined and are not required to extend  $\frac{3}{4}$  mile from the route.
- **Demand-response services:** These services do not follow fixed routes or serve fixed stops and therefore can provide curb-to-curb service between origins and destinations. Passengers request rides (often over the phone or via a smartphone app), and the provider optimizes vehicle routing to serve passengers most efficiently. Transit accessibility is maximized, but per-trip costs can be

significantly higher than other service types, as there are typically only one or two people traveling between any given origin and destination. Non-ADA passengers may not be able to travel at their desired time in order to better match trips. UPTD currently provides demand-response services throughout Douglas County.

- **Shuttles:** This service is designed to serve regular trips to key local or regional activity centers such as commercial districts, grocery stores, or medical facilities. These routes may be the only regular or fixed-route service available within the area or times that they operate. Service models for shuttles are typically deviated fixed-route or demand-responsive. UPTD does not currently provide shuttle services.
- **Vanpools:** Vanpools can be considered public transportation services. Vanpools are well-suited to commute trips between clustered residences and job locations, and vanpool fares can cover much of the expense of operating the program. UPTD does not currently facilitate vanpool services.
- **Rural intercity or commuter service:** This longer-distance fixed-route service typically connects cities, serving relatively few major stops at key activity or employment centers and connecting to local service with each city. Intercity frequency is based on market size and can be scaled to meet demand; some may operate every day, while others are “Lifeline” routes that operate once a week. They are not required to provide ADA paratransit service, which lowers the overall cost of providing service. UPTD currently provides several rural intercity and commuter services.
- **Express service:** This service typically is similar to rural intercity or commuter service in that it is a longer-distance fixed route service that connects two destinations. In addition, this service will only stop at the two major destinations on the route, skipping locations that may fall in between. This service may include intra-city routes with limited stops; for example, serving stops every mile as compared to non-express services serving every ¼ mile. This service type is most appropriate where there is considerable demand or commute patterns between two fixed locations. UPTD does not currently provide express services.

### Microtransit

Microtransit is an increasingly popular service option for rural areas. It is typically run using a smaller vehicle, but can operate as fixed-route, deviated fixed-route, or demand-response, providing flexibility and accessibility.

Each of these service types requires coordination with other transit providers, counties, cities, ODOT, and/or other organizations. For example, new transit services desirably would develop and provide their route information to adjacent providers and to trip planning applications such as Google Transit. New services also need to use stops – existing transit centers, new stops, or improved existing stops -- that would then have more activity. Lastly, services need to consider the likely transfers to adjacent providers.

Table 1 shows estimates for the typical coverage area, route flexibility, vehicle size/capital cost, operating cost per hour, and rides per hour for the service types listed above. Generally, services using smaller vehicles or covering smaller geographic areas tend to be lower cost per hour. Those covering longer-distance or more fixed-route trips tend to have higher cost and more rides per hour than those serving more local, curb-to-curb needs.

*Appendix A includes UPTD costs per mode of service for the 2020-21 fiscal year. Other costs per hour were estimated based on the experience of similar providers. Rides per hour includes the potential effectiveness compared to Oregon systems, and may or may not be the rides per hour currently achieved by UPTD.*

**Table 1. Service Type Specifications**

Services	Typical Coverage Area		Flexibility			Vehicle Size and Capital Cost		Typical Operating Cost per Hour	Rides per Hour
	Regional	Local	Fixed-Route	Deviated Fixed-Route	Demand-Response	Lower	Higher		
<b>Fixed-Route</b>	X	X	X				X	\$101/hour	8–10
<b>Deviated Fixed-Route</b>		X		X			X	\$98/hour	6–8
<b>Demand-Response</b>		X			X	X		\$96/hour	2–4
<b>Shuttles</b>		X	X	X	X	X		\$96/hour	4–6
<b>Vanpools</b>	X		X	X	X	X		\$96/hour	4–6
<b>Rural Intercity Service</b>	X		X	X		X	X	\$108/hour	6–8
<b>Express Service</b>	X	X	X			X	X	\$119/hour	6–8

Different service types are appropriate based on existing land use. Table 2 summarizes appropriate transit service types by land use type and density, including typical service models and service frequencies. Based on existing land uses, the majority of Douglas County can be considered “Low Density,” except Roseburg, which is best described as “Mixed Neighborhoods.” Douglas County does not currently have “urban mixed-use” or “neighborhood & suburban mixed-use” densities, although parts of Roseburg could develop these higher densities in the future.

**Table 2. Local Transit Service Design Guidance Summary**

Land Use			Transit	
Land Use Type	Households per Acre	Jobs per Acre	Appropriate Types of Transit	Frequency of Service
<b>Urban Mixed-Use</b>	15+	15+	Bus Rapid Transit Rapid Bus Local Bus	10–15 minutes (64+ trips per day)
<b>Neighborhood &amp; Suburban Mixed-Use</b>	6–15	10–15	Local Bus	15–30 minutes (32+ trips per day)
<b>Mixed Neighborhoods</b>	4–6	5–10	Local Bus On-Demand	30–60 minutes or on-demand (16+ trips per day)
<b>Low Density</b>	1–4	2–5	On-Demand Rideshare	60+ minutes or on-demand (<16 trips per day)

Source: Synthesis of industry standards, including TCRP Report 165: Transit Capacity and Quality of Service Manual, adapted to local context.

### Recommended Service Models

From the above service types and design guidance, Table 3 summarizes existing and potential future service types to address transit market needs.

**Table 3. Service Types to Address Transit Market Needs**

Transit Market	Local Fixed-Route	Shuttle/Deviated Fixed-Route	Intercity/Express	Vanpool	Demand-Response
<b>Existing transit users within Roseburg</b>	Existing	Potential	Existing	Potential	Existing
	Consider adding stop locations, increasing frequency, and expanding service hours within Roseburg. The Roseburg area is on the brink of becoming a Metropolitan Planning Organization (MPO) and large employers would be required to develop travel demand management programs, promoting the potential for vanpool.				
<b>Additional or modified service in Riddle and Sutherlin</b>	Potential	Potential	Existing	Potential	Existing
	Existing routes could be modified and/or new routes could be added to serve additional areas within Riddle and Sutherlin. Expanded service hours or changes to frequency may also address the transit gap. Should these communities be in a future MPO, vanpools may have higher potential for implementation and success.				
<b>Tourism and recreation</b>	—	—	Potential	Potential	Existing
	New services to tourism and recreation areas, such as east–west connections to the coast or Umpqua National Forest, would provide service to visitors, residents, and employees in Douglas County.				
<b>Growing populations inside UGBs</b>	Potential	Potential	Existing	Potential	Existing
	In addition to UPTD's services, partnering with CCAT, South Lane Wheels, and other agencies to expand intracity and intercity services and encouraging use of vanpools can help serve growing populations in Douglas County cities.				
<b>Transit-dependent populations in rural areas</b>	Potential	Potential	Existing	—	Existing
	Expanding intercity rural transit and demand-response services or providing new shuttle services can help to address the needs of transit-dependent populations in rural Douglas County.				

## CONCLUSION AND NEXT STEPS

This memorandum was reviewed with the Project Management Team (PMT) and with the Technical Advisory Committee (TAC). The revised memorandum will be used to inform the Transit Master Plan by establishing unmet needs.

## APPENDICES

- A. Appendix A: Cost Allocation

Appendix A.  
Cost per Mode of Service

## APPENDIX A: COST ALLOCATION

Table 4 shows the UPTD cost per mode of service for the 2020-2021 fiscal year broken down by cost per mile and cost per service hour. Table 5 shows total cost per service hour for each mode of service. As shown, UPTD existing transit service costs per service hours are similar across service types, this can be attributed to similar hours and miles across service types.

**Table 4. UPTD Cost per Mode of Service for 20-21 Fiscal Year**

	Cost per Mile	Miles Traveled	Cost per Hour	Revenue Service Hours	Mile + Hours Cost	Rides	Cost Per Ride
<b>Roseburg Fixed Route - Per Mile</b>	\$0.76	127,514			\$96,273.07	33,398	\$23.29
<b>Hours Related Expense</b>			\$88.20	7,728.5	\$681,653.70		
<b>Roseburg Route Total Cost</b>					\$777,926.77		
<b>Winston, Sutherlin South County Commuters</b>	\$0.76	196,629			\$148,454.90	15,860	\$50.75
<b>Hours Related Expense</b>			\$88.20	7,443	\$656,428.50		
<b>Commuter Route Total Cost</b>					\$804,883.40		
<b>ParaTransit &amp; UPTD Provided Demand Response</b>	\$0.76	50,215			\$37,912.33	6,017	\$75.74
<b>Hours Related Expense</b>			\$88.20	4,737	\$417,803.40		
<b>ParaTransit Total Cost</b>					\$455,715.73		

Source: UPTD

**Table 5. Cost Per Service Hour**

Service	Cost/Service Hour
Local Fixed-Route/Bus	\$100.66
Rural Intercity Service	\$108.15
Demand-Response	\$96.20