CITY OF West Linn

Memorandum

Date: February 13, 2015

To: West Linn Planning Commission

From: Zach Pelz AICP, Associate Planner

Subject: Materials for February 18, 2015, discussion regarding West Linn Transportation System Plan Update

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The purpose of this memorandum is to introduce the documents that will be the subject of our Transportation System Plan (TSP) review and discussion on February 18, 2015, and to provide direction on what feedback we'd like from the Planning Commission at this meeting.

At our meeting on the 18th, staff will provide a summary of the following attached memoranda prepared for the TSP Update:

1. Draft Technical Memorandum No. 1: TSP Policy Framework;
2. Draft Technical Memorandum No. 2: Transportation Changes since 2008 and Special Interest Topics;
3. Draft Technical Memorandum No. 3: Performance Measures and Key Outcomes;
4. Draft Technical Memorandum No. 4: Forecast Funding/Local Funding Sources; and,
5. Draft Technical Memorandum No. 5: Existing Conditions.

Draft Technical Memorandum 1 presents the universe of State, Regional and Local policies that are applicable to the City of West Linn during this update to our TSP. Please consider this document as largely informational only; *your feedback is not requested on this document*.

Draft Technical Memorandum 2 identifies the type and extent of transportation improvements that have been completed in West Linn since the adoption of the current TSP in 2008. This document also outlines a number of relevant special interest topics that staff would like decision-makers to be aware of throughout this TSP Update. This document is also provided for informational purposes only and *your feedback is not requested on this document*.

Draft Technical Memorandum 3 proposes a set of project outcomes and performance measures for this TSP Update that are based on existing transportation-related policies in the West Linn Comprehensive Plan, the Imagine West Linn Vision, and the guidance principles from the 2040 Regional Growth Concept (all of which are outlined in detail in *Technical Memorandum No. 1*). For the first time in the history of long-range transportation system planning in West Linn, staff is proposing an outcomes based approach to problem solving, complete with well-defined metrics for determining the ongoing performance of projects and programs that are recommended in the TSP.

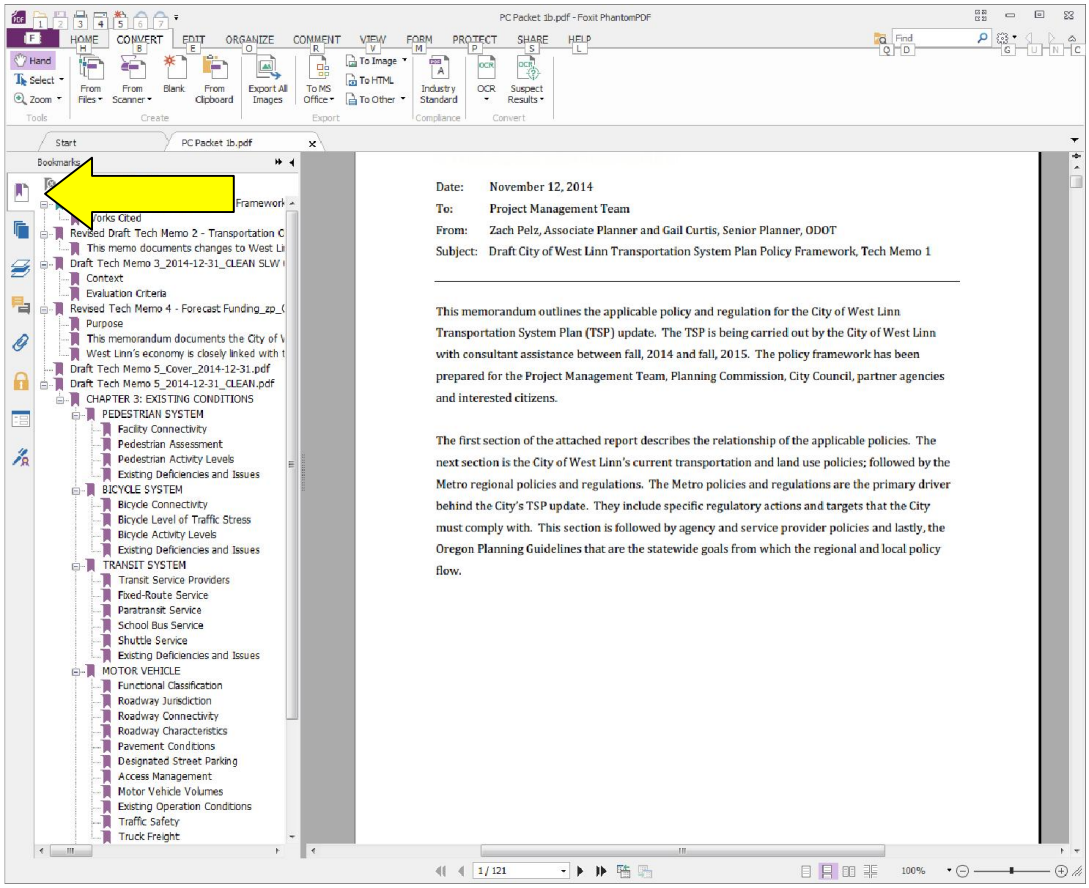
Staff would like the *Planning Commission to provide feedback on the four project outcomes as well as the proposed targets under each Key Outcome*. Your feedback will help ensure our methodology and targets adequately capture the vision and policies expressed in adopted State, Regional and Local plans in a manner that can realistically be evaluated by the City, given expected resources available through 2040.

Draft Technical Memorandum 4 provides a summary of the forecasted transportation-related expenses and revenues West Linn anticipates through 2040. *This document is for informational purposes only*.

Finally, *Draft Technical Memorandum 5* provides an overview of the existing conditions as they relate to the various modes of transportation in West Linn. While this document is largely to provide informational background upon which future needs will be determined, we are asking the *Planning Commission to provide feedback as to whether the existing conditions have been adequately captured and presented*. For example: are sidewalks accurately reflected in Figure 3-2? Are existing deficiencies and issues (included at the end of each mode section) sufficiently summarized? Are all modes of transportation completely described? And, other similar feedback.

The attached memos are fully bookmarked and allow for convenient navigation between documents from your electronic device. To use the bookmarks in your .pdf document, simply click the bookmark icon shown to the left of the arrow in Image 1, below.

Image 1 Bookmarked Attachments



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Revised Draft Tech Memo 2 - Transportation Changes_zp_CLEAN.pdf

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Revised Tech Memo 4 - Forecast Funding_zp_CLEAN.pdf

Draft Tech Memo 5_Cover_2014-12-31.pdfDraft Tech Memo 5 - Existing Conditions

Date: November 12, 2014

To: Project Management Team

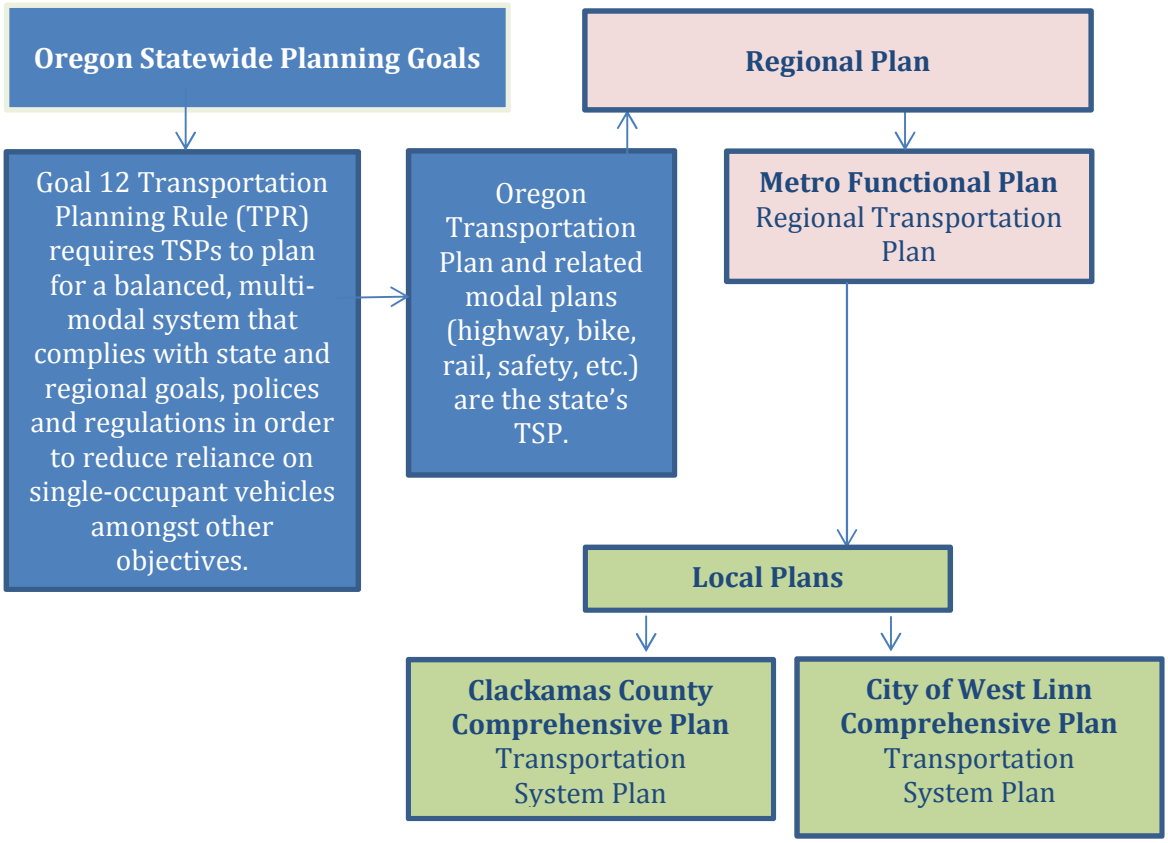
From: Zach Pelz, Associate Planner and Gail Curtis, Senior Planner, ODOT

Subject: Draft City of West Linn Transportation System Plan Policy Framework, Tech Memo 1

This memorandum outlines the applicable policy and regulation for the City of West Linn Transportation System Plan (TSP) update. The TSP is being carried out by the City of West Linn with consultant assistance between fall, 2014 and fall, 2015. The policy framework has been prepared for the Project Management Team, Planning Commission, City Council, partner agencies and interested citizens.

The first section of the attached report describes the relationship of the applicable policies. The next section is the City of West Linn's current transportation and land use policies; followed by the Metro regional policies and regulations. The Metro policies and regulations are the primary driver behind the City's TSP update. They include specific regulatory actions and targets that the City must comply with. This section is followed by agency and service provider policies and lastly, the Oregon Planning Guidelines that are the statewide goals from which the regional and local policy flow.

Oregon's Transportation System Planning Integration and Consistency



The TSP update is mandated as part of Oregon's Transportation Planning Rule (TPR) and must be consistent with adopted state and regional transportation and land use plans and policies.

The TSP policy framework will influence the selection of solutions and investments included in the TSP. While the State of Oregon's statewide planning and Portland Metro regional planning provide a strong policy and regulatory framework, the most relevant policy is the adopted, local policy which is expressed by the City of West Linn Comprehensive Plan and Imagine West Linn.[1] The TSP update is expected to result in new or modified City policy and implementing regulations in order to be in compliance with regional policy. Since the regional transportation and land use policies and regulations have been deemed consistent with state policy, regional policy becomes the focus of compliance for the TSP update.

Below is an overview the City policies relevant to the TSP.

[1] Adopted February 1994 and updated September 2008.

West Linn Comprehensive Plan

The West Linn Comprehensive Plan guides local land use decisions by establishing policies that implement Statewide Planning Goals and regional policy. Goal 12, the City's comprehensive plan transportation goal, identifies policies and actions the City will pursue to implement the TSP and the transportation-related guidance established in the State Planning Guidelines. This goal and related implementing regulations express how the City has chosen to become "consistent" with the relevant state and regional policies and regulations. A review of missing or incomplete City policies and implementing regulations will be identified as part of the TSP update.

Key City of West Linn Comprehensive Plan policies for the TSP Update include:

- Goal 12, Policy 1: Protect the entire rights-of-way of existing City streets for present and future public use;
- Policy 2: Design and construct transportation facilities to meet the requirements of the Americans with Disabilities Act;
- Policy 3: Require in-fill development in older neighborhoods to contribute to needed transportation facilities within their neighborhoods to the extent allowed by law;
- Policy 4: Improve traffic safety through a comprehensive program of engineering, education and enforcement;
- Policy 5: Take a more aggressive and proactive role in assuring federal, state, and regional decision makers consider West Linn's needs for improvements to I-205;
- Policy 6: Recognize the Metro designation of green corridors and their function to provide interurban connectivity. If future annexations include a green corridor, control access to the green corridor to maintain the function, capacity, and level of service of the facility and to enhance safety and minimize development pressures on rural reserves;
- Policy 8: Pursue an interconnected street system that provides connections between development and neighborhoods;
- Streets Policy 1: Establish and maintain transportation performance measures;
- Streets Policy 2: Protect neighborhoods from excessive through traffic;
- Streets Policy 6: Strive to maintain a safe and efficient transportation system by developing street standards, access management policies, incorporating traffic calming measures, and by making street maintenance a priority;
- Streets Policy 9: Develop neighborhood and local connections as identified in the West Linn TSP, to provide adequate circulation in and out of the neighborhoods;
- Streets Policy 10: Limit the use of cul-de-sacs and closed street systems;

- Streets Policy 11: Participate in regional discussions and planning for rail service or other modes of transportation that encourages regional transportation;
- Streets Policy 12: Seek funding and prioritize improvements that address: improvements for pedestrians and transit riders; improvements at high accident locations; street maintenance improvements; neighborhood traffic calming; and, improvements for bicyclists;
- Bicycle Policy 2: Promote a comprehensive network of bike paths, lanes, and routes that: connects the four commercial centers in Willamette, Bolton, Robinwood, and Tanner Basin; integrates with regional bicycle routes that traverse West Linn; provides connections to schools, recreation facilities, community centers, and transit facilities;
- Bicycle Policy 3: Stripe and sign bike lanes on all arterial and collector streets consistent with the TSP;
- Bicycle Policy 4: Require new commercial, industrial, and institutional development to provide on-site facilities for bicycle parking and storage; design new streets and retrofit older streets to enhance safety for bicyclists using the roadways;
- Pedestrian Policy 1: Promote a comprehensive network of pedestrian paths, lanes, and routes that connects the City's commercial centers, provides connections to schools, recreation facilities, community centers, and transit facilities; use off-street pedestrian short-cut pathways to provide routes where physical constraints or existing development preclude the construction of streets with sidewalks; provide safe, secure and desirable walkway routes, with a preferred spacing of no more than 330 feet; eliminate gaps in the existing walkway network and provide pedestrian linkages between neighborhoods;
- Pedestrian Policy 4: Promote safe pedestrian crossings;
- Pedestrian Policy 5: Where parks and recreation trails are coterminous with sidewalks, their design shall be enhanced to serve both transportation and recreational purposes;
- Pedestrian Policy 6: Construct sidewalks on all new streets in West Linn and review they City's walkway standards periodically to ensure consistency with regional, State and Federal standards;
- Pedestrian Policy 7: The City will enforce regulations requiring developers to include pedestrian facilities and walkway connections within proposed developments and to adjacent land uses and right-of-way in accordance with adopted policies and standards. Developer agreements for the provision of walkways will be implemented and enforced as needed;
- Transit Policy 1: Encourage expanded bus service along existing routes and new transit service to areas that currently are not served by transit;
- Transit Policy 4: Prioritize transit improvements that would increase overall mobility;
- Transit Policy 5: Promote a transit network that connects the City's commercial centers;

- Transit Policy 6: Establish that fixed route transit will use arterial and collector streets in West Linn;
- Transit Policy 7: Encourage the provision of regional transit service between West Linn and other suburban communities in the Metro Area;
- Transit Policy 8: Encourage the development of modes of mass transit for those residents of the City who must commute to jobs outside the City limits;
- Transit Policy 9: Work with TriMet to implement special needs transportation in accordance with the ADA;
- Transit Policy 10: Improve pedestrian and bike accessibility along major transit routes and to transit stations;
- Transit Policy 11: Support a public transit system that is accessible to the largest number of people by:
    - Locating transit oriented development around transit stations, along major transit routes, and in the designated town center areas;
    - Evaluating more intense and mixed-use zoning designations in areas around transit stations, along major transit routes, in the designated Town Centers, the OR 43 Corridor and along designated Main Street areas identified in the Metro 2040 Growth Concept Plan. Future proposed land use changes or rezoning that may result in increased residential densities, additional employment opportunities, or commercial activity should be located in these areas. The City will ensure that development is built consistently with the density allowed by zoning, while protecting the liability of existing neighborhoods;
    - Encourage the provision of housing for the elderly and moderate income families to be located in close proximity to public transit;
    - Coordinate with TriMet to ensure that transit opportunities are provided to employees at major employment; and,
    - Ensure that transit oriented public facilities are located along the primary transit network as defined in the RTP.
- Water Transportation Policy 1: Promote the continued use of the Willamette River and the Willamette Falls Locks for water transportation;
- Freight and Goods Movement Policy 2: Discourage non-local freight trips on Highway 43 through West Linn;
- Freight and Goods Movement Policy 3: Promote the river and locks as important elements of the City's transportation system for transporting goods as well as recreational use;
- Transportation Demand Management Policy 1: Encourage employers in West Linn to implement transportation demand management (TDM) measures to reduce commuter traffic and meet regional air quality and vehicle miles traveled (VMT) reductions;

- Transportation Demand Management Policy 2: Work with Metro area partners to provide marketing, technical and program assistance to major employers to Employee Commute Options program compliance;
- Transportation Demand Management Policy 3: Develop and implement a local TDM program that compliments, expands and improves access to regional transit pass subsidies, emergency rides home, and carpool/vanpool matching database to major employers;
- Transportation Demand Management Policy 4: Reduce VMT through mixed used development in planned centers and regulations that encourage home based businesses that are compatible with residential areas

Imagine West Linn Vision

The *Imagine West Linn Vision* was developed to talk about what may happen in West Linn if the City does nothing; what could happen with some planning and foresight; and how the City could achieve its desired future. This document provides the following principles to help guide decision-making:

- Sense of Community.
    - Assure that decisions account for their impact on the sense of community;
    - Continue to develop parks, natural areas, walkways, bike paths and greenways;
    - Assure neighborhoods, schools, City parks, neighborhood centers and the Willamette Falls Commercial Area are connected by safe pedestrian and bicycle pathways through the implementation of the Trails Master Plan;
    - Develop wide sidewalks with pedestrian amenities;
    - Pursue the creation of a local jitney transit system that maintains 15-minute headways and provides transportation to local destinations and connections to the regional transit system;
    - Encourage ride sharing and carpools by pairing up commuters and assist in-need persons with transportation to and from after school events and senior programs.
- Land Use and Quality of Life.
    - Adopt land use policies that allow for flexibility in housing types to meet the needs of the elderly and provide for affordable housing that is close to needed services and encourages modes of transportation beyond the single occupancy vehicle;
    - Plan for mixed-use development and increased development densities along transit corridors;
    - Implement the recommendations of the 10th Street Corridor Task Force, adopted as part of the 2008 TSP;
    - Continue requiring the dedication of trail corridors in an aggressive fashion. Trails along the Willamette and Tualatin River should be a priority;

- Work with the School District to maintain the presence of neighborhood schools and encourage new schools to be built near population centers in which they are intended to serve and where possible, along transit lines.

- Transportation.
  - Implement green street technology as a means of slowing stormwater runoff and improving water quality in area streams;
  - Continue to make improvements in the planning and design of streets, trails and buildings to promote alternative modes of transportation and to reduce the miles traveled by automobile;
  - Coordinate with ODOT in the implementation of the Highway 43 Conceptual Design Plan;
  - Encourage the expansion of transit in West Linn and advocate for West Linn's interest in transit connections to Milwaukie and Lake Oswego as those communities pursue enhanced bus, light rail and/or street car service;
  - Support a transit link with the proposed Willamette Valley high-speed rail line station in Oregon City;
  - Plan for the provision of convenience services and public meeting places within easy walking distance of all West Linn residences;
  - Promote street connections where possible;
  - Reduce vehicle miles traveled through mixed-use development in planned centers.

2008 West Linn Transportation Systems Plan

The 2008 West Linn Transportation System Plan (TSP) is a supplemental document to the City's Comprehensive Plan and includes additional guidance for transportation-related decision-making. The TSP includes a master plan (complete list of identified project needs) and action plan (fiscally constrained list of prioritized transportation project) for bicycle, pedestrian, motor vehicle, public transit, and freight modes of travel as well as more detailed plans for the Highway 43 Corridor (Highway 43 Concept Plan) and the 10th Street/I-205 Interchange area.

The TSP fiscally constrained project list includes 13 pedestrian projects (included in the Highway 43 Concept Plan), two bicycle lane projects, and 20 motor vehicle projects. The TSP also directs the City to make investments that: improve transit service and amenities at major stops, increase density adjacent to public transit, provide more local transit service and that decrease transit vehicle headways. The Highway 43 Concept Plan recommends streetscape and performance improvements for vehicles, pedestrians and bicycles – including raised bicycle lanes, continuous sidewalks, a center median, left turn lanes, and improved pedestrian crossings and planter strips in a variety of configurations from Arbor Drive to Willamette Falls Drive.

The City has completed more recent transportation planning work not reflected in the current TSP. This work includes a parking management plan for the Willamette Commercial Area and Land Use Visioning for the Highway 43 and Willamette Falls Drive Corridor. The Willamette Area Parking Management Plan identified opportunities for low-cost solutions to current and short term parking needs in this area, including; wayfinding and improved parking for special events; discussions with local business owners about possibilities for shared parking; and, working with employers to encourage employees to park away from the prime parking spaces on Willamette Falls Drive.

The Highway 43 and Willamette Falls Drive Vision work was completed in 2012, and revealed public support for higher density mixed-use centers on Highway 43 and Willamette Falls Drive that would support frequent public transit, walking and bicycling and that were connected by safe and convenient bicycle, pedestrian and motor vehicle corridors. (City of West Linn, 2008)

City of West Linn Capital Improvement Plan

The Capital Improvement Plan (CIP) establishes guidance and planning for West Linn's investments in capital infrastructure for a six-year period. At the foundation of the CIP are the City's master plan documents (Parks, Library, Water, Sewer, Storm, Transportation), which are an extension of the City's Comprehensive Plan. Projects within the CIP are prioritized and matched with projections of future revenues. While the inclusion of projects in the CIP does not necessarily reflect a budgeted spending commitment, they are considered a priority based on anticipated future revenues. Below is a list of funded and unfunded transportation-related projects included in the 2014-2019 CIP:

- Parks fund. West Linn's Parks and Recreation Department strives to promote a healthy community through safe, attractive, and well-maintained parks, facilities, trails, and open spaces. The City has more than 600 acres of park land, approximately 150 acres of it is developed. The City's parks vary from active-oriented parks with opportunities for sports, picnicking, and playing on playgrounds, to passive-oriented parks with walking, biking, and wildlife-watching possibilities.

  The Parks and Recration Fund is a special revenue fund used to account for the maintenance and operation of the City's parks and open spaces, recreation activities and special events in the community. Principal sources of revenue include an allocation of the City's permanent property tax rate, a monthly maintenance fee charged to all residents, and program fees.

  Capital improvements for the Parks and Recreation Department are based on citizen input, maintenance needs, approved site master plans, and the 2007 Parks, Recreation and Open Space Master plan. The Master Plan addresses the park, facility and service needs ot the community into the future. Specific projects are vetted through public involvement and the land use process to create individual site master plans.

  - *Funded* - $10,000 annually ($60,000 total) for accessibility upgrades that provide access in park areas and facilities for people with disabilities;
  - *Unfunded* - City-wide trail improvements (amount to be determined at a later date);

- *Unfunded* - $450,000 in Fiscal Year 2017, 2018, and 2019 ($1,350,000 total) for Regional Trail System improvements;
- *Funded* - $231,000 in FY 2014 and $100,000 in FY 2015 for construction of the Willamette River Trail.

- Streets fund. West Linn's Transportation System includes over 215 lane miles of streets, 120 miles of sidewalk and approximately 700 acres of right-of-way that must be constantly maintained and upgraded to safely and efficiently serve pedestrians, bicyclists, and motor vehicles. Revenue for the Street fund comes from gas taxes, street maintenance fees, franchise fees, and occasional grant funding.
  - *Unfunded* - $5.23 million in FY 2019 for 10th Street/I-205 Corridor Improvements;
  - *Funded* - $673,000 between FY 2014 and FY 2019 for various sidewalk and bike improvement projects;
  - *Funded* - $47,000 annually ($282,000 total) between FY 2014 and 2019 for street crack sealing;
  - *Funded* - $3.77 million between FY 2014 and 2019 for pavement maintenance;
  - *Funded* - $158,000 between FY 2014 and 2019 for annual striping and marking of roadways;
  - *Funded* - $1.369 million between FY 2014 and 2019 for slurry sealing;
  - *Funded* - $1.3 million between FY 2014 and 2019 for TSP action plan projects, including a signal at the Rosemont Road/Salamo Road intersection.;
  - *Unfunded* - $6.62 million between FY 2016 and 2019 for TSP action plan projects;
  - *Funded* - $200,000 in FY 2014 to update the City's TSP. (City of West Linn, 2014)

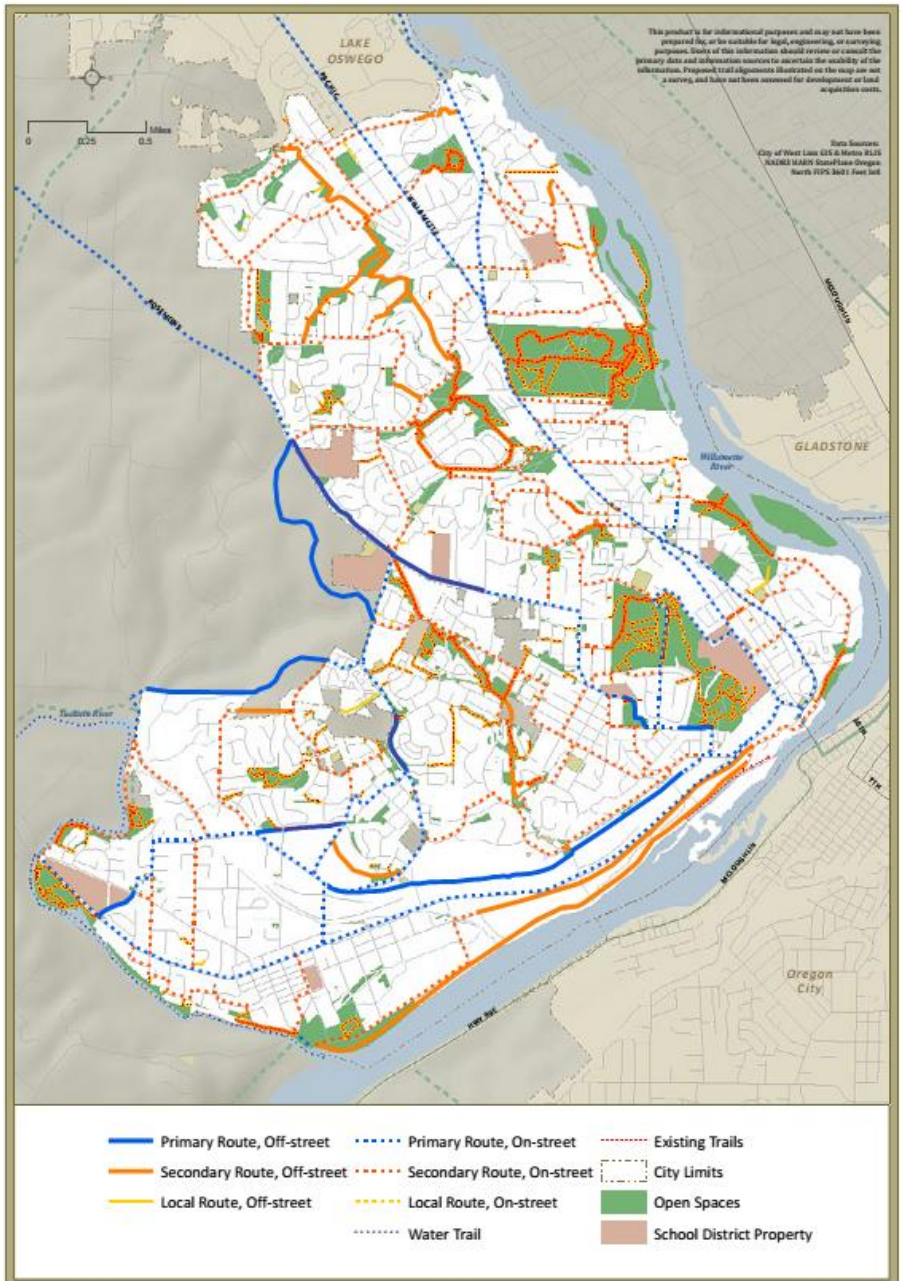
City of West Linn 2013 Trails System Master Plan

Over the past three decades, West Linn residents have expressed a desire for a city-wide system of trails as part of the development of various adopted parks and recreation plans. The West Linn Trails System Master Plan (TMP) is the next step in advancing the policies and recommendations from past planning efforts. The intent of the TMP is to guide development of a consistent system of trails for multiple users in the City of West Linn, while incorporating and respecting the distinct settings and experiences that residents value. The TMP recommends the following relevant actions:

- Conceptual Trail System. The TMP resulted in the creation of a conceptual trails system, consisting of primary, secondary and local routes, which when completed, will provide a total of 87.5 miles of on- and off-street trail routes. The conceptual plan proposes 44.6 miles of on-street trails, designed almost exclusively as primary and secondary routes;
- Coordinate with the Transportation System Plan. The on-street recommendations from the Trails Plan should serve as the basis for the analysis regarding non-motorized modes in the

TSP. Additionally, design guidelines should be coordinated between on- and off-street facilities;

- Route prioritization. Generally, alignments under public ownership should receive the highest priority for development while alignments not under public ownership receive the lowest priority;
- Design guidelines for on-street facilities:
    - Except in cases of high-demand, all facilities should be designed as shared pedestrian and bicycle travel ways;
    - The design of public street and trail intersections should allow for safe crossing of pedestrians and cyclists and meet accessibility guidelines;
    - Trails should be designed to minimize curb cuts;
    - Trails should be designed to respond to adjacent land uses and access (e.g., routes adjacent to higher density development with a mix of land uses may merit wider than the minimum travel width to accommodate the higher volume of users);
    - Depending on the available width of the right-of-way, other facility design modifications should be considered such as reducing automobile travel lanes, on-street parking and other traffic calming techniques;
    - Trails signage should include the posted speed limit on shared routes, as well as striping, painted markings or surface material change that cautions trail users of approaching stops, intersections, curves and other situations where speed should be reduced.
- Education and awareness. The City can help achieve its goal of increasing walking and biking through increased public education that promotes use of the trail system as an alternative to driving. Additionally, signage and wayfinding will help users find trails and navigate confusing intersections or road crossings.
- Trail monitoring and maintenance. Trail users should have an easy and accessible resource to report trail issues or provide comments such as an online form monitored by park and public works staff. (City of West Linn, 2013)



2014 City of West Linn Economic Opportunities Analysis (TBD)

This plan is currently under development with an anticipated completion date of spring 2015.

City of West Linn Arch Bridge Master Plan (TBD)

This plan is currently under development with an anticipated completion date of summer 2015.

City of West Linn Pavement Management Program Budget Options Report, June 2011

This report summarizes the current state of the City's street network, the likely state of the street network over the next five years, and what steps can be taken to improve the overall condition of the City's street network. In 2011, the overall pavement condition index (PCI) was 62 (on a scale of 0-100), down from 65 in 2009. At the current funding level, the citywide PCI is anticipated to be at 54 in 2016. As streets fall below a PCI of 50 (poor condition) they will require more extensive treatment – such as thick overlays and full reconstructions – that are more expensive than slurry seals and thin overlays that could be applied to roadways in better condition.

The report presents four budget scenarios, ranging from the current projected funding level – of $300,000 over the next five years – to $18.7 million over five years (the amount required to bring the street network into Good condition).

In 2013, the West Linn City Council voted to increase the City's street maintenance fee on all residential users by 75 percent; with a 5 percent increase over the next four fiscal years. The City Council is currently considering whether to raise the street fee for non-residential users. (City of West Linn, 2011)

Metro Regional Transportation Plan Compliance

Metro 2014 Regional Transportation Plan (RTP) Update

Between 2010 and 2040, the region is expected to host nearly 1 million new residents. Where these people live and work and how they get around will have a significant impact on the livability of the region. Implicit in the 2040 Regional Growth Concept (the Regional Comprehensive Plan, which provides direction for the RTP) is the understanding that compact development is more sustainable, more livable and more fiscally responsible than low-density sprawl, and will help reduce the region's carbon footprint. In coming decades, the region will also need to find ways to accommodate a population that is older, more culturally diverse and do so with declining state and federal revenues.

Table 1.1
Forecasted Growth in Employment by County[6]

County	2010	2040	Increase
Portland Central City and Neighborhoods	374,342	531,209	156,867 (42%)
East Multnomah County	44,822	95,501	50,679 (113%)
Multnomah County	419,164	626,710	207,546 (50%)
Clackamas County	137,946	227,483	89,537 (65%)
Washington County	232,019	422,236	190,217 (82%)
Three-county sub-total	789,129	1,276,429	487,300 (38%)
Clark County (Wash.)	127,267	237,411	110,144 (87%)
Four-county total	**916,396**	**1,513,840**	**597,444 (65%)**

Source: Metro

Table 1.7
Share of Residents Commuting to another County for Work: 2000 and 2012

County	2000	2012
Clackamas County	51%	47%
Clark County	35%	32%
Multnomah County	22%	18%
Washington County	32%	30%

Table 1.6
Forecasted Population Growth by County (2010-2040)

County	2010	2040	Increase
Multnomah County			
Portland Central City and Neighborhoods	583,776	832,378	248,602 (43%)
East Multnomah County	151,847	195,614	43,767 (29%)
Clackamas County	401,757	616,309	214,552 (53%)
Washington County	503,656	719,026	215,370 (43%)
Three-county sub-total	1,641,036	2,363,327	722,291 (44%)
Clark County (Wash.)	425,363	620,193	194,830 (46%)
Four-county total	**2,066,399**	**2,983,520**	**917,121 (44%)**

Source: Metro 2040 Regional forecast

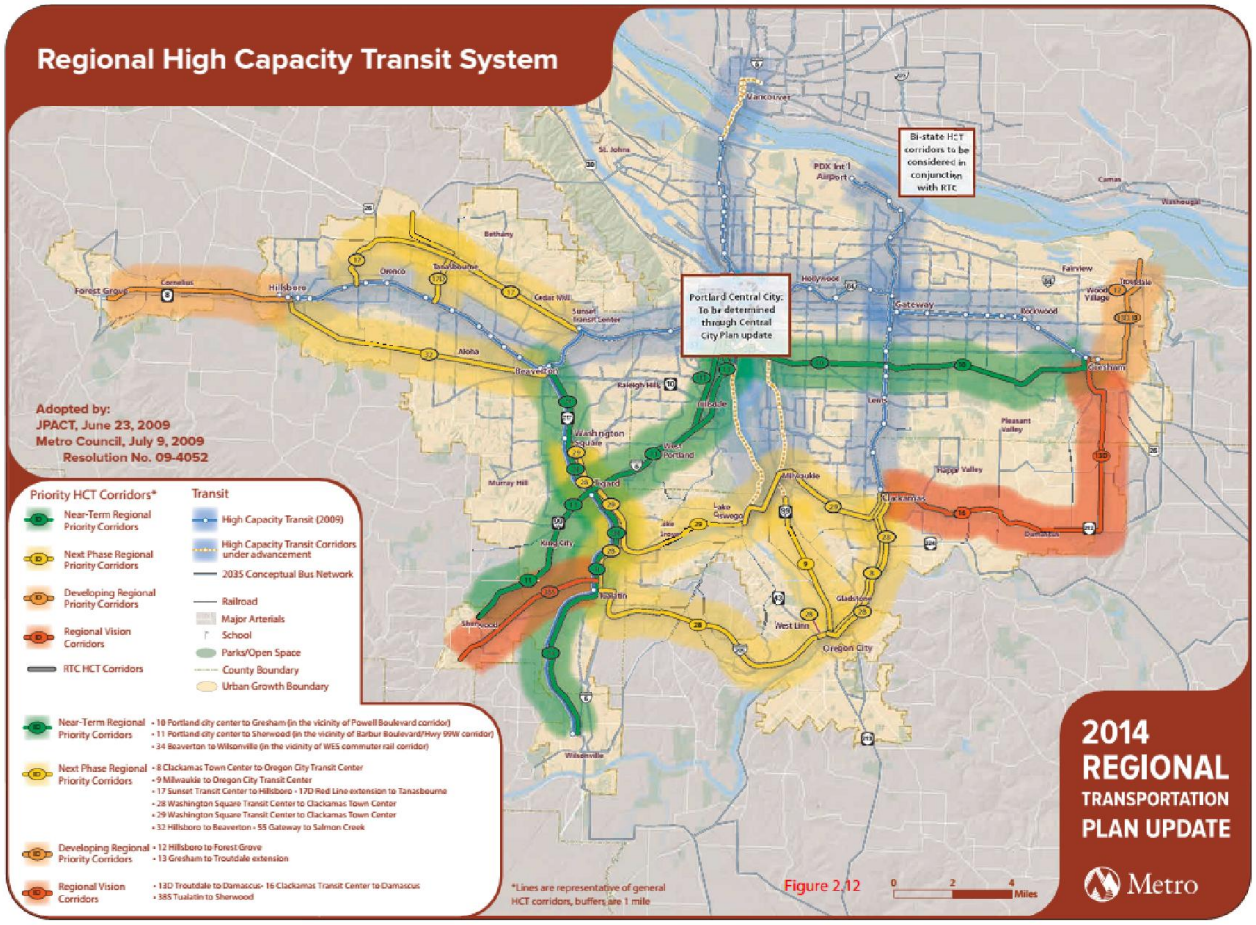
Table 2.12
Priority infrastructure investment strategies

Stage of Development	Developed Areas Built-out areas with most new housing and jobs accommodated through infill, redevelopment and brownfields development.	Developing Areas Redevelopable and developable areas, with most new housing and jobs being accommodated through infill, redevelopment, and greenfield development.	Undeveloped Areas More recent additions to the urban growth boundary, with most new housing and jobs accommodated through greenfield development.
Infrastructure Investment Strategies	Operations, maintenance and preservation of existing transportation assets. Managing the existing transportation system to optimize performance for all modes of travel. Leveraging infill, redevelopment and use of brownfields. Addressing bottlenecks and improving system connectivity to address barriers and safety deficiencies. Providing a multi-modal urban transportation system. Completing local street connections needed to complement the arterial street network.	Operations, maintenance and preservation of existing transportation assets. Preserving right-of-way for future transportation system. Managing the existing transportation system to optimize performance for all modes of travel. Leveraging infill, redevelopment and use of brownfields Providing a multi-modal urban transportation system. Focusing on bottlenecks and improving system connectivity to address barriers and safety deficiencies. Completing local street connections needed to complement the arterial network.	Operations, maintenance and preservation of existing transportation assets. Preserving right-of-way for future transportation system. Providing a multi-modal urban transportation system. Managing new transportation system investments to optimize performance for all modes of travel. Focusing on bottlenecks and improving system connectivity to address barriers and safety deficiencies. Completing local street connections needed to complement the arterial street network.

The 2014 RTP establishes the following priorities:

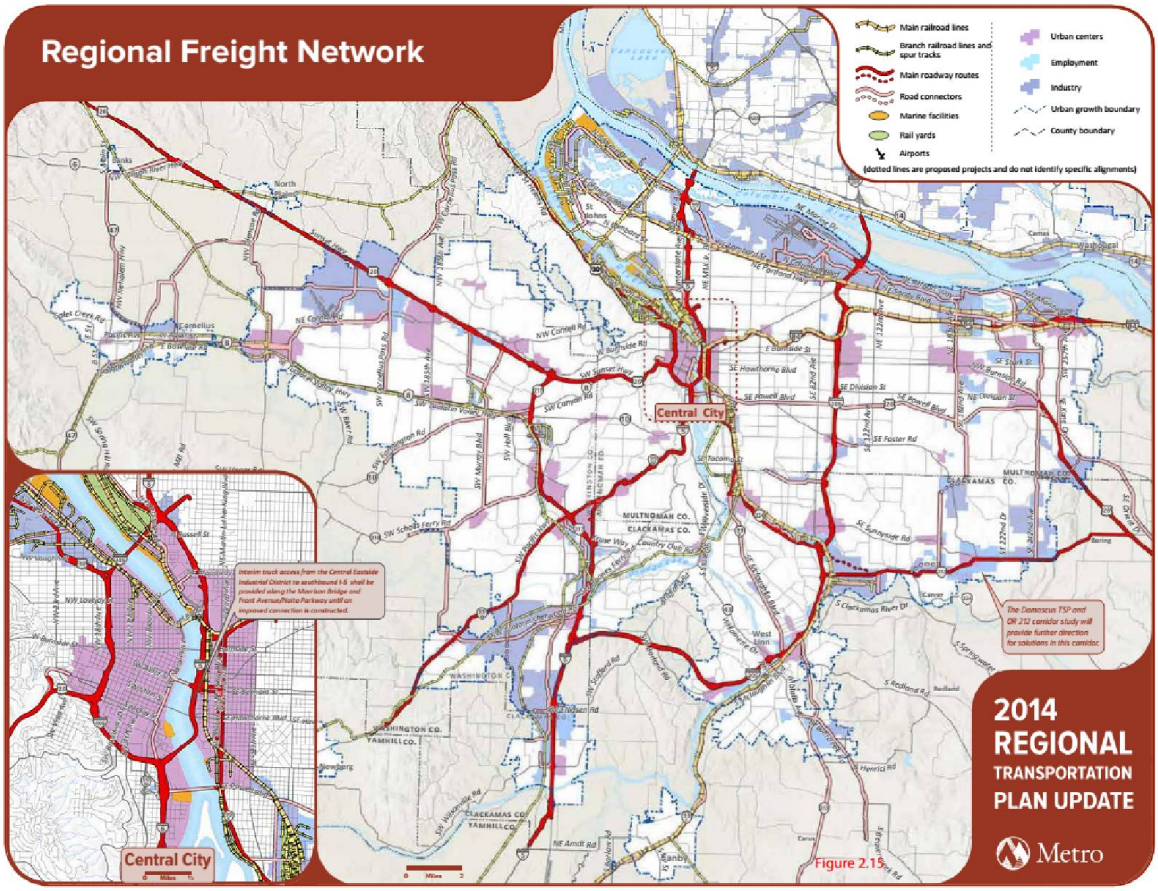
- Build a well-connected network of complete streets that prioritize safe and convenient pedestrian and bicycle access;
- Improve local and collector street connectivity
    - Local streets should be spaced no more than 530-feet in new residential and mixed-use areas;
    - Cul-de-sacs should be limited to 200-feet in length;
    - Encourage local traffic to use local and collector streets to minimize local travel on regional arterial streets.

- Maximize system operations by implementing management strategies prior to building new motor vehicle capacity, where appropriate.
- Transit:
    - Build the total network and transit supportive land uses to leverage investments. Provide frequent, reliable bus and rail service during all times of the day, every day of the week. Improve the environment where people walk to and from transit facilities. Emphasize walking and biking to transit and deemphasize driving to transit.
    - Expand high capacity transit:
        - Expand regional and local frequent service transit;
        - Improve local service transit;
        - Support expanded commuter rail and intercity transit service to neighboring communities;
        - Improve pedestrian and bicycle access to transit.
        - West Linn is adjacent to two "Next-phase Regional Priority Corridors" from the Metro Regional High Capacity Transit Plan. Project number 28 anticipates a connection between the Washington Square Transit Center and the Clackamas Town Center in the vicinity of I-205 and project number 9 is



an extension of the nearly completed Milwaukie Light Rail Line that would extend some form of High Capacity transit service from Milwaukie to the Oregon City Transit Center via Highway 99E.

- Regional Freight: Population and employment growth in the Portland Metropolitan region (917,000 new residents and 587,000 new workers) between 2010 and 2040 is anticipated to contribute to an additional $730 billion in traded sector goods and will significantly



increase the volume of local freight deliveries along regional and local freight routes. In addition, the Portland Metropolitan region has a higher than average dependency on traded sector industries; in particular, computer/electronic products, wholesale distribution services, metals, forestry, wood and paper. It is critical that the region prioritize improved freight system operations to reduce delay, increase freight reliability and provide cost-effective choices for shippers. I-205 serves as the sole freight route near West Linn.

- Active Transportation:
    - <u>Biking</u>
        - Make walking and biking the most convenient, safe and enjoyable transportation choices for short trips less than three miles (45 percent of all

trips in the region are less than three miles and 15 percent are less than 1 mile);

- Build an interconnected regional network of bicycle routes and districts integrated with transit and nature that prioritizes seamless, safe, convenient and comfortable access to urban centers and essential daily needs, including schools and jobs, for all ages and abilities;
- Build a green ribbon of bicycle parkways as part of the region's integrated mobility strategy (Highway 43, Salamo Rd., Stafford Rd., and Willamette Falls Drive are identified in the regional bicycle parkway network);
- Improve bike-transit connections;
- Ensure that the regional bicycle and pedestrian network equitably serves all people.

- <u>Pedestrians</u>
  - Make walking and biking the most convenient, safe and enjoyable transportation choice for short trips less than three miles;
  - Build a well-connected network of pedestrian routes, including safe street crossings, integrated with transit and nature that prioritize seamless, safe, convenient and comfortable access to urban centers and essential daily needs, including schools and jobs, for all ages and abilities;
  - Create walkable downtowns, centers, main streets and station communities that prioritize safe, convenient and comfortable pedestrian access for all ages and abilities;
  - Improve pedestrian access to transit;
  - Ensure that the regional pedestrian network equitably serves all people.
- <u>Transportation System Management and Operations (TSMO)</u>
  - Use advanced technologies, pricing strategies and other tools to actively manage the transportation system;
  - Provide comprehensive real-time traveler information to people and businesses;
  - Improve incident detection and clearance times on the region's transit, arterial and throughway networks;
  - Implement incentives and programs to increase awareness of travel options.

Table 2.9
Examples of TSMO strategies by investment area

Multimodal Traffic Management • Traffic signal coordination • Transit signal priority treatment • Detection and countdown timers for bicycles and pedestrians	**Traffic Incident Management** • Improve surveillance • Expand incident management teams and training
Traveler Information • Real-time traveler information for freeways and arterials • Enhance traveler information tools	**Transportation Demand Management** • Ridesharing • Collaborative marketing (e.g., Drive Less Save more campaign) • Individualized marketing (e.g. SmartTrips program) • Transportation Management Associations • Employer outreach

Metro 2035 Regional Transportation Functional Plan

The Regional Transportation Functional Plan implements the goals and policies established in the 2035 RTP (improved public health; safety and security for all; attraction of jobs and housing to downtowns, main streets, corridors and employment areas; creating vibrant, livable communities, sustaining the region's economic competitiveness and prosperity; efficient management to maximize use of the existing transportation system; completion of the transportation system for all modes of travel to expand transportation choices; increasing use of the transit, pedestrian and bicycle systems; ensuring equity and affordable transportation choices; improving freight reliability; reducing vehicle miles traveled and resulting emissions; and promoting environmental and fiscal stewardship and accountability) and sets minimum standards for local governments to adopt as part of their local TSP development.

Local implementation of the RTP will result in a more comprehensive approach for implementing the 2040 Growth Concept, help communities achieve their aspirations for growth and support current and future efforts to achieve the principal objectives of the RTP and address climate change. If a TSP is consistent with the RTFP, Metro shall deem it consistent with the RTP. (Metro, 2010)

Metro Active Transportation Plan

The Active Transportation Plan (ATP) identifies a vision, policies and actions to complete a seamless network of on- and off-street pathways and districts connecting the region integrating walking, biking, and public transit. The ATP strives to make it easier for people to walk and ride a bike and access transit to get to work, school, to parks and other destinations by updating the

pedestrian and bicycle policies in the 2014 Regional Transportation Plan. Key ATP objectives priorities include:

- Complete the active transportation network
- Make it safe to walk and ride a bicycle for transportation
- Ensure that the regional active transportation network equitably serves all people
- Support populations that are already driving less by making it easier to drive less
- Increase levels of funding dedicated to active transportation projects and programs and develop a pipeline of projects
- Better integrate and connect transit, walking and bicycle networks
- Make walking and bicycling the most convenient, safe and enjoyable choices for short trips less than three miles
- Utilize data and analyses to guide transportation investments
- Include bicycle and walking improvement in roadway preservation projects whenever possible to make all streets in the region complete streets

Table 2: ATP target and current and potential active transportation mode shares for all trips within the 4-county area and the urban growth boundary

	Current: 2010 modeled mode share for all trips within the 4-county area and within the UGB on the existing transportation network	**ATP Target:** Triple 2010 modeled mode share for walking, bicycling and transit trips within the UGB	**2035 RTP Network:** modeled mode share for all trips within the 4-county area and within the UGB on the 2035 state Regional Transportation Plan network	**ATP Network:** modeled mode share for all trips within the 4-county area on the recommended ATP networks
Transit	3.8% (UGB 4.4%)	**13% (in UGB)**	4.9% (UGB 6.2%)	4.8% (UGB 6.1%)
Walking	8.9% (UGB 8.8%)	**27% (in UGB)**	9.6% (UGB 9.7%)	9.6% (UGB 9.7%)
Bicycling	2.8% (UGB 3.1%)	**9% (in UGB)**	3.1% (UGB 3.6%)	3.2% (UGB 3.7%)

Data: Metro, 2013 Transportation Model

Table 4: Number of serious and fatal crashes by mode, within Urban Growth Boundary, and 2040 Target

	All Modes	**Pedestrian/motor vehicle crash**	**Bicycle/motor vehicle crash**	**Motor vehicle crash**
2007-2011	496	63	35	398
2040 Target	248	31	17	199

Data: Metro State of Safety 2012 Report

Coordination

Clackamas County Transportation System Plan

Through the statewide planning program's TPR, the West Linn TSP update needs to be coordinated with the Clackamas County TSP. Consistency between the County TSP and City TSP is assumed if both plans are "consistent" with the RTP. Before explaining the RTP requirements that are applicable to both the City and County TSP, readers may be interested to know the direction the recently updated County TSP has taken to address what the County has identified as the most significant transportation-related challenges in coming decades:

- Limited funding that has not and will remain unable to keep pace with the mobility needs of the County.
- Reducing congestion. The County TSP recognizes the connection between land uses and transportation and the ability to decrease reliance on automobiles and reduce congestion through coordinated land use and transportation planning.
- Balancing the need for mobility (through movement of traffic) with the need for local movement and access to individual properties.
- Developing facilities that accommodate all travel modes will improve safety for users. The County TSP calls for a 50 percent reduction in fatal and serious injury crashes by 2022.
- Transportation infrastructure needs to be sensitive to the potential impacts to neighborhoods and to the natural environment in order to create and maintain livable communities, preserve air and water quality and conserve energy.

To address these challenges the county TSP includes the following policies and strategies – which may serve as a "window" for what West Linn wishes to address in the City's TSP update to have plan "consistency"; however, the County's TSP primarily applies to unincorporated areas.

- Compliance and coordination Support partnerships to promote and address multi-jurisdictional transportation needs:[2]
- Road safety[3]:
    - 50 percent reduction in fatal and serious injury crashes by 2022;
    - Address the top three crash cause factors of aggressive driving, young drivers (15-22) and roadway departure using education, emergency medical services, enforcement, engineering and evaluation;
    - Support actions that increase awareness and education about the safety of the transportation system for all users;
    - Support data-driven approaches to improve safety for all transportation users.

[2] Consistent with Oregon Transportation Plan, Goal 7, Coordination, Communication and Cooperation
[3] Unique to Clackamas County TSP.

- Equity, health and sustainability[4]:
    - Support projects, such as pedestrian and bike connections to transit stops, that expand and improve transportation options for residents in areas with identified transportation disadvantaged populations;
    - Minimize transportation-related environmental degradation;
    - Increase and improve infrastructure needed to support alternative fuel vehicles;
    - Support programs that educate people about opportunities for bicycle, pedestrian and transit options.
- Intelligent Transportation Systems (ITS): Implement a wide range of ITS strategies.[5]
- Transportation Demand Management (TDM) policies[6]:
    - Implement TDM to increase efficient use of existing transportation infrastructure and minimize congestion and safety concerns by offering choices of mode, route, and time;
    - Support efforts to monitor and fund regional TDM programs;
    - Provide adequate bike and pedestrian facilities to employment areas to encourage commute trips by walking and biking;
    - Support programs that identify safe bicycle and pedestrian routes to connect neighborhoods and schools;
    - 45-55 percent non-drive-alone target for regional centers, station communities and corridors;
    - 40-45 percent non-drive-alone target for employment areas, industrial areas, neighborhoods and regionally significant industrial areas.
- Integration of land use and transportation:
    - Support an integrated approach to land use and transportation planning that encourages livable and sustainable communities, decreases average trip length and increases accessibility for all modes;
    - Reduce reliance on long commutes out of the County to employment destinations;

[4] Consistent with Oregon Transportation Plan, Goal 4, Sustainability.

[5] Consistent with Portland Metro RTP, Policy 2.5.7 Transportation System Management and Operations (TSMO) Vision, (pg. 2-74) http://www.oregonmetro.gov/sites/default/files/2035_rtp_final_document_as_submitted_and_approved_by_dlcd_usdot_web_0.pdf

[6] TSP are required to have "localized TDM" as set forth by the Regional Transportation Functional Plan (RTFP) Title 2, Section 3.08.220. The non-drive alone targets shown under the sub-bullets above are set forth by the same section of Title 2 as achieved in part through the integration of land use and transportation and active transportation.

  - Recognize the importance of moving goods from rural businesses to distribution centers.

- Active transportation:
  - Create an environment that encourages people to walk and bike for recreational and for transportation purposes;
  - Coordinate with pedestrian, bike and trail master plans, and with special transportation plans of the County;
  - Inform property owners of their responsibilities for the maintenance of sidewalks and pedestrian pathways;
  - Identify low traffic volume streets that are appropriate for signing as bike routes to enhance safety and connectivity and to supplement the system of bikeways found on the major street system.
- Facilities:
  - Encourage the provision of facilities and services for bicyclists, including showers, lockers, bike racks on buses, bike repair and maintenance, and secure bicycle parking;
  - Establish and maintain wayfinding systems to facilitate bicycle travel.
- Multi-use paths: Support the acquisition and development of multi-use paths on abandoned public and private rights-of-way.
- Functional classification and design:
  - Design arterials and collectors to allow safe and convenient passage of buses, bikes and pedestrians;
  - Streets, allays, bikeways, pedestrian facilities, multi-use paths, trails and transit stops are allowed uses in all urban zoning districts.
- Project Development:
  - Consider TDM before adding new capacity, including strategies such as; access management, alternative or modified standards, ITS, operational improvements, parking standards, enhanced bicycle and pedestrian facilities, traffic calming and road diets.
- Access Standards: New development and redevelopment should be designed to place driveway accesses on streets with the lowest functional classification or the lowest traffic volume.
- Policies on improvements to serve development: Require right-of-way (ROW) dedication, on-site frontage improvements, and off-site improvements as necessary to safely handle expected traffic generated by the development.
- Performance Evaluation Measures:

Table 5-2a
PERFORMANCE EVALUATION MEASURES FOR THE URBAN AREA
Weekday Mid-day and Weekday PM Peak Periods

	Maximum Volume to Capacity (V/C) Ratio		
Federal and State Principal Arterial Street Segments and Intersections	**Mid-day One-Hour Peak**	**1st Hour, PM Peak**	**2nd Hour, PM Peak**
OR 99E from OR 224 interchange north to county line	0.99	1.1	0.99
I-205 I-5 OR 212 OR 224 OR 213	0.90	0.99	0.99
County Street Segments and Intersections by Metro Urban Design Type *See Comprehensive Plan Map IV–8*			
Regional Centers Town Centers Main Streets Station Communities	0.99	1.1	0.99
Corridors Neighborhoods Employment Areas Industrial Areas Intermodal Facilities	0.90	0.99	0.99

- Transit:
    - Identify existing transit deficiencies in the County, needed improvements, and additional park and ride lots necessary to increase the accessibility of transit services to all potential users;
    - Coordinate with transit agencies in all new residential, commercial and industrial developments to ensure integration of transit facilities and pedestrian access to transit facilities.
- Freight, rail, air, pipeline and water transportation:
    - Make freight investments that, in coordination with the County's economic development strategies, help retain and grow the County's job base and strengthen the County's overall economy;
    - Support expansion and maintenance needed to establish reliable, higher speed (110-125 mph) freight rail service and intercity rail passenger service in the Willamette Valley;
    - Support the continued operation and maintenance of the Willamette Falls Locks to facilitate water transportation on the Willamette River.

- Finance and funding:
    - Identify and pursue new, permanent funding mechanisms to construct and maintain County transportation facilities and to support programs and projects identified in the TSP;
    - Develop dedicated funding sources to implement active transportation projects;
    - Establish funding for bicycle, pedestrian and transit projects that serve the needs of transportation disadvantaged populations.
- Special transportation projects: Work with ODOT, Metro, Oregon City, West Linn to analyze and develop a solution to the transportation bottleneck on I-205 between Oregon City and the I-205/Stafford Road interchange. (Clackamas County, 2014)

Emerging Regional Policy

Climate Smart Communities Scenarios Project

The Climate Smart Communities Scenarios Project (Climate Smart), directed by the Oregon Legislature, seeks to reduce greenhouse gas emissions for the Portland Metropolitan Area by 20 percent (per capita light vehicle emissions) below 2005 levels, by the year 2035. Findings from the Phase II report indicate that this target can be achieved; however, additional investment will be necessary. Phase II of the Climate Smart work has narrowed the focus to three scenarios that can achieve targeted levels of GHG emissions reduction. In 2014, representatives from the State and across the Portland Metropolitan area will decide specifically how this target will be achieved and will have to decide how much should be invested in public transit, how much reliance is placed on technology and information, how much of the active transportation network should be completed by 2035, how local communities should manage parking, and how we should pay for our choices, to name just a few. (Metro, 2014)

Service Provider Coordination

TriMet Transit Investment Plan

TriMet's Transit Investment Plan guides future program and capital investment for the agency. The Plan calls for improving system safety and making transit use more convenient, reliable and easy to use. TriMet plans to continue to invest in high capacity transit services such as MAX light rail, commuter rail, bus rapid transit (BRT) and streetcar service within key regional corridors to connect regional centers. The Portland Streetcar Loop and South Corridor Phase 2 (Portland to Milwaukie) Light Rail Transit projects are examples of recently completed or nearly completed infrastructure investments that TriMet hopes will encourage greater use of the region's public transit system.

High-capacity transit projects currently under development include the Southwest and Powell-Division Corridors. In addition, TriMet is working with regional partners to improve public transit service in regionally significant corridors, such as AmberGlen/Tanasbourne, Forest Grove, Gresham and Oregon City. The Transit Investment Plan also calls for the expansion of frequent transit service (bus lines that run every 15 minutes or better, every day) and improved local service. (TriMet, 2014) Although the Columbia River Crossing and Lake Oswego to Portland Transit projects are now off the table for regional discussion, there is regional interest for transit improvements in these areas as well.

TIP Priority	FY2011 July 2010–June 2011 *Past fiscal year*	FY2012 July 2011–June 2012 *Current fiscal year*	FY2013 to FY2016 July 2011–June 2015 *Program of investments, pending improved revenue*
1. Build the Total Transit System Chapter 3	• Safety and Security Executive hired to lead agency effort to create a culture of safety • Completed revitalization projects along the Eastside MAX Blue Line, including safety and security improvements and station upgrades • TransitTracker by phone/ text provides real-time bus and MAX arrivals to more than two million calls per month • Opened high-capacity, controlled access Bike & Rides at Gresham Central, Beaverton and Sunset Transit Centers, using ARRA funds • Stop IDs for use with TransitTracker displayed in more than 70 percent of bus stops • Installed amenities at 90 bus stops • Installed three TransitTracker digital displays at Gateway Transit Center • 38 third-party software applications providing customer information developed using open source TriMet data	• Implement Safety Management System to create a culture of safety • Purchase 55 new buses, providing automated stop announcements, air conditioning and low-floor boarding on 66 percent of fleet • Test four next-generation hybrid buses on Line 72-Killingsworth/82nd • Complete installation of new signs and stop name decals, and optimize bus stop spacing • Implement bus stop pavement enhancements at 30 locations	• Continue to sustain culture of safety through ongoing training, employee engagement, strategic data sharing and partnerships • Deploy 40 new buses annually to improve fleet reliability, convenience and efficiency • Develop and launch open source multi-modal trip planner to allow users to interactively explore and plan trips combining walking, biking and transit • Enhance financial stability through reduced costs and heightened revenues

TIP Priority	FY2011 July 2010–June 2011 *Past fiscal year*	FY2012 July 2011–June 2012 *Current fiscal year*	FY2013 to FY2016 July 2011–June 2015 *Program of investments, pending improved revenue*
2. Expand high-capacity transit Chapter 4	• Due to budget constraints, reduced frequency on MAX Blue, Green and Yellow lines during non-rush hours • Entered Final Design on Portland-Milwaukie Light Rail project • Opened new Civic Drive MAX Blue Line station for service • Opened redesigned Rockwood/E 188th Ave station	• Restore some service hours on crowded MAX trains to relieve over-crowding • Prepare for Portland Streetcar Loop opening	• Increase frequencies on existing lines to meet long-term policies and serve demand • Continue analysis and planning on HCT corridors including possible MAX Light Rail extensions (Southwest Corridor) and/or Bus Rapid Transit (Powell-Division, I-205)
3. Expand Frequent Service Chapter 5	• Due to budget constraints, made additional reductions in frequency during non-rush hours on Frequent Service lines • Frequent Service lines served 58 percent of bus riders on 48 percent of bus service	• Restore some service hours on crowded buses to relieve over-crowding	• Increase frequencies on existing lines to meet long-term policies and serve demand • When budget allows, restore service hours on Frequent Service lines to ensure 15-minute or better service all day, every day
4. Improve local service Chapter 6	• Due to budget constraints, discontinued two bus lines (Lines 27 and 157) and service on low-ridership portions of four bus lines • Reduced weekday frequency of service on 26 bus lines and reduced weekend frequency on 15 bus lines • Reduced span of service on 11 lines	• Restore some service hours on crowded buses to relieve over-crowding	• Continue leveraging regional flexible funds for access and amenity improvements, in coordination with jurisdictional partners • Evaluate and implement service restoration, improvements and/ or extensions within available resources, based on ridership productivity potential, prior commitments and future development

Figure ES.1: *TIP Implementation Features*

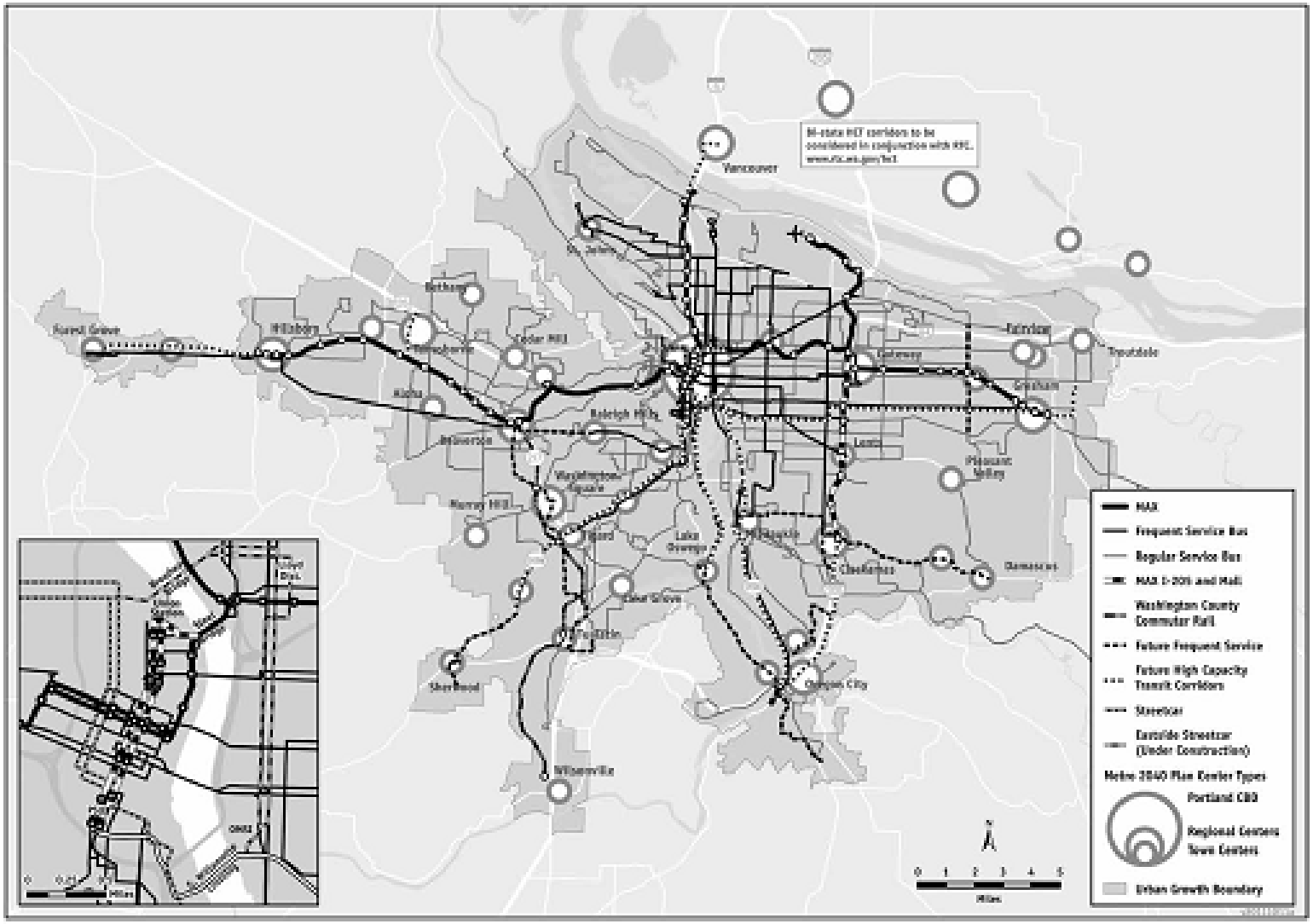


Figure ES.2: *TriMet's Transit Investment Plan*

Coordinated Transportation Plan for the Elderly and People with Disabilities (TriMet 2012)

TriMet's Coordinated Transportation Plan for the Elderly and People with Disabilities, "guides transportation investment toward a full range of options for elders and people with disabilities to foster independent and productive lives, to strengthen community connections, and strives for continual improvement of services through coordination, innovation and community involvement." The key objectives of the Plan include:

- Coordinate. Make the best use of service hours and vehicles; assure that services are coordinated and well organized. Assure that customer information is useful and widely provided throughout the region.
- Innovate. Increase options available to E&D customers by providing innovative, flexible attractive and cost-effective alternatives to standard fixed route buses, rail and paratransit. Expand outreach and education on how to use services.
- Involve the Community. Include elders and people with disabilities, social services staff, private non-profit providers, and other community partners in the dialogue and decisions about services. Advisory committees working on E&D issues should have over 50 percent representation of elders and people with disabilities.
- Improve the service foundation. Fixed route service frequencies and coverage in some suburban areas, as well as ways to get to the fixed routes, will need to be improved.
- Integrate land use and transportation decisions. Communicate the importance of land use and transportation for E&D transportation. Identify opportunities to influence land use decisions and eliminate environmental barriers to using transit.
- Improve Customer Convenience. Minimize physical and psychological impediments to using core transit services relative to other modes. Make the transit system easy to understand and use. Facilitate transfers between transit services with the use of wayfinding information and high-amenity transfer facilities.
- Improve Safety. Assure that real and perceived safety concerns are addressed at passenger waiting areas and on board transit vehicles. Utilize transit provider staff, volunteers and other riders to increase sense of security along with investments in physical infrastructure where appropriate. (TriMet, 2012)

TriMet Pedestrian Network Analysis

In a survey conducted by Metro in 2013, 80 percent of respondents said they desired to live and work in areas where they could walk, bicycle and take public transit. TriMet recommends the following strategies for local TSPs:

1. Word choice. Avoid calling walking, bicycling and public transit, "alternative modes of transportation." Everyone uses at least one of these modes as part of every trip.
2. The quality of pedestrian, bicycle facility and transit service matters. To encourage more trips by walking, bicycling and public transit, go beyond minimum design standards for

walking and bicycling facilities, and focus development and investments in key corridors where you want to see more frequent transit service, bicycling and pedestrian trips.

3. Analysis. Collect data that help identify meaningful and complete pedestrian, bicycle and transit needs.
4. Prioritize specific locations and areas where people walk, bicycle and take public transit. Develop a list of pedestrian and bicycle projects, based on where it is most important for more people to be able to access specific places by walking, cycling or transit. It is most cost-effective and efficient to make improvements where they are most needed and most effective at achieving policy goals.
5. Match ability and responsibility. Plans should be transparent and identify the responsible party. Plans should also identify, at the concept level, what steps are necessary to implement the plans.
6. Tie City's transit vision to actions, programs, and investments needed to make it feasible. When transit needs are stated in a TSP, include what is needed to support this type of service, e.g., proximity of X number of households and/or Y number of jobs to transit stops, streetscape and sidewalk investments, managed parking, etc. Include operating and capital costs associated with the type of service desired, so desires are tied to costs, especially if it isn't directly in the City's control.
7. Unbundle pedestrian and cycling needs from larger road projects. Pedestrian or bicycle improvements made now deliver substantial benefits immediately, even if long-term future plans may include roadway widening that could require rebuilding some of the improvements. Stand-alone pedestrian and bicycling projects are cost-effective and provide substantial benefits in the near term.
8. Strongly encourage broad participation. Invite a broad base of representative to help shape the plan. Ensure there is representation from communities of color and people of all income levels.
9. Conduct field visits and safety audits of select corridors on foot and bicycle. Computer modeling and GIS analysis do not give a full understanding of the needs of pedestrians and bicyclists of all ages and abilities. (TriMet, 2011)

State Plans

The Statewide Planning Goals define the State's planning objectives and priorities. The update of the City of West Linn's TSP will amend the City's comprehensive plan. As a part of the City comprehensive plan amendment, the TSP adoption will include a compliance report that explains how the TSP update complies with applicable state policies outlined below.

Oregon Statewide Planning Goals

- Goal 1 Citizen Involvement
- Goal 2 Land Use Planning
- Goal 5 Natural Resources, Scenic and Historic Areas, and Open Spaces
- Goal 6 Air, Water and Land Resources Quality
- Goal 7 Areas Subject to Natural Hazards
- Goal 9 Economic Development
- Goal 11 Public Facilities and Services
- Goal 12 Transportation – Administered through OAR 660, Division 12
- Goal 13 Energy Conservation
- Goal 14 Urbanization
- Goal 15 Willamette River

Oregon Transportation Planning Rule (OAR Chapter 660, Division 12)

The Transportation Planning Rule (TPR) is the administrative rule that implements Goal 12, Transportation. Its purpose is to facilitate coordination between land use and transportation planning in order to provide a safe, convenient and economic transportation system. The TPR is the rule that requires the development of state, regional and local TSPs. The TPR also includes provisions that require certain land use decisions to take into account the impact of development on the existing and/or planned capacity of the transportation system. Transportation System Plans define the planned system.

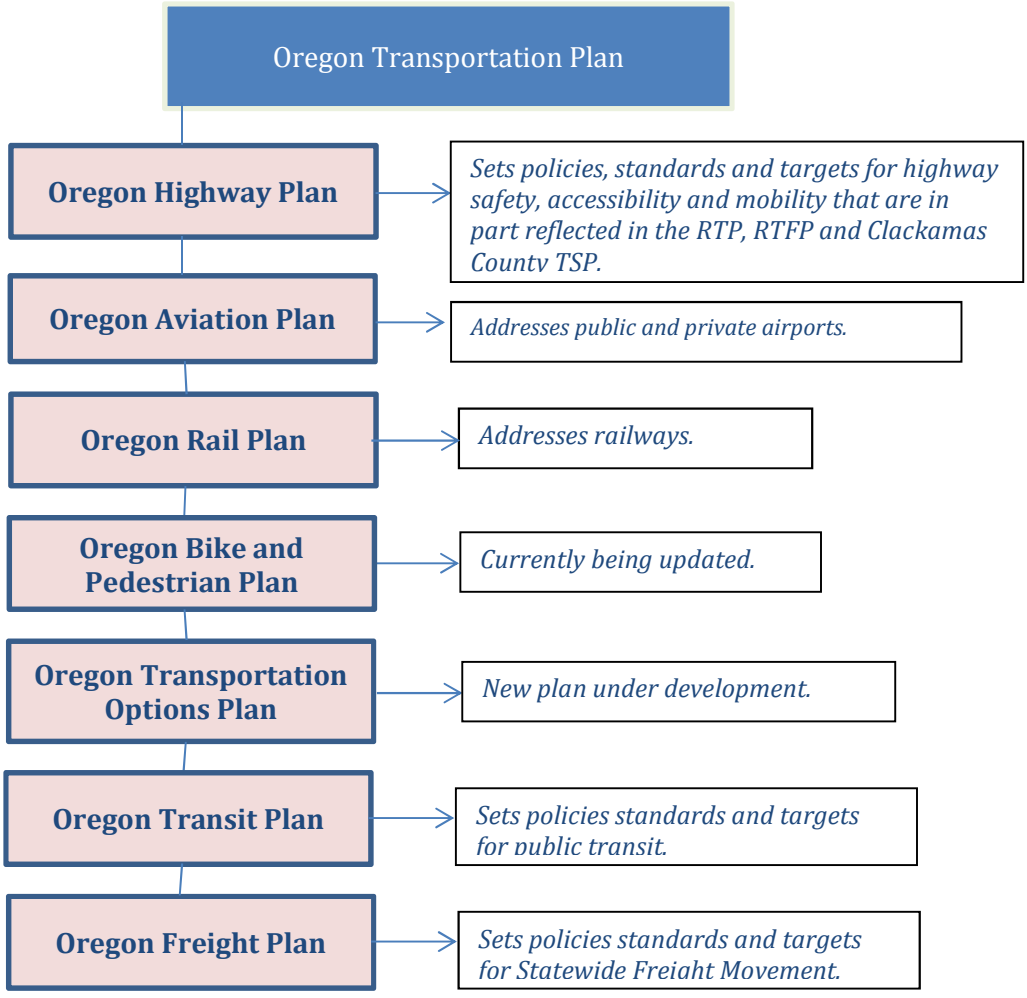
The TPR encourages coordination between the type and location of various land uses and transportation planning for the purpose of promoting travel patterns that minimize air pollution and traffic congestion. To do this, the TPR emphasizes measures that increase transportation choices and which make more efficient use of existing transportation infrastructure. Coordinated land use and transportation planning is intended to improve livability and accessibility through the provision of transit service, where feasible, and by improving the performance of existing infrastructure (i.e., transportation system management and demand management).

The TPR strives to reduce the reliance on single occupant vehicle (SOV) trips through more effective planning for non-SOV modes, and through improved street connectivity. The TPR also encourages land use patterns in urban areas that make it more convenient for people to walk, bike and take public transit, as well as to use automobiles more efficiently.

In metropolitan areas, the TPR requires that TSPs be designed to achieve adopted standards for increasing transportation choices and reducing automobile reliance. The TPR anticipates that metropolitan areas will reduce automobile reliance by changing land use patterns and

transportation choice so that walking, bicycling and public transit are convenient and that people will be likely to drive less than they do today. (State of Oregon, DLCD, 2014)

The **Oregon Transportation Plan** (OTP) is the state's TSP and overarching policy document along with the modal plans shown below that "nest" under it. The OTP is adopted by the Oregon Transportation Commission and similar in content to regional and local TSPs but differs in that it addresses the statewide transportation system and needs. The OTP takes into account the regional and local transportation needs for roadways, airports, marine ports, intermodal facilities, rail, bicycle and pedestrian facilities for a 20-year period and includes a financial forecast.



A chief purpose of the Oregon Transportation Plan is to provide a policy framework for the development of a safe, efficient and sustainable transportation system that improves the State's quality of life and economic vitality (Oregon Department of Transportation, 2006). The OTP is built around seven goals that all apply across the state and including to regional and local plans. The goal topics are listed below and the full goal text is shown in Appendix C.

- Mobility and Accessibility
- Management of the System
- Economic Vitality
- Sustainability
- Safety and Security
- Funding the Transportation System
- Coordination, Communication and Cooperation

The OTP identifies the following key initiatives necessary for its implementation. These same initiatives apply and are further refined in the Metro's RTP and specifically, the RTFP.

- Maintaining and maximizing assets;
- Optimizing the performance of the existing system through technology;
- Integrating transportation, land use, economic development and the environment;
- Integrating the transportation system across jurisdictions and modes;
- Creating sustainable funding;
- Investing in strategic capacity enhancements.

Oregon Highway Plan

The 1999 Oregon Highway Plan (OHP) establishes policies and investment priorities for the State's highway system over a 20-year planning horizon. The OHP strives to maintain and improve safe and efficient movement of people and goods, while supporting statewide, regional, and local economic growth and livability. The OHP is implemented through a number of policies and actions that guide management and investment decisions by defining a classification system for state highways, setting standards for mobility, employing access management techniques, supporting intermodal connections, encouraging public and private partnerships, addressing the relationship between the highway and land developments, and recognizing the responsibility to maintain and enhance environmental and scenic resources.

The following OHP policies are relevant to transportation planning in West Linn are shown in Appendix B.

Oregon Bike and Pedestrian Plan

The current working vision of the Oregon Bike and Pedestrian Plan states, "In Oregon, people of all ages, incomes, and abilities can get where they want to go on safe, well-connected biking and walking routes. People can access destinations in urban and rural areas and enjoy Oregon's scenic beauty by walking and biking on a transportation system that respects the needs of its users and their sense of safety. Bicycle and pedestrian networks are recognized as integral elements of the transportation system that contribute to our diverse and vibrant communities and the health and quality of life enjoyed by Oregonians."

The plan currently includes nine goals under development:

Safety: Eliminate bicycle and pedestrian fatalities and serious injuries and improve the sense of safety of those who bike and walk.

Mobility and Efficiency: Provide high quality biking and walking options for short and moderate distance trips as a means to improve mobility and efficiency of the transportation system.

Accessibility and Connectivity: Provide a complete bicycle and walking network that reliably and easily connects to destinations and other transportation modes.

Community and Economic Vitality: Improve people's ability to access jobs, businesses, and other destinations.

Equity: Provide opportunities and choices for people of all ages, abilities, and incomes in urban, suburban, and rural areas across the state to bike or use walking routes to reach their destinations and to access transportation options.

Health: Provide Oregonians with the opportunity to become more active and healthy by using biking and walking to meet their daily needs.

Sustainability: Help to meet federal, state and local sustainability and environmental goals by providing zero emission transportation options like biking and walking.

Strategic Investment: Recognize Oregon's strategic investments in biking and walking as important comonents of the transportation system that can help reduce the need for expanding motory ehicle capacity and reduce system costs.

Coordination, Cooperation and Collaboration: Work actively and collaboratively with federal, state, regional, local and private partners to provide consistent and seamless biking and walking networks that are integral to the transportation system.

APPENDIX A: Statewide Planning Goals

- Goal 1 Citizen Involvement – develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process
    - Cities shall develop a citizen involvement program, for land use planning efforts, that includes the following components:
        - Provide widespread citizen involvement
        - Assure effective two-way communication with citizens
        - Provide an opportunity for citizens to be involved in all phases of the planning process
        - Assure technical information is available in an understandable form
        - Assure that citizens will receive a response from policy-makers
        - Insure funding for the citizen involvement program
- Goal 2 Land Use Planning – establish a land use planning process and policy framework as a basis for all decisions and actions related to the use of land and to assure an adequate factual base for such decisions and actions.
- Goal 5 Natural Resources, Scenic and Historic Areas, and Open Spaces – protect natural resources and conserve scenic and historic areas and open spaces.
- Goal 6 Air, Water and Land Resources Quality – maintain and improve the quality of the air, water and land resources of the state.
- Goal 7 Areas Subject to Natural Hazards – protect people and property from natural hazards.
- Goal 8 Recreational Needs – to satisfy the recreational needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities including destination resorts.
- Goal 9 Economic Development – provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens. Comprehensive plans and policies shall contribute to a stable and healthy economy in all regions of the state.
- Goal 10 Housing – provide for the housing needs of citizens of the State. Plans shall encourage the availability of adequate numbers of needed housing units at price ranges and rent levels which are commensurate with the financial capabilities of Oregon households and allow for flexibility of housing location, type and density. "Needed housing units" means: housing types determined to meet the need shown for housing within an urban growth boundary at particular price ranges and rent levels. Needed housing units also includes government-assistance housing. For cities having populations larger than 2,400 people, needed housing units include (but are not limited to) attached and detached single-family housing, multiple-family housing, and manufactured homes, whether occupied by owners or renters.

- Goal 11 Public Facilities and Services – plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.
- Goal 12 Transportation – provide and encourage a safe, convenient and economic transportation system. A transportation plan shall:
    - Consider all modes of transportation including mass transit, air water, pipeline, rail, highway, bicycle and pedestrian
    - Be based upon an inventory of local, regional and state transportation needs
    - Consider the differences in social consequences that would result from utilizing differing combinations of transportation modes
    - Avoid principal reliance upon any one mode of transportation
    - Minimize adverse social, economic and environmental impacts and costs
    - Conserve energy
    - Meet the needs of the transportation disadvantaged by improving transportation services
    - Facilitate the flow of goods and services to strengthen the local and regional economy
    - Conform with local and regional comprehensive land use plans
    - Transportation system should be planned to use existing facilities and rights-of-way within the state provided that such use is not inconsistent with the environmental, energy, land use economic or social policies of the state
    - Population densities and peak house travel patterns of existing and planned development should be considered in the choice of transportation modes for trips taken by persons. While high density developments with concentrated trip origins and destinations should be designed to be principally served by mass transit, low density developments with dispersed origins and destinations should be principally served by the auto.
- Goal 13 Energy Conservation – to conserve energy. Land and uses developed on the land shall be managed and controlled so as to maximize the conservation of all forms of energy, based upon sound economic principles:
    - Priority in land use planning should be given to methods of analysis and implementation measures that will assure maximum efficiency in energy utilization.
    - Land uses should minimize the depletion of non-renewable sources of energy.
    - Land use planning should seek to recycle and re-use vacant land and those uses which are not energy efficient.
    - Land use planning should, to the maximum extent possible, combine increasing density gradients along high capacity transportation corridors to achieve greater energy efficiency.
- Goal 14 Urbanization – provide an orderly and efficient transition from rural to urban land use, accommodate urban population and urban employment inside urban growth boundaries, ensure efficient use of land, and provide livable communities. Land within urban growth boundaries shall be considered available for urban development consistent

with plans for the provision of urban facilities and services. Comprehensive Plans and implementing measures shall manage the use and division of urbanizable land to maintain its potential for planned urban development until appropriate public facilities and services are available or planned.

- Goal 15 Willamette River Greenway – protect, conserve, enhance and maintain the natural, scenic, historic, agricultural, economic and recreational qualities of lands along the Willamette River as the Willamette River Greenway. (State of Oregon, DLCD, 2014)

- Policy 1A – State Highway Classification System

  Interstate 205 (I-205) and Oregon Highway 43 (Hwy 43) are classified as state highways. I-205 is further sub-classified as an interstate highway, whose function is to provide connections to major cities and other states. Interstates are major freight routes with the objective of providing mobility. The key management objective for interstate highways is to provide safe and efficient high-speed continuous-flow operation in urban and rural areas.

  Hwy 43 is sub-classified as a district highway and is intended to function as a regional arterial roadway. District highways provide connections between small urbanized areas, rural centers and urban hubs, while also serving local access traffic. The key management objective for district highways in an urban setting is to provide for safe and efficient, moderate to low-speed operation for traffic flow and for pedestrian and bicycle movements.

- Policy 1B – Land Use and Transportation. Recognizes that land development and transportation networks greatly influence one another. Compact land development patterns that reduce dependence on the state highway system for local trips. This policy also recognizes the positive and negative impacts of state highways on a local economy and establishes a framework for developing solutions to local development in or near state highway interchanges.

- Policy 1C – State Highway Freight System

  This policy seeks to ensure that freight is able to move efficiently on the State's major trucking routes. The Freight policy balances the need to move goods with other uses of the highway system and recognizes the importance of maintaining efficient through movement on major truck and freight routes, such as I-205.

- Policy 1F – Highway Mobility Standards

  The OHP understands the unique context and policy choices (regional plan that prescribes minimum densities, mixed-use development and transportation options; primary reliance on high-capacity transit to provide additional capacity in the freeway corridors serving the central city; an air quality attainment/maintenance plan that relies heavily on reducing auto trips through land use) that have been made by cities in the Portland Metropolitan Region and has therefore established a process for alternate mobility standards.

  Cities and counties in the Portland Metropolitan Area (metro area) may adopt alternate mobility standards where it is clear that reduced mobility will lead to congestion that will not be alleviated by highway improvements. Alternative standards shall be clear and objective and shall be related to the ratio of volume to capacity (v/c) or another similar metric (e.g., corridor-average v/c, network-average v/c, and the ratio of average daily traffic and hour capacity (adt/c)). These standards are adopted as part of the regional transportation plan where it has been demonstrated that it is infeasible to meet the adopted highway mobility standards below:

MAXIMUM VOLUME TO CAPACITY RATIOS INSIDE METRO[A]		
Location	**Standard**	
	1st hour	2nd hour
Central City Regional Centers Town Centers Main Streets Station Communities	1.1	.99
Corridors[B] Industrial Areas Intermodal Facilities Employment Areas Inner Neighborhoods Outer Neighborhoods	0.99	.99
Banfield Freeway (from I-5 to I-205)[C]	1.1	.99
I-5 North[C] (from Marquam Bridge to Interstate Bridge)	1.1	.99
Highway 99E[C] (from Lincoln Street to Highway 224 Interchange)	1.1	.99
Sunset Highway[C] (from I-405 to Sylvan Interchange)	1.1	.99
Stadium Freeway[C] (from I-5 South to I-5 North)	1.1	.99
Other Principal Arterial Routes I-205[C] I-82 (east of I-205) I-5 (Marquam Bridge to Wilsonville)[C] Highway 217[C] US 26 (west of Sylvan) Highway 30 Tualatin Valley Highway (Cedar Hills Blvd to Brookwood Avenue)[C] Highway 224[C] Highway 47 Highway 213 242nd/US 26 in Gresham	.99	.99
Areas of Special ConcernD Beaverton Regional Center Highway 99W (I-5 to Tualatin Road)	1.0 .95	D

Table 7: Maximum Volume to Capacity Ratios Within Portland Metropolitan Region

Notes for Table 7: Maximum volume to capacity ratios for two hour peak operating Conditions through a 20-year horizon for state highway sections within the Portland Metropolitan area urban growth boundary. A) The volume to capacity ratios in the table are for the highest two consecutive hours of weekday Traffic volumes. This is calculated by dividing the traffic volume for the average weekly two-hour PM peak by twice the hourly capacity. B) Corridors that are also state highways are 99W, Sandy Boulevard, Powell Boulevard, 82nd Avenue, North Portland Road, North Denver Street, Lombard Street, Hall Boulevard, Farmington Road, Canyon Road, Beaverton-Hillsdale Highway, Tualatin Valley Highway (from Hall Boulevard to Cedar Hills Boulevard and from Brookwood Street to E Street in Forest Grove), Scholls Ferry Road, 99E (from Milwaukie to Oregon City and

Highway 43. C) Thresholds shown are for interim purposes only; refinement plans for these corridors are Required in Metro's Regional Transportation Plan and will include a recommended motor Vehicle performance policy for each corridor. D) Areas with this designation are planned for mixed use development, but are also characterized by physical, environmental or other constraints that limit the range of acceptable transportation solutions for addressing a level-of-service need, but where alternative routes for regional through traffic are provided. In these areas, substitute performance measures are allowed by OAR.660.012.0060(2)(d). Provisions for determining the alternative performance measures are included in Section 6.7.7 of the 2000 RTP. The OHP mobility standard for state highways in these areas applies until the alternative performance measures are adopted in local plans and approved by the Oregon Transportation Commission.

- Policy 1G – Major Improvements

  This policy establishes that the State will prioritize the maintenance of highway performance, improved safety and improved system efficiency before adding new capacity.

- Policy 2A – Partnerships

  Establish cooperative partnerships to make more efficient and effective use of limited resources in the development, operation and maintenance of the highway system. Consult with local and regional governments regarding the potential for local participation on major modernization projects considered for inclusion in the STIP. When major improvements to or replacement of an interchange are necessary, work in partnership with local and regional government regarding financial participation, right-of-way contributions, and other enhancements.

- Policy 2B – Off-system Improvements

  Provide State financial assistance to local jurisdictions to develop, enhance and maintain improvements on local transportation systems when they are a cost effective way to improve the operation of the state highway system if:

  - Benefits to the state system are greater than those that would be achieved by investing in system improvements;
  - Local jurisdictions adopt land use, access management and other policies and ordinances that assure the continued benefit of the off-system improvement to the state highway system;
  - Local jurisdictions provide advanced notice to ODOT of land use decisions that may impact the off-system improvement in such a way as to adversely impact the state highway system;
  - Local jurisdictions agree to a minimum maintenance level for the off-system improvement that will assure the continued benefit of the off-system improvement to the state highway system.

- Policy 2C – Interjurisdictional Transfers

  In cooperation with local jurisdictions, consider transfers that: simplify the management responsibilities of a roadway segment; reflect the appropriate functional classification of a

particular roadway segment; lead to increased efficiencies in the operation and maintenance of a roadway segment or corridor.

- Policy 2E – Intelligent Transportation Systems

  Work with small cities to develop a toolbox of ITS applications that emphasize safety enhancements, traveler information, incident response, and congestion relief. Support ITS planning, development, and implementation in local TSPs.

- Policy 2F – Traffic Safety

  Establish a process to develop and implement the most cost-effective solutions to high priority safety problems. Traffic safety solutions may include: better traffic enforcement; educational materials and signage to change driving behavior; engineering improvements; constructing safe and convenient pedestrian and bicycle crossings; and, managing access to the state highway. The OHP encourages local governments to adopt a safety management system and to work with citizens to address safety concerns on the state highway system.

- Policy 3A – Classification and Spacing Standards

  The OHP provides flexibility in access spacing standards to local governments seeking to promote development along state highways through the use of Urban Business Areas (UBAs) and Special Transportation Areas (STAs).

- Policy 3B – Medians

  Manage and locate medians in a manner that enhances the efficiency and safety of the highways and that influence and support land use development patterns that are consistent with approved TSPs.

- Policy 3C – Interchange Access Management Areas

  Interchange Access Management Plans (IAMPs) are necessary to protect the function of interchanges and to provide safe and efficient operations between connecting roadways. Local comprehensive plans should identify improvements such as, channelization, medians and access control in interchange areas as well as sources of funding to ensure these areas provide the functionality necessary to support the state and local roadway system. The design of urban interchange areas must consider the need for transit and park and ride facilities and the impact of the interchange on pedestrian and bicycle traffic.

- Policy 4A – Efficiency of Freight Movement

  Balance the needs of long distance and through freight movements with local transportation needs on highway facilities in urban areas.

- Policy 4B – Alternative Passenger Modes

The OHP encourages alternative passenger transportation systems where travel demand, land use and other factors indicate the potential for their successful development as a means to help or maintain established performance standards.

A

Portland's MAX light rail transit helps relieve congestion in Interstate 84.

transportation service should be incorporated as one part of a larger corridor strategy that may include developing land use regulations that support high capacity transit and developing adequate collector-distributor roadway systems. This policy suggests the following additional measures:

- Encourage the use of alternative passenger modes to reduce local trips on the state highway system where limited highway facilities accommodate large numbers of intercity and local trips;
- Support the development of alternative intercity passenger services in congested transportation corridors through additional peak hour service, use of excess freight rail system capacity, and the provision of support facilities and services which help connect passengers to their destinations;

- Policy 4C – High-occupancy Vehicle Facilities

  Utilize HOV facilities to improve the efficiency of the highway system in locations where travel demand, land use, transit, and other factors are favorable to their effectiveness. HOV facilities should be promoted in corridors where they are supported in local or regional

TSPs, where current or projected demand will allow for efficient operations and where HOV facilities will function as part of the overall transportation system. This policy also encourages the use of HOV support facilities such as park and ride lots and preferential HOV parking.

- Policy 4D – Transportation Demand Management

  Support the efficient use of the transportation system through investment in TDM strategies. Support strategies that reduce single-occupant vehicle travel during the peak commute periods and that improve the traffic flow on the state highway system.

- Policy 4E – Park and Ride Facilities

  Seek cost effective expansion of the capacity of the state highway system through the development of park and ride facilities at appropriate urban locations. The OHP recommends using surplus ODOT property for park and ride facilities where appropriate and providing park and ride facilities in urban areas that are safely accessible by pedestrians, bicyclists, and transit users when feasible.

- Policy 5A – Environmental Resources

  Maintain or improve the natural and built environment including air quality, fish passage and habitat, wildlife habitat and migration routes, sensitive habitats, vegetation, and water resources where affected by ODOT facilities. Additional guidance includes:

  - Use best management practices to minimize effects of construction, operations and maintenance impacts to the human and natural environment;
  - Attain and maintain air quality standards in highway plans, programs, projects and maintenance activities and ensure that air quality plans are implemented and budget money for these purposes as available. (Oregon Department of Transportation, 2014)

Oregon Access Management Rule (OAR 734-051-0155)

The Oregon Access Management Rule mimics much of the direction established in the Oregon Highway Plan and the Oregon Transportation Plan in its preference toward maintaining and improving highway performance and safety through improved system efficiency, prior to adding new capacity. This policy also directs the state to work with local agencies in developing interchange management plans where new or significant modifications to existing interchanges are desired. (Oregon Department of Transportation, 2014)

APPENDIX C: Oregon Transportation Plan Goals

Each Oregon Transportation Plan goal listed below has a set of related policies that can be seen at the following link under "Oregon Transportation Plan, Volume 1":
http://www.oregon.gov/ODOT/TD/TP/Pages/OTP.aspx

- Mobility and Accessibility: "Provide a balanced, efficient and integrated transportation system that ensures interconnected access to all areas of the state, the nation and the world. Promote transportation choices that are reliable, accessible and cost-effective."
- Management of the System: "Improve the efficiency of the transportation system by optimizing operations and management. Manage transportation assets to extend their life and reduce maintenance costs."
- Economic Vitality: "Expand and diversify Oregon's economy by transporting people, goods, services and information in safe, energy-efficient and environmentally sound ways. Provide Oregon with a competitive advantage by promoting an integrated freight system."
- Sustainability: "Meet present needs without compromising the ability of future generations to meet their daily needs from the joint perspective of the environment, economy and communities. Encourage conservation and communities that integrate land use and transportation choices."
- Safety and Security: "Build, operate and maintain the transportation system so that it is safe and secure. Take into account the needs of all users: operators, passengers, pedestrians and property owners."
- Funding the Transportation System: "Create sources of revenue that will support a viable transportation system today and in the future. Expand ways to fund the system that are fair and fiscally responsible."

Coordination, Communication and Cooperation: "Foster coordination, communication and cooperation between transportation users and providers so various means of transportation function as an integrated system. Work to help all parties align interests, remove barriers and offer innovative, equitable solutions."

The OTP identifies the following key initiatives necessary for its implementation:

- Maintaining and maximizing assets;
- Optimizing the performance of the existing system through technology;
- Integrating transportation, land use, economic development and the environment;
- Integrating the transportation system across jurisdictions and modes;
- Creating sustainable funding;
- Investing in strategic capacity enhancements.

Works Cited

City of West Linn. (2008, December). *Comprehensive Plan and Neighborhood Plans*. Retrieved June 11, 2014, from City of West Linn: http://westlinnoregon.gov/sites/default/files/fileattachments/planning/page/6526/web20version20revised20april20200920with20maps.pdf

City of West Linn. (2008, December). *Transportation System Plan.* Retrieved June 11, 2014, from City of West Linn: http://westlinnoregon.gov/sites/default/files/fileattachments/public_works/page/5402/post_1_transportation_system_plan_2008.pdf

City of West Linn. (2011, June). *Pavement Management Report.* Retrieved June 11, 2014, from City of West Linn: http://westlinnoregon.gov/publicworks/pavement-management-report

City of West Linn. (2013). *City-wide Trails Master Plan.* Retrieved June 11, 2014, from City of West Linn: http://westlinnoregon.gov/planning/city-wide-trails-master-plan

City of West Linn. (2014). *Capital Improvement Plan.* Retrieved June 11, 2014, from City of West Linn: http://westlinnoregon.gov/sites/default/files/fileattachments/finance/page/7208/cip_reduced_file_size_0.pdf

Clackamas County. (2014, June 11). *Comprehensive Plan*. Retrieved June 11, 2014, from Clackamas County: http://www.clackamas.us/planning/documents/compplan/Chapter%205%20Transportation.pdf

Metro. (2010, September 8). *Metro Regional Transportation Plan*. Retrieved June 11, 2014, from Metro: http://library.oregonmetro.gov/files//appendix_23_rtfp.pdf

Metro. (2014). *Climate Smart Communities Scenarios Project*. Retrieved June 11, 2014 , from Metro: http://www.oregonmetro.gov/public-projects/climate-smart-communities-scenarios/project-library

Oregon Department of Transportation . (2014, June 11). *Oregon Bicycle and Pedestrian Design Guidelines*. Retrieved June 11, 2014, from Bicycle and Pedestrian Program: http://www.oregon.gov/ODOT/HWY/BIKEPED/Pages/planproc.aspx

Oregon Department of Transportation. (2006). *Oregon Transportation Plan.* Salem, OR 97301: Oregon Department of Transportation.

Oregon Department of Transportation. (2014, June 11). *Administrative Rules*. Retrieved June 11, 2014, from ODOT Access Management: http://www.oregon.gov/ODOT/HWY/ACCESSMGT/pages/technicalbulletins.aspx

Oregon Department of Transportation. (2014, June 11). *Oregon Highway Plan*. Retrieved June 11, 2014, from Transportation Development - Planning: http://www.oregon.gov/ODOT/TD/TP/pages/ohp.aspx

State of Oregon, DLCD. (2014, June 11). *Statewide Planning Goals*. Retrieved June 11, 2014, from Oregon Department of Land Conservation and Development: http://www.oregon.gov/LCD/pages/goals.aspx

State of Oregon, DLCD. (2014, June 11). *Transportation Planning Rule*. Retrieved June 11, 2014, from Oregon Department of Land Conservation and Development: http://www.oregon.gov/LCD/pages/rulemaking_tpr_2011.aspx

TriMet. (2011, September). *Pedestrian Network Analysis Project*. Retrieved June 11, 2014, from TriMet: http://trimet.org/projects/pedestrian-network.htm

TriMet. (2012, October). *Coordinated Transportation Plan for Elderly and Persons with Disabilities*. Retrieved June 11, 2014, from TriMet: http://trimet.org/pdfs/publications/elderly-and-disabled-plan.pdf

TriMet. (2014, June 11). *TriMet Transit Investment Plan*. Retrieved June 11, 2014, from TriMet: http://trimet.org/pdfs/tip/tip.pdf

CITY OF West Linn

Date: November 17, 2014

To: Project Management Team

From: Noah Brennan, Associate Engineer, EIT; Zach Pelz, Associate Planner

Subject: Draft Technical Memorandum No. 2: Transportation Changes Since 2008 and Special Interest Topics

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This memo documents changes to West Linn's transportation system that have occurred since the adoption of the 2008 Transportation System Plan (TSP). This memo also introduces topics of special interest that will be considered as part of the updated TSP.

Transportation Improvements Since 2008

Since 2008, a total of 39 transportation improvements have been completed as part of 32 discrete improvement projects (see Table 1 below). Of the 32 projects, 26 have been completed by private developers as improvements associated with land development, while six have been completed by the City as part of its Capital Improvement Program. A significant majority of the transportation improvements have been sidewalk infill projects, in addition to six bicycle infrastructure improvements and three new pedestrian crossings. The City is currently in the process of finalizing the installation of a new traffic signal at the intersection of Salamo and Rosemont Roads. The gray shaded projects in Table 1 represent projects identified in the 2008 TSP master plans. Many of the improvements are only portions of the complete project.

Figure 1 West Linn Pedestrian Plan (2008 TSP)

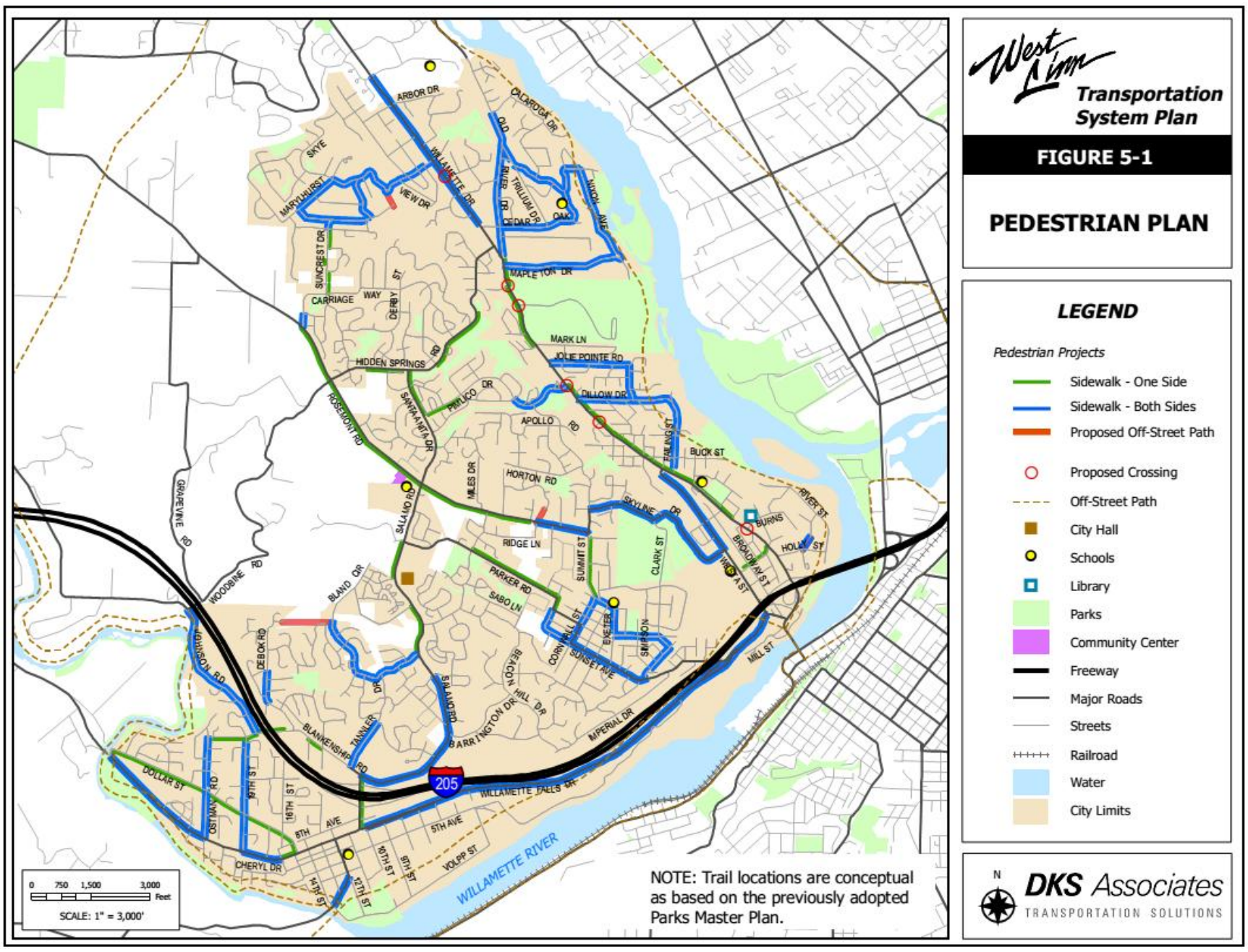

Figure 2 West Linn Bicycle Plan (2008 TSP)

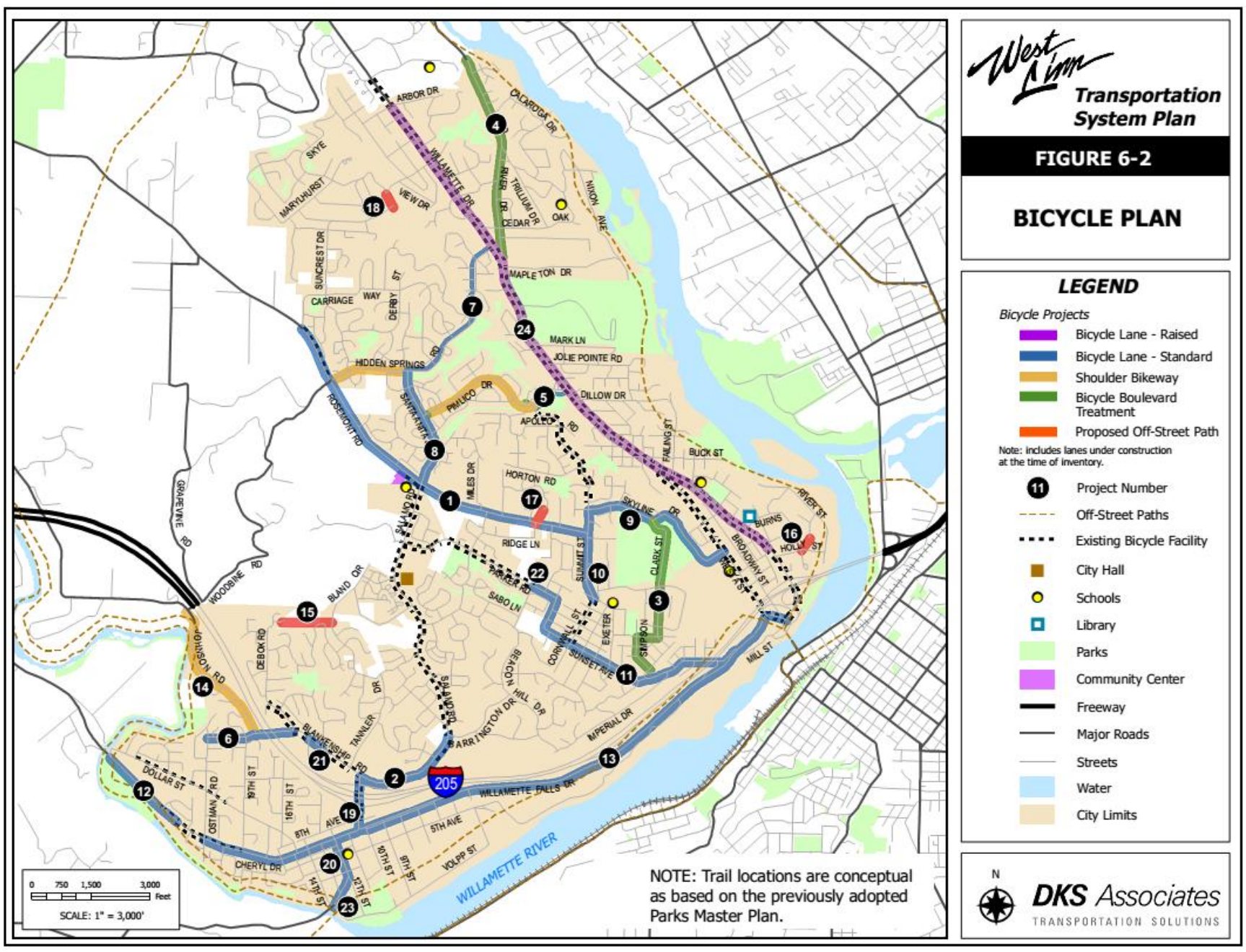

Table 1 Transportation System Changes Since 2008

Project No.	Project Title	Sidewalk infill	Bikeways	Traffic Signals	Project Description
PW-14-02	Road Program 2014		x		Widened Blankenship Rd to include bike lane between Johnson Rd and Debok Rd
PW-14-11	Holmes St Sidewalk Improvement	x	x		Extended Sidewalk along Holmes St to Bolton Primary School
PW-14-05	Bland Waterline Interconnect	x			Sidewalk along Salamo from Bland Circle to Weatherhill Rd
PW-13-14	Santa Anita & Rosemont Intersection			x	New Signal at intersection
PI-14-02	Harper Subdivision	x			Sidewalk, Gloria Dr and Summit St to Woodsprite Ct
PI-14-02	Weatherhill Subdivision	x			Creation of street and sidewalk on Satter St off of Weatherhill Rd, pedestrian path connecting to Bland Circle
PI-13-10	Sunbreak Subdivision	x			Street and sidewalk connection of Crestview Dr, Sunbreak Lane and Bland Circle, pedestrian crossing of Bland Circle, pedestrian path from Sunbreak Lane to Crestview lots
PI-13-09	Rosemont Subdivision	x			Sidewalk added on Rosemont frontage between 1473 and 1499 Rosemont Rd
PI-13-07	Benjamin Heights Partition	x			Sidewalk along frontages on NW side of Salamo Rd and Remington Dr intersection
PW-14-07	8th Ave Across from police department	x			Sidewalk from frontage of fire department on 8th Ave
PI-13-06	Police Station	x			Sidewalk along north side of 8th Ave and east side of 13th St
PI-13-03	Falcon Place	x			Sidewalk along Bland Circle across from Falcon Dr
PI-13-02	West Linn High School Parking Lot	x			Sidewalk added on Skyline Dr
PI-12-03	Chase Bank-Highway 43	x			Sidewalk improvements along Highway 43 Frontage
PI-12-01	Ostman Rd MIP	x			Sidewalk on west side of Ostman from Michael Dr to Royal Court, and first lot of North side of Michael Dr
PI-11-03	Suncrest Subdivision				Sidewalk on Suncrest Dr frontage 19638, 19650 & 19656 Suncrest Dr
PI-11-02	Teresa's Vineyard	x			Completion of Coeur d'Alene Dr, and sidewalk
PI-11-01	Trillium Creek Primary School-Rosemont Rd	x	x		Sidewalk improved and replaced along Rosemont Rd widening, bike lane added
PI-10-09	Marylhurst Heights Park	x			Paved path through park
PI-10-01	Debok Subdivision	x			Added Debok Ct. street and sidewalk off of Wisteria Rd
PW-09-10	Blankenship Sidewalk Improvement	x	x		2 Pedestrian crossings on Blankenship, and sidewalk and Bike lane on south side of Blankenship between Virginia Ln and Albertson's frontage.
PI-09-04	Cedar Oak School	x			Sidewalk improvement along school frontages on Cedaroak Dr
PI-09-03	Willamette Fire Station #59 Tualatin Valley Fire & Rescue	x			New sidewalk along 8th Ave frontage
PI-09-02	Willamette Fire Station #58 - Tualatin Valley Fire & Rescue	x			New sidewalk along Elliott St, Buck St, and Failing St
PI-09-01	Berlin Bear - ROW Work	x			Sidewalk replacement, no addition
PI-08-07	LDS West Linn Ward Church	x	x		Sidewalk along Rosemont Rd and Shannon Ln frontages, and sidewalk connection to Miles Dr from Rosemont Rd.
PI-08-06	Fairview Acres	x	x		75' of asphaltic-concrete sidewalk on Fairview Way
PI-08-04	Willamette Christian Church - Street and Storm	x			New sidewalk along west side of Salamo Rd along property frontage and ramp across what is now Brandywine Dr
PI-08-03	Willamette Village Site Work	x			Sidewalk along Willamette Dr (Highway 43)
PI-07-14	Bella Flats Subdivision	x			Sidewalk added along Elmran Dr
PI-07-10	Shannon Lane Partition	x			Sidewalk added along northern 2 lots of Shannon Lane
PI-07-05	Douglas Park Subdivision	x			Sidewalk added along Haskins Rd 700' SE and Rogue Way from Lois Ln to Haskins Rd

TSP Special Interest Topics

Next Steps for Old Willamette Area to Improve Parking Management

In 2013, the City of West Linn assembled a task force comprised of residents, business owners, and Citizen Advisory Board members to discuss issues related to parking in the City's Willamette Commercial District; which comprises an area immediately north and south of Willamette Falls Drive between 14th St and 10th Street, properties immediately north and south of 8th Avenue between 14th Street and 10th Street and properties east and west of 10th Street south of I-205.t. A staff parking analysis found, and the task force later agreed, that parking was currently adequately supplied during most times of the year, except during special events held in the Commercial district. The Task Force recommended five, relatively modest, strategies to address parking supply needs during special events, including:

- Identify areas for employee parking that are off of Willamette Falls Drive and ensure safe access to employers;
- Improve parking for special events;
- Assign a City staff liaison to meet with local business owners on a quarterly basis;
- Improve user information and marketing; and
- Provide enhanced parking enforcement as resources permit.

The TSP will decide how and when these strategies are funded and implemented.

Mode Share Targets for Key Destinations, Such as Employment and Shopping Areas and Schools, Based on City's Metro 2040 Design Types

Between 2006 and 2010, more than 76 percent of West Linn residents commuted to jobs outside of the City using a single-occupant vehicle. Because of the need to improve the efficiency of the region's transportation system, the Regional Transportation Functional Plan (RTFP) establishes a non-SOV target of between 40 and 55 percent for Regional and Town Centers, Corridors, and Industrial and Employment areas, by the year 2035. This means that by 2035, residents living in the Highway 43 Corridor in West Linn, the Bolton and Willamette Town Center areas, and in the Willamette Main Street Area, will be expected to drive alone at a rate 15 to 30 percent less than today.

Transit Supportive Land Uses

The Regional Transportation Plan (RTP) emphasizes a more balanced approach to transportation problem solving than the historically automobile-centric focus that has been the norm in the United States for the past five decades. Effective public transit, transit that is convenient and that encourages choice riders (riders who have a choice to use public transit or drive alone); however, relies on a minimum threshold of residential and employment density to make it economically viable for the transit provider. It is important to consider the land use and density requirements necessary to serve public transit when planning for these modes as solutions to regional transportation challenges.

The current literature suggests the following minimum densities necessary to support various levels of public transit:

Table 2 Minimum Land Densities Supporting Transit Service at Various Frequencies (

Transit Service	Minimum Residential Density	CDB Commercial/Office Density
Local bus, 1 bus/h	4.5 dwelling units/net acre	5-8 million ft^2
Local bus, 2 bus/h	7 dwelling units/net acre	8-20 million ft^2
Local bus, 6 bus/h	15 dwelling units/net acre	20-50 million ft^2
Light rail, 5-min peak headway	9 dwelling units/net acre in 20-100 mi^2 corridor	30-50 million ft^2 (20 million ft^2 if 100% at grade)
Rapid transit, 5-min peak headway	12 dwelling units/net acre in 100-150 mi^2 corridor	>50 million ft^2
Commuter rail, 20 trains/day	1-2 dwelling units/net acre	>100 million ft^2

Additionally, research suggests that the availability of public transit within walkable neighborhoods promotes fewer vehicle miles traveled per capita and more walking, biking and public transit use.

Table 3 Land Use Impacts on Vehicle Ownership (Portland 2009)

Land Use Type	Auto Ownership	Daily VMT	Mode Split				
	Per Household	Per Capita	Auto	Walk	Transit	Bike	Other
Good transit/Mixed use	0.93	9.8	58%	27%	12%	1.9%	1.5%
Good transit only	1.50	13.3	74%	15%	7.9%	1.4%	1.1%
Remainder of county	1.74	17.3	82%	10%	3.5%	1.6%	3.7%
Remainder of region	1.93	21.8	87%	6.1%	1.2%	0.8%	4.0%

Alternatives to Automobile Level of Service and Volume-to-Capacity Standards

Transportation systems can be evaluated in various ways that reflect different perspectives concerning uses, modes, land use, transport problems and solutions, how transport activity is measured, and the type of performance indicators used (Litman, 2011). Historically, transportation system plans have evaluated performance using Level-of-service or Volume to Capacity metrics.

Both metrics assume that travel and trips mean vehicle trips and improvements in system quality come about by increased vehicle mileage and speed (Litman, 2011).

Transportation system performance can however, be measured in other ways that place more emphasis on mobility and or accessibility. Mobility measurements consider automobiles as the most important since people and goods are moved primarily by automobile. A mobility perspective, however, recognizes that some people use non-automobile modes. Mobility can be measured through surveys to quantify person-miles and travel speeds in conjunction with traffic data to quantify average automobile and transit vehicle speeds. In recent years, techniques to evaluate bicycle and transit level-of-service have emerged (Litman, 2011).

Finally, transportation system performance can be measured from an accessibility perspective; where reaching goods, services, activities and destinations are the primary goal, regardless of travel mode. From this perspective, land use is as important as mobility in the quality of transportation, and different land use patterns favor different types of accessibility (Litman, 2011). From this perspective, transportation system performance can be evaluated based on the time, money, discomfort and risk required to reach opportunities (Litman, 2011).

Table 4 Various Transportation Performance Measurement Units (adapted from Litman, 2011)

Measurement unit	Description
Vehicle-mile	Reflects a traffic perspective that places high value on automobile travel
Passenger-mile	Reflects a mobility perspective that values automobile and transit travel, but gives less value to non-motorized modes because they tend to be used for short trips
Per-trip	Reflects an access perspective which gives equal value to automobile, transit, cycling, walking and telecommuting
Travel time	Reflects an access perspective with higher priority to walking, cycling and transit travel because they tend to represent a relatively large portion of travel time
Generalized costs	Reflect an access perspective

Outcomes-based, Performance-driven Planning at Metro

Cities and States across the US are facing a transportation dilemma: 1) transportation infrastructure is reaching the end of its useful life and requires significant maintenance and/or replacement, 2) transportation funding is becoming more and more scarce, 3) the cost to make transportation improvements is increasing rapidly, and 4) population in metropolitan areas is on the rise, placing more demand on transportation systems. For these reasons, and because citizens are becoming increasingly sensitive to government spending, transportation systems must work to become as efficient and effective as reasonably possible.

Metro's 2035 Regional Transportation Plan (RTP) identifies six outcomes that are at the core of future investment:

- Vibrant communities
- Economic prosperity
- Safe and reliable transportation
- Leadership on climate change
- Clean air and water
- Equity

The RTP performance targets are tied to a framework of economy, environment, and equity and set measurable targets to evaluate the region's future success. Table 5 presents a sample of regional performance targets.

Table 5 Sample Policy-level Performance Targets (Metro, 2010)

	Target
Economy	Congestion – by 2035, reduce vehicle hours of delay per person by 10 percent compared to 2005
	Freight reliability – by 2035, reduce vehicle hours of delay per truck trip by 10 percent compared to 2005
Environment	Active transportation – by 2035, triple walking, biking and transit mode share compared to 2005
	Clean air – by 2035, ensure zero percent population exposure to at-risk levels of air pollution
Equity	Access to daily needs – by 2035, increase by 50 percent the number of essential destinations accessible within 30 minutes by bicycling and public transit for low-income, minority, senior and disabled populations compared to 2005

Date: December 23, 2014

To: TSP Project Management Team

From: Zach Pelz, City of West Linn and Gail Curtis, ODOT

Subject: Technical Memorandum No. 3: Performance Outcomes and Key Measures

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Context

The City of West Linn is updating its transportation system plan (TSP), a 20-year plan that identifies transportation needs and prioritizes projects and programs that will implement the City's transportation and land-use aspirations. As a part of the TSP update, the City wishes to evaluate the success of its TSP over time based on measurable targets. This approach is consistent with the regional requirement that TSPs include "performance measures for safety, vehicles miles traveled per capita, freight reliability, congestion, and walking, bicycling and transit mode shares to evaluate and monitor performance of the TSP."[1] Draft targets and measures have been developed for the technical and citizen advisory committees to review and comment.

The targets and measures included herein are based on existing policies and desired outcomes from recently adopted transportation-related plans at the State, Regional and Local level. This "outcomes based approach" more readily conveys the City's vision and progress towards achieving that vision, and is able to answer questions such as: *"Can residents and visitors more easily and safely get around the city? Are there more travel options in and to the city? What will the city look like in 20 years if the TSP succeeds?*

The draft TSP targets and performance measures in this document were developed with the following considerations in mind:

- The City's vision and relevant adopted policies;
- West Linn's lack of vacant undeveloped parcels and the predominantly single-family residential pattern of development;
- West Linn has low employment, which coupled with the relatively low-density configuration of residential land, increases trip distance;
- West Linn is hilly, which limits walking and biking for many;

[1] Section 3.08.230 Performance Targets and Standards, Chapter 3.08, Regional Transportation Function Plan, Exhibit E. to Ordinance No 10-1241B

- Key measures address topics that are important to the City and implement the evaluation requirements established in the Regional Transportation Function Plan (RTFP);
- Key measures rely upon data that can be collected and maintained by the City or the region;
- The City is in control or has major influence on the ability to make progress towards the targets;
- The quantity of targets are manageable for the City; and
- The targets balance City resources across all travel modes.

The following section includes agreed upon desired regional outcomes from the Regional Transportation Plan (RTP) and City policies. Together, the regional outcomes and City policies provide a basis for the draft performance measures. Technical Memorandum 1 (West Linn TSP Update Policy Framework) provides a complete list of applicable local, regional and state policy. Table 1 outlines the six desired outcomes that were adopted by the region in 2010 that serve to guide future urban planning and express shared regional values.

Table 1: Six Desired Regional Outcomes

Outcome		Description
1	Vibrant communities	People live, work and play in vibrant communities where their everyday needs are easily accessible.
2	Sustained economic competiveness and prosperity	Current and future residents benefit from the region's sustained economic competitiveness and prosperity.
3	Safe and reliable transportation choices	People have safe and reliable transportation choices that enhance their quality of life.
4	Leadership on climate change	The region is a leader on climate change and minimizing contributions to global warming.
5	Clean air, clean water and healthy ecosystems	Current and future generations enjoy clean air, clean water and healthy ecosystems.
6	Equity	Equity exists relative to the benefits and burdens of growth and change to the region's communities.

The adopted vision for West Linn, *Imagine West Linn*, was originally developed in 1994 and updated in 2008. *Imagine West Linn* defines the preferred future vision for the City in a proactive and constructive manner and establishes the following guiding principles:

Table 2: 2008 Imagine West Linn Guiding Principles

Guiding principle		Description
1	Sense of community	To create and sustain a spirit of community, openness and connectedness that ensures present and future needs are met.
2	Land use and quality of life	Shape the physical design of West Linn in a way that instills a sense of pride in the community.
3	Sustainability	Meet the present needs of West Linn's citizens without compromising the ability to meet the needs of future generations.
4	Cultural diversity, education and the arts	Celebrate the creative, innovative, and inspirational works of nature and humankind while exposing citizens to other cultures and viewpoints.
5	Community Institutions	Shape City government, the school district, and other local institutions in a manner that fosters trust, respect, courage, and cooperation from the community.

Chapter 12 of the West Linn Comprehensive Plan also includes transportation-related goals that will guide future transportation investments and decision-making:

Table 3: Goals from Chapter 12 (Transportation) of the West Linn Comprehensive Plan

Goal		Description
1	Mobility, access, safety, equity, neighborhood character, and affordability	Provide a transportation system that provides maximum mobility while encouraging modes other than the automobile; provides connectivity within and between neighborhoods; is convenient, safe, and efficient; maintains the cohesiveness of the City's neighborhoods; respects the community's priorities and affordability; respects the natural environment.
2	Cost-effective	Provide a cost-effective balanced transportation system, incorporating all modes of transportation (automobiles, bicycles, transit and other modes)
3	Accessible	Develop transportation facilities that are accessible to all members of the community and minimize out-of-direction travel.

Table 4 is a compilation of the transportation-related goals from; *Metro's Six Desired Outcomes* (Table 1), *Imagine West Linn* (Table 2), and *Goal 12 of the West Linn Comprehensive Plan* (Table 3). The Goals and Desired Outcomes proposed by the Project Management Team in Table 4 recognize the need to: focus on transportation-related issues; balance City resources across all travel modes; create targets that are manageable and which rely on data that can be collected, maintained and evaluated by the City; develop outcomes for which the City is in control of or has major influence over and reflect the other considerations listed on page 1 of this document.

Table 4: Goals and Desired Outcomes for TSP Update based on Desired Regional Outcomes, the Image West Linn Vision, and the West Linn Comprehensive Plan.

Goal		Desired Outcome
1	Safety	Reduce transportation-related fatalities and serious injuries across all modes.
2	Mobility, Access and the Environment	Improve peoples' access to jobs, schools, health care and other regular needs in ways that improve health, reduce pollution and retain money in the local economy.
3	Equity	Develop transportation facilities that are accessible to all members of the community.
4	Maintenance	Deliver access and safety improvements cost effectively, and within available revenues.

To ensure the effective use of local transportation resources, and as required by Title 3 of the RTFP, the City desires a tool to monitor progress toward achieving its stated goals. Table 5 below, proposes: 1) a numerical target the City will strive to achieve by the planning horizon for this TSP (2040), 2) a baseline metric to compare future years to, 3) the transportation-related characteristic that is being measured; 4) the result that will determine whether or not progress has been made toward achieving each target; 5) a monitoring plan to monitor progress overtime; and, 6) the current baseline metric.

Table 5 Proposed Targets and Performance Measures for the West Linn TSP Update

SAFETY						
GOAL 1 Reduce transportation related fatalities and injuries for all transportation modes						
Target	Baseline	Measure	Success is…	Current TSP Projects that Advance Target	Monitoring Plan	Current Baseline Metric
Target 1A – Zero severe injury and fatal collisions by mode.	Number of severe injury and fatal collisions in 2013.	The number of severe injuries and fatalities for each mode over time.	A steady reduction each year in the number of severe injury and fatal collisions as compared to prior years.	• Intersection improvements with consideration for bicyclists and pedestrians • Pedestrian crossings near schools and high pedestrian traffic areas • Bicycle and pedestrian treatments at intersections (e.g., crossing islands, painted boxes and bike signals) • Bicycle and pedestrian facility improvements with emphasis on separated facilities on high-speed or high-volume roads • Traffic calming and greenways • Education and enforcement	• Document the measure on an annual basis based on a review of data maintained by ODOT. Successful progress towards the target includes a steady reduction each year in the number severe injury and fatal collisions compared to prior years.	• Number of severe injury crashes (2013) • Number of fatal crashes (2013) • Number of crashes involving pedestrians or bicyclists (2013)
Target 1B - Reduce total number of high collision locations to zero by 2040.	Number of locations in 2013 on the ODOT Safety Priority Index System (SPIS) List or where collision rate exceeds 1.0 crashes per million entering vehicles	Number of locations on the ODOT Safety Priority Index System (SPIS) List or where collision rate exceeds 1.0 crashes per million entering vehicles	A steady reduction each year in the number of locations on the ODOT Safety Priority Index System (SPIS) List or where collision rate exceeds 1.0 crashes per million entering vehicles	• Intersection improvements with consideration for bicyclists and pedestrians • Bicycle and pedestrian treatments at intersections (e.g., crossing islands, painted boxes and bike signals) • Bicycle and pedestrian facility improvements with emphasis on separated facilities • Traffic calming and greenways • Pedestrian crossings near schools and high pedestrian traffic areas	• Document the measure on an annual basis based on a review of data maintained by ODOT. Successful progress towards the target includes a steady reduction each year in the number of SPIS locations and locations with a crash rate above 1.0.	• Number of ODOT SPIS locations (2013) • Number of intersections with a crash rate above 1.0 crashes/MEV (2013)

MOBILITY, ACCESS and ENVIRONMENT						
GOAL 2 Improve people's access to jobs, schools, health care and other regular needs in ways that improve health, reduce pollution and retain money in the local economy.						
Target	Baseline	Measure	Success is…	Current TSP Projects that Advance Target	Monitoring Plan	Current Benchmark
Target 2A - Reduce single-occupant vehicle miles traveled (VMT) per capita as compared to 2010 so that total VMT remains steady or declines as growth occurs.	2010 VMT and VMT per capita on an average weekday	VMT and VMT per capita on an average weekday avg. weekday	A reduction in VMT per capita such that VMT remains steady or declines over time even as growth occurs.	• Transit queue jumps • Improved use of technology to improve user information • Park and ride lots with secure bike racks • Bicycle, pedestrian, and transit amenities Frequent bus service • Educational and incentive programs to encourage and facilitate shifts to carpool, bike, walk, transit, telecommuting	• Document the measure each time a new base year is created for the Metro Travel Demand Model. Successful progress towards the target includes a reduction in VMT per capita such that VMT remains steady or declines over time even as growth occurs.	• Metro Travel Demand Model VMT and VMT per Capita (2010)
Target 2B – Achieve 40-45% non-single occupant vehicle (SOV) trip mode share in 2040 industrial and employment areas and neighborhoods, and 45-55% in 2040 town centers, main streets, and corridors by 2040.	Non-SOV mode share in 2010 in 2040 industrial and employment areas, neighborhoods, town centers, main streets and corridors	Non-SOV mode share in 2040 investment areas	40-45 percent non-SOV mode share in industrial and employment areas and neighborhoods by 2040 *and* 45-55 percent non-SOV mode share in town centers, main streets and corridors by 2040	• Bicycle, pedestrian, and transit facility improvements • Bus rapid transit, such as transit priority • Educational and incentive programs to encourage shifts to carpool, bike, pedestrian, and transit • Bicycle, pedestrian, and transit amenities such as bus shelters and benches, signage, bike maps, bike parking	• Document the measure each time a new base year is created for the Metro Travel Demand Model. Successful progress towards the target includes an increase in the non-SOV mode share in the 2040 investment areas over time even as growth occurs.	• Metro Travel Demand Model Non-SOV mode share in industrial and employment areas and neighborhoods (2010) • Metro Travel Demand Model Non-SOV mode share in town centers, main streets and corridors (2010)

Target	Baseline	Measure	Success is…	Current TSP Projects that advance Target	Monitoring Plan	Current Benchmark
Target 2C – Improve freight travel time reliability.	Travel time reliability for commercial heavy vehicles in 2010 on I-205 and OR 43	Degree of variability from mean commercial heavy vehicle travel time	Lower degree of variability from mean commercial heavy vehicle travel time compared to baseline on I-205 and OR 43	• Reduce peak-hour travel • Intersection operational improvements • Signal synchronization • Transit queue jumps • Improved use of technology to improve user information • Increase access to Oregon City transit and light rail transit to increase transit mode split	• Document the measure each time a new base year is created for the Metro Travel Time Reliability (DTA) Model. Successful progress towards the target includes steady decline in the variability of travel time on I-205 and OR 43	• Metro DTA model Travel Time Reliability on I-205 (2010) • Metro DTA model Travel Time Reliability on OR 43 (2010)
Target 2D - Increase the percentage of people that can access key destinations via a 20 minute walk, bike or public transit ride by 40 percent by 2040.	2010 percent of population within a 20 minute walk, bike or public transit ride of key destinations	The City's population that is within a 20 minute walk, bike or public transit ride of key destinations as a percentage of all West Linn residents	An increase at each TSP Update in the percent of the West Linn population within a 20 minute walk, bike or public transit ride of key destinations.	• Educational and incentive programs to encourage and facilitate shifts to carpool, bike, walk, transit, telecommuting • Bicycle and pedestrian facilities near major activity centers with emphasis on filling gaps in the network • Transit level of service improvements, such as service frequency, hours, and coverage • Implement the Oregon Highway 43 Conceptual Design Plan • ADA curb ramps • Developer incentives to support transit, walking and biking and off-peak travel	• Document the measure at each TSP Update based on current Metro Transportation Analysis Zone (TAZ) information. Successful progress towards the target includes steady increase in the percent of the population within a 20 minute walk, bike or public transit ride of key destinations.	• Percent of the population within a 20 minute walk, bike, or public transit ride of key destinations (2010)
Target 2E –Actuve Safe Routes to School (SRTS) Programs in place in all West Linn schools.	As of 2014, the five of primary schools have SRTS routes identified but no specific programs to encourage walking and biking to schools.	Number of schools with SRTS programs in place that conduct one or more activities per year to encourage walking and biking to school.	All schools in West Linn having SRTS programs that conduct one or more events per year to encourage walking and biking to school.	• • Pedestrian and bicycle projects that provide facilities and crossings and increase the safety of the SRTS routes.	• Document the measure at each TSP Update. Successful progress towards the target includes the identification of SRTS for each school, information being made available to parents/students, and one or more events per year occur at each school that help disseminate the information and encourage walking and biking to school.	• As of 2014, SRTS routes have been identified for the five primary schools. The number of programs/activities that occur per year to encourage walking and biking is unknown.

Target 2F – A good quality pedestrian network and low stress bicycle network connecting all residents to key destinations.	2014 network of "Good" quality pedestrian facilities (per the Qualitative MMLOS methodology) and LTS Level 2 bicycle facilities	Number of residential areas and key destinations that are not connected to the network of "Good" quality pedestrian facilities and LTS Level 2 or better bicycle facilities	All residential areas and key destinations connected to the network of "Good" quality pedestrian facilities and LTS Level 2 or better bicycle facilities	• Bicycle and pedestrian facilities in key destination areas with emphasis on filling gaps in the network • Bicycle/pedestrian separated facilities • Bicycle and pedestrian treatments at intersections (e.g. crossing islands, painted boxes, bike signals etc.) • Wider sidewalks buffered from automobile traffic • Traffic calming and greenways • Curb ramps	• Document the measure at each TSP Update. Successful progress towards the target includes an increase in the network of "Good" quality pedestrian facilities and LTS Level 2 or better bicycle facilities and a reduction in the number of residential areas and key destinations that are not connected to this network.	• 2014 "Good" quality pedestrian network • 2014 LTS 2 or better bicycle network • 2014 residential areas and key destinations not connected to the network.
Target 2G – Increase the number of green street facilities by 2040	2014 number of green street facilities in 2014	Total number of green street facilities in the City of West Linn	Number of green street facilities in West Linn in 2040 is higher than baseline.	• Update street standards to incorporate green streets. • Build green streets • Updated maintenance practices to reduce rate of run-off	• Document the measure at each TSP Update. Successful progress towards the target includes an increase in the number of green street facilities at each TSP Update.	• 2014 number of green street facilities

EQUITY						
GOAL 3 Deliver transportation improvements equitably						
Target	Baseline	Measure	Success is…	Potential TSP Projects that Advance Target	Monitoring Plan	Current Benchmark
Target 3A – By 2040 increase walking, bicycle and public transit access, for transportation disadvantaged populations, to key destinations, by 40 percent	2010 population of transportation disadvantaged persons in 20-minute neighborhoods	The percent of the City's transportation disadvantaged population that is within a 20 minute walk, bike or public transit ride of key destinations	An increase at each TSP Update in the percent of the transportation disadvantaged population within a 20 minute walk, bike or public transit ride of key destinations.	• Bicycle and pedestrian facility improvements near schools and other transportation disadvantaged destinations with emphasis on filling gaps in the network and ADA improvements • Transit improvements such as increased service on high ridership routes • Curb ramps • Rail transit	• Document the measure at each TSP Update based on current census data information. Successful progress towards the target includes steady increase in the percent of the population within a 20 minute walk, bike or public transit ride of key destinations.	• Percent of the transportation disadvantaged population within a 20 minute walk, bike, or public transit ride of key destinations (2010)
Target 3B - Ensure transportation services (and impacts) are equitably distributed to all segments of the population.	N/A	Number or percent of total projects in TSP financially-constrained list that are within or adjacent to areas of low income and/or minority populations	Number of projects, on 2040 TSP financially constrained project list, that are within or adjacent to areas of low income or minority populations is proportionate to the population in those areas relative to the City of West Linn as a whole	• Transit improvements such as increased frequent-service routes • Street or streetscape improvements • Bicycle and pedestrian improvements	• Document the measure at each TSP Update	• N/A

MAINTENANCE						
GOAL 4 Deliver access and safety improvements cost effectively, within available revenues, and responsively to the needs of all users of the transportation system						
Target	Baseline	Measure	Success is…	Current TSP Projects that Advance Target	Monitoring Plan	Current Benchmark
Target 4A - Increase the average local road pavement condition index (PCI) to 70 by 2040.	2014 PCI	The pavement condition index (PCI)	2040 average local road PCI is 70 or greater.	• Maintenance, repair and operation of local roadways • Road rehabilitation and reconstruction	• Document the measure annually. Successful progress towards the target includes an increase in the average local road PCI.	• 2014 average local road PCI.
Target 4B - Reduce the number of transportation facilities in "distressed" condition by 5 percent by 2040.	Number of transportation facilities in 2014, in distressed condition	Total number of transportation facilities designated as distressed. A distressed transportation facility includes any roadway with a PCI that is lower than 50.	Number of transportation facilities in distressed condition in 2040 is at least 5 percent below 2014 baseline	• Maintenance, repair and operation of local roadways • Bus replacements • Upgrades to transit facilities • Road rehabilitation and reconstruction	• Document the measure annually. Successful progress towards the target includes a reduction in the number of facilities in distressed condition.	• 2014 number of facilities in distressed condition.

Evaluation Criteria

Based on the goals, targets, and measures described above, the following evaluation criteria will be used in prioritizing TSP transportation projects. The criteria are to be used in estimating the degree to which a project is consistent with the TSP goals and targets. To determine project scores, information from a variety of sources and TSP analyses is used, including crash history, forecast travel information, GIS maps, land use and demographic data, and project efficiency.

Insert Evaluation Criteria Table

Date: November 18, 2014

To: ODOT Project Management Team

From: Richard Seals, Chief Financial Officer
Zach Pelz, Associate Planner

Subject: Technical Memorandum No. 4: Forecast Funding/Local Funding Sources

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Purpose
This memorandum documents the City of West Linn's existing and expected sources of transportation revenues and expenses between 2014 and 2040. The City's 2014-2015 biennial budget and five year forecast provide the basis for the information herein.

Background
West Linn's economy is closely linked with the economy of the Portland Metropolitan Area, which is based on manufacturing, national and international trade, and service industries. Primarily a residential community, West Linn has a low level of industry and retail-based commercial activity. The City's population has grown steadily but has leveled off in recent years. In 1860, West Linn was home to just 225 residents, growing to 1,628 by 1920. The population grew to 2,923 in 1960, and by 1970, West Linn had grown to more than 7,000. The City's population has continued to grow each year. Currently, the City's population, as estimated by the Portland State Population Research Center is 25,250.

Fiscal Management Policies
The City's adopted budget includes a summary of our financial policies regarding revenues, operating budgets, management of capital assets, debt and financial reserves. Below is a summary of these policies.

Revenue Policy. The City relies on user charges to fund 100 percent of the direct costs associated with new development. System development charges (SDCs) fund street, water, sewer, storm water and park improvements necessary to serve a growing population. It is the City's policy to maximize the use of these fees in lieu of taxes and subsidies from other City funds, for services that are directly related to new construction.

Operating Budget Policy. It is the City's policy to adopt an operating budget that does not exceed available resources. Operating resources will be sufficient to support current operating expenditures, transfers, reserves, and contingencies. Additionally, recurring annual revenues will not be less than recurring annual operating expenditures.

Capital Asset Management Policy. The City adopts a Capital Improvement Plan (CIP) and updates it periodically. The CIP outlines the City's near-term capital investment priorities and provides details on future projects including, estimated costs, sources of financing, and a full description of (a) the need for

the project and (b) the expected results if the project is approved and implemented. Operating expenditures are programmed into each capital project plan, including the cost of implementing the plan and all continuing labor, operating and capital outlay costs.

Debt Policy. Capital projects financed through the issuance of debt will not be financed for a period which (a) exceeds the expected useful life of the project and (b) is less than 30 percent of the expected useful life of the improvements.

Reserve Policy. The City establishes a contingency reserve to accommodate unanticipated expenditures of a nonrecurring nature. In accordance with local budget law, the contingency reserve must be equal to at least 10 percent of the Fund's annual operational expenditures.

Transportation Funding Sources

In large part, roadway funding is a user fee system; users of the system pay for infrastructure through motor vehicle fees (such as gas tax and registration fees) or transit fares. The construction, operation, and maintenance of transportation projects are derived from five main revenue sources: state gas tax and license fees; roadway maintenance fees; franchise fees; miscellaneous revenues; and, system development charges. Improved vehicle fuel efficiency and increasing transportation capital and maintenance costs have combined to significantly limit available revenues for transportation projects.

State Fuel Tax and Vehicle License Fee. Approximately 19 percent of the City's revenue is derived from intergovernmental revenue sharing. State gas tax and license fees are distributed to municipalities by the State of Oregon. By statute, the money must be used for any road-related purpose, with one percent dedicated to bicycle path development. The State of Oregon Highway Trust Fund collects taxes and fees on fuel, vehicle licenses, and permits. A portion is paid to cities annually on a per capita basis. Oregon gas taxes are collected as a fixed amount per gallon of gasoline served. The gas tax in Oregon was increased in 2011, from $0.24 per gallon to $0.30 per gallon. The tax does not vary with gas price changes, nor is there an adjustment for inflation. The net revenue collected from this source has gradually eroded as the cost to construct and repair transportation systems has increased and as new vehicles become increasingly fuel efficient.

Oregon vehicle registration fees are collected as a fixed amount at the time a vehicle is registered with the Department of Motor Vehicles. Vehicle registration fees in Oregon have recently increased to $172 per four year term for new light vehicles, and $86 per two year term for light vehicle renewals. There is no adjustment for inflation tied to registration fees. If revenues received from the state increase in future years, then the anticipated need for other revenue sources explained in this chapter (e.g. fees, etc.) can be decreased.

The City's 2014-2015, budget forecasts a total of $2.8 million in street fund revenues from shared revenue sources (fuel tax and vehicle license fee). Since 2009, these revenues have increased an average of 1 percent per year. The City expects that a 1 percent increase per year from this source is likely through 2040.

Roadway Maintenance Fee. Charges for water, sewer, surface water, park maintenance and street maintenance are charged to all users in the City of West Linn. These fees are established through the City's fees and charges resolution which is updated annually. The City Council approves rates based on the cost to provide services. Since 2010, the City's street fee has increased, on average, five percent

annually. In 2014, the City increased the residential street fee by 75 percent and is considering increasing the commercial street fee cap by 75 percent as well.

The 2014-2015 budget includes a five percent Street Maintenance Fee rate increase in each year of the biennium. This increase, combined with the increase in the state fuel tax two years ago, allows the City to maintain its current, yet mediocre, Pavement Condition Index of 61 (on a scale of 0-100). The City predicts that more than $2 million in street maintenance revenues will be available through the 2014-2015, biennium and that funding for street maintenance will be adequate for the next five years.

Franchise and Miscellaneous Fees. The City of West Linn receives seven percent of its revenue from franchise fees for the use of public rights of way for utilities, solid waste and recycling collection, and similar purchases. Fees are paid for the right to this access. The City's Solid Waste franchise fees are receipted to the Street fund on the rationale that garbage trucks impact street condition. The 2014-2015 budget anticipates a total of $248,000 in street fund revenues from franchisees. Since 2010, street fund revenues collected from this source have increased by about 4.5 percent annually.

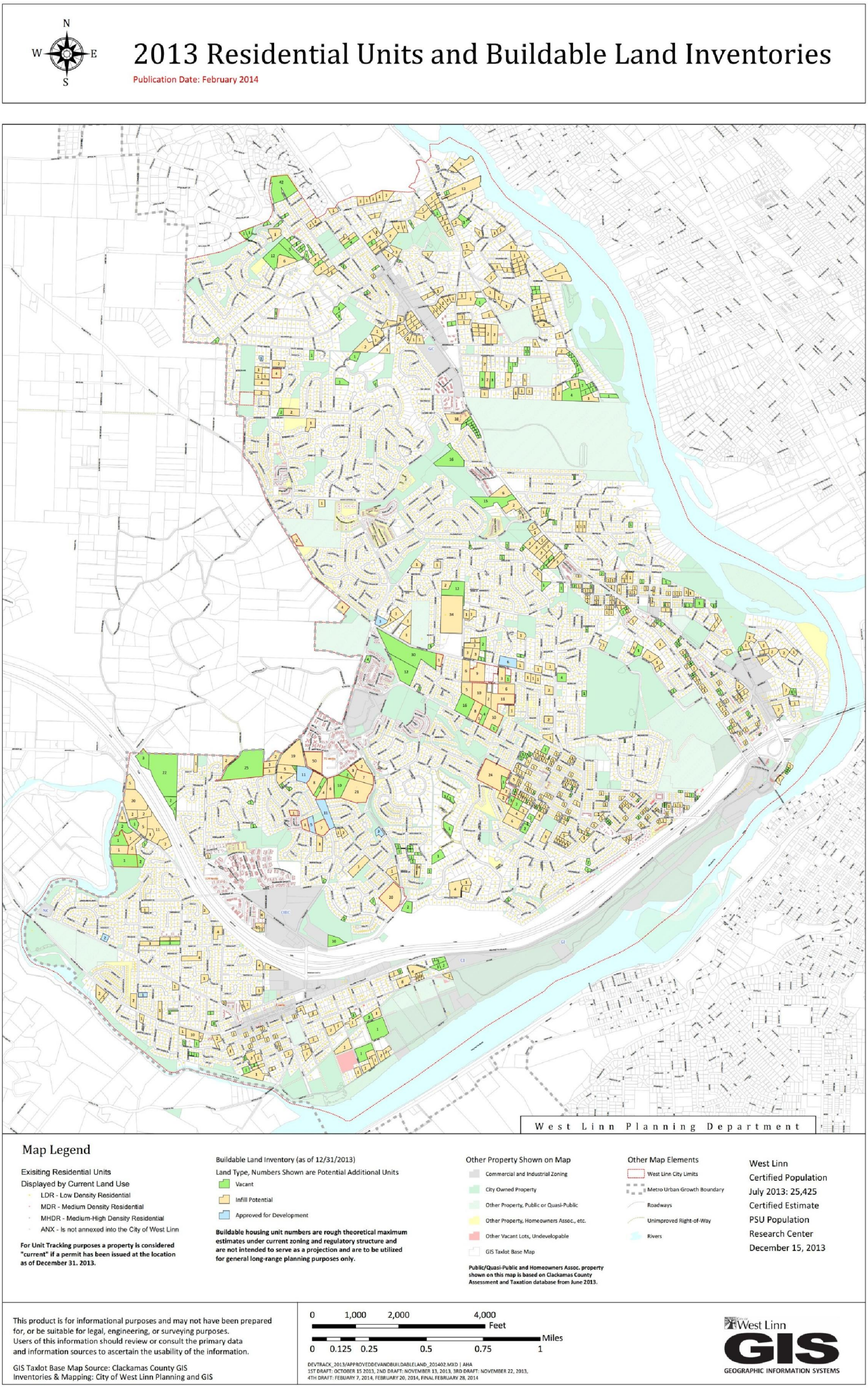
Prior to fiscal year 2009, franchise fee revenue from the City's electrical-power franchise agreement (approximately $500,000) was receipted to the Street fund. Because franchise fee revenue is discretionary, funds were reallocated to another fund in fiscal year 2009. The City adopted a Roadway Maintenance Fee in 2008 to fill the funding gap that was created when the discretionary electrical-power franchise fee revenues were allocated to another fund. The Roadway Maintenance Fee currently generates $1.3 million per year with a planned five percent increase annually. Miscellaneous funds include interest, reimbursement charges, and other revenues. These revenues total $30,000 in FY 2014 and are forecast to increase by two percent annually through 2040.

System Development Charges. System Development Charges (SDC) can be used to acquire needed property and improvements related to capacity required for growth as development occurs. For nearly the past two decades, construction of new streets in West Linn has been completed almost exclusively in conjunction with new development. SDCs for streets are used as a funding source for projects that add capacity to the transportation system. The SDC is collected from new development based on the proposed land use and size, and is proportional to each land use's potential PM peak hour vehicle trip generation. The current SDC rate (updated July 2014) per PM peak hour trip is $7,292, which includes $4,846 towards improvements and $2,262 in reimbursements.

While the City of West Linn is expected to have relatively limited commercial development, household growth is projected to increase by approximately 1,532 units by the time the existing supply of buildable land is expended[1]. Based on current zoning allocations, future residential development is expected to be comprised of 24 percent multi-family and 76 percent single-family dwellings. The 2014-2015 biennial budget forecasts $457,000 in SDC improvements. The City's Finance Department assumes a 3 percent annual rate of growth to SDC revenues. When projected to the year 2040, SDC revenues total $9.18 million for street, bicycle and pedestrian projects. Total SDC revenues collected are reduced to $4.55 million if build-out occurs in 2029.

[1] Assuming the historic 1 percent rate of growth in households between 2001 and 2014, continues, the City will expend its current supply of buildable land around 2029 (14 years).

Figure 1 2013 Residential Units and Buildable Lands Inventory



Exactions. These are improvements that are obtained when development is permitted. Developers are required to improve their frontage and, in some cases, provide off-site improvements depending upon their level of traffic generation and the impact to the transportation system. Off-site mitigation measures can include, but are not limited to, Master Plan projects identified in the TSP. Based on the City's buildable lands inventory, completed in 2014, the map in Figure 1 illustrates parcels in the City with potential for development or redevelopment. Exactions resulting in transportation improvements are likely to occur during the development and redevelopment of these parcels.

Reserves. Reserves are the funds that are left over after all revenues and expenditures are projected for budget purposes. There are three types of reserves used for different purposes. Contingency reserves are for unexpected or unforeseen items which may arise during the course of a budget period which were not specifically identified when the budget was adopted. Unappropriated ending fund balance reserves are used to carry funds forward for some future project, to cover the following year's operating costs until November property taxes arrive, or to be utilized if a City emergency is declared. Finally, debt covenant reserves vary by bond issue and depend upon specific covenants pledged when selling the bond issue in the market place. They typically come in the form of at least one year's annual debt service. The 2014-2015 budget includes $1.015 million in street fund reserves, $845,000 more than the required reserve policy minimum for this fund.

Grants and Loans. Historically, State and Federal grants have been a key source of revenue for major transportation capital projects. Dwindling State and Federal transportation revenues however, have limited the number of grant funded projects and have increased competition among state and local agencies. Because of the uncertainty in acquiring grant funds, these potential transportation funding sources are not accounted for in the City's revenue forecast. Grant sources that are currently available for transportation-related projects include, but are not limited to:

- *Metro Regional Flexible Funds.* Every two years, the Metro Council and the Joint Policy Advisory Committee on Transportation select programs and projects for federal flexible funds. These funds come from three federal grant programs: the Surface Transportation Program, the Congestion Mitigation/Air Quality Program and the Transportation Alternatives Program. These programs allow greater discretion on how the monies are spent which allows for greater focus on local priorities and innovative solutions to transportation challenges.
- *Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grants*. These monies are used to invest in road, rail, transit and port projects that promise to achieve critical national objectives. In 2014, $600 million in TIGER funds were awarded to projects nationwide. To highlight the high degree of competition for these funds and strong demand and need for additional transportation investments nationwide, in 2014, 797 eligible grant applications were received requesting a total amount of more than $9 billion.
- *Transportation Infrastructure Finance and Innovation Act (TIFIA).* While not a grant, these funds provide federal credit assistance in the form of direct loans, loan guarantees, and standby lines of credit to finance surface transportation projects of national and regional significance. The goal of this program is to leverage Federal funds by attracting substantial private and other

non-Federal co-investment in critical improvements to the nation's surface transportation system. Projects eligible to receive TIFIA funding include international bridges and tunnels; intercity passenger bus and rail facilities and vehicles; publicly owned freight rail facilities; private facilities that provide public benefit for highway users; and, service improvements on or adjacent to the National Highway System.

- *Transportation and Growth Management (TGM) Grant.* The Oregon Department of Transportation (ODOT) in cooperation with the Oregon Department of Land Conservation and Development (DLCD) sponsor an annual grant program that supports communities planning for streets and land use in a way that leads to more livable, economically vital, and sustainable communities and that increases opportunities for transit, walking and bicycling. TGM grants may be used for transportation system planning or integrated land use and transportation planning. West Linn's 2014 TSP Update is funded in major part through this program.
- *Transportation, Community, and System Preservation Program (TCSP).* The TCSP program is a comprehensive initiative of research and grants to integrate transportation, community and system preservation plans and practices that improve the efficiency of the transportation system of the U.S.; reduce environmental impacts of transportation; reduce the need for costly future public infrastructure investments; ensure efficient access to jobs, services, and centers of trade; and examine community development patterns and identify strategies to encourage private sector development patterns and investments that support these goals.
- *Surface Transportation Environment and Planning Cooperative Research Program (STEP).* The general objective of the STEP is to improve understanding of the complex relationship between surface transportation, planning and the environment. It is anticipated that approximately $12.8 million will be available each year from this revenue source.
- *Safe Routes to Schools Program (SRTS).* SRTS encourages children to walk and bicycle to school; to make walking and bicycling to school safe and more appealing; and to facilitate the planning, development and implementation of projects that will improve safety, and reduce traffic, fuel consumption, and air pollution in the vicinity of schools. Funding is available for a variety of programs and projects that encourage children and their parents to walk to school.

Table 1 Local Transportation Revenues, 2014

Revenue	FY 2014 Amount
State fuel tax and vehicle license fees	$1,414,000
Roadway maintenance fee	$1,319,000
Franchise fees	$120,000
SDC improvements and reimbursements (streets and bicycle/pedestrian SDC funds)	$345,000
Miscellaneous	$30,000
Total	**$3,228,000**

Funding Outlook

Other communities in the Portland Metropolitan region have been adding shopping and business opportunities in an effort to allow their citizens to have fulfilling lives without having to jump in a car and drive for necessary items. In the most recent community survey, 90 percent of the respondents agree that the City of West Linn should actively encourage economic development in existing commercial areas in the City (City of West Linn, 2014).

Table 1 summarizes the current and expected transportation revenues the City will collect between now and 2040.

Table 2 Forecasted Transportation Plan Revenues

Revenue	FY 2014 Amount	Estimated Through 2040
State gas tax and license fees	$1,414,000	$42,155,000
Roadway maintenance fee	$1,319,000	$75,251,000
Franchise fees	$120,000	$6,425,000
SDCs	$345,000	$4,552,000[2]
Miscellaneous	$30,000	$1,131,000
Total	**$3,228,000**	**$129,514,000**

Table 2 provides a summary of the expenses expected to be associated with transportation related improvements through 2040. Accounting for personal, materials, and debt service, transfers to other funds and new equipment and vehicles, the City anticipates a balance of $44.825 million for transportation improvements between now and 2040.

Table 3 Forecasted Street Fund Expenses

Expenses		FY 2014 Amount	Estimated Through 2040
Personal Services		$582,000	$26,775,000
Materials and Services		$498,000	$20,289,000
Debt Service		$152,000	$2,280,000
Transfers to other Funds		$660,000	$26,311,000
Capital Outlay	Street Capital Projects	$993,000	$49,690,000

[2] Based on 2029 build-out.

	Equipment and Vehicles	$147,000	$1,541,000
Reserve		$162,000	$7,060,000
Total		**$3,162,000**	**$133,946,000**

Appendix

Roadway Capital Improvement Projects

The City of West Linn's Capital Improvement Plan (CIP) involves a process through which the City develops a multi-year plan for major capital expenditures that matches available resources with project needs. The CIP lists each proposed capital project, the estimated timeframe in which the project needs to be undertaken, the financial requirements for the project, and proposed methods of financing. It also attempts to identify and plan for all major capital needs, and addresses capital items that are different from those covered under the capital outlay category in each department's budget.

CIP improvements include construction and acquisition of new buildings, additions to or renovations of existing buildings, construction and reconstruction of streets, water and sanitary sewer improvements, drainage improvements, land purchases and major equipment purchases.

Table 3 provides a summary of the current CIP, which includes eight funded and four unfunded streets projects.

Table 4 Streets CIP Projects

Project Name	Source	Funded	Total (thousands of dollars)	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Median Island Restoration	Fees	Y	50	50					
Sidewalk Projects	Fees	Y	273	73		50	50	50	50
Street Crack Seal Program	Fees	Y	282	47	47	47	47	47	47
Street Pavement Maintenance Program	Fees	Y	3,770	550	720	625	625	625	625
Street Pavement Marking	Fees	Y	158	23	23	28	$28	28	28
Street Slurry Seal Program	Fees	Y	1,369	250	250	250	119	250	250
Transportation System Action Plan Projects	Fees	N	3,025			723	$45	767	790
10th St./I-205 Corridor Improvements	Grant	N	4,445						4,445
10th St./I-205 Corridor	SDC	N	785						785

Project Name	Source	Funded	Total (thousands of dollars)	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Improvements									
Transportation System Action Plan Projects	SDC	N	3,637			861	892	925	959
Transportation System Action Plan Projects	SDC	Y	1,300	450	50	200	200	200	200
Transportation System Plan	SDC	Y	200	200					
Subtotal			**19,294**	**1,643**	**1,090**	**2,784**	**2,706**	**2,892**	**8,179**

Fiscal Management Policies

Revenue policy

- SDCs shall be established to fund the costs of improvement to service additional increments to growth, such as street, water, sewer, surface water, and park and recreation facilities.
- The City will maximize user charges in lieu of ad valorem taxes and subsidies from other City funds, for services that can be identified and where costs are directly related to the level of service provided.
- Charges for providing utility services shall be sufficient to finance all operating, capital outlay and debt service expenses of the City's enterprise funds, including operating contingency and reserve requirements.
- User charges shall fund 100 percent of the direct cost of development review and building activities. User charges include land use, engineering inspection, building permit and building inspection fees.
- Park recreation programs shall be funded by user charges. Annual revenues raised by participant fees shall cover at least 100 percent of the program's cost with no assessment made for administration. No one shall be denied access to park recreation programs due to their lack of ability to pay for the full participant fee.
- Other reimbursable work performed by the City (labor, contracted services, equipment and other indirect expenses) shall be billed at actual or estimated actual cost, including indirect overhead.
- Charges for services shall accurately reflect the actual or estimated cost of providing a specific service. The cost of providing specific services shall be recalculated periodically,

and the fee adjusted accordingly. The City shall maintain a current schedule of fees, showing when the fees were last reviewed and/or recalculated.

Operating Budget Policy

- The City shall prepare, adopt and amend its operating budget in accordance with Oregon Local Budget Law.
- The City shall maintain a budget system to monitor expenditures and revenues on an ongoing basis, with thorough analysis and adjustment periodically if required.
- The City shall not adopt an operating budget that is greater than the amount of resources available to fund it. Current operating resources will be sufficient to support current operating expenditures, transfers, reserves, and contingencies.
- Annual recurring revenues (including interfund transfers) shall not be less than annual recurring operating expenditures (total annual budget, minus capital outlay, transfers, reserves, and contingencies).
- Unless otherwise authorized by City Council, general unrestricted revenues shall not be earmarked for specific programs, activities or services.
- Long-term debt or bond financing shall only be used for capital purposes and shall not be used to finance current operations.

Capital Asset Management Policy

- The City shall adopt a Capital Improvement Plan (CIP) and update it periodically. Prior to adopting a CIP, the City shall hold public meetings and a public hearing on the contents of the CIP. The document shall provide details on each capital project plan, its estimated costs, sources of financing and a full description, including a detailed statement identifying: (as) the needs, conditions and circumstances that have caused the project's creation and (b) the expected results if the project is approved and implemented.
- Operating expenditures shall be programmed into each capital project plan, including the cost of implementing the plan and all continuing labor, operating and capital outlay costs.

Debt Policy

- Capital project financed through the issuance of debt shall not be financed for a period which (a) exceeds the expected useful life of the project and (b) is less than 30 percent of the expected useful life of the improvements.
- The City shall use the most prudent methods of acquiring capital outlay items, including the use of lease-purchase agreements.
- The City shall maintain its bond rating at the highest level fiscally prudent, so that future borrowing costs are minimized and access to the credit market is preserved.

Reserve Policy

- The City shall establish a contingency reserve to provide for unanticipated expenditures of a nonrecurring nature to meet unexpected increases in service delivery costs. In accordance with local budget law n the State of Oregon, the contingency reserve must be an appropriated budget item, though funds may not be directly disbursed from the contingency reserve. Amounts must be reclassified into a spendable budget category through a supplemental budget process. Also, budget law does not allow for a contingency reserve to be budgeted in a debt service fund. The contingency reserve policy must be at least equal to 10 percent of the Fund's annual operational expenditures (which includes Personal Services and Materials and Services line items and excludes Debt Service, Transfers, and Capital Outlay line items) with 15 percent for Public Safety, Library, and Parks and Recreation Funds.
- The City shall maintain an unappropriated ending fund balance reserve to provide working capital for the post-budget period until sufficient revenues arrive to fund post-budget period operations. In accordance with local budget law in the State of Oregon, the unappropriated ending fund balance reserve is not appropriated and cannot be spent in the current year unless a state of emergency is declared by the City Manager. The unappropriated ending fund balance reserve policy must be at least equal to five percent of the Fund's annual operations expenditures (which includes Personal Services and Materials and Services lines items and excludes Debt Service, Transfers, and Capital Outlay items).

Table 5 Revenue and Expense Projections to FY40

City of West Linn

Street Fund

(amounts in thousands)

	ACTUALS					Current Year	+ 1	PROJECTED + 2	+ 3	+ 4	+ 5	+ 6	+ 7	+ 8	+ 9	+ 10	+ 11	+ 12	+ 13	+ 14	+ 15	+ 16	+ 17	+ 18	+ 19	+ 20	+ 21	+ 22	+ 23	+ 24	+ 25	+ 26
	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36	FY37	FY38	FY39	FY40
Resources																																
Beginning fund balance	$124	$822	$929	$1,291	$1,797	$2,215	$2,186	$2,209	$1,609	$917	$398	$274	$209	$286	$227	$316	$275	$288	$278	$330	$366	$372	$323	$352	$386	$609	846	$1,193	$1,656	$2,244	$2,963	$3,820
Fees - street maintenance fees (1)	714	778	792	870	904	1,319	1,472	1,546	1,623	1,704	1,789	1,878	1,972	2,071	2,175	2,284	2,398	2,518	2,644	2,776	2,915	3,061	3,214	3,375	3,544	3,721	3,907	4,102	4,307	4,522	4,748	4,985
Intergovernmental - gas tax (2)	1,018	1,013	1,204	1,372	1,385	1,414	1,428	1,442	1,456	1,471	1,486	1,501	1,516	1,531	1,546	1,561	1,577	1,593	1,609	1,625	1,641	1,657	1,674	1,691	1,708	1,725	1,742	1,759	1,777	1,795	1,813	1,831
SDC Reimbursement	3	63	202	157	135	120	122	124	126	129	132	135	138	141	144	147	150	153	156	159	162	165	168	171	174	177	181	185	189	193	197	201
Franchise fees	79	101	103	113	113	120	126	132	139	146	153	161	169	177	186	195	205	215	226	237	249	261	274	288	302	317	333	350	368	386	405	425
Miscellaneous	144	149	273	14	28	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
Interest	4	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Debt proceeds	2,030	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total revenues	3,992	2,106	2,575	2,526	2,565	3,003	3,179	3,276	3,377	3,484	3,595	3,713	3,836	3,964	4,098	4,237	4,383	4,535	4,694	4,859	5,032	5,212	5,401	5,599	5,805	6,020	6,246	6,482	6,730	6,988	7,258	7,540
Total Resources	$4,116	$2,928	$3,504	$3,817	$4,362	$5,218	$5,365	$5,485	$4,986	$4,401	$3,993	$3,987	$4,045	$4,250	$4,325	$4,553	$4,658	$4,823	$4,972	$5,189	$5,398	$5,584	$5,724	$5,951	$6,191	$6,629	$7,092	$7,675	$8,386	$9,232	$10,221	$11,360
Requirements																																
Personal services	$433	$410	$453	$490	$514	$582	$605	$629	$654	$680	$707	$735	$764	$795	$827	$860	$894	$930	$967	$1,006	$1,046	$1,088	$1,132	$1,177	$1,224	$1,273	$1,324	$1,377	$1,432	$1,489	$1,549	$1,611
Materials & services	511	488	433	433	527	498	526	$542	558	575	592	610	628	647	666	686	707	728	750	773	796	820	845	870	896	923	951	980	1,009	1,039	1,070	1,102
Debt service	-	150	151	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	152	-	-	-	-	-	1	2	3	4	5	6
Transfers to other funds	719	671	659	529	550	660	683	703	724	746	768	791	815	839	864	890	917	945	973	1,002	1,032	1,063	1,095	1,128	1,162	1,197	1,233	1,270	1,308	1,347	1,387	1,429
Capital outlay																																
Street capital projects	1,631	280	517	382	237	993	1,040	1,850	1,850	1,850	1,500	1,400	1,400	1,500	1,500	1,600	1,700	1,700	1,800	1,800	2,000	2,200	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300
Equipment and vehicle	-	-	-	34	167	147	150	-	131	-	-	90	-	90	-	90	-	90	-	90	-	90	-	90	-	90	90	90	90	90	90	90
Total expenditures	3,294	1,999	2,213	2,020	2,147	3,032	3,156	3,876	4,069	4,003	3,719	3,778	3,759	4,023	4,009	4,278	4,370	4,545	4,642	4,823	5,026	5,261	5,372	5,565	5,582	5,783	5,899	6,019	6,142	6,269	6,401	6,538
Ending Fund Balance																																
Policy requirement (15%)	*142*	135	133	138	156	162	170	176	182	188	195	202	209	216	224	232	240	249	258	267	276	286	297	307	318	329	341	354	366	379	393	407
Over (under) Policy	680	794	1,158	1,659	2,059	2,024	2,039	1,433	735	210	79	7	77	11	92	43	48	29	72	99	96	37	55	79	291	517	852	1,302	1,878	2,584	3,427	4,415
Total ending fund balance	822	929	1,291	1,797	2,215	2,186	2,209	1,609	917	398	274	209	286	227	316	275	288	278	330	366	372	323	352	386	609	846	1,193	1,656	2,244	2,963	3,820	4,822
Total Requirements	$4,116	$2,928	$3,504	$3,817	$4,362	$5,218	$5,365	$5,485	$4,986	$4,401	$3,993	$3,987	$4,045	$4,250	$4,325	$4,553	$4,658	$4,823	$4,972	$5,189	$5,398	$5,584	$5,724	$5,951	$6,191	$6,629	$7,092	$7,675	$8,386	$9,232	$10,221	$11,360

(1) For FY 14, 75% increase in Residential SMF and 0% increase in Commercial SMF. Increase of 5% for both Residential and Commercial for FY15 forw ard.

(2) No Local Gas Tax. State Gas Tax rate is fixed at .30 cents per gallon. Projected 1% increase annually.

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MEMORANDUM

Date: December 31, 2014 Project #: 17817.0

To: Zach Pelz, City of West Linn
Gail Curtis, Oregon Department of Transportation

From: Susan Wright and Matthew Bell, Kittelson & Associates, Inc.

Project: West Linn Transportation System Plan (TSP) Update

Subject: Draft Technical Memorandum 5: Existing Conditions

This memorandum documents existing transportation conditions within the City of West Linn and has been formatted as Chapter 3 of the Transportation System Plan (TSP) update. The information presented in this memorandum is intended to serve as a basis for comparing future transportation conditions, evaluating alternatives, and identifying potential solutions and improvements for the City's transportation system. The information is based on existing transportation inventories, previous studies conducted by the City, and field observations.

This memorandum includes information on the existing pedestrian, bicycle, transit, motor vehicle, and other travel modes within West Linn. The following provides highlights from each system:

- Pedestrian System: The pedestrian system consists of sidewalks, multi-use paths, and trails as well as marked and unmarked, signalized and unsignalized pedestrian crossings. These facilities provide local residents with the ability to access transit as well as local retail, commercial, recreational, and other land uses by foot. The existing sidewalk inventory shows that a basic system of walking facilities is provided along most of the major streets within the city; however, there are significant gaps in sidewalks or walkways in older neighborhoods.
- Bicycle System: The bicycle system consists of on-street bike lanes, shoulder bikeways and shared roadways as well as off-street bike facilities such as bicycle parking and wayfinding signage. These types of facilities provide residents with the ability to access transit as well as retail, commercial, recreational, and other land uses located within West Linn and neighboring cities by bike. The existing bicycle inventory shows that a basic system of bicycle facilities is provided along a few major streets, such as Highway 43, West A Street, and intermittent segments along Summit Street, Parker Road, and Willamette Falls Drive.
- Transit System: The transit system within the City of West Linn includes fixed-route and paratransit services as well as regional transit centers and park-and-rides. Frequent morning

and evening peak hour service along Highway 43 provides residents with the ability to use public transit for daily commuting, while less frequent mid-day, and weekend service provides residents with the ability to use public transit to access retail and recreational areas located throughout Clackamas County and the region.

- Motor Vehicle System: The motor vehicle system within the City of West Linn includes private streets, city streets, state highways, and an interstate freeway. Highway OR 43 functions as the major north-south arterial through West Linn providing access to local retail and commercial land uses as well as Lake Oswego to the north and Oregon City to the South. Other streets, such as Rosemont Road, Salamo Road, and Willamette Falls Drive also provide access to local retail and commercial land uses as well as many of the local recreational and residential land uses within the City. The only capacity constrained areas within the City are located along Highway 43 and Willamette Falls Drive.
- Other Travel Modes: There are no other modes of transportation within West Linn, with the exception of the Tualatin and Willamette Rivers, which are primarily used for recreation. All major air, rail and natural gas pipelines are located north and south of West Linn in neighboring cities.

Additional information on the study methodology and findings is provided below.

CHAPTER 3: EXISTING CONDITIONS

This chapter documents existing transportation conditions within the City of West Linn. The information presented in this chapter is intended to serve as a basis for comparing future transportation conditions, evaluating alternatives, and identifying potential solutions and improvements for the City's Transportation System Plan (TSP) Update. The information is based on existing transportation inventories, previous studies conducted by the City, and field observations.

This Chapter includes information on the existing pedestrian, bicycle, transit, motor vehicle, and other travel modes within West Linn. Because findings locally and from around the region reveal that current traffic volumes at many intersections are the same or lower than in 2006, the motor vehicle section utilizes results from the analysis conducted in 2006 (as part of the previous TSP update). Roadway an intersection volumes from 2006, and more recent counts (Fall 2014) at selected intersections, are therefore established as the baseline for the evaluation of future transportation conditions.

Thirty-five intersections were selected for focused operations analysis in the previous TSP update. The study intersections are identified in Figure 3-1. At each location, traffic data was gathered and analyzed to evaluate current conditions and performance for all modes of travel. The results are also compared to the most recently identified performance or design standards, as appropriate, and any elements that are found to be deficient are identified. More recent data was collected for other aspects of the transportation system including reported vehicle crashes, newly constructed facilities as described by the city and Metro GIS data, and reported traffic volumes on state and county facilities.

The following sections describe the characteristics, usage, and performance of the existing transportation system within West Linn.

PEDESTRIAN SYSTEM

The pedestrian system within the City of West Linn consists of sidewalks, multi-use paths, and trails as well as marked and unmarked, signalized and unsignalized pedestrian crossings. These facilities provide local residents with the ability to access transit as well as local retail, commercial, recreational, and other land uses by foot. Safe and convenient pedestrian facilities are essential to a vibrant community and economy within the City.

In order to assess the adequacy of pedestrian facilities in West Linn, GIS data was obtained from the city's GIS database and Metro's Regional Land Information System (RLIS). The GIS data was updated based on a review of projects completed since the last TSP Update and aerial imagery of sidewalks and other pedestrian facilities along the city's arterial and collector streets. The data includes the location of existing sidewalks along all of the city's arterial and collector streets and many of the city's neighborhood routes and local streets. The data also includes the location of existing activity centers such as parks, schools, the library, and City Hall. These activity centers were identified to determine possible pedestrian trip generators and to help prioritize potential improvements in the pedestrian system. Figure 3-2 shows the existing pedestrian facilities located within and adjacent to the West Linn city limits as well as the location of major activity centers.

CITY OF West Linn

N

OLD RIVER RD
SE CONCORD RD
SE OATFIELD RD
CHERRY LN
CORNELL
GLENMORRIE DR
43
PACIFIC HWY
S BERGIS RD
Lake Oswego
99E
SE ROETHE RD
SE RIVER RD
OLD RIVER DR
SE JENNINGS AVE
SE MCLOUGHLIN BLVD
MARYLHURST DR
ELMRAN DR
NIXON AVE
HILLCREST DR
CEDAROAK DR
S ROSEMONT RD
MAPLETON DR
CARRIAGE WAY
Mary S. Young Park
Gladstone
RIVER RD
SUNCREST DR
S SWEETBRIAR RD
HIDDEN SPRINGS RD
JOLIE POINTE RD
SANTA ANITA DR
PIMLICO DR
DILLOW DR
WILLAMETTE DR
SUMMIT ST
HORTON RD
SHANNON LN
S GRAPEVINE RD
S WISTERIA RD
ROSEMONT RD
WEST A ST
SKYLINE DR
PARKER RD
Wilderness Park
CLARK ST
BROADWAY ST
205
S WOODBINE RD
BLAND CIR
SW JOHNSON RD
PONDERAY DR
MCLOUGHLIN BLVD
Tualatin River
KILLARNEY DR
DEBOK RD
SALAMO RD
BEACON HILL DR
SUNSET AVE
WASHINGTON ST
7TH ST
5TH ST
HIGH ST
JOHNSON RD
BLANKENSHIP RD
TANNLER DR
GREENE ST
RIVERKNOLL WAY
IMPERIAL DR
DOLLAR ST
OSTMAN RD
19TH ST
WILLAMETTE FALLS DR
S MCLOUGHLIN BLVD
S HIGH ST
Oregon City
12TH ST
Willamette River
Willamette Park
SW PETES MOUNTAIN RD
SOUTH END RD
ROSE RD
PARTLOW

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35

0 1,000 2,000 3,000 4,000 Feet

- Study Intersections
- Schools
- Adult Community Center
- Library
- Police Station
- City Hall
- Parks
- Freeway
- Major Roads
- Local Roads
- Railroad
- City Boundary
- Urban Growth Boundary

This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

Study Area
West Linn, Oregon

Figure **3-1**

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Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl
Data Sources: City of West Linn, Metro Data Resource Center
Terrain Sources: Esri, USGS, NOAA

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CITY OF West Linn

N

Lake Oswego
Gladstone
Oregon City
Tualatin River
Willamette River
Mary S. Young Park
Wilderness Park
Willamette Park

OLD RIVER RD
SE CONCORD RD
SE OATFIELD RD
SE ROETHE RD
SE RIVER RD
SE JENNINGS AVE
SE MCLOUGHLIN BLVD
RIVER RD
CHERRY LN
CORNELL
GLENMORRIE DR
43
PACIFIC HWY
S BERGIS RD
99E
OLD RIVER DR
MARYLHURST DR
WILLAMETTE DR
ELMRAN DR
NIXON AVE
HILLCREST DR
CEDAROAK DR
MAPLETON DR
S ROSEMONT RD
CARRIAGE WAY
SUNCREST DR
HIDDEN SPRINGS RD
JOLIE POINTE RD
DILLOW DR
SANTA ANITA DR
PIMLICO DR
SUMMIT ST
HORTON RD
SHANNON LN
ROSEMONT RD
WEST A ST
SKYLINE DR
BROADWAY ST
S SWEETBRIAR RD
S GRAPEVINE RD
S WESTERIA RD
PARKER RD
205
S WOODBINE RD
SW JOHNSON RD
BLAND CIR
PONDERAY DR
CLARK ST
MCLOUGHLIN BLVD
WASHINGTON ST
7TH ST
5TH ST
HIGH ST
SUNSET AVE
DEBOK RD
KILLARNEY DR
BEACON HILL DR
JOHNSON RD
BLANKENSHIP RD
TANNLER DR
GREENE ST
SALAMO RD
RIVERKNOLL WAY
IMPERIAL DR
DOLLAR ST
OSTMAN RD
19TH ST
10TH ST
WILLAMETTE FALLS DR
12TH ST
S MCLOUGHLIN BLVD
S HIGH ST
LINN AVE
SW PETES MOUNTAIN RD

Presence of Sidewalks

- 5% - 20%
- 25% - 45%
- 50% - 95%
- 100
- City Boundary
- Urban Growth Boundary

- Schools
- Adult Community Center
- City Hall
- Library
- Transit Center
- Parks
- Town Center
- Concept Main Street

0 1,000 2,000 3,000 4,000 Feet

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Pedestrian Facilities West Linn, Oregon

Figure 3-2

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KITTELSON & ASSOCIATES, INC.
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Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl
Data Sources: City of West Linn, Metro Data Resource Center
Terrain Sources: Esri, USGS, NOAA

As shown in Figure 3-2, sidewalk connectivity is generally adequate in commercial areas and is generally in inadequate near schools. It is desirable to provide at least one continuous sidewalk connection between activity centers and arterial and collector roadways to provide safe and convenient non-motorized travel options. There are locations where sidewalk coverage could be more complete and provide greater connectivity throughout the city.

Facility Connectivity

The existing sidewalk inventory shows that a basic system of walking facilities is provided along most of the major streets within the city; however, there are significant gaps in sidewalks or walkways in older neighborhoods. These older neighborhoods were developed when street standards did not require sidewalks on higher-classification roadways (collectors and arterials), or where topography constrained the ability to design an adequate sidewalk facility. As an example, the Willamette district generally has sidewalks on at least one side of the road along collectors and arterials (such as Dollar Street) but includes gaps in key locations along Willamette Falls Drive. The Robinwood neighborhood has no collector streets with sidewalks. An illustration of grade challenges is along Hidden Springs Road, where sidewalks are provided in the uphill direction only in its steepest sections. For many of these cases, it may be not feasible or desirable to construct sidewalks to fill in these gaps.

Given the issues identified above, the public involvement process for the previous TSP Update engaged neighborhood representatives to identify locations within their neighborhoods that are the best candidates for filling in gaps in existing facilities, either as sidewalks or more improved walkways. Provisions were also made in the development code to allow for re-development with an appropriate choice of pedestrian facility types for a given neighborhood street.

This TSP build on the work conducted as part of the previous TSP and recommends a balanced approach toward filling gaps in the sidewalks along arterial and collector streets where physical terrain allows and providing adequate pedestrian facilities to accommodate pedestrian travel throughout the City.

Pedestrian Assessment

The Oregon Department of Transportation (ODO) Analysis Procedures Manual (APM) provides a methodology for evaluating pedestrian facilities based on roadway characteristics, such as outside travel lane width and bicycle lane/shoulder width along roadway segments and traffic control and crossing distance at intersections. The methodology uses the roadway characteristics and applies a context-based subjective “Excellent/Good/Fair/Poor” rating to each roadway segment and intersection. For example, a six foot sidewalk is standard in a residential area and would be rated “Good” or “Excellent” if it had a buffer. Many of the rating are subjective, but if they are applied consistently throughout the study area, they could provide insight into pedestrian system conditions. The following provides a summary of the roadway characteristics considered in the methodology:

The following characteristics are considered on roadway segments:

- Outside travel lane width: Wider travel lanes are rated better than narrower travel lanes because of the larger buffer space between vehicles and pedestrians.
- Bicycle lane/shoulder width: The addition of bicycle lanes or shoulders creates greater separation between vehicles and pedestrian traffic and acts as a buffer. Wider facilities are rated better than narrow or non-existent facilities.
- Presence of buffers (landscaped or other): The presence of a buffer that separates pedestrians from traffic results in an improved rating. Wider buffers are rated better than narrower or non-existent ones.
- Sidewalk/path presence: The presence of sidewalks or paths will rate higher versus shoulders or no facilities at all. Wider sidewalks/paths rate better than narrower or non-existent ones.
- Lighting: The presence of lighting, whether roadway or pedestrian-scale, is rated better than roadways without lighting.
- Volume and speed of motorized traffic in adjacent travel lane: Lower vehicle volumes and speeds will rate higher than higher volumes and speeds. The number of lanes and functional class can be used as a surrogate to actual volumes and speeds if they are not readily available at this stage.

The following characteristics are considered at intersections:

- Traffic control: Intersections with a traffic signal or all-way stop control with crosswalks are rated better than locations with only two-way stop control or locations without crosswalks.
- Crossing width: Fewer turn or through travel lanes to be crossed is rated better than more turn/though lanes because the exposure to traffic and potential conflicts are less.
- Median islands: The presence of a median island is rated better than no islands as two-stage crossings are possible at unsignalized crossings.

Subsequent chapters will present the results of the pedestrian assessment under existing and future transportation conditions.

Pedestrian Activity Levels

Pedestrian counts were conducted at the study intersections in 2006 as part of the previous TSP update. All of the counts were conducted on a typical mid-weekday during the evening (3:30 to 6:30 p.m.) peak time period. All of the counts include the total number of pedestrians that entered the intersections in 15-minute increments. The peak hour pedestrian crossing volumes indicate the relative differences in pedestrian demand at the study intersections. Although the peak hour for vehicular traffic typically occurs from 4:00 to 5:00 p.m., the peak hour for pedestrian crossing volumes at intersections located near schools and other activity centers typically occurs earlier in the day. This was found at the Rosemont Road/Salamo Road and Highway 43/Cedaroak Drive intersections. Pedestrian crossing volumes at each study intersection are shown in Table 3-1.

Table 3-1: PM Peak Hour Pedestrian Crossing Volumes at Study Intersections

Map ID	Intersection	North/South Pedestrian Volume	East/West Pedestrian Volume	Count Year
1	Highway 43 / Arbor Drive	2	0	2006
2	Highway 43 / Marylhurst Drive-Lazy River Way	7	3	2006
3	Highway 43 / Walling Way	3	0	2006
4	Highway 43 / Cedaroak Drive	2	14	2006
5	Highway 43 / Hidden Springs Drive	2	0	2006
6	Highway 43 / Jolie Pointe Road	1	0	2006
7	Highway 43 / Pimlico Drive	1	1	2006
8	Highway 43 / West "A" Street	1	3	2006
9	Highway 43 / Holmes Street	2	1	2006
10	Highway 43 / Lewis Street-Webb Street	0	1	2006
11	Highway 43 / Burns Street	0	0	2006
12	Highway 43 / Hood Street-McKillican Street	0	1	2006
13	Highway 43 / I-205 SB Ramps	4	0	2014
14	Highway 43 / I-205 NB Ramps	0	0	2014
15	Highway 43 / Willamette Falls Drive	0	0	2014
16	Willamette Falls Drive / Sunset Avenue	0	4	2006
17	Rosemont Road / Carriage Way	0	0	2006
18	Rosemont Road / Hidden Springs Road	2	1	2006
19	Rosemont Road / Salamo Road	17	18	2006
20	Rosemont Road / Summit Street	0	0	2006
21	Sunset Avenue / Cornwall Street	0	2	2006
22	Salamo Road / Bland Circle	0	0	2006
23	Salamo Road / Barrington Drive	0	0	2006
24	Salamo Road / Parker Road	6	0	2006
25	Blankenship Road / Tannler Drive	0	0	2006
26	10th Street / Blankenship Road	4	1	2006
27	10th Street / I-205 SB Ramp	3	2	2006
28	10th Street / I-205 NB Ramp	2	0	2006
29	10th Street / 8th Avenue	4	6	2006
30	10th Street / Willamette Falls Drive	3	2	2006
31	Willamette Falls Drive / 12th Street	0	4	2006
32	Willamette Falls Drive / Dollar Street E	2	1	2006

33	Willamette Falls Drive / 19th Street	0	0	2006
34	Willamette Falls Drive / Ostman Road	7	2	2006
35	Willamette Falls Drive / Dollar Street W	1	0	2006

As shown in Table 3-1, the highest pedestrian crossing volumes were observed at intersections located near retail, recreational and educational land uses. Potential pedestrian crossing improvements should be prioritized at these locations to ensure safe and convenient access for pedestrians near businesses and schools.

Existing Deficiencies and Issues

The following provides a summary of the existing deficiencies and issues identified in the pedestrian system:

- Numerous gaps exist along sidewalks in key locations near retail and schools.
- Many sidewalks throughout the City are not ADA compliant and should be brought into compliance.
- Sidewalk widths for Highway 43 should be brought up to ODOT standards or where applicable, the standards identified in the West Linn Highway 43 Conceptual Design Plan, adopted December 10, 2007.
- Basic walkways should be provided in all neighborhoods.
- The TSP and SDC projects should be revised to show potential sidewalk improvements in locations that are feasible or desirable, based on discussions with citizens and business owners.
- The spacing and safety of pedestrian crossings on arterials and highways within the city should be reviewed to identify locations where enhancements are required.
- Identification of walkway/crossing needs should be done in conjunction with routes to major transit stops.

BICYCLE SYSTEM

Safe and convenient bicycle facilities are essential to a vibrant community and economy within the City. The bicycle system within the City of West Linn consists of on-street bike lanes, shoulder bikeways and shared roadways as well as off-street bike facilities such as bicycle parking and wayfinding signage. These types of facilities provide residents with the ability to access transit as well as retail, commercial, recreational, and other land uses located within West Linn and neighboring cities by bike.

In order to assess the adequacy of bicycle facilities in West Linn, GIS data was obtained from the City's GIS database and Metro's RLIS. The GIS data was updated based on a review of projects completed

since the last TSP Update and aerial imagery of the on-street bike lanes and shoulder bikeways and other bicycle facilities along the City's arterial and collector streets. The data includes the location of existing bike lanes and streets with low, moderate, and high vehicle traffic. The data also includes the location of existing activity centers such as parks, schools, the library, and City Hall. These activity centers were identified to determine possible bicycle trip generators and to help prioritize potential improvements in the bicycle system. Figure 3-3 shows the existing bicycle facilities located within and adjacent to the West Linn city limits as well as the location of major activity centers.

Bicycle Connectivity

The arterial roadway system in West Linn has basic bike lanes on a few major facilities, but most of the arterial streets have no designated bike facilities. Nearly all collector streets have no bike facilities at all. The only streets in the city with significant bike facilities are Highway 43, West A Avenue, and intermittent segments along Summit Street, Parker Road, and Willamette Falls Drive. In many cases, such as Hidden Springs Road, and the south end of Salamo Road, the slope of the roadway limits the feasibility or need for bike lanes on major arterials.

Roads with no bike lanes or intermittent bike lanes force bicyclists to share the travel lane with motor vehicles or use the shoulder if available. In many cases, this is not a desirable option for bicyclists due to narrow widths or uneven pavement conditions. Adequate bicycle facilities should be provided to allow for safe travel between neighborhoods and activity centers.

Local streets are generally not required to provide bike facilities, since streets with low vehicle volumes (under 3,000 average daily traffic) and slow speeds (25 miles per hour or less) are considered safe environments for shared vehicle- and bicycle use of the travel lanes. Deficiencies in the City's bicycle network are summarized at the end of this section.

Bicycle Level of Traffic Stress

The APM provides a methodology for evaluating Bicycle Level of Traffic Stress (LTS). This methodology can be used to evaluate the existing bicycle infrastructure and environment within West Linn. As applied by ODOT, this method classifies four levels of traffic stress that a cyclist can experience on the roadway, ranging from LTS 1 (which represents little traffic stress) to LTS 4 (which represents high stress). A road segment with LTS 1 generally has low traffic speeds and low volumes and is suitable for all cyclists, including children. A road segment with LTS 4 generally has high speeds, high volumes and is perceived as unsafe by most adults. LTS 2 is considered appealing to a majority of the bike-riding population and is the desired target on most roadways.

The LTS analysis was conducted along several street segments within West Linn which are disaggregated by direction of travel as provided by the City and ODOT. The streets include:

- Streets served by public transit;
- Safe Routes to School streets as provided by the West Linn-Wilsonville School System;

CITY OF West Linn

Lake Oswego

Gladstone

Oregon City

N

OLD RIVER RD
SE CONCORD RD
SE OATFIELD RD
SE ROETHE RD
SE RIVER RD
SE JENNINGS AVE
SE MCLOUGHLIN BLVD
RIVER RD
CHERRY LN
CORNELL
GLENMORRIE DR
43
PACIFIC HWY
S BERGIS RD
99E
OLD RIVER DR
WILLAMETTE DR
MARYLHURST DR
ELMRAN DR
NIXON AVE
HILLCREST DR
CEDAROAK DR
MAPLETON DR
S ROSEMONT RD
CARRIAGE WAY
SUNCREST DR
HIDDEN SPRINGS RD
Mary S. Young Park
JOLIE POINTE RD
DILLOW DR
SANTA ANITA DR
PIMLICO DR
SUMMIT ST
HORTON RD
SHANNON LN
ROSEMONT RD
WEST A ST
SKYLINE DR
CLARK ST
BROADWAY ST
Wilderness Park
PARKER RD
PONDERAY DR
BLAND CIR
SUNSET AVE
BEACON HILL DR
IMPERIAL DR
RIVERKNOLL WAY
SALAMO RD
GREENE ST
TANNLER DR
BLANKENSHIP RD
JOHNSON RD
SW JOHNSON RD
KILLARNEY DR
DEBOK RD
OSTMAN RD
19TH ST
10TH ST
12TH ST
WILLAMETTE FALLS DR
S MCLOUGHLIN BLVD
S HIGH ST
HIGH ST
WASHINGTON ST
7TH ST
5TH ST
DOLLAR ST
SW PETES MOUNTAIN RD
Willamette Park
Willamette River
Tualatin River
S SWEETBRIAR RD
S GRAPEVINE RD
S WISTERIA RD
S WOODBINE RD
205
P

- Regional multi-use path
- Local multi-use path
- Bike lane
- Low traffic through street
- Moderate traffic through street
- High traffic through street
- Caution area
- Schools
- Adult Community Center
- City Hall
- Library
- Transit Center
- Parks
- Town Center
- Concept Main Street
- City Boundary
- Urban Growth Boundary

0 1,000 2,000 3,000 4,000 Feet

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Bicycle Facilities
West Linn, Oregon

Figure **3-3**

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Data Sources: City of West Linn, Metro Data Resource Center
Terrain Sources: Esri, USGS, NOAA

- Streets with posted speeds greater than 25 mph;
- Streets with 24-hour vehicular counts greater than 5,000;
- Salamo Road;
- 10th Street between Salamo Road and Willamette Falls Drive;
- Hidden Springs Road;
- Dollar Street;
- Willamette Falls Drive; and,
- The Clackamas County Principal Active Transportation (PAT) routes.

Figure 3-4 illustrates the results of the LTS analysis. Key observations from the LTS review include:

- (Additional information is needed to complete this analysis)

Bicycle Activity Levels

Bicycle counts were conducted at the study intersections in 2006 as part of the previous TSP update. All of the counts were conducted on a typical mid-week day during the evening (3:30 to 6:30 p.m.) peak time period. All of the counts include the total number of bicyclists that entered the intersections in 15-minute increments. The peak hour bicycle volumes indicate low bicycle activity at the study intersections. Bicycle volumes at each study intersection are shown in Table 3-2. As shown, the only study intersection where more than three bicycles were observed during the three-hour count period was Rosemont Road/Salamo Road with a total of seven.

Table 3-2: Bicycle Crossing Volumes at Study Intersections

Map ID	Intersection	North/South Bicycle Volume	East/West Bicycle Volume	Count Year
1	Highway 43 / Arbor Drive	0	2	2006
2	Highway 43 / Marylhurst Drive-Lazy River Way	0	0	2006
3	Highway 43 / Walling Way	1	0	2006
4	Highway 43 / Cedaroak Drive	0	1	2006
5	Highway 43 / Hidden Springs Road	0	0	2006
6	Highway 43 / Jolie Pointe Drive	0	0	2006
7	Highway 43 / Pimlico Drive	1	0	2006
8	Highway 43 / West “A” Street	0	0	2006
9	Highway 43 / Holmes Street	0	0	2006
10	Highway 43 / Lewis Street-Webb Street	0	1	2006
11	Highway 43 / Burns Street	0	0	2006
12	Highway 43 / Hood Street-McKillican Street	1	0	2006

13	Highway 43 / I-205 SB Ramps	3	1	2014
14	Highway 43 / I-205 NB Ramps	6	0	2014
15	Highway 43 / Willamette Falls Drive	1	1	2014
16	Willamette Falls Drive / Sunset Avenue	2	0	2006
17	Rosemont Road / Carriage Way	0	0	2006
18	Rosemont Road / Hidden Springs Road	0	0	2006
19	Rosemont Road / Salamo Road	1	1	2006
0	Rosemont Road / Summit Street	1	1	2006
21	Sunset Avenue / Cornwall Street	0	0	2006
22	Salamo Road / Bland Circle	0	0	2006
23	Salamo Road / Barrington Drive	0	0	2006
24	Salamo Road / Parker Road	2	1	2006
25	Blankenship Road / Tannler Drive	0	0	2006
26	10th Street / Blankenship Road	2	0	2006
27	10th Street / I-205 SB Ramp	0	0	2006
28	10th Street / I-205 NB Ramp	0	0	2006
29	10th Street / 8th Avenue	0	2	2006
30	10th Street / Willamette Falls Drive	1	0	2006
31	Willamette Falls Drive / 12th Street	0	0	2006
32	Willamette Falls Drive / Dollar Street E	0	1	2006
33	Willamette Falls Drive / 19th Street	0	1	2006
34	Willamette Falls Drive / Ostman Road	0	0	2006
35	Willamette Falls Drive / Dollar Street W	0	0	2006

Existing Deficiencies and Issues

The following provides a summary of the existing deficiencies and issues identified in the existing bicycle system:

- The overall system of bike lanes provides very limited connectivity between different areas of the city.
- There are few bike lanes on the city's collector streets.
- A basic bike route system should be developed along or parallel to all arterial routes in the city, where topography and other design constraints permit. Considerations should include Rosemont Road, and portions of Willamette Falls Drive.

CITY OF West Linn

Lake Oswego
Gladstone
Oregon City
Mary S. Young Park
Wilderness Park
Willamette Park
Tualatin River
Willamette River

OLD RIVER RD
SE CONCORD RD
SE OATFIELD RD
SE ROETHE RD
SE RIVER RD
SE JENNINGS AVE
SE MCLOUGHLIN BLVD
RIVER RD
CORNELL
CHERRY LN
GLENMORRIE DR
S BERGIS RD
PACIFIC HWY
43
99E
OLD RIVER DR
MARYLHURST DR
WILLAMETTE DR
ELMRAN DR
NIXON AVE
HILLCREST DR
CEDAROAK DR
MAPLETON DR
S ROSEMONT RD
CARRIAGE WAY
SUNCREST DR
HIDDEN SPRINGS RD
JOLIE POINTE RD
DILLOW DR
SANTA ANITA DR
PIMLICO DR
SUMMIT ST
HORTON RD
SHANNON LN
ROSEMONT RD
WEST A ST
SKYLINE DR
BROADWAY ST
CLARK ST
PARKER RD
BLAND CIR
PONDERAY DR
SUNSET AVE
BEACON HILL DR
IMPERIAL DR
WASHINGTON ST
7TH ST
5TH ST
HIGH ST
S SWEETBRIAR RD
S GRAPEVINE RD
S WOODBINE RD
S WISTERIA RD
SW JOHNSON RD
JOHNSON RD
DEBOK RD
KILLARNEY DR
TANNLER DR
GREENE ST
SALAMO RD
BARRINGTON DR
RIVERKNOLL WAY
BLANKENSHIP RD
WILLAMETTE FALLS DR
DOLLAR ST
19TH ST
12TH ST
SW PETES MOUNTAIN RD
SOUTH END RD
ROSE RD
PARTLOW
205

N

0 1,000 2,000 3,000 4,000 Feet

LTS Values

- 1
- 2
- 3
- 4
- Schools
- Adult Community Center
- Library
- Police Station
- City Hall
- Parks
- Railroad
- City Boundary
- Urban Growth Boundary

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Bicycle Level of Traffic Stress (LTS) West Linn, Oregon

Figure **3-4**

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Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl
Data Sources: City of West Linn, Metro Data Resource Center
Terrain Sources: Esri, USGS, NOAA

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TRANSIT SYSTEM

The transit system within the City of West Linn includes fixed-route and paratransit services as well as regional transit centers and park-and-rides. Frequent morning and evening peak hour service along Highway 43 provides residents with the ability to use public transit for daily commuting, while less frequent mid-day, and weekend service provides residents with the ability to use public transit to access retail and recreational areas located throughout Clackamas County and the region.

Transit Service Providers

Transit service is provided in West Linn by the Tri County Metropolitan Transportation District of Oregon (TriMet), which provides transit service for the Portland Metro area including the counties of Clackamas, Multnomah and Washington. Other service providers include the West Linn School District, and Marylhurst University.

Fixed-Route Service

TriMet operates two fixed-route bus lines within West Linn, including Line 35 and Line 154. Line 35 (Macadam/Greeley) travels through West Linn along Highway 43, connecting the Oregon City Transit Center with the Lake Oswego Transit Center, the Portland City Center, the Rose Quarter Transit Center and the University of Portland. Line 154 (Willamette) travels along Willamette Falls Drive between the Oregon City Transit Center and the southwest area of West Linn. Table 3-3 summarizes the average headways and hours of service for Lines 35 and 154.

Table 3-3: Transit Service Route Weekday Peak Period Level of Service

Transit Route	Average Headways(Minutes)			Hours of Service (Hours)
	AM	Midday	PM	
#35 To Oregon City Transit Center	23	31	23	19 Hours (6:09 to 1:10 a.m.)
#35 To University of Portland	18	34	24	19 Hours (4:47 a.m. to 11:46 p.m.)
#154 To Willamette	37	70	70	12 Hours (6:33 a.m. to 6:55 p.m.)
#154 To Oregon City Transit Center	37	70	70	12 Hours (6:33 a.m. to 6:55 p.m.)

Note: Average Headways and Hours of Service reflect the following stop locations:

- Line 35 to Oregon City Transit Center: Willamette Drive & McKillican Stop ID 6339
- Line 35 to University of Portland: Willamette Drive & Burns – Stop ID 6306
- Line 154 to Willamette and to Oregon City Transit Center: Blankenship & Tannler Drive – Stop ID 9297

Existing transit routes and stops are illustrated on Figure 3-5. As shown, there are four stops with bus shelters: two near the Bolton Area shopping center, one near the Robinwood Shopping Center and one near the Willamette Historic Area Commercial District. Also, there is essentially no transit service available with convenient walking distance for most of the city west of Highway 43. This includes the shopping center on Salamo Road, and several of the area schools. There is one park-and-ride in West Linn located at the Highway 43/Cedaroak Drive intersection for commuters wishing to travel north on Line 35.

CITY OF West Linn

N

Lake Oswego
Gladstone
Oregon City
Mary S. Young Park
Wilderness Park
Willamette Park
Tualatin River
Willamette River

OLD RIVER RD
SE CONCORD RD
SE OATFIELD RD
SE ROETHE RD
SE RIVER RD
SE JENNINGS AVE
SE MCLOUGHLIN BLVD
CHERRY LN
CORNELL
GLENMORRIE DR
PACIFIC HWY
S BERGIS RD
OLD RIVER DR
MARYLHURST DR
ELMRAN DR
NIXON AVE
HILLCREST DR
CEDAROAK DR
MAPLETON DR
S ROSEMONT RD
CARRIAGE WAY
SUNCREST DR
HIDDEN SPRINGS RD
SANTA ANITA DR
PIMLICO DR
JOLIE POINTE RD
DILLOW DR
SUMMIT ST
HORTON RD
SHANNON LN
ROSEMONT RD
WEST A ST
SKYLINE DR
BROADWAY ST
CLARK ST
PARKER RD
S SWEETBRIAR RD
S GRAPEVINE RD
S WISTERIA RD
S WOODBINE RD
BLAND CIR
PONDERAY DR
SUNSET AVE
BEACON HILL DR
IMPERIAL DR
RIVERKNOLL WAY
SW JOHNSON RD
JOHNSON RD
DEBOK RD
KILLARNEY DR
BLANKENSHIP RD
TANNLER DR
GREENE ST
SALAMO RD
WILLAMETTE FALLS DR
MCLOUGHLIN BLVD
WASHINGTON ST
7TH ST
5TH ST
HIGH ST
S HIGH ST
DOLLAR ST
OSTMAN RD
19TH ST
10TH ST
12TH ST
SW PETES MOUNTAIN RD
RIVER RD

43 99E 205

0 1,000 2,000 3,000 4,000 Feet

Bus Stops within Study Area

- Sheltered Transit Stop
- Signed Transit Stop
- Park N' Ride
- Transit Center
- Line 35
- Line 154
- Other Transit Lines
- 1/4 Mile Walkshed from Transit Stops
- Schools
- Adult Community Center
- City Hall
- Library
- Parks
- Town Center
- Concept Main Street
- City Boundary
- Urban Growth Boundary

Transit Facilities
West Linn, Oregon

Figure **3-5**

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Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl
Data Sources: City of West Linn, Metro Data Resource Center
Terrain Sources: Esri, USGS, NOAA

Paratransit Service

TriMet's LIFT Paratransit service is a shared-ride transportation service for residents who are unable to use regular fixed-route services due to disabilities or disabling health conditions. The service is offered within three-fourths of a mile beyond the outermost portions of TriMet's fixed-route bus and light-rail lines. Service is not offered outside of TriMet's service district. LIFT is available from 4:30 a.m. to 2:30 a.m. seven days a week. See http://trimet.org/lift/ for detailed information and trip planning.

School Bus Service

School bus service is provided within the West Linn area by the West Linn-Wilsonville School District. Elementary school students living more than one mile from school are eligible for bus service, as are middle and high school students living more than 1.5 miles from their schools. School buses operate on all arterial and collector streets and many local streets. Safe bus stop approaches and waiting areas are a concern, as are walkways to schools within the radii not served by buses.

Shuttle Service

Mary's Woods provides a free shuttle service connecting the Marylhurst University campus with Lake Oswego and Oregon City. The Blue Line travels through West Linn along Highway 43 connecting the Marie Rose Center at Marylhurst to the Lake Oswego Transit Center and Millennium Plaza in Lake Oswego. The Green Line travels through West Linn along Highway 43 connecting the Marie Rose Center to the Oregon City Transit Center and the Evangelical church in Oregon City. There are currently no stops in West Linn. Shuttle in the Woods is a pilot program supported by a two-year grant from TriMet. Service began November 11, 2013.

Existing Deficiencies and Issues

The following provides a summary of the existing deficiencies and issues identified in the existing transit system:

- Marketing and awareness should be improved to attract higher ridership.
- Additional locations for park and ride lot facilities should be considered.
- Locations along Highway 43 where transit shelter enhancements would be most effective should be identified.

MOTOR VEHICLE

The motor vehicle system within the City of West Linn includes private streets, city streets, state highways, and an interstate freeway. This section describes how the system has been developed to date and provides a more detailed review of how it is used and operated.

Functional Classification

The functional classification system within West Linn is designed to serve numerous transportation needs. The schematic diagram in Exhibit 3-1 below reveals the relationship between facility design and mobility and accessibility outcomes. As mobility is increased (bottom axis), the provision for non-motor vehicle modes (top axis) is decreased. Similarly, as access and the use of streets for parking and loading increases (left axis), the facility design (right axis) dictates slower speeds, narrower travel ways, and non-exclusive facilities. Assigning a functional classification to roadways establishes a hierarchy of suitable design and performance characteristics that balances access and mobility, facility design and modal integration.

Exhibit 3-1: Relationship between access and mobility outcomes for various functional classifications

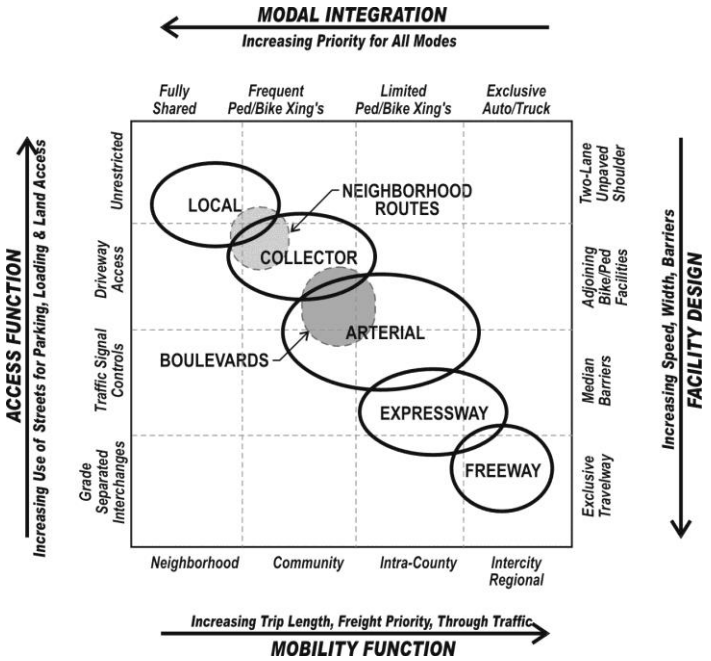

Exhibit 3-1 shows that as street classes progress from local to collector to arterial to freeway (top left corner to bottom right corner) the following occurs:

- Mobility Increases – Longer trips between destinations, greater proportion of freight traffic movement, and a higher proportion of through traffic.
- Integration of Pedestrian and Bicycle Modes Decreases – Provisions for adjoining sidewalks and bike facilities are required for the local, collector, and arterial classes; however, the frequency of intersection or mid-block crossings for non-motorized vehicles steadily decreases with higher functional classes. The freeway facilities, for example, typically do not allow pedestrian and bike facilities adjacent to the roadway and all crossings are grade-separated to enhance mobility and safety.
- Access Decreases – The shared uses for parking, loading, and direct land access is reduced. This occurs through parking regulation, access control and spacing standards (see opposite axis).

- Facility Design Standards Increase – Roadway design standards require increasingly wider, faster facilities leading to exclusive travelways for autos and trucks only. The opposite end of the spectrum is the most basic two-lane roadway with unpaved shoulders.

Neighborhood Routes overlap the local and collector functional classifications, and Boulevards overlapping the collector and arterial classes.

The current West Linn functional classification system for roadway facilities is depicted in Figure 3-6. The existing arterial route from Parker Road to Sunset Avenue is a circuitous route from Parker Road to Lancaster Street to Cornwall Street to Sunset Avenue. ODOT's functional classification map West Linn (http://www.oregon.gov/ODOT/TD/TDATA/gis/docs/citymaps/West_Linn.pdf) shows a more direct route with Parker Road bypassing Lancaster Street and connecting directly to Sunset Avenue. However, the existing land use and road conditions support the route as shown in Figure 3-6. This pattern will continue until development provides the needed arterial standard street improvements. The West Linn functional classification hierarchy is described in Table 3-4.

Table 3-4: West Linn Street Functional Classification Description

Classification	Description
Principal Arterial	Typically state highways that provide the high level roadway capacity to local land uses. These routes connect over the longest distance (sometimes miles long) and are less frequent than other arterial or collectors. These highways generally span several jurisdictions and many times have statewide importance (as defined in the ODOT State Highway Classification).
Arterial	Arterials serve to interconnect and support the principal arterial highway system. These streets link major commercial, residential, industrial and institutional areas. Arterial streets are typically spaced about one mile apart to assure accessibility and reduce the incidence of traffic using collectors or local streets in lieu of a well placed arterial street. Many of these routes connect to cities surrounding West Linn.
Collector	Collectors provide both access and circulation within residential and commercial/industrial areas. Collectors differ from arterials in that they provide more of a citywide circulation function, do not require as extensive control of access and penetrate residential neighborhoods, distributing trips from the neighborhood and local street system.
Neighborhood Route	Usually long relative to local streets and provide connectivity to collectors or arterials. Because neighborhood routes have greater connectivity, they generally have more traffic than local streets and are used by residents in the area to get into and out of the neighborhood, but do not serve citywide/large area circulation. They are typically about a quarter to a half mile in total length. Traffic from cul-de-sacs and other local streets may drain onto neighborhood routes to gain access to collectors or arterials. Because traffic needs are greater than a local street, certain measures should be considered to retain the neighborhood character and livability of these routes. Neighborhood traffic management measures are often appropriate (including devices such as speed humps, traffic circles and other devices to be referred to in a later section in this chapter). However, it should not be construed that neighborhood routes automatically get speed humps or any other measures. While these routes have special needs, neighborhood traffic management is only one means of retaining neighborhood character and vitality.
Local	Local streets have the sole function of providing access to immediate adjacent land. Service to "through traffic movement" on local streets is deliberately discouraged by design

ODOT's map also shows the route from Parker Road to Sunset Avenue as an urban collector rather than an arterial. This discrepancy, along with several others identified between the ODOT and City functional classification maps are addressed in subsequent chapters of the TSP.

CITY OF West Linn

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Lake Oswego

Gladstone

Oregon City

Mary S. Young Park

Wilderness Park

Willamette Park

Tualatin River

Willamette River

OLD RIVER RD
OLD RIVER DR
PACIFIC HWY
43
99E
205
SE OATFIELD RD
SE ROETHE RD
SE RIVER RD
SE JENNINGS AVE
RIVER RD
CHERRY LN
GLENMORRIE DR
CORNELL ST
LINAN ST
S BERGIS RD
GREEN BLUFF DR
MARYLHURST DR
HILLCREST DR
CEDAROAK DR
NIXON AVE
MAPLETON DR
CARRIAGE WAY
SUNCREST DR
HIDDEN SPRINGS RD
JOLIE POINTE RD
S ROSEMONT RD
S SWEETBRIAR RD
S WISTERIA RD
SANTA ANITA DR
PIMLICO DR
DILLOW DR
WILLAMETTE DR
SUMMIT ST
HORTON RD
ROSEMONT RD
PARKER RD
SKYLINE DR
WEST A ST
CLARK ST
S WOODBINE RD
SW JOHNSON RD
JOHNSON RD
DEBOK RD
KILLARNEY DR
BLAND CIR
PONDERAY DR
BEACON HILL DR
SUNSET AVE
MCLOUGHLIN BLVD
WASHINGTON ST
7TH ST
5TH ST
HIGH ST
S HIGH ST
IMPERIAL DR
WILLAMETTE FALLS DR
S MCLOUGHLIN BLVD
TANNLER DR
SALAMO RD
RIVERKNOLL WAY
BLANKENSHIP RD
OSTMAN RD
19TH ST
10TH ST
12TH ST
DOLLAR ST
SW PETES MOUNTAIN RD

0 1,000 2,000 3,000 4,000 Feet

Freeway
Major Arterial
Minor Arterial
Collector
Ramps
Neighborhood Route
Local
Private
Alley
Misc

Schools
Adult Community Center
City Hall
Library
Transit Center
Parks
City Boundary
Urban Growth Boundary

Functional Roadway Classifications
West Linn, Oregon

Figure **3-6**

H:\profile\17817 - West Linn Transportation System Plan\gis\3-6 Functional Classifications.mxd - jsommerville - 10:33 AM 12/29/2014

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Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl
Data Sources: City of West Linn, Metro Data Resource Center
Terrain Sources: Esri, USGS, NOAA

The Oregon Highway Plan identifies Highway 43 as a Statewide Highway for the majority of its length in West Linn and as a District Highway approximately between I-205 and Highway 99E. Statewide Highways often function as inter-urban and inter-regional connectors to larger urban areas, providing safe and efficient, high-speed, continuous flow operations. District Highways often function as county and city arterials or collectors and provide connections between small urbanized areas, rural centers and urban hubs, while also serving local access and traffic. The management objective for District Highways is to provide for safe and efficient, moderate to high-speed continuous-flow operation in rural areas and moderate to low-speed operation for traffic flow and pedestrian/bicycle movements in urban areas.

Roadway Jurisdiction

Roadways within West Linn are under the jurisdiction of ODOT and the City. Each jurisdiction is responsible for determining the functional classification of the roadways, defining major design and multimodal features, and approving construction and access permits. Coordination is required among the jurisdictions to ensure that the roadways are planned, operated, maintained, and improved to safely meet public needs. Roadway jurisdiction (ownership and maintenance responsibilities) of the various roadways in the City of West Linn is identified in Figure 3-7. As shown, Highway 43 and I-205 along with its entrance and exit ramps are under the jurisdiction of ODOT, while the city is responsible for all other roadways within city limits.

Roadway Connectivity

Interstate 205 (I-205), located in the southern section of West Linn, serves as a regional facility and the major route to the East Portland metropolitan area. Highway OR 43 functions as the major north-south arterial through West Linn and includes turn lanes at several intersections. Access to I-205 from Highway 43 is provided at their interchange on the east edge of West Linn. Access to I-205 in West Linn is also provided farther west at 10th Street.

Metro spacing standards require a street spacing of one mile for major arterials and 0.5 miles for minor arterials and collectors. As Highway 43 is the only major arterial in the city, there is a need for an additional north-south major arterial approximately one mile to the east and west of Highway. For minor arterials and collectors, there are a few key corridors, such as Willamette Falls Drive, Salamo Road, Rosemont Road, and Hidden Springs Road, that are continuous facilities. There are some corridors with connectivity issues, such as Parker Road, which runs a non-direct path to Sunset Avenue, and Rosemont Road, which ends at Summit Street due to Wilderness Park. The RTP acknowledges that existing developments and natural features may present challenges in meeting the street spacing standards. In the case of West Linn, the existing street network and the natural features such as the Willamette River, the creeks, and the parks pose challenges to meeting Metro's street spacing standards.

CITY OF West Linn

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Roadway Jurisdiction
West Linn, Oregon

Figure **3-7**

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Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl
Data Sources: City of West Linn, Metro Data Resource Center
Terrain Sources: Esri, USGS, NOAA

Roadway Characteristics

Field inventories were conducted in 2006 as part of the previous TSP update to identify and document the characteristics of major roadways within West Linn. The inventory data includes posted speed limits, street width, right of way width, number of lanes and lane with. The data also includes the geometry and lane configurations of several major intersections along with intersection controls. These characteristics define roadway capacity and operating speeds through the street system, which affects travel path choices for drivers in West Linn. The inventory data is summarized in Table 3-5. As shown, the majority of roadways in West Linn are posted at 25 mph. Arterial roadways such as Willamette Falls Drive, Salamo Road and Rosemont Road, as well as Highway 43 are posted at higher speeds ranging from 25 to 45 mph. Street widths vary significantly between roadways while right of way width is fairly consistent.

Intersection control types at study intersections are shown on Figure 3-8. Five of the eleven traffic signals in West Linn are located in I-205 interchange areas, five are located along Highway 43, and one is located at the Santa Anita/Rosemont Road intersections. The intersection of Highway 43/Holmes Street has a pedestrian signal for Highway 43 traffic, but is stop-controlled on the side street. All-way stop controlled intersections are located at four arterial intersections and the rest of the study intersections are two-way stop controlled.

Table 3-5: Existing Study Area Roadway Characteristics by Functional Classification

Corridor	Posted Speed	Street Width [ft]	ROW Width [ft]	Number of Lanes	Lane Width [ft]
Principal Arterial					
Highway 43 (Willamette Drive)	35	27-80	60	2-4	12
Arterial					
Hidden Springs Road	25	30-53	60	2	11
West A Street	25	37-42	60	2	11
Willamette Falls Drive	25-45	32-41	120	2	11-12
Rosemont Road	25-40	23-40	60	2	10
Santa Anita Drive	25	33-54*	50-84	2	12-15
Salamo Road	25-40	32-55*	30	2	12
Summit Street *(also Collector)*	25	24-45	60-70	2	10-11
Skyline Drive	25	28-36	50	2	12
Parker Road	25-35	20-50*	60	2	10-12
Cornwall Street	25	26-33	60	2	10-11
Sunset Avenue	25	26-29	60	2	10-11
10th Street	25	15-24	50	2-4	11
12th Street	25	52-58	80	2	11
Tualatin Avenue	25	25	60	2	11
Collector					
Marylhurst Drive	25	27	50	2	10
Hillcrest Drive	25	17-23	50	2	10
Suncrest Drive	25	25-38	50	2	10
Carriage Way	25	28-38	50	2	18
Cedaroak Drive *(also Neighborhood Route)*	25	27-35	50	2	11

Old River Road	25	20-25	60	2	11
Elmran Avenue	25	20	50	2	10
Nixon Avenue	25	18-25	40-50	2	10
Mapleton Drive		18-20	50	2	11
Jolie Pointe Road	25	18-37	60	2	9
Larson Avenue		22-30	50	2	14
Failing Street		24	60	2	12-14
Pimlico Drive	25	31-40	60	2	14-16
Clark Street		42-43		2	10
Long Street		23-44		2	12-14
Simpson Street		23-44	50	2	10-11
Bland Circle	25	30-34	60	2	10-16
Tannler Drive		32-44	40-50	2	12
Blankenship Road		25-46	60	2	10-14
Debok Road	25	32-48	60	2	12-14
Johnson Road	25-40	22-42	60	2	10-12
Dollar Street	25	28-34		2	11
Ostman Road	25	21-35		2	11-12
Burns Street	25	20-23	50	2	14
Hood Street	25	23-31	40	2	11
McKillican Street	25	40-42	60	2	12
Neighborhood Route					
Dillow Road	25	20-25	30-60	2	8-11
Broadway Street		20-43		2	10-12
Horton Road		37-44*	50-55	2	16
Exeter Street	25	18-32	60	2	10-11
Oxford Street	25	35	60	2	10-14
Barrington Drive		34-44		2	12
Beacon Hill Drive		18-35		2	12
Imperial Drive		37-45		2	10-12

*Street width includes traffic island.

Table 3-5 also lists the existing number of lanes on each roadway in West Linn. The majority of roadways in West Linn are two lanes, although additional turn lanes are provided at I-205 interchange areas and many arterial intersections along Highway 43, Salamo Road, and Blankenship Road. Local streets in the City of West Linn are two lane roadways.

The key roadways in West Linn were measured at various locations to determine typical cross-section widths. Some streets within the study area have new sections intermixed with older sections resulting in ranges of roadway widths depending on location.

Pavement Conditions

Capitol Assets & Pavement Services, Inc. was contracted by the City of West Linn Public Works to perform a complete inspection of all of the City maintained streets in the City of West Linn over three years. All 100.8 centerline miles of streets were evaluated in accordance with Metropolitan

CITY OF West Linn

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Lake Oswego
Gladstone
Oregon City
Mary S. Young Park
Wilderness Park
Willamette Park
Tualatin River
Willamette River

OLD RIVER RD
SE CONCORD RD
SE OATFIELD RD
SE ROETHE RD
SE RIVER RD
SE JENNINGS AVE
SE MCLOUGHLIN BLVD
CORNELL
CHERRY LN
GLENMORRIE DR
PACIFIC HWY
S BERGIS RD
OLD RIVER DR
MARYLHURST DR
ELMRAN DR
NIXON AVE
HILLCREST DR
CEDAROAK DR
MAPLETON DR
CARRIAGE WAY
S ROSEMONT RD
S SWEETBRIAR RD
SUNCREST DR
HIDDEN SPRINGS RD
SANTA ANITA DR
PIMLICO DR
JOLIE POINTE RD
DILLOW DR
WILLAMETTE DR
SUMMIT ST
HORTON RD
SHANNON LN
ROSEMONT RD
WEST A ST
SKYLINE DR
BROADWAY ST
S GRAPEVINE RD
S WISTERIA RD
PARKER RD
CLARK ST
S WOODBINE RD
BLAND CIR
SW JOHNSON RD
PONDERAY DR
MCLOUGHLIN BLVD
WASHINGTON ST
7TH ST
5TH ST
HIGH ST
S HIGH ST
DEBOK RD
KILLARNEY DR
BEACON HILL DR
SUNSET AVE
JOHNSON RD
SALAMO RD
IMPERIAL DR
BLANKENSHIP RD
TANNLER DR
GREENE ST
RIVERKNOLL WAY
DOLLAR ST
OSTMAN RD
19TH ST
WILLAMETTE FALLS DR
S MCLOUGHLIN BLVD
12TH ST
SW PETES MOUNTAIN RD
SOUTH END RD
PARTLOW
ROSE RD
RIVER RD

43 99E 205

0 1,000 2,000 3,000 4,000 Feet

Intersection Control

- Signalized
- Stop
- All-Way Stop
- Schools
- Adult Community Center
- Library
- Police Station
- City Hall
- Parks
- City Boundary
- Urban Growth Boundary

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Intersection Control
West Linn, Oregon

Figure **3-8**

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Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl
Data Sources: City of West Linn, Metro Data Resource Center
Terrain Sources: Esri, USGS, NOAA

Transportation Commission (MTC) standards, half in 2009, the other half in 2011.The Streetsaver Online 9.0 database was updated with the inspection data. Pavement inspections were completed in May 2011.

The City's overall network pavement conditions index (PCI) is currently a 62, on a scale of 0-100. That has decreased from a network PCI of 65 in 2009 and, at the current level of funding for street maintenance it will continue to decrease, falling 8 points over the next five years. As the overall condition of the City's streets continues to fall, the City will lose the opportunity to maintain streets with more cost-effective treatments, such as slurry seals and thin overlays. As street deteriorate into Poor conditions (PCI<50), they will require more extensive treatment such as thick overlays and full reconstructions, treatments that are much more expensive.

Capitol Assess & Pavement Services, Inc. in coordination with the City of West Linn Public Works prepared a report that summarizes the current state of the City's street network, the likely state of the street network over the next five years, and what steps can be taken to improve the overall condition of the City street network.

Designated Street Parking

An inventory of existing designated on-street parking was conducted in 2006 as part of the previous TSP update. The inventory focused on all arterial and collector roadways within West Linn. On-street parking is generally not provided on arterials in West Linn with the exception of angled and parallel parking accessed by frontage roads along Willamette Falls Drive between 10th Street and Dollar Street (East) and parallel parking along West A Street. Many of the collector streets in residential neighborhoods, such as Marylhurst Drive, have on-street parking.

Access Management

Appropriate roadway access spacing is needed to ensure safety and smooth operations along a corridor. Typically, each parcel is allowed access to the adjacent roadway. However, when there are numerous roadway access points along a roadway, there may be a need to implement access management measures to control access to a roadway. Access management practices can include closure, consolidation or relocation of accesses.

The ODOT access management standards, as defined in OAR 734-051, call for minimum distances between access points on the same side of the highway. The standards vary depending on the highway classification and the posted speed on the roadway, as shown in Table 3-6. The ODOT spacing standards apply to the Highway 43 and the I-205 interchange areas.

Most segments of Highway 43 do not meet ODOT access spacing standards as a result of frequent roadway intersections or driveways located along the highway as it passes through residential areas.

Table 3-6: ODOT Access Management Standards (feet)

Facility	Posted Speed (MPH)				
	55 or greater	50	40,45	30,35	25 or less
Statewide Highway (ft)	1,320	1,100	800	500	350
District Highway (ft)	700	550	500	350	250

Source: Oregon Administrative Rules, Chapter 734, Division 51, Table 4 and Table 6

Access spacing standards identified in the 2008 West Linn TSP are summarized in Table 3-7.

Table 3-7: West Linn Spacing Standards (feet)

Facility	Access Requirements		
	Signal Spacing	Street	Driveway
Arterial (Urban Area)	2,650	600	300
Arterial (Opportunity Area)	1,320	NA	NA
Collector	1,320	200	150
Local Residential Street	NA	100	50
Local Commercial Street	NA	100	50

Motor Vehicle Volumes

Traffic counts were conducted at the study intersections in 2006 as part of the previous TSP update. All the counts were conducted on a typical midweek day during the weekday evening (3:30 to 6:30 p.m.) peak time period. All the counts include the total number of vehicles that entered the intersections in 15-minute increments. The peak hour motor vehicle volumes were used to determine existing traffic operations at the thirty-four study intersections and along several major roadways within West Linn. The volumes were also used to forecast future traffic volumes and operations as described in subsequent chapters of the TSP.

Figure 3-9 shows 24-hour traffic volumes along several major roadways within the West Linn area. While traffic volumes can vary from day to day and month to month based on weather, surrounding roadway conditions (such as construction), and holidays, traffic volumes within the West Linn area have generally gone down over the last several years. The following provides a summary of the traffic volumes changes based on data obtained from ODOT.

In order to better understand the overall trends of traffic volumes over the past ten years, traffic volume data were obtained from ODOT's Traffic Counting Program. Average Annual Daily Traffic (AADT) was obtained at select locations along Highway 43 and I-205; no data is available for Rosemont Road, Salamo Road, Wild Rose Drive, Barrington Drive, or Willamette Falls Drive. Chart 3-1 shows the traffic volume changes between 2004 and 2013.

CITY OF West Linn

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21,100/16,900

7,770

9,590

1,430

1,550

11,960

26,800/21,500

20,700/18,700

14,200/10,100

7,040

87,790/86,500

Lake Oswego

Gladstone

Oregon City

Mary S. Young Park

Wilderness Park

Willamette Park

Tualatin River

Willamette River

OLD RIVER RD

SE CONCORD RD

SE OATFIELD RD

SE ROETHE RD

SE RIVER RD

SE JENNINGS AVE

SE MCLOUGHLIN BLVD

CHERRY LN

CORNELL

GLENMORRIE DR

PACIFIC HWY

S BERGIS RD

MARYLHURST DR

HILLCREST DR

WILLAMETTE DR

ELMRAN DR

NIXON AVE

CEDAROAK DR

MAPLETON DR

CARRIAGE WAY

S ROSEMONT RD

SUNCREST DR

HIDDEN SPRINGS RD

SANTA ANITA DR

PIMLICO DR

JOLIE POINTE RD

DILLOW DR

SUMMIT ST

HORTON RD

SHANNON LN

ROSEMONT RD

WEST A ST

BROADWAY ST

MCLOUGHLIN BLVD

WASHINGTON ST

7TH ST

5TH ST

HIGH ST

S HIGH ST

IMPERIAL DR

SUNSET AVE

BEACON HILL DR

RIVERKNOLL WAY

SALAMO RD

TANNLER DR

GREENE ST

BLANKENSHIP RD

JOHNSON RD

SW JOHNSON RD

DEBOK RD

KILLARNEY DR

PONDERAY DR

BLAND CIR

PARKER RD

S WOODBINE RD

S GRAPEVINE RD

S WESTERIA RD

S SWEETBRIAR RD

DOLLAR ST

OSTMAN RD

19TH ST

10TH ST

WILLAMETTE FALLS DR

12TH ST

SW PETES MOUNTAIN RD

LINN AVE

RIVER RD

43

99E

205

P

0 1,000 2,000 3,000 4,000 Feet

Count Location

24 Hour Count Volume (Collected in Nov. 2006)

###/### 2005/2013 Average Annual Daily Traffic Volume (From ODOT Data)

Schools

Adult Community Center

Library

Police Station

City Hall

Parks

City Boundary

Urban Growth Boundary

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Average Daily Traffic Volumes (2006)
West Linn, Oregon

Figure **3-9**

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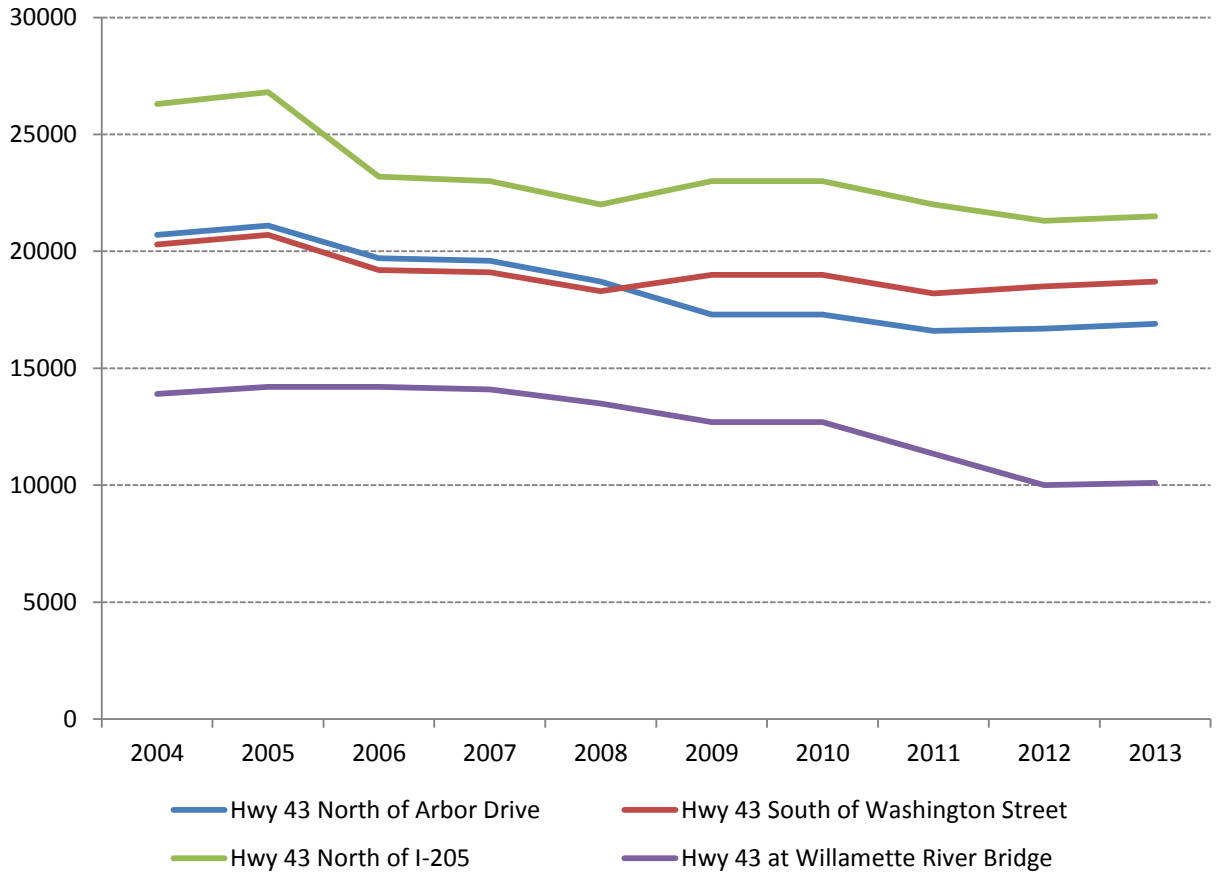
Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl
Data Sources: City of West Linn, Metro Data Resource Center
Terrain Sources: Esri, USGS, NOAA

Chart 3-1: Traffic Volumes Changes



As shown in Chart 3-1, traffic volumes have generally decreased over the last several years, including from the time of the 2008 TSP update. The data for I-205 was omitted from the chart to make it legible, but that data shows a similar decrease in traffic volumes from 91,300 in 2005 to 86,500 in 2013. Additional data obtained from ODOT shows that traffic volumes along Highway 43 are not anticipated to return to 2004 levels until 2033 or beyond while traffic volumes along I-205 is not anticipated to return to 2004 levels much sooner.

Research conducted by ODOT in advance of this TSP update indicates the following:

1. Measured AADTs on Highway 43 have decreased an average of nine percent between 2006 and 2013.
2. Measured AADTs on I-205 have decreased an average of four percent near the 10th Street interchange and increased an average of six percent near the Highway 43 interchange between 2006 and 2013.
3. The difference in the peak hour counts taken from the 2006 TSP and the 2014 counts reveal:
    a. The 10th Street corridor has lost volume.
    b. The Willamette Falls Drive corridor near 10th Street has lost volume.

c. Highway 43 has increased in volume but at an average rate near 25 percent less than what the TSP predicted. Unless a larger growth rate is assumed the volumes will be less than what the TSP predicted in 2030 and would not meet those volumes until sometime between 2030 and 2040.

d. I-205 volumes at 10th Street will not recover to the 2004 volume until 2033.

e. I-205 volumes at Highway 43 surpassed 2004 volumes in 2011.

Given that traffic volumes have generally decreased within the City of West Linn, with the exception of a few select intersections, the traffic operations shown in the 2006 TSP and summarized below, are assumed to reflect current conditions.

Existing Operation Conditions

Level of Service (LOS) and volume to capacity (v/c) are frequently used as measures of effectiveness for intersection operation. LOS is determined based upon average approach delay at signalized intersections and critical movement delay at unsignalized intersections. LOS A, B, and C indicate conditions where traffic moves without significant delays, while LOS D and E indicate progressively worsening conditions and LOS F indicates conditions where average approach delay exceeds 80 seconds per vehicle entering a signalized intersection and where the critical movement delay exceeds 50 seconds per vehicle at an unsignalized intersection. Unsignalized intersections provide LOS for major and minor street turning movements. For this reason, LOS E and even LOS F can occur for a specific turning movement; however, the majority of traffic may not be delayed (in cases where major street traffic is not required to stop). LOS E or F conditions at unsignalized intersections generally provide a basis to study intersections further to determine availability of acceptable gaps, safety and traffic signal warrants.

V/C is determined by dividing the total volume at an intersection approach or movement by the maximum volume the intersection approach or movement can theoretically handle. For example, when a v/c is 0.80, the volume represents 80 percent of the intersection capacity. If the volume exceeds the capacity, queues will form and will lengthen until demand subsides below the available capacity. When the v/c approaches 1.0, intersection operation becomes unstable and small disruptions can cause traffic flow to break down.

LOS and V/C are used as measures of effectiveness for study intersection performance. The minimum operational standard specified in the City of West Linn Comprehensive Plan (April 2006) is LOS D for all facilities except principal arterials (Highway 43) where the minimum is LOS E. The ODOT operating performance standards require intersections inside an Urban Growth Boundary and within the Portland Metropolitan Region to operate below the maximum V/C ratios shown in Table 3-8.

Table 3-8: ODOT Operating Standards

ODOT Highway Category	Location	Volume to Capacity Ratio (v/c)
Corridors	Highway 43 10th Street	0.99
Ramp Terminals for Freeway Interchange Ramps	I-205 ramp intersections	0.85

Source: Oregon Highway Plan, Oregon Department of Transportation, August 2012, Policy 1F.

The City has adopted Town Center and Main Street designations in concept only. Once boundaries have been established and adopted by the City, ODOT will allow a higher level of congestion (v/c=1.1) on their facilities.

The weekday evening peak hour intersection volumes were used to determine the existing operating conditions at the study intersections based on the 2000 Highway Capacity Manual methodology for signalized and unsignalized intersections.

Table 3-9 summarizes the weekday evening peak hour intersection operation at the study intersections based on 2006 traffic volumes. Intersections controlled by traffic signals operate within accepted standards along Highway 43 and at some locations on 10th Street. However, the intersection of 10th Street / Salamo Road-Blankenship Drive operates at capacity today, because of the close spacing with the freeway off-ramps and coordinated signal controls between those two adjacent intersections. Queues on the Salamo Road approach have been observed to extend over a quarter-mile uphill during peak periods and require several traffic cycles to clear.

The locations controlled by all-way stops generally operate within acceptable standards, as do those with stop sign controls on the minor street approach only. There are several exceptions along Highway 43 where the estimated delay for vehicles turning left onto the highway from the minor street is very significant, with an LOS F rating. These locations will be reviewed to determine if volumes and spacing are sufficient to justify installation of traffic signals or other higher capacity controls.

Table 3-9: Weekday PM Peak Hour Intersection Level of Service

Intersection	Level of Service (LOS)	Delay (Sec)	Volume/Capacity (V/C)	Measure of Effectiveness (MOE)		MOE Met?
				Agency	Maximum	
Signalized Intersections						
Highway 43/Marylhurst Dr	B	16.3	0.80	ODOT	v/c 0.99	Yes
Highway 43 / Cedaroak Dr	B	10.4	0.65	ODOT	v/c 0.99	Yes
Highway 43 / Hidden Springs Rd	C	25.0	0.83	ODOT	v/c 0.99	Yes
Highway 43 / West A St	B	12.5	0.74	ODOT	v/c 1.1	Yes
Highway 43 / Hood St-McKillican St	C	23.6	0.76	ODOT	v/c 1.1	Yes
Highway 43 / I-205 SB	C	26.5	0.85	ODOT	v/c 0.85	Yes
Highway 43 / I-205 NB	A	8.0	0.30	ODOT	v/c 0.85	Yes
10th St / Blankenship Dr	D	55.0	0.63	ODOT	v/c 0.85	Yes
10th St / I-205 SB	C	34.4	0.61	ODOT	v/c 0.85	Yes
10th St / I-205 NB	B	16.1	0.65	ODOT	v/c 0.85	Yes

All-Way Stop Intersections						
Salamo Rd / Rosemont Rd	E	38.3	**>1**	City	LOS D	**No**
Rosemont Rd / Summit St	A	9.2	0.37	City	LOS D	Yes
Sunset Ave / Cornwall St	A	7.6	0.15	City	LOS D	Yes
Willamette Falls Dr / 10th St	C	23.8	0.87	City	LOS D	Yes
Unsignalized Intersections						
Highway 43 / Arbor Dr	B/**F**	1.5	0.03 / 0.37	ODOT	v/c 0.99	Yes
Highway 43 / Walling Way	B/E	0.9	0.04 / 0.21	ODOT	v/c 0.99	Yes
Highway 43 / Jolie Pointe Rd	A/E	0.8	0.03 / 0.22	ODOT	v/c 0.99	Yes
Highway 43 / Pimlico Dr	B/**F**	7.9	0.16 / **>1**	ODOT	v/c 0.99	**No**
Highway 43 / Holmes St	B/**F**	2.7	0.02 / 0.65	ODOT	v/c 0.99	Yes
Highway 43 / Lewis St	B/E	0.6	0.01 / 0.15	ODOT	v/c 0.99	Yes
Highway 43 / Burns St	B/**F**	39.6	0.23 / **>1**	ODOT	v/c 1.1	**No**
Highway 43 / Willamette Falls Dr	A/**F**	73.5	0.21 / **>1**	ODOT	v/c 0.99	**No**
Willamette Falls Dr / Sunset Ave	B/**F**	98.2	0.22 / **>1**	City	LOS D	**No**
Rosemont Rd / Carriage Way	A/C	2.4	0.09 / 0.21	City	LOS D	Yes
Rosemont Rd / Hidden Springs Rd	A/C	3.1	0.10 / 0.14	City	LOS D	Yes
Salamo Rd / Bland Circle	A/B	0.8	0.00 / 0.09	City	LOS D	Yes
Salamo Rd / Barrington Dr	A/C	2.5	0.04 / 0.20	City	LOS D	Yes
Salamo Rd / Parker Rd	A/C	1.6	0.05 / 0.13	City	LOS D	Yes
Blankenship Road / Tannler Dr	A/**F**	8.0	0.13 / 0.52	City	LOS D	**No**
10th St / 8th Ave	A/**F**	10.1	0.13 / 0.73	City	LOS D	**No**
Willamette Falls Dr / 12th St	A/C	3.7	0.17 / 0.23	City	LOS D	**No**
Willamette Falls Dr / Dollar St (East)	A/C	1.3	0.01 / 0.21	City	LOS D	Yes
Willamette Falls Dr / 19th St	A/**F**	42.6	0.01 / 0.95	City	LOS D	**No**
Willamette Falls Dr / Ostman Rd	A/C	0.8	0.03 / 0.06	City	LOS D	Yes
Willamette Falls Dr / Dollar St (West)	A/B	1.0	0.03 / 0.07	City	LOS D	Yes

Notes:
LOS = Intersection Level of Service (Signal), Critical Movement Level of Service (TWSC).
Delay = Intersection Average vehicle delay (Signal), critical movement vehicle delay (TWSC).
V/C = Intersection V/C (Signal) critical movement V/C (TWSC).
MOE = Measure of Effectiveness

Traffic Safety

Crash data were obtained from ODOT to identify any areas of traffic safety concern within West Linn. To identify potential focus areas for safety improvements in the TSP, crash patterns were evaluated at specific study intersections throughout the city. The evaluations were based on the five most recent years of crash data available at the time of analysis (January 1, 2009 to December 31, 2013). Crashes were evaluated based on their frequency, type (e.g., rear-end, angle, fixed object), severity (i.e., property damage only, injury and fatality), and whether a bicycle and/or pedestrian was involved. Table 3-10 summarizes the crashes experienced at study intersections, by crash type and by crash severity.

Table 3-10: Crash Data

Location	Crash Type						Severity		Total
	Angle	Turn	Rear-End	Side Swipe	Fixed Object	Ped/ Bike	PDO*	Injury	
HWY 34 & Cedar Oak Drive	-	1	3	-	-	-	2	2	4
HWY 34 & Hidden Springs Road	-	1	7	1	-	-	6	3	9
HWY 34 & I-205 SB Ramps	2	3	7	-	-	1	5	8	13
Willamette Falls Drive & 10th Street	-	2	2	-	-	-	4	0	4
10th Street & 8th Avenue	4	8	-	-	-	-	9	3	12
10th Street & Blankenship Road	-	-	1	-	-	-	1	-	1
10th Street & I-205 NB Ramps	-	1	4	-	-	-	2	3	5
10th Street & I-205 SB Ramps	-	1	2	-	-	-	2	1	3
Blankenship Road & Tannler Drive	1	2	1	-	1	-	2	3	5
HWY 34 & I-205 NB Ramps	-	1	2	-	2	-	2	3	5
HWY 34 & Willamette Falls Drive	-	3	2	-	-	-	4	1	5

* PDO = Property Damage Only

Truck Freight

Efficient truck movement plays a vital role in the economical movement of raw materials and finished products. The designation of through truck routes provides for this efficient movement while at the same time maintaining neighborhood livability, public safety, and minimizing maintenance costs of the roadway system. The only state-designated truck route in West Linn is I-205.

Traffic counts were conducted at the study intersections in 2006 as part of the previous TSP update. All the counts were conducted on a typical mid-week day during weekday evening (3:30 to 6:30 p.m.) peak time period. All of the counts include the total number of trucks that entered the intersection as a percentage of total vehicles. Truck percentages at study intersections are listed in Table 3-11. Freight routes are shown on Figure 3-10.

Table 3-11: PM Peak Hour Truck Volumes at Study Intersections

Intersection	Intersection Truck Volume	Truck % of All Vehicular Traffic	Count Year
Highway 43 / Arbor Drive	26	1%	2006
Highway 43 / Walling Way	23	1%	2006
Highway 43 / Cedaroak Drive	31	2%	2006
Highway 43 / Hidden Springs Drive	23	1%	2006
Highway 43 / Jolie Pointe Drive	52	3%	2006
Highway 43 / Pimlico Drive	54	3%	2006
Highway 43 / West "A" Street	60	3%	2006
Highway 43 / Burns Street	39	2%	2006
Highway 43 / Hood Street-McKillican Street	42	2%	2006
Highway 43 / I-205 SB Ramps	75	4%	2014

Highway 43 / I-205 NB Ramps	86	5%	2014
Highway 43 / Willamette Falls Drive	49	2%	2014
Rosemont Road / Carriage Way	5	1%	2006
Rosemont Road / Hidden Springs Road	5	1%	2006
Rosemont Road / Salamo Road	30	2%	2006
Rosemont Road / Summit Street	1	0%	2006
Salamo Road / Bland Circle	24	3%	2006
Salamo Road / Barrington Drive	34	5%	2006
Salamo Road / Parker Road	7	1%	2006
Sunset Ave / Cornwall St	0	0%	2006
Blankenship Rd / Tannler Dr	27	2%	2006
10th St / Blankenship Road	43	3%	2006
10th St / I-205 SB Ramp	88	5%	2006
10th St / I-205 NB Ramp	90	5%	2006
10th St / 8th Ave	30	2%	2006
10th St / Willamette Falls Dr	27	2%	2006
Willamette Falls Drive / Sunset Ave	38	2%	2006
Willamette Falls Drive / Dollar Street E	16	1%	2006
Willamette Falls Drive / 12th Street	24	2%	2006
Willamette Falls Drive / 19th Street	24	2%	2006
Willamette Falls Drive / Ostman Road	27	3%	2006
Willamette Falls Drive / Dollar Street W	22	2%	2006

OTHER TRAVEL MODES

There are no other modes of transportation within West Linn, with the exception of the Tualatin and Willamette Rivers, which are primarily used for recreation. All major air, rail and natural gas pipelines are located north and south of West Linn in neighboring cities.

Rail

There are no railroads located within the West Linn city limits. The closest railroads include the Union Pacific Railroad located to the north in Lake Oswego and the Union Pacific Railroad located to the south in Oregon City.

Air

There are no airports located within the West Linn city limits. The closest airports include the Portland International Airport located approximately 19 miles to the north via Interstate 205 (I-205), the Aurora State Airport located approximately 15 miles to the south via 99E, and the Mulino Airport located approximately 14 miles to the south via I-205 and OR 213.

CITY OF West Linn

N

Lake Oswego
Gladstone
Oregon City
Mary S. Young Park
Wilderness Park
Willamette Park
Tualatin River
Willamette River

OLD RIVER RD
SE CONCORD RD
SE OATFIELD RD
SE ROETHE RD
SE RIVER RD
SE JENNINGS AVE
SE MCLOUGHLIN BLVD
CHERRY LN
CORNELL
GLENMORRIE DR
S BERGIS RD
PACIFIC HWY
OLD RIVER DR
MARYLHURST DR
WILLAMETTE DR
ELMRAN DR
NIXON AVE
HILLCREST DR
CEDAROAK DR
MAPLETON DR
S ROSEMONT RD
CARRIAGE WAY
SUNCREST DR
HIDDEN SPRINGS RD
SANTA ANITA DR
PIMLICO DR
JOLIE POINTE RD
DILLOW DR
SUMMIT ST
HORTON RD
SHANNON LN
ROSEMONT RD
WEST A ST
SKYLINE DR
CLARK ST
BROADWAY ST
PARKER RD
BLAND CIR
PONDERAY DR
SUNSET AVE
BEACON HILL DR
IMPERIAL DR
RIVERKNOLL WAY
SALAMO RD
TANNLER DR
GREENE ST
BLANKENSHIP RD
JOHNSON RD
DEBOK RD
KILLARNEY DR
SW JOHNSON RD
S WOODBINE RD
S GRAPEVINE RD
S WISTERIA RD
S SWEETBRIAR RD
DOLLAR ST
OSTMAN RD
19TH ST
10TH ST
WILLAMETTE FALLS DR
12TH ST
SW PETES MOUNTAIN RD
MCLOUGHLIN BLVD
WASHINGTON ST
7TH ST
5TH ST
HIGH ST
S HIGH ST
S MCLOUGHLIN BLVD
SOUTH END RD
PARTLOW
ROSE RD
RIVER RD

43
99E
205
P

0 1,000 2,000 3,000 4,000 Feet

Couty Freight Route
State Freight Route
Schools
Adult Community Center
Library
Police Station
City Hall
Parks
City Boundary
Urban Growth Boundary

Freight Routes
West Linn, Oregon

Figure
3-10

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Data Sources: City of West Linn, Metro Data Resource Center
Terrain Sources: Esri, USGS, NOAA

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Water

Although the eastern boundary of West Linn is defined by the Willamette River and the southwestern boundary is defined by the Tualatin River, these waterways are rarely used to support transportation. They are, however, used for recreational purposes. In addition to several single-family residential homes with private access points to the rivers, there are two public boat ramps, including the Bernert Landing boat ramp located at the intersection of 12th and Volpp Street where the Tualatin River meets the Willamette River and the Cedaroak boat ramp located at the end of Elmran Avenue. The boat ramps office river access for local residents as well as docking systems and wildlife viewing. A public fishing dock is also located along Territorial Drive near the falls.

The Willamette Falls Locks located between Oregon City and West Linn is currently closed indefinitely by the U.S. Army Corps of Engineers due to needed gudgeon anchor repairs. All freight and recreational water travel has been eliminated during this closure.

Pipeline

There are no major pipelines located within the West Linn city limits. The closest major pipelines include the Northwest Natural pipelines located to the north in Lake Oswego and to the south in Oregon City.

TRANSPORTATION SYSTEM MANAGEMENT OPERATIONS

Transportation System Management and Operations (TSMO) measures are designed to increase the efficiency and safety of the transportation system without physically increasing roadway capacity. Typical TSMO measures include Intelligent Transportation System (ITS) solutions, real-time traveler information, and services that respond quickly to traffic incidents. Based on discussions with City staff, the TSMO measures currently in West Linn consist of a coordination signal system along 10th Street between the I-205 eastbound ramps and Blankenship-Salamo Road and two speed feedback signs the City uses in multiple locations around the city to address local concerns for safety.

Metro's 2035 Regional Transportation Plan (RTP) includes projects on regionally significant roadways throughout the region. However, none of the projects are TSMO related.

TRANSPORTATION DEMAND MANAGEMENT

The TPR requires all cities with populations greater than 25,000 people to develop a Transportation Demand Management (TDM) plan. The RTP also requires that TDM strategies be used to encourage alternative transportation modes and achieve higher vehicle occupancy targets. TDM measures are designed to change travel behavior in order to reduce the need for more road capacity and improve performance of the road system. The TDM programs and strategies in West Linn are primarily implemented though City code and include incentives for reduced vehicle parking requirements for private developments.

Section 46.090 through Section 46.150 of the Community Development Code (CDC) indicates the following:

46.090 (Minimum Parking Space Requirements)

G. Parking reductions. CDC 55.100(H)(5) explains reductions of up to 10 percent for development sites next to transit stops and up to 10 percent for commercial development sites adjacent to large multi-family residential sites.

H. For office, industrial, and public uses where there are more than 20 parking spaces for employees on the site, at least 10 percent of the required employee parking spaces shall be reserved for carpool use before 9:00 a.m. on weekdays. The spaces will be the closest to the building entrance, except for any disabled parking and those signed for exclusive customer use. The carpool/vanpool spaces shall be clearly marked "Reserved – Carpool/Vanpool Before 9:00 a.m."

I. Existing developments along transit streets or near transit stops may redevelop up to 10 percent of the existing parking spaces to provide transit-oriented facilities, including bus pullouts, bus stops and shelters, park and ride stations, and other similar facilities.

46.140 (Exemption to Parking Requirements)

To facilitate the design requirements of Chapter 58 CDC, properties in the Willamette Falls Drive Commercial District/Overlay Zone, located between 10th and 16th Streets, shall be exempt from the requirements for off-street parking as identified in this chapter. Any off-street parking spaces provided shall be designed and installed per the dimensional standards of this code. (Ord. 1463, 2000)

46.150 (Design and Standards)

The following standards apply to the design and improvement of areas used for vehicle parking, storage, loading, and circulation:

D. Bicycle facilities and parking.

1. Provisions shall be made for pedestrian and bicycle ways if such facilities are shown on an adopted plan.

2. Bicycle parking facilities shall either be lockable enclosures in which the bicycle is stored, or secure stationary racks which accommodate bicyclist's locks securing the frame and both wheels. The bicycle parking shall be no more than 50 feet from the entrance to the building, well-lit, observable, and properly signed.

3. Bicycle parking must be provided [per Table 46.150(D)(3)-1]

E. Office or industrial developments shall be allowed a 10 percent reduction in the number of required parking spaces when the property owner agrees to a demand management program that includes three or more of the following measures:

1. Designate a transportation coordinator responsible for promoting public transit and ride-sharing among employees.
2. Participate in region-wide ride matching program at the site.
3. Provide free transit passes to employees.
4. Provide showers and lockers for employees who commute by bicycle.
5. Charge employees for monthly parking and provide a transportation allowance to employees equal to the parking charge.
6. Install office technology, floorplans, and tenant regulations which are permanent, which effectively arrange for at least 10 percent of the employees to telecommute, thereby reducing employee automobile traffic by 10 percent.

The required demand management measures shall be included as conditions of approval for the proposed project. The property owner or manager shall file an annual affidavit with the City of West Linn stating that ongoing demand management measures required as conditions of approval have not been discontinued.

Metro's 2035 Regional Transportation Plan (RSP) includes TDM projects and policies that impact areas throughout the region. These relatively low-cost projects will be implemented by a variety of local and regional organizations and with a variety of funding sources, such as Metro's Metro Regional Travel Options (RTO) grants program. A total of $2.1 million in federal transportation funding is available to government agencies and nonprofit organizations across the region who want to make it easier to walk, bike, take transit and share rides. Metro will also fund projects that improve air quality, improve health, and reduce drive-alone trips and auto traffic.

ENVIRONMENTAL JUSTICE

The socio-economically sensitive populations within West Linn consist of minorities, people with low-income (people who earn 0 to 1.99 times the federal poverty level), elderly people (people 65 years of age or older), youth (people 16 years of age or younger), non-English speakers, and people with disabilities. Identifying the location of these individuals or the concentration of these individuals can be a challenge given the current socio-economic conditions within West Linn. Therefore, 2010 census data was combined with a general understanding of local conditions to ensure that the existing transportation system meets the needs of these individuals. Figure 3-11 through 3-16 illustrate the populations within West Linn.

CITY OF West Linn

N

Lake Oswego

Gladstone

Oregon City

Tualatin River

Willamette River

OLD RIVER RD
SE CONCORD RD
SE OATFIELD RD
CHERRY LN
CORNELL
GLENMORRIE DR
43
PACIFIC HWY
S BERGIS RD
SE ROETHE RD
99E
SE RIVER RD
OLD RIVER DR
SE JENNINGS AVE
MARYLHURST DR
WILLAMETTE DR
ELMRAN DR
NIXON AVE
SE MCLOUGHLIN BLVD
HILLCREST DR
CEDAROAK DR
S ROSEMONT RD
MAPLETON DR
CARRIAGE WAY
SUNCREST DR
S SWEETBRIAR RD
HIDDEN SPRINGS RD
JOLIE POINTE RD
RIVER RD
SANTA ANITA DR
PIMLICO DR
DILLOW DR
SUMMIT ST
HORTON RD
SHANNON LN
S GRAPEVINE RD
S VISTERIA RD
ROSEMONT RD
WEST A ST
SKYLINE DR
205
PARKER RD
S WOODBINE RD
BLAND CIR
CLARK ST
BROADWAY ST
SW JOHNSON RD
PONDERAY DR
MCLOUGHLIN BLVD
DEBOK RD
KILLARNEY DR
BEACON HILL DR
SUNSET AVE
WASHINGTON ST
7TH ST
5TH ST
JOHNSON RD
IMPERIAL DR
HIGH ST
BLANKENSHIP RD
TANNLER DR
GREENE ST
SALAMO RD
RIVERKNOLL WAY
DOLLAR ST
OSTMAN RD
19TH ST
10TH ST
WILLAMETTE FALLS DR
S MCLOUGHLIN BLVD
S HIGH ST
12TH ST
LINN AVE
SW PETES MOUNTAIN RD
99E

Minority Population
- 0- 5%
- 5 - 10%
- 10 - 15%
- 15 - 20%

- Schools
- Adult Community Center
- City Hall
- Library
- City Boundary
- Urban Growth Boundary

0 1,000 2,000 3,000 4,000 Feet

This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

Minority Population
West Linn, Oregon

Figure **3-11**

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CITY OF West Linn

N

Lake Oswego

Gladstone

Oregon City

Tualatin River

Willamette River

S BERGIS RD
CORNELL
CHERRY LN
GLENMORRIE DR
OLD RIVER RD
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SE OATFIELD RD
SE ROETHE RD
SE RIVER RD
SE JENNINGS AVE
SE MCLOUGHLIN BLVD
RIVER RD
PACIFIC HWY
OLD RIVER DR
WILLAMETTE DR
ELMRAN DR
NIXON AVE
CEDAROAK DR
MAPLETON DR
MARYLHURST DR
HILLCREST DR
S ROSEMONT RD
CARRIAGE WAY
SUNCREST DR
HIDDEN SPRINGS RD
JOLIE POINTE RD
DILLOW DR
SANTA ANITA DR
PIMLICO DR
SWEETBRIAR RD
S GRAPEVINE RD
S WSTERIA RD
ROSEMONT RD
HORTON RD
SHANNON LN
SUMMIT ST
WEST A ST
SKYLINE DR
BROADWAY ST
CLARK ST
PARKER RD
SW JOHNSON RD
S WOODBINE RD
BLAND CIR
PONDERAY DR
SUNSET AVE
MCLOUGHLIN BLVD
WASHINGTON ST
7TH ST
5TH ST
HIGH ST
S HIGH ST
IMPERIAL DR
BEACON HILL DR
DEBOK RD
KILLARNEY DR
JOHNSON RD
BLANKENSHIP RD
TANNLER DR
GREENE ST
SALAMO RD
RIVERKNOLL WAY
DOLLAR ST
OSTMAN RD
19TH ST
10TH ST
WILLAMETTE FALLS DR
12TH ST
SW PETES MOUNTAIN RD
LINN AVE
END RD

43 99E 205

0 1,000 2,000 3,000 4,000 Feet

Elderly Population

- 6%
- 7% - 12%
- 13% - 18%
- 19% - 24%
- 25% - 44%

- Schools
- Adult Community Center
- City Hall
- Library
- City Boundary
- Urban Growth Boundary

Elderly Population
West Linn, Oregon

Figure **3-12**

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CITY OF West Linn

N

Lake Oswego

Gladstone

Oregon City

Tualatin River

Willamette River

CORNELL

CHERRY LN

GLENMORRIE DR

OLD RIVER RD

SE CONCORD RD

SE OATFIELD RD

S BERGIS RD

43

PACIFIC HWY

99E

SE ROETHE RD

SE RIVER RD

OLD RIVER DR

SE JENNINGS AVE

MARYLHURST DR

WILLAMETTE DR

ELMRAN DR

NIXON AVE

SE MCLOUGHLIN BLVD

HILLCREST DR

CEDAROAK DR

S ROSEMONT RD

MAPLETON DR

CARRIAGE WAY

S SWEETBRIAR RD

SUNCREST DR

HIDDEN SPRINGS RD

JOLIE POINTE RD

SANTA ANITA DR

PIMLICO DR

DILLOW DR

SUMMIT ST

HORTON RD

SHANNON LN

ROSEMONT RD

S GRAPEVINE RD

S WISTERIA RD

WESTA ST

SKYLINE DR

PARKER RD

205

S WOODBINE RD

BLAND CIR

CLARK ST

BROADWAY ST

SW JOHNSON RD

PONDERAY DR

MCLOUGHLIN BLVD

WASHINGTON ST

7TH ST

5TH ST

HIGH ST

DEBOK RD

KILLARNEY DR

BEACON HILL DR

SUNSET AVE

JOHNSON RD

IMPERIAL DR

205

BLANKENSHIP RD

TANNLER DR

GREENE ST

SALAMO RD

RIVERKNOLL WAY

DOLLAR ST

OSTMAN RD

19TH ST

10TH ST

WILLAMETTE FALLS DR

S MCLOUGHLIN BLVD

S HIGH ST

P

12TH ST

SW PETES MOUNTAIN RD

99E

LINN AVE

RIVER RD

0 1,000 2,000 3,000 4,000 Feet

Population in Poverty

- 2% - 5%
- 6% - 10%
- 11% - 15%
- 16% - 25%
- 26% - 35%

- Schools
- Adult Community Center
- City Hall
- Library
- City Boundary
- Urban Growth Boundary

Population in Poverty
West Linn, Oregon

Figure **3-13**

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CITY OF West Linn

N

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MARYLHURST DR
WILLAMETTE DR
ELMRAN DR
NIXON AVE
SE MCLOUGHLIN BLVD
HILLCREST DR
CEDAROAK DR
S ROSEMONT RD
MAPLETON DR
CARRIAGE WAY
SUNCREST DR
HIDDEN SPRINGS RD
JOLIE POINTE RD
SANTA ANITA DR
PIMLICO DR
DILLOW DR
SUMMIT ST
HORTON RD
S SWEETBRIAR RD
S GRAPEVINE RD
S WISTERIA RD
ROSEMONT RD
SHANNON LN
WEST A ST
SKYLINE DR
205
PARKER RD
S WOODBINE RD
BLAND CIR
CLARK ST
BROADWAY ST
SW JOHNSON RD
PONDERAY DR
MCLOUGHLIN BLVD
KILLARNEY DR
DEBOK RD
BEACON HILL DR
SUNSET AVE
WASHINGTON ST
7TH ST
5TH ST
JOHNSON RD
HIGH ST
IMPERIAL DR
205
BLANKENSHIP RD
TANNLER DR
GREENE ST
SALAMO RD
RIVERKNOLL WAY
DOLLAR ST
OSTMAN RD
19TH ST
S HIGH ST
10TH ST
WILLAMETTE FALLS DR
S MCLOUGHLIN BLVD
12TH ST
LINN AVE
SW PETES MOUNTAIN RD
99E

Youth Population

- 14% - 15%
- 16% - 20%
- 21% - 25%
- 26% - 30%
- 31% - 35%

- Schools
- Adult Community Center
- City Hall
- Library
- City Boundary
- Urban Growth Boundary

0 1,000 2,000 3,000 4,000 Feet

This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

Youth Population
West Linn, Oregon

Figure
3-14

H:\proj\file\17817 - West Linn Transportation System Plan\gis\3-14 Youth Population.mxd - jsommerville - 10:32 AM 12/29/2014

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TRANSPORTATION ENGINEERING/PLANNING

Coordinate System: NAD 1983 HARN StatePlane Oregon North FIPS 3601 Feet Intl
Data Sources: City of West Linn, Metro Data Resource Center

CITY OF West Linn

N

Lake Oswego

Gladstone

Oregon City

Tualatin River

Willamette River

OLD RIVER RD
SE CONCORD RD
SE OATFIELD RD
CHERRY LN
CORNELL
GLENMORRIE DR
43
PACIFIC HWY
S BERGIS RD
99E
SE ROETHE RD
SE RIVER RD
OLD RIVER DR
SE JENNINGS AVE
MARYLHURST DR
WILLAMETTE DR
ELMRAN DR
NIXON AVE
SE MCLOUGHLIN BLVD
HILLCREST DR
CEDAROAK DR
S ROSEMONT RD
MAPLETON DR
CARRIAGE WAY
SUNCREST DR
HIDDEN SPRINGS RD
JOLIE POINTE RD
SANTA ANITA DR
PIMLICO DR
DILLOW DR
SUMMIT ST
HORTON RD
SHANNON LN
ROSEMONT RD
S GRAPEVINE RD
S WSTERIA RD
WEST A ST
SKYLINE DR
PARKER RD
205
S WOODBINE RD
BLAND CIR
CLARK ST
BROADWAY ST
SW JOHNSON RD
PONDERAY DR
MCLOUGHLIN BLVD
KILLARNEY DR
DEBOK RD
BEACON HILL DR
SUNSET AVE
WASHINGTON ST
7TH ST
5TH ST
JOHNSON RD
HIGH ST
IMPERIAL DR
205
BLANKENSHIP RD
TANNLER DR
GREENE ST
SALAMO RD
RIVERKNOLL WAY
DOLLAR ST
OSTMAN RD
19TH ST
10TH ST
WILLAMETTE FALLS DR
S MCLOUGHLIN BLVD
S HIGH ST
12TH ST
SW PETES MOUNTAIN RD
99E
LINN AVE
TH END RD

Non-English Speaking Population

- 0%
- 1% - 2%
- 3% - 6%

- Schools
- Adult Community Center
- City Hall
- Library
- City Boundary
- Urban Growth Boundary

0 1,000 2,000 3,000 4,000 Feet

Non-English Speaking Population
West Linn, Oregon

Figure **3-15**

H:\profile\17817 - West Linn Transportation System Plan\gis\3-15 Non English Speaking Population.mxd - jsommerville - 10:32 AM 12/29/2014

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Data Sources: City of West Linn, Metro Data Resource Center

CITY OF West Linn

N

Lake Oswego

Gladstone

Oregon City

Tualatin River

Willamette River

Disabled Population

- 3% - 5%
- 6% - 10%
- 11% - 15%
- 16% - 25%
- 26% - 30%

- Schools
- Adult Community Center
- City Hall
- Library
- City Boundary
- Urban Growth Boundary

0 1,000 2,000 3,000 4,000 Feet

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Disabled Poppulation
West Linn, Oregon

Figure **3-16**

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