



Image: Doug Kerr

Yamhill County Transit Area Transit Development Plan

Memo #3: Planning Framework – DRAFT

September 2017



**Yamhill County
Transit Area**



Table of Contents

	Page
1 Introduction	1-1
2 Planning Framework	2-1
3 Potential Transit Service Areas	3-1
Public Transportation and Land Use Guidelines	3-1
Additional Transit Market Factors.....	3-3
Existing Access to Transit in Yamhill County.....	3-4
Population and Employment Forecasts.....	3-5
Population	3-5
Employment.....	3-7
Existing and Planned Land Use	3-9
Summary of Existing Residential Zoning	3-9
Existing Land Use by City	3-10
Proposed Development	3-12
Public School Facilities	3-15
Travel Demand	3-15
Recommended Transit Service Areas	3-16
4 Transit Costs and Future Funding Scenarios	4-1
Transit Unit Cost Assumptions.....	4-1
Future Funding Scenarios	4-2
Funding Trend Assumptions	4-2
Operating Funding	4-3
Capital Funding.....	4-4
Potential for Additional Revenue Sources	4-5
Funding Scenarios and Service Options.....	4-6
5 Summary of Key Findings and Next Steps	5-1
Summary of Key Findings.....	5-1
Next Steps.....	5-2

Appendices

Appendix A: Future Employment Forecast Methodology

Appendix B: Public Transportation Funding Sources

Appendix C: Conceptual Service Costing Details

Table of Figures

	Page
Figure 2-1	Service Opportunity Planning Framework 2-1
Figure 2-2	Proposed Planning Framework Measures (Adapted from TM #1)..... 2-3
Figure 3-1	Density and Level of Transit Service Supported..... 3-2
Figure 3-2	Population and Jobs within ¼-Mile Distance of Transit Routes and/or Stops, 2010 and 2014 3-4
Figure 3-3	Future Population Forecasts (within Urban Growth Boundaries), 2017-2035..... 3-6
Figure 3-4	Future Employment Forecasts, 2014-2035 3-8
Figure 3-5	Residential Land Use Types by City 3-9
Figure 3-6	Planned Developments and Future Growth Areas (Based on Stakeholder and PAC Input)..... 3-12
Figure 3-7	Yamhill County Current Land Use (Zoning)..... 3-13
Figure 3-8	Planned Developments..... 3-14
Figure 3-9	Potential Service Areas Summary..... 3-17
Figure 3-10	Existing Transit Service and Potential Areas for Additional Service 3-19
Figure 4-1	Transit Service Unit Cost Assumptions..... 4-1
Figure 4-2	Estimated Future Funding Projection: Current Trends including STIF, 2018- 2035 4-3
Figure 4-3	Capital Funding Needs 4-4
Figure 4-4	Conceptual Transit Enhancement Options and Costs..... 4-7
Figure 4-5	Conceptual Transit Improvement Options and Costs By Service Area 4-7

1 INTRODUCTION

Technical Memorandum #3 (TM #3) describes the results of several tasks of the Yamhill County Transit Development Plan (TDP) project. The following bullets identify the tasks summarized in this memo and explain how each element relates to other parts of the TDP:

Planning Framework (Task 5) presents the framework that will be used to evaluate the proposed service alternatives (in Tasks 6 and 7) and that YCTA will use to monitor ongoing performance. The framework builds from the goals and objectives presented in Technical Memorandum 1 (TM#1).

Potential Service Areas (Task 3) identifies transit service areas—served today or not—and the methodology used to identify them. The analysis considers future population and employment forecasts, existing and planned land use including areas where major development is currently occurring.

Transit Costs and Future Funding (Task 4) summarizes methods used to quantify order-of-magnitude costs for analysis of solution strategies and packaging of transit service alternatives. It identifies proposed future funding scenarios and the costs for conceptual improvements within the transit service areas. The conceptual analysis is intended to illustrate the relationship between the level of transit funding and the costs of implementing a variety of potential service enhancements.

2 PLANNING FRAMEWORK

This section builds on the TDP framework of YCTA goals, objectives, and performance measures and standards introduced in TM #1. The YCTA goals and objectives are the basis of the TDP planning framework. The performance measures have three primary functions that inform YCTA's decision-making process through planning and ongoing implementation of the TDP:

Assess and describe existing conditions. The performance measures are used to evaluate existing public transportation services and conditions. The existing conditions measures provide a baseline or benchmark to which YCTA will evaluate service opportunities and regularly monitor the transit system.

Evaluate service opportunities. The performance measures facilitate screening future service opportunities in the Transit Development Plan against agency goals to help the Project Advisory Committee (PAC) and the public understand how different service strategies perform and shape the preferred vision for transit in Yamhill County that will be established through the TDP.

Establish performance monitoring program. Existing conditions analysis, peer analysis, industry standards, and the recommended TDP service design and supporting programs will be used to set performance measure benchmarks that YCTA will use to regularly assess system and route-level performance and progress towards TDP implementation.

As illustrated in Figure 2-1, a key focus of the Planning Framework provided below is on guiding the evaluation of service opportunities in Tasks 6 and 7 of the TDP.

Figure 2-1 Service Opportunity Planning Framework

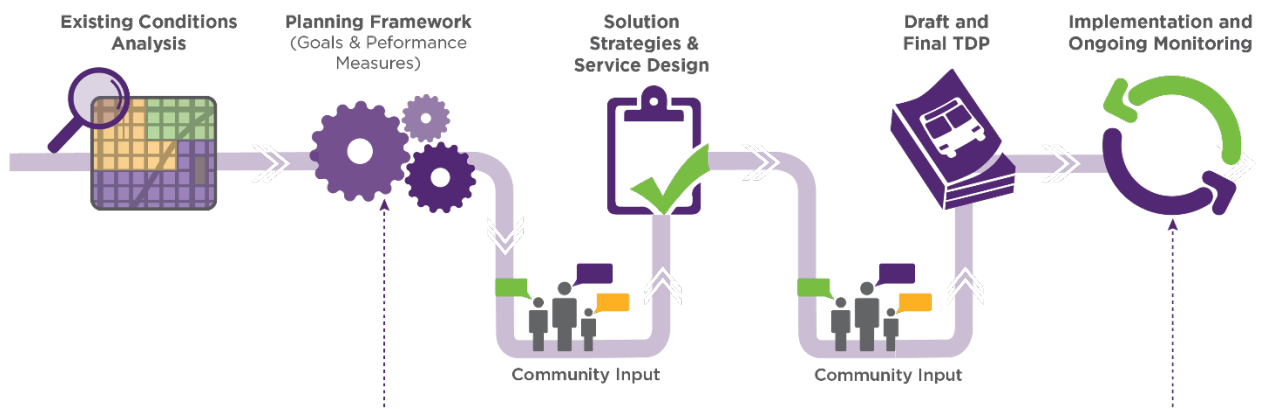


Figure 2-2 presents the proposed TDP Planning Framework and identifies how the goals, objectives, and performance measures will be used to evaluate service opportunities at each stage of the planning process, and whether measures will be evaluated qualitatively or quantitatively. The “Analysis of Solution Strategies” column (highlighted in blue) identifies the measures that will be used to evaluate service opportunities in Tasks 6 and 7.

Other measures will not be utilized in the evaluation of service opportunities but are applicable to analysis of existing conditions, while the full set of final performance measures and benchmarks will be the basis of an ongoing monitoring program that YCTA will use to measure implementation of the TDP.

DRAFT

Transit Development Plan | Memo #3: Planning Framework
Yamhill County Transit Area

Figure 2-2 Proposed Planning Framework Measures (Adapted from TM #1)

Goal	Objective	Performance Measures			Performance Metric / Standard [a]
		Existing Conditions	Analysis of Solution Strategies	Monitoring Program	
Goal 1: Mobility – provide efficient, reliable public transportation serving a range of customer needs.	1. Achieve high route productivity by serving key ridership markets	Riders per revenue hour (quantitative)	Evaluation based on existing route-level ridership and proposed service changes (qualitative)	Riders per revenue hour (quantitative)	10 fixed-route passengers per hour 3 demand response passengers per hour
	2. Serve key activity centers with convenient hours and days of service that meet the travel needs of workers and residents	Service span: hours of service (qualitative)	Service span: hours of service (qualitative)	Service span: hours of service (qualitative)	Weekday 5am – 9pm; Weekend 7am – 8pm (or as determined based on TDP public outreach)
	3. Provide direct and reliable service that supports reliable transfers to intra- and inter-county regional connections	Schedule alignment with connecting providers (quantitative/qualitative)	Schedule alignment with connecting providers (quantitative/qualitative)	Schedule alignment with connecting providers (quantitative/qualitative)	Number of transfers Scheduled transfer time to connecting routes
	4. Identify areas that will support additional or improved transit services using data-driven and customer focused methods, and coordinate improvements to the coverage, reliability, and frequency of services	Coverage of geographic areas based on service standards e.g., land use density (quantitative)	Service area land use density (quantitative)	Service area land use density (quantitative)	As identified in TDP (service standards and TM #3 Land Use Analysis)

Notes: * denotes objectives adapted from the Yamhill County Transportation System Plan. † denotes objectives adapted from the 2017 YCTA Coordinated Public Transit Human Services Transportation Plan. ** Travel training customers refers to the number of people trained on how to use transit by YCTA staff or partners.

[a] Standards presented in the performance metric column are preliminary thresholds of acceptable performance based on peer systems and industry norms. The measures and metrics will be refined throughout the project and monitoring metrics will be finalized in the Transit Development Plan.

Transit Development Plan | Memo #3: Planning Framework
Yamhill County Transit Area

Goal	Objective	Performance Measures			Performance Metric / Standard [a]
		Existing Conditions	Analysis of Solution Strategies	Monitoring Program	
Goal 2: Accessibility – provide public transportation services that are equitable and address the needs of all users.	1. Coordinate with local agencies to guide transit-supportive land use policies and practices	NA	NA	Agencies including transit agency in development review notice procedures (quantitative)	80%
	2. Provide access to public transportation services that meets applicable County, State and Americans with Disabilities Act (ADA) standards	Service denials per registered ADA paratransit rider (quantitative) Percentage of vehicles and stops meeting ADA standards (quantitative)	NA	Service denials per registered ADA paratransit rider (quantitative) Percentage of vehicles and stops meeting ADA standards (quantitative)	0% total requests. 100% vehicles and stops
	3. Provide local connectivity within and between the various communities in the County	Revenue hours dedicated to connections between Yamhill County communities (quantitative)	Revenue hours dedicated to connections between Yamhill County communities (quantitative)	Revenue hours dedicated to connections between Yamhill County communities (quantitative)	% of total service hours in communities under 10,000 in population (target to be established based on TDP analysis)
	4. Provide a mix of public transportation services to meet the needs of different rider markets, such as fixed routes, deviated fixed routes, commuter routes, dial-a-ride, community shuttles, and rideshare services	Riders per capita (quantitative) Service hours per capita (quantitative)	Service hours per capita (quantitative)	Riders per capita (quantitative) Service hours per capita (quantitative)	Targets based on increasing current service levels and peer comparison (target to be to be established based on existing conditions and TDP analysis)

Notes: * denotes objectives adapted from the Yamhill County Transportation System Plan. † denotes objectives adapted from the 2017 YCTA Coordinated Public Transit Human Services Transportation Plan. ** Travel training customers refers to the number of people trained on how to use transit by YCTA staff or partners.

[a] Standards presented in the performance metric column are preliminary thresholds of acceptable performance based on peer systems and industry norms. The measures and metrics will be refined throughout the project and monitoring metrics will be finalized in the Transit Development Plan.

Transit Development Plan | Memo #3: Planning Framework
Yamhill County Transit Area

Goal	Objective	Performance Measures			Performance Metric / Standard [a]
		Existing Conditions	Analysis of Solution Strategies	Monitoring Program	
Goal 2: Accessibility (continued)	5. Distribute the benefits and impacts of services fairly and address the transportation needs and safety of all users, including the young, older adults, people with disabilities, and people of all races, ethnicities, and income levels	% youth, older adults, people with disabilities, racial and ethnic minorities, and low income households within ¼ mile of bus stops (quantitative)	% youth, older adults, people with disabilities, racial and ethnic minorities, and low income households within ¼ mile of bus stops (quantitative)	% youth, older adults, people with disabilities, racial and ethnic minorities, and low income households within ¼ mile of bus stops (quantitative)	X % of total population (target to be based on TDP analysis)
	6. Coordinate with human services agencies serving adults, seniors, and people with disabilities and veterans to identify specific resources, training and needs for these markets	Percentage of YCTA budget resources comprised of human services program funding (quantitative)	NA	Percentage of YCTA budget resources comprised of human services program funding (quantitative)	10%
	7. Provide easy to understand, affordable fare policies, products and payment systems	Fare products and fare cost (qualitative)	Fare products and fare cost (qualitative)	Fare products and fare cost (qualitative)	Targets to be determined based on customer feedback and peer comparison

Notes: * denotes objectives adapted from the Yamhill County Transportation System Plan. † denotes objectives adapted from the 2017 YCTA Coordinated Public Transit Human Services Transportation Plan. ** Travel training customers refers to the number of people trained on how to use transit by YCTA staff or partners.

[a] Standards presented in the performance metric column are preliminary thresholds of acceptable performance based on peer systems and industry norms. The measures and metrics will be refined throughout the project and monitoring metrics will be finalized in the Transit Development Plan.

Transit Development Plan | Memo #3: Planning Framework
Yamhill County Transit Area

Goal	Objective	Performance Measures			Performance Metric / Standard [a]
		Existing Conditions	Analysis of Solution Strategies	Monitoring Program	
Goal 3: Passenger experience – make public transportation a convenient and welcoming way to travel.	1. Deliver transportation information to riders and the community at-large across multiple print, online, and mobile platforms	Bilingual materials and printed materials (yes/no)	NA	Website or mobile application users (quantitative) Bilingual materials and printed materials (yes/no) Cities and # of locations where YCTA maintains printed materials	XX hits or online traffic per month, (TBD) Schedules, maps in other languages as determined based on YCTA Title VI and Limited English Proficiency (LEP) plan. Locations to be set in TDP
	2. Enhance marketing, education, and promotion efforts	NA	NA	Number of travel training customers (quantitative) Public awareness campaigns (qualitative)	Targets to be based on TDP analysis
	3. Translate all printed and online materials into priority languages identified in the YCTA Limited English Proficiency plan (e.g., translate into Spanish and employ Spanish-speaking customer service staff)	Availability of translation and interpretation resources (yes/no)	NA	Availability of translation and interpretation resources (yes/no)	All print materials translated and spoken language access available during all service hours.
	4. Invest in technologies that enhance customer service, service reliability and access to information	Assessment of technology platforms (qualitative)	NA	Technology as share of total spending (quantitative) Customer call wait time	Targets to be based on available resources and peer comparison
	5. Achieve high customer satisfaction by supporting employee training and outreach.	Customer satisfaction rated good or higher in rider surveys	NA	Customer satisfaction rated good or higher in rider surveys Customer complaints by category	80% Minimize legitimate complaints but maximum of XX per 100,000 boardings
	6. Provide system legibility by clearly identifying bus stop locations	Bus stops marked with sign (qualitative)	NA	Percentage of bus stops marked with a sign or other type of marking (quantitative)	100%

Notes: * denotes objectives adapted from the Yamhill County Transportation System Plan. † denotes objectives adapted from the 2017 YCTA Coordinated Public Transit Human Services Transportation Plan. ** Travel training customers refers to the number of people trained on how to use transit by YCTA staff or partners.

[a] Standards presented in the performance metric column are preliminary thresholds of acceptable performance based on peer systems and industry norms. The measures and metrics will be refined throughout the project and monitoring metrics will be finalized in the Transit Development Plan.

Transit Development Plan | Memo #3: Planning Framework
Yamhill County Transit Area

Goal	Objective	Performance Measures			Performance Metric / Standard [a]
		Existing Conditions	Analysis of Solution Strategies	Monitoring Program	
Goal 4: Safety and security – ensure transit riders and drivers have safe and secure vehicles and facilities.	1. Provide for high-quality driver and dispatcher training to ensure passenger and driver safety and security	NA	NA	Annual safety-sensitive staff training hours	Targets based on TDP (see safety or driver training program and/or ODOT Compliance Review)
	2. Provide high-quality transit facilities by including waiting areas shelters, seating and other amenities that support customer comfort and convenience.	General assessment of transit facilities	NA	Percent of facilities meeting agency guidelines (stop poles, shelters, seating, lighting, trash, and/or up-to-date rider information) and passenger and vehicle capacity needs	100% (To be achieved consistent with TDP phasing plan)
	3. Maintain vehicles in a state of good repair and replace in accordance with the Transit Asset Management Plan to ensure a reliable, safe and attractive public transportation system	Share of vehicles and facilities meeting asset management maintenance schedule targets (quantitative)	NA	Share of vehicles and facilities meeting asset management maintenance schedule targets (quantitative)	100% (To be achieved consistent with TDP phasing plan)
	4. Coordinate with County and local emergency managers to support robust emergency response and resiliency to natural and human disasters	NA	NA	% communities with which YCTA has mutual aid agreements in place (quantitative)	100% of cities, school districts, human service organizations and neighboring counties or transit agencies
	5. Coordinate with local jurisdictions and Oregon Department of Transportation (where relevant) to provide safe ways to cross streets at or near major bus stops	NA	NA	Bus stops with crosswalks within ¼ mile, where appropriate to street design and safety regulations (quantitative)	100%

Notes: * denotes objectives adapted from the Yamhill County Transportation System Plan. † denotes objectives adapted from the 2017 YCTA Coordinated Public Transit Human Services Transportation Plan. ** Travel training customers refers to the number of people trained on how to use transit by YCTA staff or partners.

[a] Standards presented in the performance metric column are preliminary thresholds of acceptable performance based on peer systems and industry norms. The measures and metrics will be refined throughout the project and monitoring metrics will be finalized in the Transit Development Plan.

Transit Development Plan | Memo #3: Planning Framework
Yamhill County Transit Area

Goal	Objective	Performance Measures			Performance Metric / Standard [a]
		Existing Conditions	Analysis of Solution Strategies	Monitoring Program	
Goal 5: Livability and economy – integrate public transit in the transportation system to support a prosperous, healthy community	1. Enhance access to major activity centers (e.g., major residential, employment, industrial, and institutional locations) and emerging or underserved activity centers (e.g., agricultural employment) as resources warrant	% employees within ¼ mile of a transit stop (quantitative) % residents within ¼ mile of a transit stop (quantitative)	% employees within ¼ mile of a transit stop (quantitative) % residents within ¼ mile of a transit stop (quantitative)	% employees within ¼ mile of a transit stop (quantitative) % residents within ¼ mile of a transit stop (quantitative)	Targets to be based on TDP analysis
	2. Maintain and explore innovative partnerships with employers and institutions to serve rider markets and supplement public transportation funding	Establishment of agreements with major employers and institutions (qualitative)		Establishment of agreements with major employers and institutions (qualitative)	Yes / No if agreements in place
	3. Support a multimodal transportation network by inviting access to transit via bicycling, walking	General assessment of stops with bicycle racks or other bicycle parking, sidewalk coverage proximate to key bus stops, and fixed-route vehicles with bicycle racks (qualitative/quantitative)	NA	% stops with bicycle racks or other bicycle parking (quantitative) Sidewalk coverage proximate to key bus stops (qualitative) % fixed-route vehicles with bicycle racks (quantitative)	TBD based on TDP analysis

Notes: * denotes objectives adapted from the Yamhill County Transportation System Plan. † denotes objectives adapted from the 2017 YCTA Coordinated Public Transit Human Services Transportation Plan. ** Travel training customers refers to the number of people trained on how to use transit by YCTA staff or partners.

[a] Standards presented in the performance metric column are preliminary thresholds of acceptable performance based on peer systems and industry norms. The measures and metrics will be refined throughout the project and monitoring metrics will be finalized in the Transit Development Plan.

Transit Development Plan | Memo #3: Planning Framework
Yamhill County Transit Area

Goal	Objective	Performance Measures			Performance Metric / Standard [a]
		Existing Conditions	Analysis of Solution Strategies	Monitoring Program	
Goal 6: Efficiency and financial accountability – manage the transit system in a fiscally responsible way to provide quality, affordable services.	1. Advocate for increased funding and seek out new and innovative funding opportunities	Annual percentage increase in transit operations funding Transit projects included in County TSP (quantitative)	Transit operating funding per capita, relative to peers	Annual percentage increase in transit operations funding Transit projects included in County TSP (quantitative)	Targets based on TDP analysis
	2. Improve system productivity and reliability to ensure efficient resource utilization	Cost per revenue hour compared to peers Riders per revenue hour compared to peers On-time performance (quantitative)	Riders per revenue hour compared to peers (qualitative) On-time performance (qualitative)	Cost per revenue hour compared to peers Riders per revenue hour compared to peers On-time performance (quantitative)	Within X% of peer cost Within X% of peer productivity 85% of bus runs arriving at time point within 4 minutes of scheduled time
	3. Coordinate with other transportation partners to ensure shared long range sustainability of public transportation services	Agreements with transportation partners (Qualitative)	NA	Agreements with transportation partners (Qualitative)	Yes / No if agreements in place

Notes: * denotes objectives adapted from the Yamhill County Transportation System Plan. † denotes objectives adapted from the 2017 YCTA Coordinated Public Transit Human Services Transportation Plan. ** Travel training customers refers to the number of people trained on how to use transit by YCTA staff or partners.

[a] Standards presented in the performance metric column are preliminary thresholds of acceptable performance based on peer systems and industry norms. The measures and metrics will be refined throughout the project and monitoring metrics will be finalized in the Transit Development Plan.

3 POTENTIAL TRANSIT SERVICE AREAS

This section describes potential transit service areas in Yamhill County, including transportation corridors and incorporated communities, including both areas with existing service and areas that are not served today. The purpose of the analysis is to identify areas for future transit service as supported by land use and transportation analysis. The results of this analysis will be used in defining solution strategies (TDP Task 6).

The quantitative data used to assess service areas includes existing land use patterns (from the existing conditions analysis presented in Technical Memorandum 2) and future population and employment forecasts. The memo relates these trends to known information about near-term planned land use development, growth areas identified by city and county planning staff, and major transportation infrastructure improvements.

PUBLIC TRANSPORTATION AND LAND USE GUIDELINES

The best public transportation plan is a land use plan. How people move is based entirely on land use. The location of homes, jobs, grocery stores, shopping malls, and other destinations determines how easily a person can access places, the length of their trip, and the directness of their route. It is challenging to provide cost-effective public transportation if enough residents, jobs, and/or customers are not concentrated in a given area, or if major housing developments, job centers, and significant destinations are built far from main roads or at very low densities.

Transit ridership is directly related to population and employment density along transit corridors. Figure 3-1 illustrates the relationship between land use density (people and/or jobs) and the types or frequency of transit service that can be provided. Recognizing that these general guidelines need to be adapted to local conditions, overall industry experience suggests that residential densities in the range of about 3 to 6 households per gross acre are a minimum threshold for fixed-route transit service running every hour. Transit demand tends to increase most dramatically when residential densities increase to between approximately 6 to 12 households per acre, which generally supports service that runs every 30 minutes. These figures correspond to approximately 8 to 16 persons per acre for 60-minute service and 16 to 32 persons per acre for 30-minute service.¹

Alternatively, in an employment-oriented area, 4 to 8 jobs per acre would typically support 60 minute service and 8 to 16 jobs per acre would support 30-minute service. Considering that a combination of residential and employment patterns drive transit performance, the above ranges can be considered in terms of the number of residents plus the number of jobs.

¹ Converted based on the average household size in McMinnville and Newberg—approximately 2.7 persons per households (2015 American Community Survey 5-Year Average).

Figure 3-1 Density and Level of Transit Service Supported



	Population			Employment	
Transit Mode / Frequency	Dwelling Units/Acre	Population/Acre	Population/Square Mile	Jobs/Acre	Jobs/Square Mile
Flexible Transit Service					
General Public Demand Response	None, but likely to be limited by capacity constraints as demand for service increases			--	--
Shuttles or Flex Routes	< 1	0.5 to 2+	300 – 1,000+	--	--
Local Fixed-Route Bus					
60 minutes	3-6	8-16	5,000-10,000	4-8	2,500-5,000
30 minutes	6-12	16-32	10,000-20,000	8-16	5,000-10,000
15 minutes	12+	32+	20,000+	16+	10,000-15,000

Source: Adapted from Transit Research Cooperative Program (TRCP) Transit Capacity and Quality of Service Manual, and other sources

Additional Transit Market Factors

Other transit market factors are also important to consider in aligning transit service with different land uses, including:

- **The organization of density** is a key consideration that determines the size of a transit market. A particular level of service requires a minimum density *over a minimum area*. For example, an isolated development or building may have a high density within a small area, but is a relatively limited market that is difficult for transit to serve.
- **Destinations**, or activity centers clustered along a route where people want to travel, and strong “anchors,” or major activity centers, at each route endpoint make transit more attractive to use and efficient to operate.
- **Community design** is necessary to make transit successful. Neighborhoods where all roads are designed to connect to major streets allow transit users to reach stops without walking out-of-direction and increase the number of people a transit route can serve. Community design includes comfortable and safe pedestrian and bicycle access routes—people will not use transit if it is difficult or dangerous to access a bus stop.

DRAFT

Existing Access to Transit in Yamhill County

For existing population and jobs along current transit routes in Yamhill County, Figure 3-2 lists the share of population and jobs that are within a quarter-mile access distance of transit.

- In McMinnville, approximately 70% of both residents and jobs are within a quarter-mile distance of transit, while in Newberg, approximately 80% of residents and jobs are within a quarter-mile of transit. For other cities in Yamhill County, approximately 36% of residents and 58% of jobs are within a quarter-mile access distance.
- Densities within the quarter-mile transit access areas in McMinnville and Newberg are 6.1 and 6.5 people per acre and 2.7 and 2.4 jobs per acre, respectively; this represents combined densities of nearly nine people and jobs per acre in both cities. Job density in the downtown core areas is much higher—approximately 30 jobs per acre in McMinnville and 16 jobs per acre in Newberg. Existing land use around existing transit corridors puts these cities generally slightly lower than the land use threshold for the 60-minute service category overall, but this is balanced by high job density in the downtown areas, particularly in McMinnville.
- For all other Yamhill County cities (excluding McMinnville and Newberg), density around transit stops ranges from approximately 5 to 7 persons per acre and up to approximately 2 jobs per acre. Average residential density around transit stops is lower in Willamina and Yamhill than other cities, slightly more than 3 persons per acre.

Figure 3-2 Population and Jobs within ¼-Mile Distance of Transit Routes and/or Stops, 2010 and 2014

City	Area within ¼ Mile	Share of Total City Area	Population within ¼-Mile (2010) ¹			Jobs within ¼ Mile (2014) ²			Combined Population and Jobs
	Acres	%	#	%	Density	#	%	Density	Density
Amity	148	37%	835	52%	5.6	158	61%	1.1	6.7
Carlton	126	22%	873	43%	6.9	263	76%	2.1	9.0
Dayton	129	24%	665	26%	5.2	158	56%	1.2	6.4
Dundee	152	17%	760	24%	5.0	225	46%	1.5	6.5
Lafayette	128	23%	731	20%	5.7	124	61%	1.0	6.7
McMinnville	3,617	54%	22,200	69%	6.1	9,713	70%	2.7	8.8
Newberg	2,625	70%	17,168	78%	6.5	6,311	80%	2.4	8.9
Sheridan	284	23%	1,707	28%	6.0	265	24%	0.9	7.0
Willamina	206	34%	638	32%	3.1	104	36%	0.5	3.6
Yamhill	129	37%	436	43%	3.4	256	94%	2.0	5.4
Total for all Cities	7,543	34%	46,013	60%	5.4	17,577	70%	1.5	6.9
Outside of McMinnville & Newberg	8,844	28%	52,658	36%	5.1	19,130	58%	1.3	6.5

Notes/Sources: Calculated within ¼ mile of routes and stops in McMinnville and Newberg, because flag stops are allowed along the routes, and within ¼ mile of stops in other cities, based on straight-line distances. 1. US Census Bureau, Decennial Census, 2010. The 2010 Census was used for population because more recent data is available only for larger geographies and cannot be accurately used to estimate population within a short distance of transit routes. 2. US Census Bureau, Longitudinal Household-Employer Dynamics (LEHD), 2014.

POPULATION AND EMPLOYMENT FORECASTS

Current and future population and employment trends in communities across Yamhill County indicate where the greatest transit demand is likely to be in the future. This section summarizes forecasts for growth in residents and jobs within Yamhill County.

Population

Figure 3-3 displays population growth forecasts from 2017 through 2035 for cities in Yamhill County and the resulting population densities. Yamhill County is forecasted to grow by approximately 27% by 2035—an increase of over 28,000 new residents by 2035. The share of the county's population that lives within urban growth boundaries (UGBs) is projected to increase; 87% of growth is projected to occur within UGBs. Most of Yamhill County's population density is located along the OR 99W / OR 18 corridor that runs through the eastern part of the county, and the cities along this corridor are expected to see the highest rates of growth—Newberg, Lafayette, and Dundee are each projected to grow by approximately 40% and McMinnville is projected to grow by nearly 30%. Along the OR 47 corridor, Carlton is projected to grow by 35%.

McMinnville and Newberg, the county's two most populous cities, contain over half of Yamhill County's population. McMinnville and Newberg UGBs are each forecasted to gain more than 9,000 new residents over the 18-year period—a combined nearly 70% of the total growth that is forecasted for the county. By 2035, the population density in these cities is expected to reach nearly 6 and 8 persons per acre, respectively. Lafayette has the highest average population density, with over 7 persons per acre today, increasing to 10 people per acre by 2035.

Transit Development Plan | Memo #3: Planning Framework
Yamhill County Transit Area

Figure 3-3 Future Population Forecasts (within Urban Growth Boundaries), 2017-2035

Jurisdiction (UGBs)	Population, 2017	Population, 2035	Change in Population, 2017-2035	% Change, 2017-2035	Share of Growth, 2035	Density, 2017 (Pop/Acre)	Density, 2035 (Pop/Acre)
Yamhill County Service Area ^{B,C}	108,144	136,836	28,692	27%	100%	0.24	0.30
Within UGBs	82,976	107,955	24,979	30%	87%	4.6	6.0
McMinnville UGB	34,293	44,122	9,829	29%	34%	4.6	5.9
Newberg UGB ^A	24,296	34,021 ^A	9,725	40%	34%	5.4	7.6
Sheridan UGB	6,340	6,893	553	9%	2%	4.0	4.4
Lafayette UGB	4,083	5,717	1,634	40%	6%	7.4	10.3
Dundee UGB	3,243	4,570	1,327	41%	5%	4.2	6.0
Dayton UGB	2,837	3,200	363	13%	1%	3.4	3.8
Carlton UGB	2,229	3,013	784	35%	3%	4.0	5.3
Willamina UGB ^B	2,125 ^B	2,321 ^B	196 ^B	9%	1%	2.9	3.2
Amity UGB	1,642	1,910	268	16%	1%	3.9	4.6
Yamhill UGB	1,077	1,338	261	24%	1%	3.6	4.5
Gaston UGB ^C	811 ^C	850 ^C	39 ^C	5%	0%	2.5	2.6
Outside UGBs	25,123	28,880	3,757	15%	13%	0.06	0.07

Notes: (A) The 2016 Newberg Comprehensive Plan population forecast data for 2015-2035 are higher than PSU Population Research Center (PRC) forecasts. City of Newberg planning staff communicated that the City intends to adjust its forecast consistent with the recent PRC projections. (B) The Willamina UGB includes residents in both Yamhill and Polk counties. City and "Service Area" population reflects the full UGB. (C) The Gaston UGB includes residents in both Yamhill and Washington counties. City and "Service Area" population reflects the full UGB.

Source: Portland State University Population Research Center (PRC), Coordinated Population Forecasts for Yamhill County, 2017.

Employment

Methodology

The future employment forecasts used in this analysis are based on data from the Oregon Employment Department (OED), which develops 10-year employment forecasts by industry sector for the Mid-Willamette Valley region (Linn, Marion, Polk, and Yamhill Counties). Based on discussion with the OED economist for the region², there is no employment forecast available for Yamhill County specifically. To develop a 2035 employment estimate for the specific purpose of analyzing Yamhill County transit service areas, current-year Yamhill County jobs by sector (based on US Census Bureau LEHD data for 2014) were projected to the year 2035 using the 2014-2024 average growth rate for each job sector from the Mid-Valley forecast. The 2035 Yamhill County employment total was then allocated by jurisdiction using the jurisdiction's current share of total county employment

Appendix A provides a table with sector-by-sector growth forecasts from OED for the Mid-Willamette Valley region that were the basis for the methodology used in this analysis.

Future Employment

Based on this method, Yamhill County employment would increase from approximately 33,000 to nearly 43,000 jobs by 2035, an increase of 29%. Figure 3-4 presents existing and forecasted employment for cities in Yamhill County, and the resulting employment densities. Over 75% of jobs in Yamhill County are within incorporated communities, and nearly all of these jobs are in McMinnville and Newberg. From 2014 to 2035, over 6,000 new jobs are estimated to be added in these two cities based on the high-level assumptions applied from the regional forecasts.

As of 2014, the top three employment sectors in Yamhill County³—listed below—account for approximately 45% of all employment in Yamhill County and are forecast to grow by 9%, 18% and 15%, respectively. Several of the county's top employers are represented among these sectors. McMinnville and Newberg are home to all of the major employers listed below.

- **Manufacturing.** Includes A-dec Cascade Steel Rolling Mill.
- **Health Care and Social Assistance.** Includes Willamette Valley Medical Center and Providence Newberg Medical Center.
- **Educational Services.** Includes George Fox University and Linfield College.

Unincorporated areas account for over 20% of all jobs in the county. However, these areas have the lowest employment density and are among the most challenging to serve by transit. The agriculture, forestry, fishing and hunting employment sector is among the fastest growing employment sectors in the county, and accounts for most of the land use in unincorporated areas. Along with construction, this sector is forecasted to experience the highest percentage of total annual growth—19% between 2014 and 2024, a rate higher than each of the county's top three sectors. Wineries and wine-related tourism are an important part of the agricultural sector in Yamhill County, contributing to job growth near Dundee, McMinnville, and Newberg, and rural communities north of OR-99W and east of OR-47. Employees in this sector may benefit from transportation services, though the job locations are often located off the major highways and may require alternative public transportation service models/types.

² Email from Patrick O'Connor, Regional Economist, Oregon Employment Department, July 27, 2017.

³ See "Economy" section in: Yamhill County Transit Area Transit Development Plan, Memo #2: Existing Conditions, Chapter 2.

Transit Development Plan | Memo #3: Planning Framework
Yamhill County Transit Area

Figure 3-4 Future Employment Forecasts, 2014-2035

Jurisdiction	Area (Acres)	Jobs 2014	Jobs 2035	Change in Jobs, 2014-2035	% of County Jobs, 2035	Job Density, 2014 (Jobs/Acre)	Job Density, 2035 (Jobs/Acre)
Yamhill County ^A	459,671	33,073	42,707	9,634	100.0%	0.07	0.09
Incorporated Cities ^B	15,613	25,109	32,423	7,314	75.9%	1.61	2.08
McMinnville	6,745	13,927	17,984	4,057	42.1%	2.06	2.67
Newberg	3,724	7,920	10,227	2,307	23.9%	2.13	2.75
Sheridan	1,250	1,123	1,450	327	3.4%	0.90	1.16
Dundee	884	485	626	141	1.5%	0.55	0.71
Carlton	567	348	449	101	1.1%	0.61	0.79
Willamina	606	289	373	84	0.9%	0.48	0.62
Dayton	532	282	364	82	0.9%	0.53	0.68
Yamhill	346	272	351	79	0.8%	0.79	1.02
Amity	399	259	334	75	0.8%	0.65	0.84
Lafayette	559	204	263	59	0.6%	0.36	0.47
Unincorporated Areas	444,058	7,964	10,284	2,320	24.1%	0.02	0.02

Notes: For the purpose of analyzing transit service areas: A. Yamhill County growth extrapolated to 2035 based on 2014-2024 sector growth rates from the Mid-Willamette Valley Region. B. Overall 2035 Yamhill County jobs were allocated to cities based on the city's 2014 share of Yamhill County jobs.

Source: Oregon Employment Department, Mid-Valley 2014-2024 Employment Forecast.

EXISTING AND PLANNED LAND USE

Land use and development in Oregon counties and cities is guided by their adopted Comprehensive Plans, which are implemented primarily by the local development code. Development code and zoning districts define characteristics such as allowed land uses and intensity of development. These districts include several types of residential zones (low, standard, medium, and high-density), non-residential zones such as commercial or industrial, and mixed-use zones that allow both residential and non-residential uses to be combined on a site. Areas of medium- to high-density residential, commercial, and industrial uses have the highest market potential for public transportation.

Figure 3-7 illustrates existing land use in Yamhill County, based on current zoning designations. Nearly all of the county's industrial and commercial zones are located in incorporated cities; these areas, along with institutional and community facility zoned areas, account for many of the county's largest employers. Farm use, forestry, and agricultural zones comprise most of the county's unincorporated areas, and contain over 20% of jobs in Yamhill County. Southwest Yamhill County is also home to northern sections of the Siuslaw National Forest and Grand Ronde Community tribal lands.

Summary of Existing Residential Zoning

Figure 3-5 shows residential densities allowed in the Lafayette, McMinnville, and Newberg zoning codes. For example, McMinnville's R-3 residential district allows nearly 12 units per acre and Newberg's R-2 district allows nearly nine units per acre. McMinnville's R-4 and Newberg's R-3 residential districts allow for higher density developments (over 20 units per acre). These densities could support transit service that is more frequent than today.

Figure 3-5 Residential Land Use Types by City

City	Residential Land Use Type	Density
McMinnville ⁴	R-1 Single-Family Residential	4.8 units / acre
	R-2 Single-Family Residential	6.2 units/acre
	R-3 Two-Family Residential Zone	11.9 units/acre
	R-4 Multiple-Family Residential Zone	29 units/acre
	O-R Office/Residential Zone	29 units/acre
Newberg ⁵	R-1 Low Density Residential	4.4 units/acre
	R-1/6.6 Low Density	6.6 units/acre
	R-2 Medium Density Residential	8.8 units/acre
	R-3 High Density Residential	21.8 units/acre
Lafayette ⁶	R-1 Low Density Residential	5.8 units/acre
	R-2 Medium Density Residential	8.7 units/acre

⁴ City of McMinnville, Zoning Ordinance.

<http://www.mcminnvilleoregon.gov/sites/default/files/fileattachments/planning/page/1341/zoningordinance.pdf>

⁵ City of Newberg, Comprehensive Plan Goals and Policies And Text, 2016.

http://www.newbergoregon.gov/sites/default/files/fileattachments/planning/page/4304/comprehensive_plan_december_2016.pdf

⁶ City of Lafayette, Zoning & Address Map, 2001. http://www.ci.lafayette.or.us/vertical/sites/%7B43AAC4DA-ABAD-4F35-91B6-4D693AE69205%7D/uploads/Zoning_Map_2011-7-14.pdf

Existing Land Use by City

Areas of medium- to high-density residential and concentrations of commercial/industrial uses have the highest potential for transit and are generally located in incorporated areas. The following overview of land use within Yamhill County cities highlights such opportunities:

- **McMinnville.** The majority of land area is zoned for residential use. High density residential zones are mostly concentrated in the OR 99W corridor, central business district, and around the Linfield College campus; some exceptions are along Hill Road on the city's west side, in the northeast part of the city, and in the Three Mile Lane corridor. However, current residential density in the city is relatively low, even in areas currently zoned for medium or higher density housing. Some areas across the city have moderate population density, comparable to parts of the city that have transit coverage, but are beyond ¼ mile access to existing transit routes.

Commercial uses are concentrated in the OR 99W corridor, Lafayette Avenue corridor, and the downtown central business district. There are also several commercial parcels scattered along Three Mile Lane, and on the west side of the city along 2nd Street.

Industrial parcels are generally east of OR 99W, especially in the Lafayette Avenue, Three Mile Lane, and Booth Bend Road corridors. Land zoned for open space lines the South Yamhill River and Cozine Creek.

- **Newberg.** Much of the land area is zoned for low and medium density residential use. However, current residential density in the city is relatively low, even in areas currently zoned for medium or higher density housing. Some areas in the northeast and southwest parts of the city have moderate residential density comparable to other parts of Newberg, but are not served by transit.

Commercial and central business district zoning is concentrated along the OR 99W corridor. Significant areas of institutional lands owned by George Fox University and Providence Health & Services are located in central and western Newberg, respectively. Land zoned for industrial uses is concentrated along the Portland & Western Railroad corridor.

- **OR 18 Corridor west of McMinnville:**

- **Sheridan.** Most development is within a ¼ to ½ mile distance of OR 18 Business, with commercial and mixed-use residential zones (including for multi-family housing) located in close proximity to the OR 18 Business route along the length of the city. Most industrial zoned land is located on the west side of the city north of the highway, including the McFarland Cascade Mill. Yamhill County Head Start is also on the west side of the city south of the highway. Some parcels zoned for industrial or institutional uses are located on the east side of the city south of the Yamhill River, including Sheridan High School; Bridge Street is the only river crossing within the city. A Federal Correctional Institution is located south of OR 18

- **Willamina.** Most development is within a ¼ to ½ mile distance of OR 18 Business, with pockets of land zoned for multi-family residential uses located near the highway. A pocket of multi-family residential uses is located in the far southwest part of the city. Boise-Cascade Mill is located just outside the eastern edge of the city and Hampton Lumber Mills just outside the western edge.

- **OR 18 / OR 99W corridors between McMinnville and Newberg:**

- **Dayton.** Residential uses are generally lower-density, but within approximately a half-mile of the existing YCTA stops serving the city.
- **Lafayette.** Commercial uses are primarily along OR 99W, with most development primarily north of the highway, up to a ½ to ¾ mile distance, including medium density residential in the far northeast part of the city. Lafayette has the highest population density among Yamhill County cities (7.3 and 10.3 persons per acre in 2017 and 2035 respectively—see Figure 3-3).

- The highest densities are clustered north of OR-99W, while transit service runs through the far southwest part of the city.
- **Dundee.** Land zoned for commercial and medium-density residential uses is located on either side of OR 99W, along the highway or within an approximately half-mile distance.
 - **OR 47 corridor**
 - **Carlton.** Medium-to-high density residential zones are generally clustered around the center of the city, and most development is within a half-mile distance of the city center.
 - **Yamhill.** Most uses are within a $\frac{1}{2}$ to $\frac{3}{4}$ mile distance from the OR 47, where YCTA service can currently be accessed. Multi-family residential zoning and a small mixed-use residential zone is located just east of OR 47's route through the city. A light industrial zone located on the far east side of the city, about a $\frac{3}{4}$ mile distance from the city center along OR 240 (Yamhill-Newberg Highway), appears to be largely undeveloped but includes Fruithill, a produce wholesaler.
 - **OR 99W corridor between McMinnville and Salem:**
 - **Amity.** Commercial and light industrial zones are along OR 99W, with adjacent medium-density residential zones on either side. The highest-density residential zoning is at the north end of the city.

Proposed Development

This section describes major planned developments and growth patterns that could affect future travel patterns and demand for public transportation. The information, summarized in Figure 3-6 (table) and Figure 3-8 (map), is based on input from the TDP Project Advisory Committee (PAC) and other stakeholders, city planning websites, and media reports. Figure 3-8 also illustrates land outside of current city limits but within urban growth boundaries where future growth could occur. The planned developments and other growth areas that were identified include:

- **In McMinnville**, areas west of Hill Road and in the Hill Road/Baker Creek Road areas, including a major development with proposed workforce housing, and along Three Mile Lane and Norton Drive in the east part of the city.
- **In Newberg**, the Gramor/Crestview Crossing development north of OR 99W, which is also associated with a planned extension of Crestview Drive, and the Springbrook Master Plan in the northeast part of the city. In the southwest part of the city, the Riverfront Master Plan area includes medium-density housing and mixed-use areas.

Figure 3-6 Planned Developments and Future Growth Areas (Based on Stakeholder and PAC Input)

Development / Growth Area Name	Location	Type	Units	Additional Notes
Baker Creek Rd/Hill Rd Areas	McMinnville	Significant higher-density, affordable/workforce housing is planned	TBD	
Community Home Builders	McMinnville	Whispering Meadows subdivision (mutual self-help housing)	29	Approximately 4 units per acre (29 units on 7 acres)
ASPIRE	McMinnville	Habitat for Humanity	N/A	
Chehalem Aquatic Center Expansion	Newberg	Public facility expansion	--	
Gramor Development / Crestview Crossing	Newberg	Light industrial has been the planned use, but the project may be evolving towards including residential development and a hotel.	TBD	Project is linked to an extension of Crestview Dr from its southern terminus to OR 99W, constructed to major collector standards per 2007 Newberg TSP.
Springbrook Master Plan Area	Newberg	Redevelopment area/master plan	N/A	Includes residential, commercial, and mixed-use areas, including a "village center" and employment near the current A-dec site. Much of the residential development is designated for low-density residential.
Riverfront Master Plan Area	Newberg	Redevelopment area/master plan	N/A	Includes a commercial district, low and medium-density residential, and mixed-use areas. Includes roadway improvements including a potential extension of Blaine Street to River Road.

Source: Yamhill County Transit Development Plan Project Advisory Committee, Focus Groups, and other sources

Figure 3-7 Yamhill County Current Land Use (Zoning)

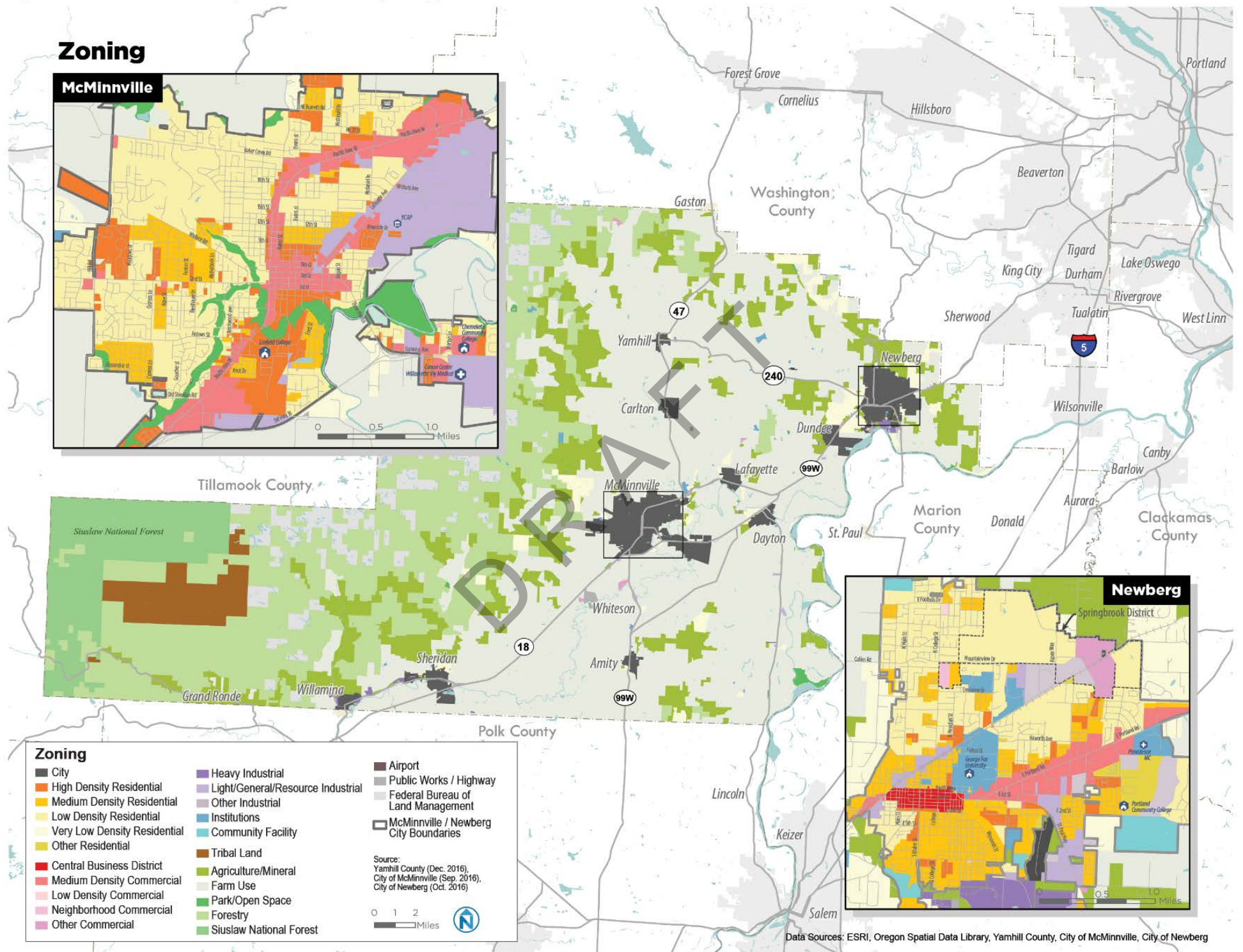
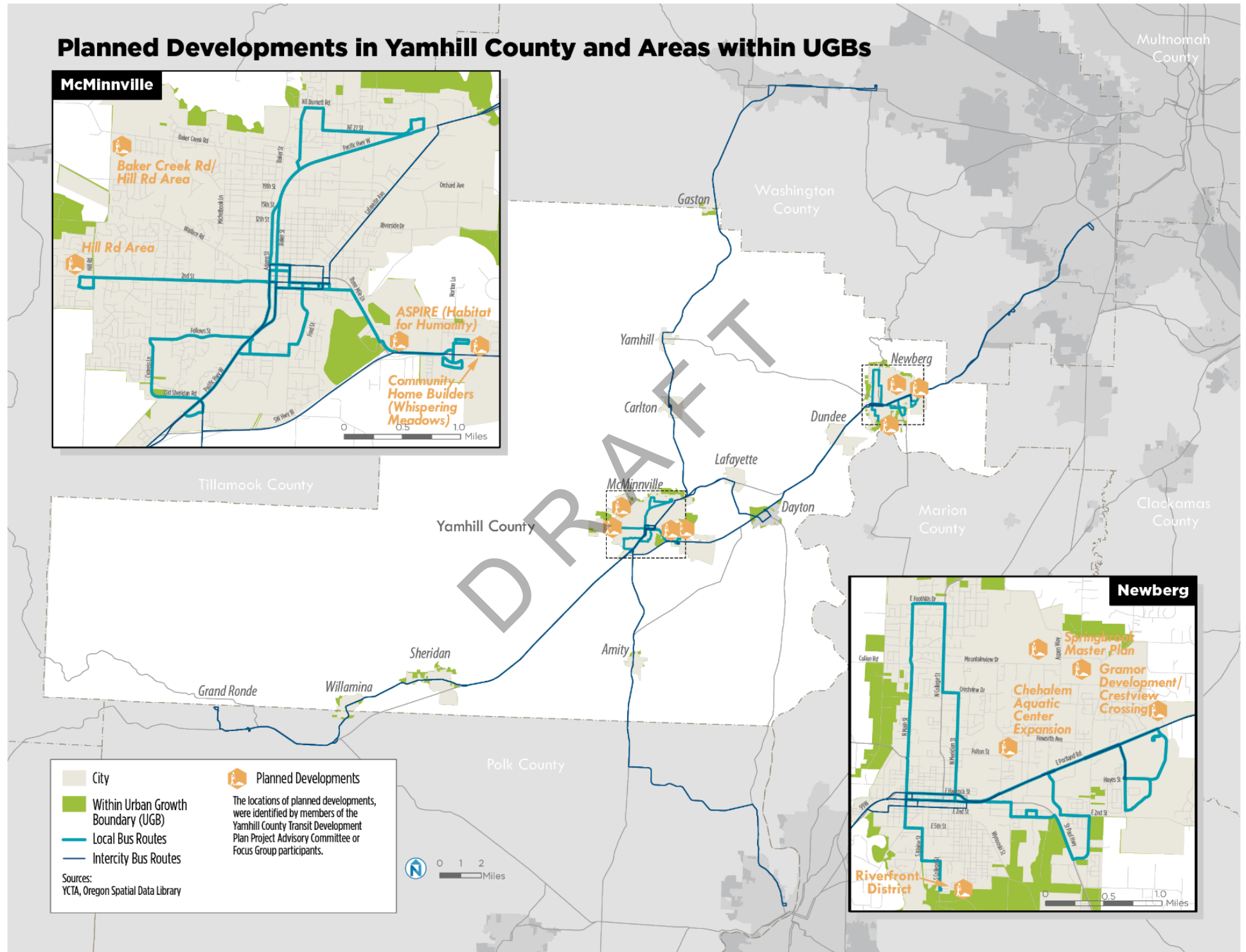


Figure 3-8 Planned Developments



Public School Facilities

Schools, particularly middle and high schools, are a potential generator of transit demand. Based on facilities plans for the McMinnville School District and the Newberg School District there do not appear to be plans for new facilities within the 20-year time horizon of the YCTA TDP.

- **McMinnville.** As part of discussions in 2005 related to a bond measure, the McMinnville School District considered a new high school sited along Hill Road, but elected to expand the existing high school facility. Improvements are planned at a variety of schools, but no new school sites are identified.⁷
- **Newberg.** In 1999, an analysis projected the need for a new high school and elementary school by 2022. However, a 2010 update determined that based on more recent trends a new high school would likely not be required in the time frame previously projected. The report notes that the Comprehensive Plan update, completion of the bypass route, and River Front Development Plan would likely increase desirability of housing in Newberg and/or include additional multi-family/affordable housing.⁸

TRAVEL DEMAND

Note to PMT and PAC: We are working with ODOT's modeling group to obtain information from the statewide model that may provide information on future travel demand patterns. This information is 2-4 weeks out. We will present it at PAC Meeting #2 if it is available in time. Any such information would be included here in the final version of the memo.

⁷ McMinnville School District, Facilities Updates (Website). Accessed August 2017.
<http://mcminnville.ss7.sharpschool.com/cms/One.aspx?portalId=343110&pageId=4437635>

⁸ Newberg School District, Facilities Task Force, Board Report, 10/25/2010.
https://www.newberg.k12.or.us/sites/default/files/fileattachments/district/page/3891/facilities_task_force_board_report.pdf

RECOMMENDED TRANSIT SERVICE AREAS

This section identifies the transportation corridors and areas of incorporated cities with population and employment densities that support efficient public transportation, based on the land use and transportation trends summarized above and general thresholds for public transportation service based on land use and other market characteristics.

Figure 3-9 summarizes the key strengths of YCTA service areas along with identified growth trends and general service recommendations; the focus of the assessment is on where coverage and/or higher service levels may be needed based on land use and growth patterns. More specific service design and recommendations will be a focus of future tasks.

Figure 3-10 illustrates YCTA's current service areas in McMinnville and Newberg and intercity connections within Yamhill County and to/from adjacent counties. The map highlights areas where additional service could be considered based on existing and planned land use.

DRAFT

Transit Development Plan | Memo #3: Planning Framework
Yamhill County Transit Area

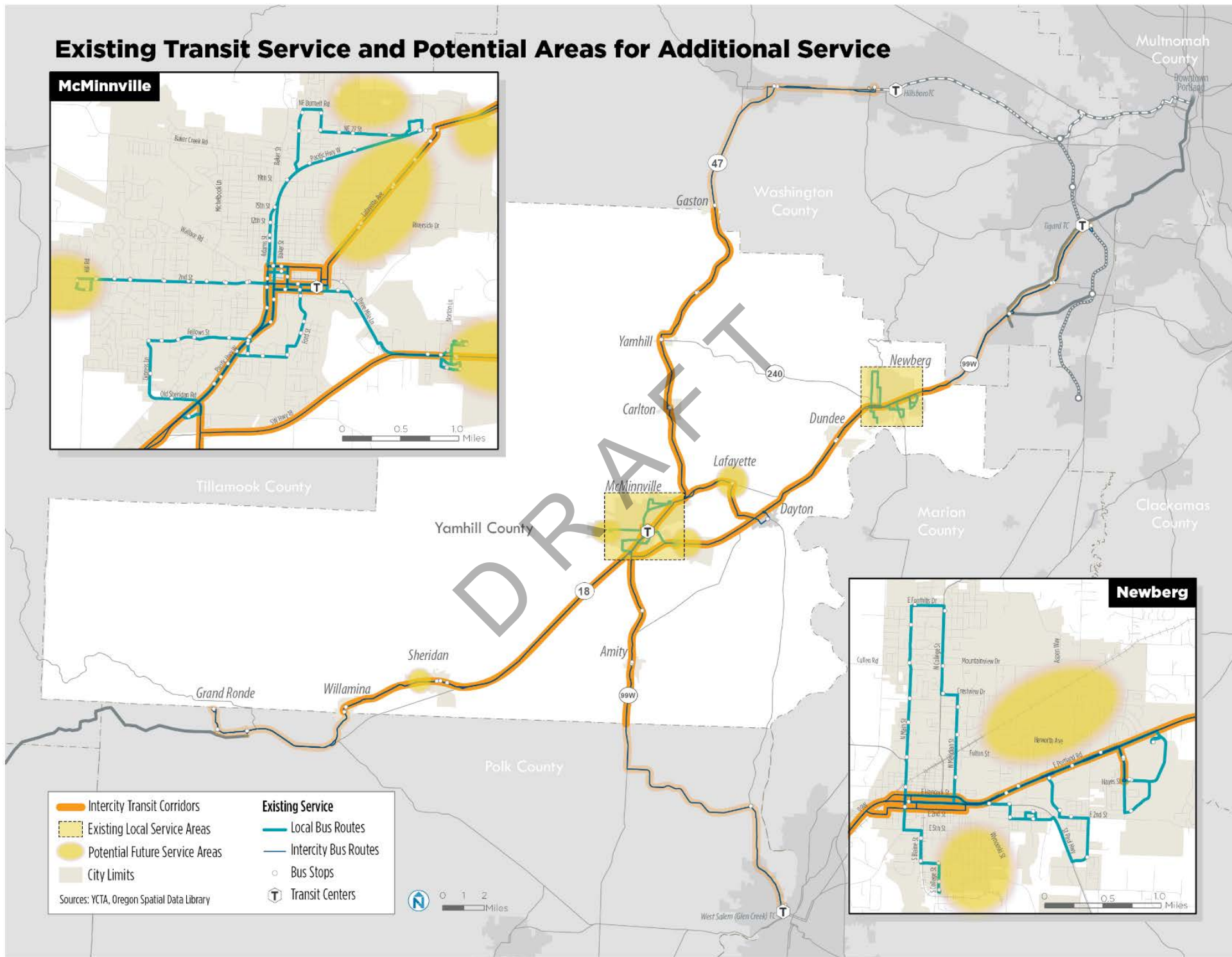
Figure 3-9 Potential Service Areas Summary

Service Area (City or Corridor)	Existing Transit				Assessment of Trends and General Service Recommendations	
	Routes	Frequency or Service Level	Revenue Hours (FR+DR)	Service Area Strengths - Existing	Growth Trends Assessment	Preliminary Corridor Service Level Recommendations
Local Service Areas						
McMinnville	2 routes (#2, #3)	60 minutes Monday – Friday	5,700	<ul style="list-style-type: none"> • Largest employment area in Yamhill County • Hub for transit connections between Yamhill County cities 	<ul style="list-style-type: none"> • Increasing average residential density citywide to 6 persons per acre by 2035 • Growth is projected for key employment sectors including retail and tourism (latter also applies to other service areas/corridors) 	<ul style="list-style-type: none"> • Areas of concentrated development area (e.g., downtown, along OR 99W, and near Linfield College) warrant the highest-frequency service • Additional coverage beyond a quarter-mile distance of existing routes and to serve higher density housing and new developments
Newberg	2 routes (#5, #7)	60 minutes Monday - Friday	2,900	<ul style="list-style-type: none"> • Proximity to Portland metro area 	<ul style="list-style-type: none"> • Increasing average residential density citywide to 8 persons per acre by 2035 • Major transportation projects (e.g., Dundee Bypass) likely to improve travel times to/from Newberg and within the city • Proposed new developments including employment areas 	<ul style="list-style-type: none"> • OR 99W corridors warrants the highest-frequency service • Additional coverage warranted in parts of northeast and southwest • Additional coverage to incorporate new developments as warranted

Transit Development Plan | Memo #3: Planning Framework
Yamhill County Transit Area

Service Area (City or Corridor)	Existing Transit				Assessment of Trends and General Service Recommendations	
	Routes	Frequency or Service Level	Revenue Hours (FR+DR)	Service Area Strengths - Existing	Growth Trends Assessment	Preliminary Corridor Service Level Recommendations
Intercity Corridors						
US 99W McMinnville to Salem	1 commuter route (#11)	5 round trips Monday – Friday	2,000	<ul style="list-style-type: none"> Salem is the second largest out-of-county work destination for Yamhill County residents 	<ul style="list-style-type: none"> Employment and population growth in McMinnville and Salem could increase commute demand 	<ul style="list-style-type: none"> Existing service likely generally appropriate; future service levels based on productivity and capacity
OR 99W McMinnville to Tigard	1 commuter route (#44, 45x, 46S)	10 round trips Monday - Friday 2 express round trips Monday - Friday 4 round trips Saturday	9,000	<ul style="list-style-type: none"> Provides access to major shopping and entertainment destinations Portland is the largest out-of-county work location for Yamhill County residents Includes intra-county connections between McMinnville, Lafayette, Dayton, Dundee, and Newberg 	<ul style="list-style-type: none"> Improved Portland area transit connections in Tigard likely to improve regional transit travel times and connections Employment and population growth in McMinnville, Newberg, and the Portland Metro area could increase commute demand 	<ul style="list-style-type: none"> Likely the highest potential transit market for YCTA
US 18 McMinnville to Grand Ronde	1 commuter route (#22, 24s)	7 round trips Monday - Friday 5 round trips Saturday	3,500	<ul style="list-style-type: none"> Grand Ronde Casino is a major entertainment destination Rural intercity transit connections at Grand Ronde Casino, to the Salmon River Corridor 	<ul style="list-style-type: none"> Rural development patterns with moderate development densities in Willamina, Sheridan, Grand Ronde 	<ul style="list-style-type: none"> Existing service likely generally appropriate; future service levels based on productivity and capacity
US 47 McMinnville to Hillsboro	1 commuter route (#33)	5 round trips Monday - Friday	2,600	<ul style="list-style-type: none"> Hillsboro is the third largest out-of-county work location for Yamhill County residents Connections to TriMet regional transit serving Portland Access to major shopping and entertainment destinations Supports intra-county connections for OR 47 cities to Newberg (via McMinnville). 	<ul style="list-style-type: none"> Projected residential growth in Carlton and Yamhill Employment growth in the Hillsboro area could increase commute demand 	<ul style="list-style-type: none"> Existing service likely generally appropriate; future service levels based on productivity and capacity Transit market is likely not strong enough to support direct connections between OR 47 corridor cities and Newberg.

Figure 3-10 Existing Transit Service and Potential Areas for Additional Service



4 TRANSIT COSTS AND FUTURE FUNDING SCENARIOS

This section summarizes methods that will be used to quantify order-of-magnitude costs for transit solution strategies and describes the proposed future funding scenarios that will be used to develop cost-constrained packages of strategies in Tasks 6 and 7. Preliminary costs are presented for a conceptual set of service options to help the PAC and other YCTA stakeholders understand tradeoffs between transit service levels and the future funding level needed for YCTA to implement a given set of strategies.

TRANSIT UNIT COST ASSUMPTIONS

Figure 4-1 describes assumptions about transit operating costs, capital costs, and inflation. These values are used to provide rough cost estimates for serving the potential transit corridors, as described below. These unit costs will also be used to estimate costs for more detailed service scenarios in subsequent tasks.

Figure 4-1 Transit Service Unit Cost Assumptions

Cost type	# of Units	Data sources for # of Units	Unit Cost Data Sources	Unit Cost
Transit Operations	Service Hours	Days and hours of service Route frequency or headway Route run times (based on average operating speed)	YCTA average operating cost per service hour TDP peer analysis	\$55 [1]
Transit Capital	Vehicles	Same as Transit Operations (see above)	Oregon DOT Vehicle Crosswalk avg. Industry standards	40-foot bus: \$485,000 25-foot bus: \$95,000 [2]
Transit Capital	Bus stop facilities	Route design and activity centers	Oregon DOT Transit in Small Cities ODOT Transit Division price agreement Industry standards	Shelter: \$6,000 Pad: \$2,000 Bench: \$1,000 Sign: \$650
Inflation	Annual change	Used to inform 20-year cost escalation.	US Bureau of Economic Analysis Consumer Price Index [3]	2.3 %

Notes: [1] Based on average of fixed-route, commuter, and dial-a-ride service, based on 2014 data from the National Transit Database, 2015.

[2] Vehicle prices based on representative averages from Oregon DOT State Price Agreement Vehicle Contract Crosswalk, June 2017. [3] Western Region average annual change 1996-2016.

FUTURE FUNDING SCENARIOS

Understanding the potential for future transit funding will help YCTA decide which potential service strategies will best meet the County's public transportation needs. This section introduces preliminary funding and investment scenarios to reflect and guide YCTA stakeholders' funding expectations. The scenarios are informed by historical funding trends, and estimated changes in revenues and expenses. The funding analysis includes federal and state funding programs, Yamhill County funds, local agency partners, and fares.

Funding Trend Assumptions

YCTA budgets show relatively steady and sustainable funding sources over the past seven years. Operating expenses have totaled around \$2 million annually, rising from \$1.91 million in fiscal year 2013, to \$2.04 million in fiscal year 2017. Federal and state funds have accounted for about 70% of total revenues over the past five years, with local funds (service contracts and County General Fund) accounting for 15%, and fare revenues providing the remaining 15%.

The proposed YCTA funding scenarios assume that the revenue and expense trends will continue and that there will be no major changes in service plans and state and federal transit grant programs. Starting with the fiscal year 2018 budget, revenues and expenses were projected to 2035 using three assumptions described below.

- **The State Transportation Investment Fund (STIF) provides \$1.0 million to \$1.7 million annually.** The Oregon Legislature recently passed a transportation funding package in House Bill 2017 that included over \$100 million dollars annually for public transportation providers statewide. The funding is from a statewide employee payroll tax and is expected to start in fiscal year 2019. The funding scenarios assume that YCTA receives \$1.0 million in the each of the first two years of the program, increasing to \$1.7 million in fiscal year 2021. While STIF resources are available to other public transportation providers in Yamhill County, the assumption for this analysis is that YCTA receives nearly all available funds.
- **Expenses, federal revenue, and state revenue increase at a 2.3% annual inflation rate.** The inflation rate is based on the US Bureau of Labor Statistic's Consumer Price Index data between years 1996 and 2016, and is consistent with generally low inflation rates in recent years.
- **Fare revenues increase at a 2.3% annual inflation rate.** Increasing fare revenues assume ridership increases at the same rate as population growth (1.3% annually or 27% as shown in Figure 3-3 above), and that fare prices increase occasionally over the 20-year period to maintain today's 15% farebox recovery ratio.
- **Local service agreement revenues grow rapidly with increased coordination.** The County expects to grow operations contracts and agreements with local institutional partners, doubling today's revenues by the year 2025 (or a 13% annual growth rate).
- **Yamhill County General Fund revenues increase with inflation, then slow over the long term..** YCTA expects General Fund revenues to increase to \$250,000 by the year 2020 (13%), increase with inflation at 2.3% annually until 2025, then taper to 1.0% annual growth over the following 10 years.

Operating Funding

Figure 4-2 summarizes funding projections through fiscal year 2035, with intermediate years shown to understand the resulting funding progression. As shown in the “revenues less operating expenses” row, YCTA can expect a funding surplus equal to the amount of STIF revenues available to Yamhill County—over \$2.1 million by 2035. These net operating revenues may be used to fund additional transit service and/or help YCTA meet needs for capital equipment and infrastructure, as described in the next section.

Figure 4-2 Estimated Future Funding Projection: Current Trends including STIF, 2018-2035

Fund Category	2018	2020	2025	2035
Operating Expenses	\$2,050,000	\$2,110,000	\$2,460,000	\$3,340,000
Operating Revenues	\$2,060,000	\$3,140,000	\$4,320,000	\$5,510,000
Local Funds	\$620,000	\$660,000	\$810,000	\$1,100,000
Fares	\$310,000	\$340,000	\$380,000	\$480,000
Contracts	\$90,000	\$100,000	\$180,000	\$300,000
County General Fund	\$220,000	\$250,000	\$280,000	\$310,000
State and Federal Funds - Formula	\$1,440,000	\$2,480,000	\$3,510,000	\$4,410,000
Oregon STF Formula	\$250,000	\$260,000	\$290,000	\$360,000
Federal §5310 Elderly and Disabled	\$330,000	\$340,000	\$380,000	\$480,000
Federal §5311 Rural General	\$860,000	\$880,000	\$980,000	\$1,230,000
State Transportation Investment Fund	\$0	\$1,000,000	\$1,860,000	\$2,340,000
Net Revenues Less Operating Expenses	\$10,000	\$1,060,000	\$1,890,000	\$2,160,000

Source: TDP Analysis. Current budget data from Yamhill County. All figures in 2017 dollars, rounded to nearest 1,000.

Capital Funding

While operating expenses make up the majority of the typical annual YCTA budget, vehicle, equipment and facilities can require significant resources to replace and expand to meet future needs. Capital resources benefit from lower local match rates than system operations (20% capital local match versus 50% operations local match) but with large buses costing over \$500,000, the local funding demands can be considerable.

Figure 4-3 summarizes revenues received over the past five years, between fiscal years ending 2013 and 2018. Each revenue source was intended for a specific capital purchase that YCTA applied for successfully through the Oregon Department of Transportation (ODOT). The largest project was the McMinnville Transit Center, awarded in fiscal year 2013-2014 for over \$1.1 million. YCTA was also awarded nearly \$1.0 million in fiscal years 2017-2018, receiving three separate funding awards for vehicles (FTA 5339 and STIP Enhance) and information technology equipment and materials (STF Discretionary).⁹ On average, YCTA received and spent over \$470,000 annually on capital equipment and facilities.

Figure 4-3 Capital Funding Needs

Fund Category	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	Average
Capital Revenues	\$1,190,000	\$160,000	\$50,000	\$0	\$963,000	\$473,000
FTA ARRA	\$28,000	\$160,000				\$37,600
FTA 5339 Bus & Facilities			\$50,000		\$264,000	\$62,800
Oregon STF Discretionary					\$228,000	\$45,600
Oregon STIP Enhance					\$471,000	\$94,200
Connect Oregon IV	\$1,162,000					\$232,400

Source: Yamhill County

Historical capital funding suggests that YCTA will need to contribute some of its expected surplus funds listed in Figure 4-2 to capital expenditures. At least one state capital funding program—ConnectOregon—will exclude transit uses after implementation of the STIF program. YCTA would need to identify other funding sources for major facilities (such as new or expanded transit centers), and this change could place further reliance on existing funding shown in Figure 4-2 that may otherwise support operations expenses.

⁹ The funding awards are double the amounts shown in fiscal year 2017-2018, as YCTA budgeted the expenditures for both years of the Oregon DOT 2017-2019 biennium.

Potential for Additional Revenue Sources

The analysis of future funding for YCTA is based on trends in existing YCTA funding and expectations for future YCTA revenues. YCTA can expect to receive formula funding revenues as long as it maintains compliance with FTA and ODOT rules, and meets planning and management requirements. YCTA will also continue to have access to capital funding programs that can offer large if infrequent infusion of funds for vehicles and equipment (such as the FTA 5339 Buses and Bus Facilities Grants Program and the discretionary component of the STIF program).

Funding operations creates a different and important challenge, as funds are limited from external sources. To continue to expand services, YCTA may need to generate additional local revenues in addition to the recently enacted STIF funding source. Appendix B of this Technical Memorandum provides a detailed summary of existing and potential funding sources that could be used to fund public transportation service and capital needs, including federal programs, state funds, local option taxes, and local partnerships. These sources are used by peer agencies in Oregon and around the U.S. Where possible, the summary table includes an order-of-magnitude estimate of revenues that could be generated from given local funding options, as well as an assessment of feasibility and applicability for YCTA. Some options for local dedicated funds include:

- **Transit Utility Fee:** A monthly utility fee of between \$1 and \$1.50 for each of the 34,000 households in Yamhill County (as of 2015) could generate between \$400,000 and \$600,000 in annual revenue if enacted countywide, or a smaller amount if enacted by individual cities. This revenue source is used in Corvallis.
- **Local Option Property Tax:** Used by some transit districts in Oregon, a 5-cent tax per \$1,000 in property value could generate over \$400,000 in annual revenue. However, property taxes are subject to “compression,” which can reduce the revenue collected.
- **Motor Vehicle Registration Fees:** A \$2 annual vehicle registration fee in Yamhill County could result in over \$100,000 in annual revenues for YCTA.
- **Gasoline Tax:** A 1-cent tax on Yamhill County gasoline sales could return about \$400,000 in annual revenue. However, gas taxes are declining based on increasing fuel efficiency and adoption of alternative vehicle fuel sources.
- **Payroll Tax:** A payroll tax of 1/10th of a percent of annual payroll would yield about \$400,000. YCTA is a service district formed under Oregon Revised Statute (ORS) 451, which allows for a more limited taxing authority than other organizational structures in Oregon. YCTA’s authority to collect a local employer payroll tax (in addition to the statewide payroll tax collected to fund the STIF program), would need to be confirmed. Several transit districts or providers in Oregon use this funding source.

Appendix B provides additional detail on public transportation funding sources.

Funding Scenarios and Service Options

Four long-range funding scenarios were considered to represent a range of funding trends and the potential for additional local funds. These scenarios range from today's \$2.0 million operating budget to an annual budget of \$4.5 million.

- **A. Cost-neutral scenario.** Assumes no change in YCTA funding sources and over time would require service reductions, given assumed inflation trends that affect costs and funding in different ways.
- **B. Current trends.** Represents existing budget plus expected new Oregon STIF program revenues of \$1.5 million.
- **C and D. Additional local funding.** Varying levels of new funding ranging from \$500,000 to \$1.0 million in addition to the STIF program.

Figure 4-4 presents order-of-magnitude costs for a variety of *conceptual* service enhancement options that could be implemented, calculated using the unit costs presented in Figure 4-1. The potential service enhancements were identified through the Existing Conditions analysis and public and stakeholder input gathered in the initial phases of the TDP (see TM #1 and #2).

These options could be prioritized and implemented in phases within the Current Trends scenario that includes \$1.5 million in revenues from the STIF program. It would cost nearly \$3 million to implement all options, indicating that YCTA would need to prioritize strategies over the next 20 years to cost-effectively meet the County's transportation needs. If additional enhancements are desired beyond the level possible with new revenues from the STIF program, additional local funding sources would need to be identified.

Figure 4-5 summarizes the service options by potential service area, illustrating the level of investment in each city or transportation corridor given the conceptual service options.

The order of magnitude costs in Figure 4-4 and Figure 4-5 are only preliminary values to assist in creating future service priorities and scenarios later in the TDP. These costs also do not include potential efficiencies that could be realized from redesigning routes or modifying service levels, which will be considered in Tasks 6 and 7 of the TDP.

Further input on funding levels, priorities, and packaging of strategies will be obtained from the PAC (at PAC Meeting #2 in September 2017) and used to develop more detailed service design and cost estimates in the subsequent phases of the project.

Figure 4-4 Conceptual Transit Enhancement Options and Costs

Conceptual Service Options	Annual Hours	Estimated Annual Cost
Cost Neutral / Existing	36,900	\$2,030,000
Enhancement Options		
Increase span to 7 pm and provide additional fixed-route and intercity trips	7,300	\$410,000
Add evening service until 9 pm	6,100	\$340,000
Add Saturday Service (McMinnville, Newberg, and Routes 11 and 33)	4,700	\$260,000
Add Sunday Service (All Service Areas)	5,800	\$320,000
Additional Fixed-Route Coverage in McMinnville & Newberg	3,600	\$200,000
Additional General Public Dial-A-Ride Capacity in McMinnville & Newberg	4,700	\$260,000
Additional evening service on Routes 11, 22, and 33	1,400	\$80,000
Additional daytime trips on Routes 11 and 33	1,800	\$100,000
General Public Dial-A-Ride Vehicle for Limited Countywide Service, including Shopper or other shuttle-type services (assumes 2 vehicles on weekdays)	4,700	\$260,000
Additional Express trip McMinnville-Tigard and McMinnville-Newberg Connector	3,900	\$220,000
30-minute fixed-route frequency in McMinnville and Newberg	9,400	\$520,000
Total of All Enhancement Options	53,400	\$2,970,000
Existing + All Enhancement Options	90,300	\$5,000,000

Note: All enhancement option costs rounded to nearest \$10,000

Source: TDP Analysis

Figure 4-5 Conceptual Transit Improvement Options and Costs By Service Area

Service Area or Corridor	Existing / Cost-Neutral		With All Enhancements	
	Annual Hours	Annual Cost	Annual Hours	Annual Cost
McMinnville	10,400	\$572,000	30,700	\$1,689,000
Newberg	7,500	\$412,000	26,700	\$1,469,000
McMinnville - Salem	2,000	\$110,000	3,700	\$204,000
McMinnville - Grand Ronde	3,900	\$214,000	4,900	\$270,000
McMinnville - Hillsboro	2,600	\$143,000	4,800	\$264,000
McMinnville - Newberg - Tigard	10,400	\$572,000	14,900	\$820,000
Limited Countywide Services	0	\$0	4,700	\$259,000
Total	36,800	\$2,030,000	90,400	\$4,975,000

Note: All costs rounded to nearest \$1,000. Differences from Figure 4-4 are due to rounding.

Source: TDP Analysis

Additional details on the order-of-magnitude cost estimates are included in Appendix C.

5 SUMMARY OF KEY FINDINGS AND NEXT STEPS

SUMMARY OF KEY FINDINGS

This memo provides a revised evaluation framework, analyzes potential YCTA transit service areas based on existing and forecasted land use and transportation conditions, including information on current development plans, and provides illustrative service improvement options with order-of-magnitude cost estimates. All of this information is intended to help YCTA stakeholders understand the existing and potential future public transportation markets and how YCTA might best serve them given expected resources. The project team and stakeholders will use the information in subsequent project phases to develop service improvement and funding plans that best need the transportation needs in Yamhill County. Key findings are summarized below.

Transit Service Area Analysis

- Most residents and jobs in McMinnville and Newberg are within a quarter-mile access distance of *existing* transit routes and stops (approximately 70% and 80%, respectively). In all other Yamhill County cities, 36% of residents are within a quarter-mile of a bus stop, and nearly 60% of jobs are accessible within a quarter-mile of a bus stop.
- Existing average population and employment densities in McMinnville and Newberg generally support 60 minute bus frequencies, particularly given the relatively high employment densities in the downtown core areas.
- Based on projections from the Portland State University Population Research Center, Yamhill County is expected to grow from approximately 108,000 to nearly 137,000 residents by 2035, an increase of 27%. The vast majority of population growth is forecasted to occur within existing urban growth boundaries. Seventy percent of growth is forecasted to occur in McMinnville and Newberg. The highest growth rates would be in cities along the OR 99W and OR 18 corridors between McMinnville and Newberg.
- Oregon Employment Department data includes projected growth rates by job sector for the Mid-Willamette Valley Region for 2014-2024. If these growth rates continue, employment in Yamhill County would increase from 33,000 to nearly 43,000 jobs by 2035, an increase of over 29%. Assuming 2035 employment reflects the existing geographic distribution of job sectors, approximately two-thirds of jobs would be in McMinnville and Newberg and 10% of jobs would be in other cities. One quarter of jobs would be in unincorporated areas of the County; unincorporated areas do not have YCTA bus stops today.
- Significant planned or proposed developments include “workforce” housing on the west side of McMinnville (Hill Road and/or Baker Creek Road areas), the Riverfront District in Newberg, and the Gramor/Crestview Crossing development north of Providence Medical Center in Newberg.
- In McMinnville and Newberg, parts of these cities with transit supportive land use density do not have transit service. Additional fixed-route service is likely warranted so they have transit service comparable to areas of the cities with similar land use densities.

- In other Yamhill County cities (excluding McMinnville and Newberg), some moderate density residential areas, significant activity centers, and/or major employment areas are beyond a quarter-mile distance of the intercity bus stops. These cities lack a sufficient transit market to support regularly scheduled fixed-route service, but could be considered for additional stops on intercity routes or alternative service models to meet their transportation needs (e.g., limited general public dial-a-ride or a shopper shuttle).
- Overall, YCTA appears to be serving intercity corridors with good public transportation markets. More specific service level and transit market recommendations will be provided as part of TDP tasks 6 and 7. For example:
 - The McMinnville-Tigard (OR 99W / OR 18) corridor has the highest transit market potential, based on connections to services and jobs in McMinnville and Newberg and proximity to jobs, services, and other destinations in the Portland Metro area. It also provides a connection between other YCTA corridors and Newberg.
 - The McMinnville-Hillsboro corridor (OR 47) and McMinnville-Salem corridor (OR 99W) offer moderately high potential for growth due to proximity to jobs in the Portland and Salem Metro areas, respectively. Existing service levels have capacity to meet needs in the near-term.
 - The McMinnville-Grand Ronde corridor (OR 18) serves a major entertainment destination and provides rural intercity connections. Existing service levels have capacity to meet weekday needs, although there may be demand to support Sunday service.

Figure 3-10 illustrates existing YCTA transit corridors and areas where providing additional service will be considered in subsequent TDP phases (Tasks 6 and 7).

Future Funding and Transit Service Cost Scenarios

- YCTA operating budgets have remained fairly steady at approximately \$2 million annually. Capital costs have averaged approximately \$470,000 annually over the past five years, including a one-time grant of \$1.1 million to construct the McMinnville Transit Center.
- The key funding change is the Oregon State Transportation Investment Fund (STIF) that is projected to provide \$750,000 to \$1.5 million in new annual funding to YCTA, for use on either operating or capital purposes. The majority of these funds can be used to fund operations, but a portion should be set aside for capital equipment, such as buses.
- When it established the STIF program, the Oregon Legislature also stipulated that ConnectOregon funds could no longer be used for transit. This means YCTA will need to seek other funding sources for major capital expenditures.

NEXT STEPS

At PAC Meeting #2, the project team will solicit input from the Public Advisory Committee on the topics summarized in this document, including:

- Additional planned developments and growth areas that should be considered for future service
- General priorities for potential service enhancements
- Feasibility/need for additional funding sources and the financial scenario that should be considered for the TDP

Based on this input, in Tasks 6 and 7 of the TDP a more detailed and complete set of service solution strategies will be developed and brought to the PAC and the public for their input. A refined future service design will then be developed.