Oregon
Theodore R. Kulongoski, Governor

Department of Land Conservation and Development
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NOTICE OF ADOPTED AMENDMENT

02/17/2012

TO: Subscribers to Notice of Adopted Plan or Land Use Regulation Amendments

FROM: Plan Amendment Program Specialist

SUBJECT: Clackamas County Plan Amendment
DLCD File Number 006-11

The Department of Land Conservation and Development (DLCD) received the attached notice of adoption. Due to the size of amended material submitted, a complete copy has not been attached. A Copy of the adopted plan amendment is available for review at the DLCD office in Salem and the local government office.

Appeal Procedures*

DLCD ACKNOWLEDGMENT or DEADLINE TO APPEAL: Monday, March 05, 2012

This amendment was submitted to DLCD for review prior to adoption pursuant to ORS 197.830(2)(b) only persons who participated in the local government proceedings leading to adoption of the amendment are eligible to appeal this decision to the Land Use Board of Appeals (LUBA).

If you wish to appeal, you must file a notice of intent to appeal with the Land Use Board of Appeals (LUBA) no later than 21 days from the date the decision was mailed to you by the local government. If you have questions, check with the local government to determine the appeal deadline. Copies of the notice of intent to appeal must be served upon the local government and others who received written notice of the final decision from the local government. The notice of intent to appeal must be served and filed in the form and manner prescribed by LUBA, (OAR Chapter 661, Division 10). Please call LUBA at 503-373-1265, if you have questions about appeal procedures.

*NOTE: The Acknowledgment or Appeal Deadline is based upon the date the decision was mailed by local government. A decision may have been mailed to you on a different date than it was mailed to DLCD. As a result, your appeal deadline may be earlier than the above date specified. NO LUBA Notification to the jurisdiction of an appeal by the deadline, this Plan Amendment is acknowledged.

Cc: Larry Conrad, Clackamas County
Angela Lazarean, DLCD Urban Planner
Jennifer Donnelly, DLCD Regional Representative

<paa> YA

FORM 2 DLCD Notice of Adoption

This Form 2 must be mailed to DLCD within **5-Working Days after the Final Ordinance is signed** by the public Official Designated by the jurisdiction and all other requirements of ORS 197.615 and OAR 660-018-000

DATE STAMP

☐ In person ☐ electronic ☐ mailed

DEPT OF

FEB 14 2012

LAND CONSERVATION AND DEVELOPMENT

For Office Use Only

Jurisdiction: **Clackamas County**

Local file number: **ZDO-232**

Date of Adoption: **2/9/2012**

Date Mailed: **2/9/2012**

Was a Notice of Proposed Amendment (Form 1) mailed to DLCD? ☒ Yes ☐ No Date: 10/25/2011

☒ Comprehensive Plan Text Amendment

☐ Comprehensive Plan Map Amendment

☒ Land Use Regulation Amendment

☐ Zoning Map Amendment

☐ New Land Use Regulation

☐ Other:

Summarize the adopted amendment. Do not use technical terms. Do not write "See Attached".

Adopts the SE 172nd Ave./SE 190th Dr.Corridor Management Plan into Clackamas County's Comprehesive Plan. Adopts text and map amendments to Chapter 5 of the County's Plan to implement elements of the Corridor Management Plan. Amends the definition of "bikeways" in the County's Zoning & Development Ordinance (ZDO) to include "cycle track." Adopts amendments to Section 1007 of the ZDO to help implement the Corridor Management Plan and to include "cycle tracks."

Does the Adoption differ from proposal? No, no explaination is necessary

No substantive changes were made.

Plan Map Changed from: to:

Zone Map Changed from: to:

Location: Acres Involved:

Specify Density: Previous: New:

Applicable statewide planning goals:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
☒	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐

Was an Exception Adopted? ☐ YES ☒ NO

Did DLCD receive a Notice of Proposed Amendment...

35-days prior to first evidentiary hearing? ☒ **Yes** ☐ **No**

If no, do the statewide planning goals apply? ☐ **Yes** ☐ **No**

If no, did Emergency Circumstances require immediate adoption? ☐ **Yes** ☐ **No**

DLCD File No. 006-11 (19036) [16938]

DLCD file No. _____

Please list all affected State or Federal Agencies, Local Governments or Special Districts:

DLCD; Oregon Dept. of Transportation (ODOT); Cities of Happy Valley, Damascus, Gresham, and Portland; Multnomah County

Local Contact: **Martha Fritzie** Phone: **(503) 742-4529** Extension:

Address: **150 Beavercreek Rd** Fax Number: **503-742-4550**

City: **Oregon City** Zip: **97045-** E-mail Address: **mfritzie@co.clackamas.or.us**

ADOPTION SUBMITTAL REQUIREMENTS

This Form 2 must be received by DLCD no later than 5 working days after the ordinance has been signed by the public official designated by the jurisdiction to sign the approved ordinance(s)

per ORS 197.615 and OAR Chapter 660, Division 18

1. This Form 2 must be submitted by local jurisdictions only (not by applicant).
2. When submitting the adopted amendment, please print a completed copy of Form 2 on light **green paper if available**.
3. Send this Form 2 and **one complete paper copy** (documents and maps) of the adopted amendment to the address below.
4. Submittal of this Notice of Adoption must include the final signed ordinance(s), all supporting finding(s), exhibit(s) and any other supplementary information (ORS 197.615).
5. Deadline to appeals to LUBA is calculated **twenty-one (21) days** from the receipt (postmark date) by DLCD of the adoption (ORS 197.830 to 197.845).
6. In addition to sending the Form 2 - Notice of Adoption to DLCD, please also remember to notify persons who participated in the local hearing and requested notice of the final decision. (ORS 197.615).
7. Submit **one complete paper copy** via United States Postal Service, Common Carrier or Hand Carried to the DLCD Salem Office and stamped with the incoming date stamp.
8. Please mail the adopted amendment packet to:

ATTENTION: PLAN AMENDMENT SPECIALIST
DEPARTMENT OF LAND CONSERVATION AND DEVELOPMENT
635 CAPITOL STREET NE, SUITE 150
SALEM, OREGON 97301-2540

9. **Need More Copies?** Please print forms on **8½ -1/2x11 green paper only if available**. If you have any questions or would like assistance, please contact your DLCD regional representative or contact the DLCD Salem Office at (503) 373-0050 x238 or e-mail **plan.amendments@state.or.us**.

ORDINANCE NO. ZDO-232

An Ordinance amending Chapter 5 of the Clackamas County Comprehensive Plan, and Sections 200 and 1007 of the Clackamas County Zoning and Development Ordinance

WHEREAS, in May 2010, the County's Transportation Planning Division, in conjunction with staff from Metro and the cities of Happy Valley, Damascus, and Gresham initiated a project to develop a series of road alignment alternatives to address existing and future traffic safety and congestion problems in the SE 172nd Avenue/SE 190th Drive corridor; and

WHEREAS, following extensive public outreach and coordination with affected local jurisdictions and agencies, Transportation Planning staff and consultants developed the SE 172nd Avenue/SE 190th Drive Corridor Management Plan, which contains the final preferred alternative for roadway alignments and improvements and recommended design elements in this corridor; and

WHEREAS, amendments to the Comprehensive Plan and Zoning and Development Ordinance are necessary to adopt and implement the SE 172nd Avenue/SE 190th Drive Corridor Management Plan; and

WHEREAS, the proposed amendments are consistent with the Statewide Planning Goals and Guidelines, the Metro Urban Growth Management Functional Plan, and the Metro Regional Transportation Plan; and

WHEREAS, after a duly-noticed public hearing on December 12, 2011, the Clackamas County Planning Commission failed to arrive at a formal recommendation regarding the proposed amendments; and

WHEREAS, the Board of County Commissioners held a public hearing on January 19, 2012, during which the BCC voted unanimously to approve ZDO-232, as proposed, now therefore;

The Board of Commissioners of Clackamas County ordains as follows:

Section 1: Chapter 5 of the Clackamas County Comprehensive Plan is hereby amended as shown in attached Exhibit A and with reference to the SE 172nd Avenue/SE 190th Drive Corridor Management Plan shown in attached Exhibit C.

Section 2: Sections 202 and 1007 of the Clackamas County Zoning and Development Ordinance are hereby amended as shown in attached Exhibit B.

Section 3: This ordinance shall be effective on March 12, 2012.

ADOPTED this 9th day of February, 2012

BOARD OF COUNTY COMMISSIONERS

Chair

Recording Secretary

Ordinance ZDO-232
Comprehensive Plan Amendments

Text to be added is underlined. Text to be deleted is ~~struck through~~.

TRANSPORTATION

Clackamas County's transportation system is an extensive network of public and private transportation facilities, including roads, railways, airports, waterways and trails. The system is intended to allow people to get where they need to go safely and efficiently, whether they travel by foot or by automobile, bus, train, airplane or bicycle. The system ~~also~~ is intended to provide for the efficient movement of goods, whether by truck, barge, train or pipeline. **The system is also intended to integrate with sustainable land use patterns and policies.** It is expected to serve a multitude of public needs without sacrificing air and water quality or creating noise pollution.

In recent years, rapid population growth and, ironically, the strong economy, have challenged the ability of the transportation system to balance those goals. Funding levels for roads, the backbone of the transportation system, have not kept pace with the proliferation of motor vehicles, housing and businesses, which increase the demand for road miles. The backlog of needed road maintenance and construction projects has grown larger.

At the same time, factors including the jobs/housing imbalance in the tri-county region have encouraged single occupant vehicle commuting. Given these conditions, relieving traffic congestion and protecting the environment will require strategic low-cost fixes.

This Plan focuses primarily on the County's responsibilities, 1,435 miles of road and 165 bridges. The cities and the State also own and maintain roads and bridges within Clackamas County. All land-based modes of travel, except rail and pipeline, must share the public rights-of-way. This includes autos, trucks, buses, bicycles, and pedestrians. Safety considerations apply to travelers by all modes, and public rights-of-way must be improved and maintained to make travel safe for all. Clackamas County is also challenged by the responsibility to maintain and develop a safe and functional road network in rural areas and the need to expand a formerly rural road network to a full service urban transportation system in urban areas.

Many agencies and public and private providers as well as developers are involved in building and maintaining the County's transportation system. Metro, the region's governing body, coordinates transportation financing for many projects, sets priorities for expenditures, and sets standards for the operation and design of regional elements of the transportation system. The County coordinates with its 16 cities, transit providers and the State of Oregon. One product of that coordination is the County's Capital

Improvement Plan (20-year) and a detailed 5-year program for improvement of County-owned roads and bridges.

[Amended by Board Order 2000-140, 6/29/00]

ISSUES

- Providing transportation infrastructure to support changing land uses, and population and employment growth, while being sensitive to neighborhood needs and concerns.
- Balancing the need for maintenance and management of existing facilities with the need for building new facilities to accommodate increased trip demand.
- Monitoring the effects of transportation on employment and economic activity, especially the relationship of transportation to economic development and the ways transportation can be used as a tool to stimulate economic development.
- Improving roads to perform all the necessary functions.
- Balancing the need for mobility (through movement of traffic) with the need for access to property.
- Taking environmental needs and concerns into account.
- Balancing regional transportation needs with the need for local circulation and access.
- Providing mobility for those who choose not to drive, or who cannot drive.
- Sharing public and private costs for transportation facilities and services.
- Developing facilities for alternative modes of travel, and improving safety for travelers by all modes.
- Conserving energy.

[Amended by Board Order 2000-140, 6/29/00]

SUMMARY OF FINDINGS AND CONCLUSIONS

1. An increasing population, a growing labor force, a strong economy and our own travel habits have increased the demand for transportation facilities, while costs for these facilities continue to rise.

2. Greater reliance on transit, bicycles, foot traffic, carpools, and other transportation modes will be necessary, along with decreased average trip length, in order to decrease energy consumption and road congestion. Use of alternative modes will decrease the need for costly road construction projects and improve air quality, neighborhood livability, and access to goods, services, and employment.

3. An improved relationship between land uses and transportation is necessary to decrease reliance on automobiles. Some ways to improve this relationship are to: alter the site design of new construction at or near major transit stops, increase connectivity in transportation systems, provide better pedestrian and bicycle facilities, use land more efficiently and encourage mixed use developments.

4. Improved east/west transportation connections are needed in the urban part of the County; **improved north/south connections are needed, particularly in the eastern portion of urban Clackamas County.**

5. Money for transportation projects is limited, therefore the County must make the best possible use of existing funds and existing rights-of-way in order to efficiently provide transportation to the greatest number of people.

6. The northwest urban area of the County is within a designated Air Quality Maintenance Area (AQMA). Presently the AQMA meets state and federal air quality standards. Federal law requires the region to implement measures that will allow the region to maintain federal air quality standards. Federal law prohibits significant degrading of air quality in the Mt. Hood Wilderness area.

7. Transportation related noise is a significant problem, especially in residential areas adjacent to major roads.

8. Elderly, disabled and low-income residents -- a significant proportion of the County's population -- require better access to public transit and/or special transportation services.

9. The County's Capital Improvement Plan (CIP) contains the list of needed capital improvement projects that should be completed within 20 years in order to accommodate projected population and employment growth.

10. The County considered Metro's Roadway Design types and will apply them where appropriate.

11. Rural roads should be safer and improved to standard.

12. In 1999, 60% of Clackamas County residents commuted to work outside the County. The relative shortage of jobs within the County contributes to the County's transportation problems.

13. The County and the Oregon Department of Transportation (ODOT) have identified Interchange Management Areas, as shown on Map V-12, and developed an Interchange Area Management Plan (IAMP) for each Area. The intent of an IAMP is to coordinate land use and transportation facilities and protect the public's investment in the expressway/freeway interchange, which is a key component of the transportation system.

14. The County and the Cities of Happy Valley, Gresham and Damascus have identified the SE 172nd Avenue/ SE190th Drive Corridor as an area that will benefit from a coordinated Corridor Management Plan.

[Amended by Board Order 2000-140, 6/29/00; Amended by Ord. ZDO-225, 11/17/10]

GENERAL TRANSPORTATION GOALS

- Create a safe, efficient and effective transportation system -- with multiple modes -- that balances the needs of the economy, protection of the environment, conservation of natural resources, and protection of neighborhoods.

- Work in partnership with neighboring and affected agencies in transportation planning to ensure effective and efficient results.

- Prepare a financial plan to fund the projects included in the Capital Improvement Plan (CIP).

- Use all financial means possible and take the lead in developing new funding sources to construct needed projects.

- Work to maximize dollar return from state, regional and federal sources for County transportation projects.

- Schedule transportation system improvements to coincide with the needs of new development.

- **Conduct special transportation planning in order to address specific local and regional needs, integrate land use, promote sustainable development, implement varied County goals, gain community involvement, and coordinate with other governmental agencies.**

[Amended by Board Order 2000-140, 6/29/00]

SPECIAL TRANSPORTATION PLANS

This section lists special transportation plans that are adopted by reference and therefore made part of the Comprehensive Plan.

1.0 The SE 172nd Avenue/ SE190th Drive Corridor Management Plan is adopted by reference as part of Chapter 5 of the Clackamas County Comprehensive Plan.

ROADWAYS

The County's roadway system, not including State highways and city streets, is an asset that, if built today (1999), would cost in excess of $1 billion. This investment, mostly an endowment from previous generations, permits the movement of goods and people across the landscape, using the mode of our choice. Roadways provide access to virtually all property. They support old communities and serve new development. They connect rural communities and urban neighborhoods. Roadways give structure to our urban form, define our commuting patterns and influence our perceptions of what is far away or close at hand.

[Added by Board Order 2000-140, 6/29/00]

GOALS

- Create and maintain a safe, continuous County-wide road system, which accommodates movement by all travel modes.

- Meet the future transportation demands of the County.

- Complement the transportation networks of cities, other counties and the State.

- Implement Interchange Area Management Plans (IAMPs) developed jointly by the County and ODOT and adopted as part of the Oregon Transportation Plan by the Oregon Transportation Commission.

- Protect the function and operation of the interchange(s) and the local street network within each Interchange Management Area.

- Ensure that any changes to the Comprehensive Plan land use designations in the Interchange Management Areas are consistent with the IAMPs.

- **Implement Special Transportation Plans adopted by the County.**

[Amended by Board Order 2000-140, 6/29/00; Amended by Ord. ZDO-225, 11/17/10]

POLICIES

Efficiency and Finance

1.0 Consider strategies for using the existing road system and its capacity most efficiently before building new roads or adding new capacity to existing roads. Transportation System Management techniques are a set of strategies that shall be used to make roadways operate more efficiently.

Transportation System Management (TSM) strategies include;

- Access Management
- Alternative/Modified Standards (Performance and/or Design Standards)
- Intelligent Transportation System (ITS) applications
- Operational Improvements
- Parking Standards.

2.0 Emphasize maintenance of existing roadways, with improvements where appropriate, to improve traffic flow and safety at a reasonable cost.

3.0 Determine roadway maintenance needs and priorities and develop an effective and efficient roadway maintenance program.

4.0 Preserve as much as possible the efficient function of the regional roadway system in development of any new roads.

5.0 Investigate and cooperate with other jurisdictions in establishing a transportation financing plan.

6.0 Coordinate with the Oregon Department of Transportation (ODOT) in implementing the Oregon Transportation Plan (OTP), Oregon Highway Plan (OHP), Statewide Transportation Improvement Program (STIP), and with other state, local and regional jurisdictions in their roadway planning efforts.

[Amended by Board Order 2000-140, 6/29/00]

Needed Roadway Improvements

7.0 Fund and build the roadway improvement projects needed to accommodate and appropriately manage future traffic demands for the next 20 years. The list of these projects follows as Table V-1. Maps illustrating their locations are included as Maps V-1a and V-1b.

7.1 Designate the Sunrise Corridor along a new alignment of Highway 212 in rural Clackamas County as a future, planned highway corridor.

7.2 Pursuant to OAR 660, Division 12 that requires an exception to Statewide Planning Goal 3 (Agricultural Lands), Goal 11 (Public Facilities and Services) and Goal 14 (Urbanization) for constructing new arterial roads on EFU lands, an exception has been taken to allow for the Arndt Road improvement listed as project numbers 265 and 266 on Table V-1. For findings of fact and statement of reasons, see File ZDO 194.

7.3 Pursuant to OAR 660, Division 12 that requires an exception to Statewide Planning Goal 3 (Agricultural Lands), Goal 11 (Public Facilities and Services) and Goal 14 (Urbanization) for constructing new arterial roads on EFU lands, an exception has been taken to allow for the Arndt Road improvement listed as project numbers 266 and 267 on Table V-1. For findings of fact and statement of reasons, see File ZDO 195.

8.0 Maintain a current and complete 5-year Capital Improvement Program. It shall contain needed future transportation projects in priority order, with estimated costs and assigned responsibility for funding. It should be updated and adopted periodically by the Board of County Commissioners.

[Added by Board Order 2000-140, 6/29/00; Amended by Ord. 09-2003, 4/17/03; Amended by Ord. 10-2003, 6/26/03]

Functional Classifications and Roadway Standards

9.0 Designate and develop roadways according to the functional classifications and guidelines listed in Tables V-2 and V-3 while allowing flexibility to accommodate characteristics of terrain, scenic qualities, ~~and~~ existing development**, and adopted Special Transportation Plans**.

10.0 Designate freeways, arterials, collectors and connectors as shown on Maps V-2a and V-2b. Roadways that do not presently exist but are shown on these maps are shown in approximate locations.

11.0 Limit zone change approvals to those that will not require a roadway as planned in the Capital Improvement Plan to be redesigned or increased to a higher functional classification in order to maintain the minimum acceptable performance evaluation Level-of-Service standard. State transportation facilities shall be evaluated according to the Oregon Highway Plan.

12.0 The County shall consider the Regional Street Design Type Guidelines, as shown on Table V-4, when designing new county roads or redesigning existing county roads prior to construction or reconstruction. Map V-3 shows which roads are designated by each Design Type.

13.0 Design arterials and collectors to allow safe and convenient passage of buses in urban areas and, where necessary, rural areas.

[Amended by Board Order 2000-140, 6/29/00; Amended by Board Order 2002-52, 3/14/02]

Access Standards

14.0 Plan and control access onto roads within the County, as shown on Table V-5, for urban areas and according to the American Association of State Highway and Transportation Officials (AASHTO) guidelines for rural areas, for both new and existing uses, and coordinate with the Oregon Department of Transportation for access control on state highways. Access standards need to be applied in a flexible manner that maintains reasonable access to property when access cannot be denied. **Where access management standards are adopted by the County in Special Transportation Plans, those standards shall apply.**

15.0 Support the implementation of state access management standards (OAR Chapter 734, Division 51, as amended, and the Oregon Highway Plan) on state highway facilities within the Interchange Management Areas.

16.0 Improve highway operations and safety by supporting construction of public roads that provide reasonable alternative access within Interchange Management Areas. When reasonable access is provided, support the elimination of direct access to state highway facilities.

[Amended by Board Order 2000-140, 6/29/00; Amended by Ord. ZDO-225, 11/17/10]

Improvements to Serve Development

17.0 Require right-of-way dedication, on-site improvements to the applicable roadway standard as shown on Tables V-2 and V-3, and off-site improvements for new developments and land divisions necessary to handle expected traffic loads and travel by alternative modes. **Where roadway standards are adopted by the County in Special Transportation Plans, those standards shall apply.**

~~17.0~~

18.0 Require development to be served by adequate roadway facilities.

19.0 Require implementation of a local street network for undeveloped sites illustrated on Map V-4. Existing streets shall be extended to provide a direct, connected street system.

20.0 Developers of new developments and land divisions that will require construction of new streets shall provide the County with a conceptual street plan map and street cross sections responding to the other requirements of this section, and full street connections at intervals of no more than 530 feet. Exceptions may be made when a full street connection is prevented by barriers such as topography, railroads, freeways, pre-existing development or environmental constraints such as streams and wetlands.

21.0 Before an exception is granted to the above requirement, it shall be determined if, at a minimum, an accessway for pedestrians, bicyclists or emergency vehicles may be constructed at intervals of 330 feet. Those accessways shall be constructed unless prevented by barriers or environmental constraints.

22.0 Assess anticipated off-site traffic impacts caused by new developments and land divisions. The developer or subdivider may be required to participate financially or otherwise in the provision of off-site improvements, dedications or other requirements.

23.0 Where appropriate, develop and implement neighborhood traffic circulation plans intended to improve circulation while minimizing neighborhood disruption and environmental problems.

24.0 Encourage a relationship between land use and roadways which decreases average trip length.

25.0 Discourage through trips on local, connector and collector roadways.

26.0 Develop neighborhood traffic calming policies that will enable the County to address inappropriate travel patterns and speeds.

27.0 Allow flexible roadway criteria and standards for local streets that are less than 200 feet in length, are expected to carry very low traffic volumes, and are not capable of being extended.

28.0 Private streets may be appropriate in areas with topographic constraints that make construction of a road to County standards not feasible. Private roads are not classified as local streets and are not maintained by the County, and don't necessarily provide connectivity.

29.0 Require that changes to the Comprehensive Plan land use designations within the Interchange Management Areas identified on Map V-12 must be consistent

with Oregon Administrative Rules 660-012-0060. If the land uses allowed by the new Comprehensive Plan land use designation would cause the interchange mobility standards to be exceeded, the change either shall be denied, or improvements shall be made such that the mobility standards are met.

[Amended by Board Order 2000-140, 6/29/00; Amended by Board Order 2002-52, 3/14/02; Amended by Board Order 2002-54, 3/14/02; Amended by Ord. ZDO-225, 11/17/10]

Operating Standards

30.0 Evaluate capacity needs for regional roadways within Metro's boundaries using the Regional Motor Vehicle Performance Measures. The use of these measures is limited to network analysis, and priorities for funding through Metro; they are not for designing individual road improvements.

31.0 Arterials and collectors shall be evaluated for performance to Level-of-Service "D" as the acceptable operating standard, except as established below. All capital construction shall be designed to achieve Level-of-Service "D" or better.

a. Review of high-employment developments shall use a performance evaluation operating standard of Level-of-Service "E".

b. Review of developments proposed on property with a Comprehensive Plan designation of Campus Industrial, Business Park, Light Industrial, General Industrial or Rural Industrial shall use a performance evaluation operating standard of Level-of-Service "E", except within the Clackamas Industrial Area and Government Camp Village where no performance evaluation operating standard shall apply.

c. Segments of 82nd Avenue, Sunnyside Road, and Johnson Creek Boulevard located within the Clackamas Regional Center Area shall be evaluated for performance to standards adopted in Chapter 10, "Clackamas Regional Center Area Design Plan," Section XII Roads and Streets System Policies.

32.0 For state facilities within an Interchange Management Area as identified on Map V-12, implement a mobility standard for the peak two hours of 0.99 v/c at the intersection and of 0.85 v/c at the ramp ends.

33.0 Limit zone change approvals to those that will not reduce the Level of Service of a roadway as planned in the Capital Improvement Plan below the minimum acceptable performance evaluation Level-of-Service standard. State facilities shall be evaluated according to the Oregon Highway Plan.

[Amended by Board Order 2000-140, 6/29/00; Amended by Board Order 2002-52, 3/14/02; Amended by Board Order 2005-91, 4/28/05; Amended by Board Order 2007-60, 1/25/07; Amended by Ord. ZDO-225, 11/17/10; Amended by Ord. ZDO-226, 3/7/11]

Building Roads

34.0 County road capital improvement projects outside UGBs may be designed and constructed to improve safety and bring the roads up to County standards. When projects are located within current rights-of-way, no conflicts with Goals 3 or 4 are anticipated. If the design of a project requires expansion of right-of-way into lands planned for Forest or Agricultural use, a goal exception may be necessary.

35.0 Road projects located outside UGBs shall be planned to support the existing development pattern and through traffic needs, and are not planned to support or promote urbanization. Such projects will comply with Goal 11 (Transportation) to provide a safe and efficient transportation system meeting the needs of the rural area.

36.0 Streets and roads are an allowed use in all zoning districts. All state and County policies relating to roads shall be considered when widening or constructing new roads.

37.0 Consider all types of interchange designs when developing a freeway interchange project to maximize traffic flow, safety and efficiency.

38.0 Consider all transportation modes when building new roads or widening existing roads to maximize efficiency and safety for all users of the road.

[Amended by Board Order 2000-140, 6/29/00]

Scenic Roads

39.0 Implement a County Scenic Road System.

39.1 The Scenic Road designation is intended to protect recreation values, scenic features, and an open, uncluttered character along the roadway. Developments adjacent to scenic roads shall be designed with sensitivity to natural conditions. The following policies are intended to accomplish these ends:

a. Scenic roads shall have strict access control on new developments.

b. Scenic roads should have shoulders wide enough for pedestrians or bicycles.

c. Turnouts should be provided where appropriate for viewpoints or recreational needs.

d. Design review of developments adjacent to scenic roads shall require visual characteristics and signing appropriate to the setting.

e. Buildings should be set back a sufficient distance from the right-of-way to permit a landscaped or natural buffer zone.

f. Parking areas adjacent to scenic roads should be separated from the right-of-way by a landscaped buffer.

g. Frontage roads, if any, adjacent to scenic roads should be separated by a vegetative buffer.

h. Encourage underground placement of utilities.

39.2 The following shall be designated scenic roads: (See Map V-5).

- I-205 west of the Willamette River
- Stafford Road from Lake Oswego to Mountain Road
- Mountain Road, Canby Ferry, Locust, 37th, and Holly Street
- Schaeffer Road
- Pete's Mountain Road from Schaeffer Road to Tualatin River
- Oregon City Bypass-Newell Creek Canyon segment
- Highway 99E from Oregon City to New Era Road
- Canby-Marquam Highway from Canby to Highway 211
- Highway 211 from Canby-Marquam Highway to Estacada
- Highway 224 from Carver to Barton and from Estacada south
- Redland Road
- Clackamas River Drive
- Fischers Mill Road

- Springwater Road from Clackamas River Drive to Hayden Road
- Hayden Road
- Highway 26 east of Sandy
- Highway 35
- Old Highway 35/FS 386
- Timberline Road and West Leg Road
- Marmot/Barlow Trail Road
- Lolo Pass Road
- Salmon River Road
- Still Creek Road
- Wilsonville Road

39.3 Designate that portion of the Mt. Hood Loop in Clackamas County (Dodge Park Road, Lusted Road, Ten Eyck Road, US 26, and OR 35) as an official Oregon Scenic Byway.

[Amended by Board Order 2000-140, 6/29/00]

TRANSPORTATION DEMAND MANAGEMENT

Strategies to achieve efficiency in the transportation system by reducing demand are collectively known as Transportation Demand Management (TDM) techniques. TDM measures can be effective tools in reducing Vehicle Miles Traveled (VMT). Implementation of TDM measures will help meet the County's Transportation Planning Rule requirement for reduction in VMT per capita over the next 20 years. In the long run these strategies can help keep costs down for new transportation facilities and improve air quality.

[Added by Board Order 2000-140, 6/29/00]

GOALS

- Reduce single occupant vehicle trips on the roadway network during peak travel demand periods.

- Reduce Vehicle Miles Traveled per Capita by 10% by year 2020 (using year 2000 as a base year).

- Work with businesses in Clackamas County to support their efforts in reducing single occupant vehicle commuting, which in turn will reduce Vehicle Miles Traveled per Capita.

[Added by Board Order 2000-140, 6/29/00]

POLICIES

1.0 Work with Metro and the state to explore Congestion Pricing (Value Pricing) on appropriate transportation facilities to encourage reductions in VMT.

2.0 Encourage employers in Clackamas County to implement a range of TDM policies to help their employees reduce VMT. Examples are, subsidized bus passes, company owned vanpools, preferred parking for carpools and vanpools, bicycle racks, and flexible work schedules.

3.0 Coordinate with DEQ and Tri-Met to implement TDM programs and the Employer Commute Options (ECO) rule.

4.0 Provide adequate bicycle and pedestrian facilities to employment areas of Clackamas County to encourage use of alternative modes for the commute to work.

5.0 Work with Clackamas County employers located in concentrated employment areas to develop Transportation Management Associations (TMAs) to coordinate and support private sector TDM efforts.

6.0 Establish the following Year 2040 Non Single Occupancy Vehicle (SOV) modal split targets for Regional 2040 Design Types:

2040 Design Type	Non-SOV Modal Target
Regional Centers	45%
Town Centers	45%
Main Streets	45%
Station Communities	45%
Corridors	45%
Industrial Areas	40%
Intermodal Facilities	40%
Employment Areas	40%
Inner Neighborhoods	40%
Outer Neighborhoods	40%

[Added by Board Order 2000-140, 6/29/00]

PARKING

The setting of parking standards is a Transportation System Management (TSM) technique that is consistent with the Region 2040 Growth Concept, meets the objectives of the Transportation Planning Rule (TPR), and complies with DEQ's Air Quality Maintenance Plan.

[Added by Board Order 2000-140, 6/29/00]

GOAL

- Insure that parking is provided in a manner convenient to users of all transportation modes.

[Amended by Board Order 2000-140, 6/29/00]

POLICIES

1.0 Set minimum and maximum limits on allowed off-street parking relative to building size, location and use, and adjacent land uses.

2.0 Encourage off-street parking in commercial, industrial, and high density residential areas to be at the sides or rear of buildings where practical, with buildings oriented to the street in a manner that is convenient to pedestrians and aesthetically pleasing to passers-by, but does not interfere with sight distance on the roadway, or preclude road widening.

3.0 Existing curbside parking along arterials and collectors may be removed to allow the striping of bike lanes, construction of travel or turning lane improvements or for increasing sight distance. **Where parking standards are adopted by the County in Special Transportation Plans, those standards shall apply.**

4.0 Allow developments along transit routes to decrease their parking area requirements if they provide pedestrian and transit amenities.

5.0 Allow commercial and industrial developments to decrease their parking area requirements if they provide and maintain ridesharing programs.

6.0 Allow shared parking where feasible, such as within mixed use development and where adjacent land uses are compatible. Such sharing of parking can be used to help satisfy compliance with parking standards.

7.0 Increase on-street parking in residential areas by minimizing the width of driveway curb cuts.

8.0 On-street parking may be prohibited in front of schools as needed to assure student safety and school security, and shall be reviewed on a school by school basis.

[Amended by Board Order 2000-140, 6/29/00]

TRANSIT

Transit service is essential for the mobility of many County residents, and provides an attractive option for others who prefer to use it. Tri Met, transit districts in Wilsonville, Molalla and Sandy, and each of the school districts operate buses on County roads, State highways, and city streets within the County. While the County provides no transit service directly, it has some influence over the type of service provided and the way new developments interface with transit and provide amenities for transit riders.

[Added by Board Order 2000-140, 6/29/00]

GOALS

- Develop an integrated transit system that complements and supports the road, pedestrian, and bicycle system and encourages the use of alternative transportation modes within, to, and from the County's urban areas.

- Encourage transit ridership through development of a transit system that is fast and comfortable at low cost.

- Encourage land use patterns, development designs and street and pedestrian/bikeway improvements that support transit.

- Provide transit for people who cannot use or do not have adequate private transportation. Provide transit that is accessible to people with disabilities.

- Develop a transit system that supports residential, commercial and industrial development to help reduce new investment in roadway capacity.

- Develop a transit system that meets the County's local needs.

- Develop a system of light rail transit (LRT) routes to serve selected corridors in the north urban area of the County.

[Amended by Board Order 2000-140, 6/29/00]

POLICIES

1.0 Work with transit agencies to identify existing transit deficiencies in the County, needed improvements, and park and ride lots to increase the accessibility of transit services.

2.0 Major developments or road construction projects along transit routes shall be required to include provisions for transit shelters, pedestrian access to transit and/or bus turnouts where appropriate.

3.0 Coordinate with transit providers to achieve the goal of transit service within 1/4 mile of most residences and businesses within the Portland Metropolitan UGB. More frequent service should be provided within Regional Centers and Corridors.

4.0 Emphasize corridor or roadway improvements to increase transit speed, convenience and comfort.

5.0 Coordinate and cooperate with Tri-Met and other transit agencies to provide transportation to the elderly and people with disabilities.

6.0 Promote park and ride lots, bus shelters and pedestrian/bikeway connections to transit.

7.0 Emphasize transit improvements that best meet the needs of the County, including more east-west connections and service between the County's industrial and commercial areas and medium to high density neighborhood areas.

8.0 Protect neighborhoods, recreation areas and pedestrian/bikeways from transportation related environmental degradation.

9.0 Require pedestrian and transit-supportive features and amenities and direct access to transit through the Development Review Process. Such amenities may include pedestrian/bikeway facilities, street trees, outdoor lighting and seating, landscaping, shelters, kiosks, strict standards for signs, and visually aesthetic shapes, textures and colors. Parking should be at the rear or sides of buildings. Buildings measuring more than 100 feet along the side facing the major pedestrian/transit access should have more than one pedestrian entrance.

10.0 Coordinate with Tri-Met on all new residential, commercial or industrial developments to ensure appropriate integration of transit into the developments.

11.0 Bus routes will be improved and coordinated with financing and implementation of necessary roadway improvements and in cooperation with transit service providers.

12.0 Encourage Tri-Met to restructure transit service to efficiently serve local as well as regional needs.

13.0 Work with federal, state, and regional agencies to implement high capacity transit in the downtown Portland to Milwaukie (McLoughlin) Corridor, and the Highway 224 Corridor to Clackamas Town Center.

14.0 Provide high capacity transit to the Oregon City and Tualatin areas, and in the I-205 corridor including the Gateway Transit Center. The purpose is to relieve traffic congestion, provide for transportation alternatives to the automobile, and to promote the economy of the Oregon City and Tualatin areas and the I-205 Corridor.

[Amended by Board Order 2000-140, 6/29/00]

Standards and Criteria for Major Transit Streets and Major Transit Stops

15.0 Major Transit Streets, for the purpose of setting standards for orientation of development to transit, shall be those streets planned for High Capacity Transit and Primary Bus as shown on Map V-6, as well as any other street that receives 20 minute or better service at the PM traffic peak.

16.0 Major Transit Stops shall be any transit stop along a Major Transit Street where that stop is within 250 feet of the centerline of an intersection with a public or private street. Orientation of buildings to transit at Major Transit Stops shall be accomplished by siting new commercial buildings as close as possible to transit, with a door facing the transit street or side street, and with no parking between the building and front property lines.

17.0 Pedestrian access should be provided connecting transit centers or transit stops on bus routes, with centers of employment, shopping or medium to high density residential areas within one-quarter mile of these routes.

[Amended by Board Order 2000-140, 6/29/00]

PEDESTRIAN AND BICYCLE FACILITIES

The county completed its transportation systems planning for pedestrian and bicycle modes in 1995, to implement the state's Transportation Planning Rule (TPR). The TPR is grounded by the principles that:

1. Land use and transportation are intimately related.

2. Over reliance should not be placed on any one transportation mode.

3. Walking and bicycling reduce the number of motorized vehicle trips.

4. Compact, mixed-use development encourages the use of non-motorized modes.

5. "Well-planned", properly designed facilities will encourage people to make trips by non-motorized modes.

6. Facilities for these non-motorized modes are essential for people not having access to an automobile, and constitute desirable elements in a well-designed community that are enjoyed by people who can drive, but choose to walk or bicycle.

These principles underlie the development of the Clackamas County Pedestrian Master Plan and the Clackamas County Bicycle Master Plan, both of which are adopted by reference as supporting documents. Both master plans were prepared under the guidance of the Clackamas County Pedestrian and Bikeway Advisory Committee, which was guided by the following vision:

[Amended by Board Order 2000-140, 6/29/00; Amended by Ord. 16-2003, 3/17/04]

VISION

Create an environment which encourages people to bicycle and walk on networked systems that facilitate and promote the enjoyment of bicycling and walking as safe and convenient transportation modes.

POLICIES

The first five policies below speak to how the envisioned system should be designed. The results of the system design work based on those policies are shown on the Planned Bikeway Network Map V-7a, Planned Bikeway Network Map V-7b, and Essential Pedestrian Network Map V-8. Those pedestrian and bicycle facilities shall be constructed in the course of development, as well as added to existing communities as the Capital Improvement Program allows. Responsibility for construction falls on both the private and public sectors. These facilities shall be constructed to specified standards. Ongoing, unfinished, and project-level planning for pedestrian and bicycle facilities will continue. It will be coordinated with other jurisdictions and integrated with other transportation modes.

1.0 Provide networked systems of walkways and bikeways connecting neighborhoods, transit stops, commercial areas, community centers, schools, parks, libraries, employment places, other major destinations, regional bikeways and walkways, and other transportation modes.

2.0 Identify walkway and bikeway improvements necessary to ensure direct and continuous networks of walkways and bikeways on the county road system.

3.0 Support acquisition and development of multi-use paths on abandoned public and private rights-of-way.

4.0 Encourage bicycle and pedestrian access across rivers and other natural barriers.

5.0 Promote grid-street development patterns to provide direct routes from neighborhoods to destinations frequented by pedestrians and bicyclists.

6.0 Construct all walkways, bikeways, and trails as designated on maps V-7a, V-7b, and V-8, **and as adopted in Special Transportation Plans.**

7.0 Construct all walkways designated in this Plan and any other walkways proposed, according to the current county design standards, the American Association of State Highway and Transportation Officials (AASHTO) standards, and the Americans with Disabilities Act (ADA) standards.

8.0 Construct all bikeways designated in this Plan and any other bikeways proposed, according to the current standards in the Oregon Bicycle and Pedestrian Plan and the American Association of State Highway and Transportation Officials (AASHTO) standards.

9.0 The implementation of bikeways and sidewalks shall be considered in all new collector or arterial construction or reconstruction, even if not designated on

Maps V-7a, V-7b, and V-8.

10.0 Require that new development include construction of pedestrian and bikeway connections within the development and between adjacent developments for the purpose of increasing non-motorized mobility.

11.0 Coordinate with pedestrian, bicycle, and trail master plans of the Oregon Department of Transportation, the United States Forest Service, Metro, parks districts, and city parks departments to achieve a safe and convenient off-road trail system connecting to the on-road pedway and bikeway network.

12.0 Coordinate the implementation of pedways and bikeways with neighboring *jurisdictions and jurisdictions within the county*.

13.0 Support the continuation of the "Bikes on Transit" program on all public transit routes.

14.0 Require new development to provide bicycle parking, and initiate a program for adding bicycle parking in areas frequented by bicyclists.

15.0 Encourage the provision of appropriate supportive facilities and services for bicyclists, including showers, lockers, bike racks on buses, bike repair and maintenance information/clinics, and secure bicycle parking.

16.0 *Support continuation of current (or equivalent) federal, state, and local funding* mechanisms to construct county pedestrian and bicycle facilities.

17.0 Develop dedicated funding sources to implement the Clackamas County Pedestrian and Bicycle Master Plans.

18.0 Develop routine maintenance standards and practices for pedestrian facilities *and on-road and off-road bikeways, including traffic control devices*.

19.0 Inform the public of their responsibilities for sidewalk and bikeway maintenance.

20.0 Ensure an opportunity for representative citizen involvement in the county pedestrian and bicycle planning process by sponsoring the Clackamas County Pedestrian and Bikeway Advisory Committee as a forum for public input.

21.0 Encourage the provision of street lighting for the purpose of increasing the visibility and personal security of pedestrians and bicyclists.

22.0 Monitor and update the Clackamas County Pedestrian and Bicycle Master Plans through data collection, evaluation, and review activities necessary to maintain and expand the programs established in these plans.

23.0 Construct separate multi-use paths in rural areas according to American Association of State Highway and Transportation Officials (AASHTO) standards where travel lanes or wide paved shoulders along roadways may be unacceptable to pedestrians or bicyclists.

24.0 In Unincorporated Communities, construct walkways adjacent to or within areas of development, such as schools, businesses, or employment centers near or along highways.

[Amended by Board Order 2000-140, 6/29/00; Amended by Ord. 16-2003, 3/17/04; Amended by Board Order 2006-89, 4/13/06]

FREIGHT, RAIL, AIR, PIPELINES AND WATER TRANSPORTATION

These modes are acknowledged as making significant contributions to the movement of people and goods that improve our quality of life. Clackamas County has a strong job base in the sectors of transportation and wholesale trade. It is important to maintain the advantages of location and transportation infrastructure that ensure leadership in these sectors.

If the County's role in freight movement is to expand within the region and nation, intermodal facilities will require expansion. National and international markets will become increasingly prominent, but the decision to keep business in the County competitive will require local support.

[Added by Board Order 2000-140, 6/29/00]

GOALS

- Provide efficient, cost-effective and safe movement of freight in and through the County.

- Maintain and enhance the County's competitive advantage in freight distribution through the efficient use of a flexible, continuous, multi-modal transportation network that offers competitive choices for freight movement.

- Protect and enhance public and private investments in the freight network.

- Encourage better service and inter-modal connections for passenger rail and air travel.

- Continue to use and diversify the rail system in Clackamas County through development of supportive land use, coordination between rail and other transportation modes, and encouragement of passenger rail service.

- Protect residents from safety hazards and environmental degradation caused by rail.

- Locate new airports so as to maximize safety, minimize environmental degradation, and integrate airport location with other transportation networks.

- Minimize conflicts between airports and other uses.

- Encourage freight shipment on the Willamette River while minimizing environmental degradation.

[Amended by Board Order 2000-140, 6/29/00]

POLICIES

Freight Trucking

1.0 Maintain a truck circulation plan, as shown on Map V-10, for movements of freight on arterial roads where minimum impact will occur to neighborhoods, and industrial areas will have the service they need.

[Amended by Board Order 2000-140, 6/29/00]

Rail

2.0 Reduce the number of at-grade crossings from those that currently exist.

3.0 On new or reconstructed arterials or urban collectors, prohibit at-grade crossings of heavy rail lines without traffic restrictive safety devices unless train traffic is very low.

4.0 Encourage use of the rail system for freight and passenger high speed rail service. Encourage additional stations for heavy rail service.

5.0 Work with the private transportation industry, Oregon Economic Development Department, Port of Portland and others to identify and realize investment opportunities that enhance freight mobility and support the County, Regional and State economy.

[Amended by Board Order 2000-140, 6/29/00]

Airports

6.0 Work with the Port of Portland to make the Port's facilities for passenger and freight service more accessible to County residents.

7.0 Work with the Port of Portland in the development of the Mulino Airport.

8.0 Coordinate with Marion County to implement regulations on development near the Aurora Airport.

9.0 Apply the following criteria when reviewing applications for new airports or expansions of existing ones.

9.1 Locate new public use airports within one mile of an arterial roadway.

9.2 Locate new public use airports at least one mile away from urban residential areas.

9.3 Prevent air pollution and noise generated by airports from exceeding standards of appropriate regulatory agencies.

9.4 Cooperate with regulatory agencies to minimize conflicts between airports and other uses.

9.5 Develop appropriate height and clear zone standards for airport facilities.

9.6 Encourage establishment of heliports in industrial areas in conjunction with state and federal standards for heliport design and location.

9.7 New airports, airport expansions, or expansions of airport boundaries, except those limited to use by ultralights and helicopters, shall have a runway at least 1800 feet long and control at least enough property at the end of each runway through ownership, avigation easement, or long term lease to protect their approach surfaces until they are 50 feet above the terrain. The runway shall be located so as to achieve at least a 20 foot clearance of the approach surface over a county, city or public road.

10.0 The County will adopt ordinance provisions to implement regulations consistent with applicable statutes and administrative rules.

11.0 Recognize airports in Clackamas County, classified as shown on Map V-11.

[Amended by Board Order 2000-140, 6/29/00; Amended by Board Order 2001-256, 11/1/01]

Pipelines

12.0 Work with pipeline companies to provide safe, quiet, efficient transport of bulk commodities.

[Added by Board Order 2000-140, 6/29/00]

Water Transportation

13.0 Maintain land transportation access to docks, boat ramps and shippers using waterways for transportation.

14.0 Support efforts to minimize negative impacts on water quality caused by river transportation.

[Amended by Board Order 2000-140, 6/29/00]

[Editor's Note: Chapter 5 was amended as part of the adoption of the Rural Transportation System Plan by Board Order 2001-107, effective May 24, 2001. Specific changes to the content of Chapter 5 made as part of that process are not able to be confirmed using readily available records.]

Table V-1
Clackamas County
20 Year Capital Improvement Needs

MAP	PROJECT	SECTION	DESCRIPTION
		Urban Area Projects	
1	Johnson Creek Blvd.	36th to 45th	Widen to minor arterial standards
2	Johnson Creek Blvd.	55th Avenue to Bell Avenue	Widen to (3) lanes
3	Johnson Creek Bridge (6135)	Bridge	Reconstruct and widen bridge to (5) lanes (74 ft)
4	Johnson Creek Blvd.	Bell Avenue to 82nd Avenue	Widen to (5) lanes plus bike lanes and sidewalks
5	Clatsop Street/Luther Road	Luther - 72nd Ave. to 82nd: Clatsop, 82nd Ave. east to Fuller	Upgrade to collector standard and signalize 82nd Avenue intersection
6	West Collector	Luther Street to Johnson Creek Blvd.	Construct new collector
7	SE 82nd Avenue	Clatsop Street to Johnson Creek Blvd.	Widen to (5) lanes with bike lanes and sidewalks
8	SE 82nd Avenue	82nd Avenue/Johnson Creek Blvd. intersection	Add second southbound left-turn lane
9	Fuller Road extension	Johnson Creek Blvd. to Hinkley Street	Extend street
10	King Road	Harrison/King/42nd intersection	Realign intersection, traffic signal
11	King Road	King/Stanley intersection	Add turn lanes to Stanley
12	Linwood Avenue	Linwood/Monroe intersection	Add curbs/sidewalks, improve horizontal alignments
13	Stanley Road (6455)	Bridge	Reconstruct and widen to 32 feet
14	Wichita Road	Bridge	Reconstruct and widen to 32 feet
15	West Collector (79th)	Johnson Creek Blvd. to King Road	Construct new collector
16	SE 82nd Avenue	Johnson Creek Blvd. to Causey Avenue	Widen to (5) lanes + bike lanes
17	Johnson Creek Blvd.	1-205 - Johnson Creek interchange	Connect southbound off-ramp with Fuller, remove signal, upgrade with new ramps
18	Fuller Road	Otty Street to Johnson Creek Blvd.	Widen to (3) lanes
19	Otty Street Realignment	Otty Street/82nd Avenue/Otty Road	Realign Otty Street with Otty Road at 82nd Avenue
20	Otty Road	82nd Avenue to 92nd Avenue	Improve to minor arterial standard, add bike lanes and sidewalks
21	Fuller Road	Otty to King/82nd Avenue	(2) lane extension
22	Fuller Road disconnect	Fuller Road/King Road intersection	Disconnect Fuller auto access to King Road
23	Monroe Street	72nd Avenue to Fuller Road	Improve to collector standard
24	Boyer Drive	82nd Avenue to Fuller Road	New (2) lane extension
25	Fuller Road	King Road to Harmony Road	Reconstruct and widen road to collector standards
26	Fuller Road	King Road to Harmony Road	Add bike lanes and sidewalks
27	Causey Avenue	Fuller Road to I-205	Widen and add bike lanes

MAP	PROJECT	SECTION	DESCRIPTION
28	Causey Avenue	Extend Causey over I-205 to Frontage Road	Construct (3) lane overpass to Frontage Road
29	SE 85th Avenue	Causey Avenue to Monterey Avenue	Improve to collector standard with bike lanes and sidewalks
30	Monterey Avenue	82nd Avenue to Fuller Road	New (2) lane extension
31	Monterey Avenue	82nd Avenue to 92nd Avenue	Widen to (3) lanes with parking to main street standards
32	Monterey Overpass	Extend Monterey over I-205	Construct overpass to Frontage Road
33	Lake Road	Highway 224 west to Milwaukie city limits	Reconstruct, widen, turn lanes
34	Harmony Road	Lake Rd/Linwood Ave/Harmony Rd intersection	To be determined after additional planning work
35	Harmony Road	82nd Avenue - Highway 224	Widen to (5) lanes
36	Sunnybrook Rd extension (W)	82nd Avenue to Harmony Road	Extend as a minor arterial
37	SE 82nd Avenue	Causey Avenue to Sunnyside Road	Boulevard treatment
38	Phillips Creek multi-use path	Causey Avenue to North Clackamas Trail	Construct multi-use path
39	North Clackamas Trail	84th Avenue to Park Complex	Construct trail
40	SE 82nd Avenue	Sunnyside Road to Sunnybrook Road	Widen to (7) lanes with boulevard
41	Sunnyside Road	82nd Avenue to 97th Avenue	Restripe to add bike lanes
42	I-205 multi-use path	Clatsop Street to Mt. Scott Creek	Multiple local connections to path
43	I-205 Frontage Road	Sunnyside Road to 92nd Avenue	New Frontage Road east of I-205
44	Stevens Road redesignation	Frontage Road to Idleman Road	Downgrade to collector + optional traffic calming, sidewalks
45	Hillcrest Street	92nd Avenue to Stevens Road	Add sidewalks
46	Idleman Road redesignation	92nd Avenue to Johnson Creek Blvd. extension	Downgrade to collector + provide bike lanes and sidewalks
47	Johnson Creek extension	Altamont to Idleman Road	New (2) lane extension
48	Idleman Road	Johnson Creek extension to Mt. Scott Blvd.	Reconstruct and widen to urban minor arterial standards, smooth curves
49	Mt. Scott Blvd.	Idleman/Mt. Scott intersection	Realign and add left-turn lanes
50	Mt. Scott Blvd./King Road	Idleman Road to 132nd Avenue	Reconstruct and widen (urban). Improve grade.
51	King Road	King Road/129th intersection	Add turn lanes, realign
52	SE 132nd Avenue	King Road to Clatsop Street	Widen to (3) lanes
53	King Road	132nd Avenue to 147th Avenue	Reconstruct, widen, turn lanes
54	SE 122nd/129th Avenue	Sunnyside to King Road	Widen to (3) lanes
55	Causey extension	I-205 Frontage Road to W. Otty Road	Collector with bike lanes and sidewalks
56	William Otty Road extension	Stevens Road to Valley View Terrace	New (2) lane collector
57	Valley View Terrace	Sunnyside Road to William Otty Road	Upgrade to collector with bike lanes and sidewalks
58	Sunnybrook extension east	97th Avenue to Sunnyside at 108th Avenue	New (5) lane arterial
59	Sunnyside Road Phase 1	Stevens to 122nd Avenue	Widen to (5) lanes, with bridge
60	Sunnyside Road Phase 2	122nd Avenue to 132nd Avenue	Widen to (5) lanes
61	Sunnyside Road Phase 3	132nd Avenue to 152nd Avenue	Widen to (5) lanes
62	Sunnyside Road Phase 4	152nd Avenue to 172nd Avenue	Widen to (5) lanes, with bridge
63	Sunnyside Road	Sunnyside Road/SE 172nd Avenue intersection	Install traffic signal and left-turn lanes

MAP	PROJECT	SECTION	DESCRIPTION
64	SE 147th Avenue	Sunnyside Road to Monner Road	Realign road to improve grade
65a	SE 172nd Avenue	~~Highway 212 to Multnomah County Line~~ SE Sunnyside Road to SE 172nd/190th Connector	~~Four lane widening with left-turn lanes, ext. of 172nd Ave to Hwy 212~~Widen to five (5) lanes
~~66~~ 65b	~~Foster Road~~SE 172nd Avenue	~~Tillstrom Road to Multnomah County Line~~ SE172nd/SE190th Connector to SE Cheldelin Road	~~Four lane widening with left-turn lanes~~Widen to three (3) lanes
~~67~~ 66	~~Foster Road~~SE 172nd Avenue/190th Connector	~~Foster Road/Tillstrom Road intersection~~ SE 172nd Avenue to SE 190th Drive	~~Install traffic signal, install southbound left-turn lane~~ New five (5) lane roadway
67a	SE Cheldelin Road (SE Clatsop Street extension)	SE 172nd Avenue to SE Foster Road	New two (2) lane roadway
67b	SE Cheldelin Road	SE Foster Road to SE 190th Drive	Widen to two (2) lanes
67c	SE Foster Road	SE Cheldelin Road to SE Troge Road	Widen t three (3) lanes
67d	SE Tillstrom Road	SE Foster Road to SE 190th Drive	Widen to three (3) lanes and realign at Foster Road intersection
67e	SE Hemrick Road	SE 172nd Avenue to SE Foster Road	Widen to two(2)/three(3) lanes
67f	SE Troge Road	SE 172nd Avenue to approx. 1,000 ft. east of SE 172nd Avenue	Realign roadway and construct new bridge
68	Mather Road	97th Avenue to 122nd Avenue	Reconstruct and widen (urban)
69	Mather Road	Mather Road/122nd Avenue intersection	Install traffic signal
70	Mather Road	122nd Avenue to 132nd Avenue	New (2) lane extension
71	SE 122nd Avenue	Sunnyside Road to Hubbard Road	Reconstruct and widen, add turn lanes
72	SE 132nd Avenue	Sunnyside Road to Hubbard Road	Upgrade to standards, add sidewalks
73	Summers Lane Ext. Phase 2	122nd Avenue to 132nd Avenue	New (2) lane extension
74	Summers Lane Ext. Phase 3	132nd Avenue to 142nd Avenue	New (2) lane extension
75	SE 142nd Avenue	Sunnyside Road to Highway 212	Widen to (3) lanes
76	SE 152nd Avenue Phase 1	Right angle curves	Realign curves to collector standards
77	SE 152nd Avenue Phase 2	Sunnyside Road to Highway 212	Reconstruct and widen (urban)
78	River Road	Milwaukie to Gladstone	Reconstruct and widen (urban)
79	River Road	River Road/Courtney Road intersection	Improve sight distance
80	River Road	River Road/Concord Road intersection	Install traffic signal and left-turn lanes
81	Concord Road	River Road to Oatfield Road	Reconstruct and widen (urban)
82	Oatfield Road	Oatfield Road/Park Road intersection	Install traffic signal and left-turn lanes
83	Oatfield Road	Oatfield Road/Courtney Road intersection	Install traffic signal
84	Oatfield Road	Oatfield Road/Hill Road intersection	Install left-turn lanes, install signal if warranted
85	Oatfield Road	Oatfield Road/Concord Road intersection	Widen, add turn lanes
86	Oatfield Road	Oatfield Road/Roethe Road intersection	Install signal and left-turn lanes, improve approach grade on Roethe Road
87	Oatfield Road	Oatfield Road/McNary Road intersection	Add turn lanes
88	Aldercrest Drive	Thiessen Road to Oatfield Road	Reconstruct and widen (urban)

MAP	PROJECT	SECTION	DESCRIPTION
89	Kuehn Road (6262)	Bridge	Reconstruct and widen to 32 feet
90	Thiessen Road	Thiessen Road/Hill Road intersection	Widen, add left-turn lane on Thiessen Road
91	Jennings Road	Oatfield Road to Webster Road	Reconstruct and widen
92	Webster Road	Highway 224 to Gladstone City limits	Widen to (3) lanes and conduct Highway 224 corridor study
93	Webster Road	Webster Road/Lake Road intersection	Add left-turn lanes
94	Webster Road	Webster/Jennings and Roots intersection	Construct traffic signals, turn lanes
95	Webster Road	Webster/Strawberry Lane intersection	Install traffic signal, left-turn lanes
96	Roots Road/McKinley Road	I-205 to Webster Road	Reconstruct and widen
97	Johnson Road/McKinley Road	Lake Road to I-205	Reconstruct and widen (urban)
98	Strawberry Lane	Strawberry Lane/82nd Drive intersection	Install traffic signal
99	SE 82nd Drive	Highway 212 to Gladstone Phase 2	Widen to (5) lanes
100	SE 82nd Drive	Highway 212 to Lawnfield Road	Widen to (5) lanes
101	Industrial Way	Lawnfield Road to Mather Road	New (3) lane collector
102	SE 98th Avenue	Lawnfield Road to Mather Road	Widen to (3) lanes
103	Mather Road	SE 82nd Drive to Industrial Way	Extend Mather Road across railroad to SE 82nd Drive
104	Mather Road	Industrial Way to 98th	Widen to (3) lanes
105	102nd industrial access improv.	102nd to Mather Road	Upgrade to collector standards
106	Jennifer/135th	130th-135th and Jennifer-Highway 212	Two lane extension and reconstruction of 135th
107	Bangy Road	Bany/Meadows intersection	Install traffic signal, turn lanes
108	Bangy Road	Bangy/Bonita intersection	Install traffic signal, turn lanes
109	Carman Drive	I-5 to Quarry Road	Reconstruct and widen, add turn lanes
110	Carman Drive	Carman/Meadows Road intersection	Install traffic signal, turn lanes
111	Carman Drive	Carman Drive/Parkview/Fosberg Rd. intersection	Install traffic signal, channelization
112	Childs Road	Stafford Road to 65th Avenue	Reconstruct and widen - 2/3 lanes
113	Borland Road	65th Avenue to Stafford Road	Four lane widening with left-turn lanes
114	Stafford Road	Stafford/Rosemont Road intersection	Install traffic signal, southbound turn lane and northbound turn lane
115	Stafford Road	Childs Road to Rosemont	Four lane widening with left-turn lanes
116	Stafford Road	Stafford/Childs Road intersection	Install traffic signal, southbound turn lane and northbound turn lane
117	Stafford Road	Johnson Road to Childs Road	Four lane widening with left-turn lanes
118	Stafford Road	Borland Road to Johnson Road	Four lane widening with left-turn lanes
119	Stafford Road (2567)	Bridge	Reconstruct and widen to 50 feet
120	Stafford Road	Stafford/Borland intersection	Install traffic signal and left-turn lanes on all approaches
121	Stafford Road	I-205 to Borland Road	Four lane widening with left-turn lanes
122	Rosemont Road	Stafford Road to Parker Road	Reconstruct and widen
123	Rosemont Road	Rosemont/Parker/Day intersection	Realign intersection, add turn lanes
124	Parker Road	Rosemont Road to Sunset Road	Reconstruct and widen (urban)
125	Willamette Falls Drive	Highway 43 to 10th Avenue	Reconstruct and widen (urban)

MAP	PROJECT	SECTION	DESCRIPTION
126	Stafford Road	Mountain Road to I-205	Four lane widening with left-turn lanes
127	Stafford Road	Stafford/Mountain intersection	Install traffic signal and southbound left-turn lane
128	Stafford Road	Newland Road to Mountain Road	Four lane widening with left-turn lanes
129	Stafford Road	Boeckman Road (Advance Rd) to Newland Road	Reconstruct and widen (rural)
130	65th Ave/Elligsen/Stafford Rd.	Elligsen Road to Stafford Road	Realign Elligsen Road to south, install north bound right-turn and southbound left-turn lane at new Stafford Road/Elligsen Road intersection
131	Petes Mountain Road	Willamette Falls Road to Hoffman Road	Reconstruct and widen (rural)
132	Forsythe Road	Railroad crossing between Clackamas and Boardwalk	Add/upgrade railroad crossing
133	Clackamas River Drive	Highway 213 to Springwater Road	Reconstruct and widen (rural)
134	Springwater Road	Highway 224 to Hattan Road	Four lane widening with left-turn lanes, widen bridge over Clack. River
135	Springwater Road (1446)	Bridge	Reconstruct and widen bridge to (5) lanes (74 feet)
136	Springwater Road (6512)	Bridge	Reconstruct and widen to 36 feet
137	Forsythe Road	Clackamas River Drive to Bradley Road	Reconstruct and widen (rural)
138	Forsythe Road	Forsythe Road/Victory Road intersection	Realignment, widening of Victory Road and removal or decrease of curves along Forsythe Road, relocation of intersection
139	Gronlund Road/Hattan Road	Bradley to Springwater	Reconstruct and widen (rural)
140	Hattan Road	Hattan Road/Gronlund Road intersection	Install southbound right-turn lane
141	Hattan Road	Fischers Mill Road to Gronlund Road	Reconstruct and widen (rural)
142	Abernethy Road	Redland Road to Main Street	Realign 17th Street intersection, widen to (5) lanes
143	Holcomb Blvd.	Abernethy Road to Bradley Road	Reconstruct and widen
144	Holcomb Blvd.	Holcomb Blvd./Bradley Road intersection	Realignment of Holcomb Road to form one intersection at Bradley Road
145	Bradley Road	Redland Road to Holcomb Blvd.	Widen lanes and shoulders to County standards
146	Redland Road (1214)	Bridge	Reconstruct and widen to 36 feet
147	Redland Road (1215)	Bridge	Reconstruct and widen to 36 feet
148	Redland Road	Redland Road/Holly Road intersection	Install traffic signal
149	Redland Road	Henrici Road to Abernethy Road	Reconstruct and widen
150	Redland Road	Redland/Ferguson Road intersection	Install eastbound right-turn lanes and westbound left-turn lanes
151	Ferguson Road	Redland Road to Maplelane Road	Remove or decrease horizontal curve along Redland Road, relocate intersection, install eastbound right-turn lanes and westbound left-turn lanes
152	Redland Road	Redland/Bradley Road intersection	Install eastbound left turn and westbound right-turn lanes
153	Redland Road	Redland/Grassle Road intersection	Remove bank and remove or decrease horizontal curve, relocate intersection
154	Fischers Mill Road	Fischers Mill/Hattan Road intersection	Install eastbound left-turn lane

MAP	PROJECT	SECTION	DESCRIPTION
155	Redland Road	Redland/Fischers Mill/Henrici Road intersection	Install eastbound left-turn lane and east and westbound right-turn lane at Henrici Road
156	Henrici Road	Beavercreek Road to Redland Road	Widen lanes and shoulder to County standards, remove or decrease horizontal and vertical curves, investigate 40 mph speed zone extension to east of Ferguson Road
157	Henrici Road (6228)	Bridge	Reconstruct and widen to 36 feet
158	Beavercreek Road	Highway 213 to Molalla Avenue	Widen to (5) lanes
159	Highway 213	Beavercreek/Highway 213 intersection	Add dual left-turn lanes and ramps
160	Beavercreek Road	Highway 213 to Henrici Road	Widen to (5) lanes
161	Henrici Road	Highway 213 to Beavercreek Road	Widen lanes and shoulders to County standards
162	Beavercreek Road - goes into rural area	Leland Road to Henrici Road	Three lane widening
163	Maple Lane (6218)	Bridge	Reconstruct and widen to 32 feet
164	Leland Road (6091)	Bridge	Reconstruct and widen to 36 feet
165	Sound End Road	Warner Parrott Road to 99E	Widen (2) lanes and smooth curves
166	Eckert Lane	Extend Eckert Lane to Andregg Parkway	New two lane collector
		RURAL AREA PROJECTS	
200	Sunnyside Road	172nd Avenue and Highway 212	Realign curves, widen to add shoulders, install traffic signal at Highway 212
201	Foster Road	Highway 212 to Troge Road	Four lane widening with left-turn lanes
~~202~~	~~Tillstrom Road~~	~~SE 190th Drive to Foster Road~~	~~Remove or decrease horizontal curve along Foster Road, relocate intersection, install southbound left-turn lane~~
203	Tillstrom Road	SE 222nd Drive to Borges Road	Remove or decrease vertical curve along 222nd Drive, relocate intersection
204	SE 242nd Avenue	Highway 212 to Multnomah County Line	Reconstruct and widen (rural), add turn lanes
205	SE 242nd Avenue	242nd/Sunshine Valley Road intersection	Install northbound right-turn lane
206	SE 242nd Avenue	242nd/Tillstrom Road intersection	Install northbound left-turn lane and southbound right-turn lane
207	Hoffmeister Rd/SE 257th Ave	Highway 212 to 242nd Avenue	Remove or decrease vertical curve along 242nd Ave., relocate intersection
208	SE 282nd Avenue	Highway 212 to Multnomah County Line	Widen shoulders to County standard
209	SE 282nd Avenue	282nd/Stone intersection	Add turn lanes
210	Compton Road	US 26 to 352nd Avenue	Remove or decrease vertical curve along Orient Drive, relocate intersection, widen to standards
211	SE 232nd Avenue	Highway 212 to Highway 224	Reconstruct and widen (rural)
212	Richey Road	Kelso Road to Highway 212	Reconstruct and widen (rural), add turn lanes
213	Richey Road	Kelso/Richey Road intersection	Perform special study
214	Amisigger Road	Highway 224 to Kelso/Richey Road	Reconstruct and widen (rural), smooth curves

MAP	PROJECT	SECTION	DESCRIPTION
215	Kelso Road	Richey Road to Orient Drive	Reconstruct and widen (rural)
216	Kelso Road	Orient Drive to Sandy UGB	Remove or decrease vertical curve along Orient Drive, relocate intersection, widen shoulders to County standard, investigate speed zone
217	SE 362nd Drive	Colorado Road to Dubarko Road	Remove or decrease horizontal and vertical curves
218	SE 362nd Drive	362nd/Deming Road intersection	Remove or decrease vertical curve along SE 362nd Drive, relocate intersection
219	Bull Run Road	Ten Eyck Road to Multnomah County Line	Reconstruct and widen (rural)
220	Ten Eyck Road	Lusted Road to US 26	Reconstruct and widen (rural)
221	Ten Eyck Bridge (6570)	Bridge	Reconstruct and widen to 32 feet
222	Firwood Road	Firwood/Trubel Road intersection	Realign Trubel Road to remove or decrease downgrade
223	Firwood Road	Wildcat Mountain Drive to US 26	Reconstruct and widen (rural)
224	Welches Road	Highway 26 to Salmon River Road	Reconstruct and widen
225	Arrah Wanna (6572)	Bridge	Reconstruct and widen to 32 feet
226	Elk Park Road (6574)	Bridge	Reconstruct and widen to 32 feet
227	East Bridge South (6605)	Bridge	Reconstruct and widen to 32 feet
228	Lolo Pass Road	Highway 26 to Barlow Trail Road	Perform addtl. safety analysis, widening of shoulders to County standards
229	Highway 26	Highway 26/Multopor Drive intersection	Add eastbound right-turn lane
230	Bakers Ferry Road	Springwater Road to Highway 224	Reconstruct and widen (rural)
231	Bakers Ferry Road	Eaden Road to Highway 224	Remove or decrease horizontal curve along Bakers Ferry Road, relocate intersection
232	Springwater Road	Hattan Road to Hayden Road	Reconstruct and widen (rural)
233	Springwater Road	Springwater/Bakers Ferry Road intersection	Install southbound left-turn lane
234	Springwater Road	Springwater/Fischers Mill Road intersection	Perform special study, install southbound right-turn lane
235	Springwater Road	Springwater/Redland Road intersection	Install northbound left-turn lane
236	Springwater Road	Springwater/Hayden Road intersection	Install southbound left-turn lane
237	Hayden Road	Springwater Road to Highway 211	Reconstruct and widen (rural), intersection improvements
238	Springwater Road	Hayden Road to Highway 211	Widen shoulders to County standard
239	Eagle Creek Road	Keegan Road to Currin Road	Perform additional safety analysis at Wildcat Mountain Drive, widen lanes and shoulders to County standards
240	Eagle Creek Road	Currin Road to Duus Road	Remove or decrease horizontal curve along Eagle Creek Road, relocate intersection, widen lanes and shoulders to County standards, investigate speed zone south of Currin Road
241	Coupland Road	Eagle Creek Road to Divers Road	Reconstruct and widen (rural)
242	Mattoon Road	Fischers Mill Road to Redland Road	Widen lanes and shoulders to County standards, remove or decrease vertical curves, remove or decrease horizontal curves north of Redland Road

MAP	PROJECT	SECTION	DESCRIPTION
243	Fellows Road	Redland Road to Lower Highland Road	Reconstruct and widen (rural)
244	Ridge Road	Lower Highland Road to Redland Road	Reconstruct and widen (rural)
245	Redland Road	Henrici Road to Springwater Road	Reconstruct and widen (rural)
246	Lower Highland Road	Beavercreek Road to Fellows Road	Reconstruct and widen (rural)
247	Unger Road	Beavercreek Road to Highway 211	Reconstruct and widen (rural)
248	Highway 213	Highway 213 to Leland Intersection	Install traffic signal
249	Beavercreek Road	Beavercreek/Leland Road intersection	Add turn lanes
250	Beavercreek Road	Beavercreek/Williams Road intersection	Remove or decrease vertical curve along Beavercreek Road, relocate intersection
251	Central Point Road	Partlow Road to Mulino Road	Widen 2/3 lanes, smooth curves
252	New Era Road	Central Point Road to Penman Road	Perform additional safety analysis
253	Casto Road	Spangler Road to Central Point Road	Reconstruct and widen (rural)
254	Spangler Road	Casto Road to Beavercreek Road	Reconstruct and widen (rural)
255	Kamrath Road	Carus Road to Spangler Road	Perform additional safety analysis at Carus Road, widen lanes and shoulders to County standards, remove or decrease horizontal curves north of Spangler Road
256	Ladd Hill Road	Wilsonville Road to Washington County Line	Reconstruct and widen (rural)
257	Wilsonville Road	Wilsonville/Ladd Hill Road intersection	Construct new railroad crossing
258	Wilsonville Road	Wilsonville/Edminston Road intersection	Remove bank, remove or decrease horizontal curve along Wilsonville Road, relocate intersection
259	Denbrook Road	Railroad crossing west of Boones Ferry Road	Add/upgrade railroad crossing
260	Boones Ferry Road	Boones Ferry/Butteville Road intersection	Remove bank, remove/decrease horizontal curve
261	Airport Road	Airport/Miley Road intersection	Realign, add turn lanes, install traffic signal
262	Airport Road	Arndt Road to Miley Road	Reconstruct and widen (rural)
263	Arndt Road	Arndt/Airport Road intersection	Install traffic signal
264	Arndt Road	Canby-Hubbard Highway to Knights Bridge Road	Four lane widening with median, left-turn lanes
265	Arndt Road	Barlow Road to Knights Bridge Road	Remove or decrease horizontal curves, widen lanes and shoulders to County standards
266	Barlow Road	Arndt/Barlow Road intersection	Widen intersection
267	Arndt Road	Knights Bridge to 99E	New (5) lane road
268	Knights Bridge Road	Arndt Road to Barlow Road	Remove or decrease horizontal curves at Arndt Road and 0.47 miles west of Barlow Road
269	Knights Bridge Road	Knights Bridge/Barlow Road intersection	Install traffic signal and westbound left-turn lane
270	Holly/Territorial Road	Logging Road to Canby Ferry	Bike lanes
271	Territorial Road	99E to Holly Road	Reconstruct and widen (rural)
272	Territorial Road	Territorial Road/Highway99E intersection	Install traffic signal, realign grade
273	Township Road	Township/Ivy Road intersection	Install traffic signal
274	Township Road	Railroad crossing between Redwood and Walnut	Construct new railroad crossing

MAP	PROJECT	SECTION	DESCRIPTION
275	Township Road	Central Point Road to Canby City limit	Reconstruct and widen (rural)
276	Berg Parkway	Highway 99E to Ivy Street	New two lane extension
277	Mulino Road	Mulino Road to 13th Avenue, intersection 23	Relocate intersection to south away from railroad trestle, change of stop control to 13th Avenue
278	Mulino Road (13th St segment)	Ivy Street to Highway 213	Widen to (3) lanes
279	Lone Elder Road	Lone Elder/Barlow intersection	Add left-turn lanes
280	Canby-Marquam Highway	Canby-Marquam Hwy/Lone Elder Rd intersection	Install northbound left-turn lane and southbound right-turn lane
281	Graves Road (6562)	Bridge	Reconstruct and widen to 32 feet
282	Gard Road (6322)	Bridge	Reconstruct and widen to 32 feet
283	Canby-Marquam Highway	Canby-Marquam Hwy/Macksburg Rd intersection	Install southbound left-turn lane and northbound right-turn lane
284	Dryland Road	Macksburg Road (S) to Macksburg Road (N)	Realignment of Macksburg Road to form one intersection at Dryland Road
285	Macksburg Road	Canby Marquam Hwy to Highway 213	Reconstruct and widen (rural)
286	Oak Grove Road	Railroad crossing southwest of Macksburg Road	Construct new railroad crossing
287	Union Mills Road	Highway 213 to Highway 211	Reconstruct and widen (rural)
288	Meridian Road	Elliott Prairie Road to Barlow Road	Widen shoulders to County standard, remove or decrease horizontal and vertical curves, investigate speed zone
289	Meridian Road	Meridian/Whiskey Hill Road intersection	Limitation of access/egress points to and from school on NE corner of intersection
290	Whiskey Hill Road (1559)	Bridge	Reconstruct and widen to 32 feet
291	Barnards Road (6191)	Bridge	Reconstruct and widen to 36 feet
292	Sconce Road (6115)	Bridge	Reconstruct and widen to 32 feet
293	Barlow Road	Bridge	Reconstruct and widen to 36 feet
294	Canby Marquam (6027)	Bridge	Reconstruct and widen to 36 feet
295	Molalla Avenue/Vaughan (City of Molalla)	Highway 213 to Highway 211	Reconstruct and widen (rural)
296	Vick Road	Between Molalla Avenue and Highway 213	Widen and bring to County standards
297	Vick Road	Railroad crossing between Molalla Avenue and Appaloosa	Construct new railroad crossing
298	Toliver Road	Between Highway 213 and Molalla Avenue	Install traffic signal, curb and sidewalk, widen and pave
299	Wright Road	Feyrer Park Road to Callahan Road	Widen lane and shoulder widths to County standards
300	Callahan Road (S) (Beginning on Ramsby Road)	Dickie Prairie Road to Fernwood Road	Reconstruct and widen (rural)
301	Fernwood Road	Dhooghe Road to Callahan Road	Reconstruct and widen (rural)
302	Dhooghe Road	Highway 211 to Fernwood Road	Reconstruct and widen (rural)
303	Klang's Mill Bridge	Bridge	Reconstruct and widen to 32 feet
304	Dhooghe Road (6541)	Bridge	Reconstruct and widen to 32 feet
305	Sawtell Road	Maple Grove Road to Wilhoit Road	Reconstruct and widen (rural)

MAP	PROJECT	SECTION	DESCRIPTION
306	Wildcat Road	Wilhoit Road to Highway 213	Reconstruct and widen (rural)
307	Nowlens Bridge Road	Highway 213 to Maple Grove Road	Reconstruct and widen (rural)
308	Blair Road	Groshong Road to Maple Grove Road	Reconstruct and widen (rural)
309	Groshong Road	Blair Road to Bird Road	Reconstruct and widen (rural)
310	Bird Road	Groshong Road to Wilhoit Road	Reconstruct and widen (rural)
311	Maple Grove Road	Nowlens Bridge Road to Sawtell Road	Reconstruct and widen (rural)
		REGIONAL AND STATE PROJECTS	
	Sunrise Corridor Phase 2	Rock Creek Junction to US-26	New (4) lane facility with interchange(s)
	Sunrise Corridor Phase 1	I-205 to Rock Creek Junction	New (4) lane facility with interchanges
	Sunnybrook Split Diamond	I-205 at Sunnyside and Sunnybrook	New overcrossing at Sunnybrook with collector/distributor roads
	South/North High Capacity Transit	Clackamas Town Center to Rose Quarter	High capacity transit improvements
	McLoughlin Blvd.	Milwaukie County Line to Gladstone County Line	Multi-modal corridor enhancements
	Highway 99E/Highway 224	Ross Island Bridge to I-205	Access management, reversible lanes and (6) lanes, Harold to I-205
	US-26	Kelso Road to Highway 26 intersection	Require two-movement crossing on Kelso Road with vehicles crossing one direction of Highway 26 first into the middle of the intersection, followed by crossing of second direction
	US-26	Orient Drive to Highway 26 intersection	Install westbound right-turn lane
	US-26	Firwood Road/Highway 26 intersection	Install eastbound right-turn lane
	US-26	East Fernwood Circle/Hwy-26 intersection	Install westbound left-turn lane
	US-26	Brightwood Loop (W.)/Hwy-26 intersection	Install westbound right-turn lane
	US-26	Brightwood Loop (E.)/Hwy-26 intersection	Install westbound right-turn lane
	US-26	East Wildwood Avenue/Highway-26 intersection	Install continuous two-way center turn lane from m.p. 38.75 to 40.01
	US-26	Salmon River Road/Hwy-26 intersection	Install eastbound right-turn lane
	US-26	Lolo Pass Road to Govt. Camp Loop Rd. (W.)	Four lane widening with left-turn lanes, add passing/climbing lanes and westbound right-turn lane at Lolo Pass
	US-26	0.74 miles east of Camp Creek Road	Perform additional safety analysis
	US-26	0.27 west of four lane section	Realign to remove/decrease horizontal curves
	US-26	Govt. Camp Loop (W.) to Warm Springs Highway	Four lane widening with median, add left-turn lanes
	US-26	Govt. Camp Loop (W.)/Hwy-26 intersection	Improve safety, operation and access of Government Camp Loop Road with Highway 26
	US-26	Multorpor Road Overpass	Phase 2 - Widen overpass to accommodate all travel modes, investigate feasibility of Highway 26 ramp connections to provide direct access
	US-26	Govt. Camp Loop (E.)/Hwy-26 intersection	Improve safety, operation and access of Government Camp Loop Road with Highway 26, reduce traffic impacts of existing rest area at this location

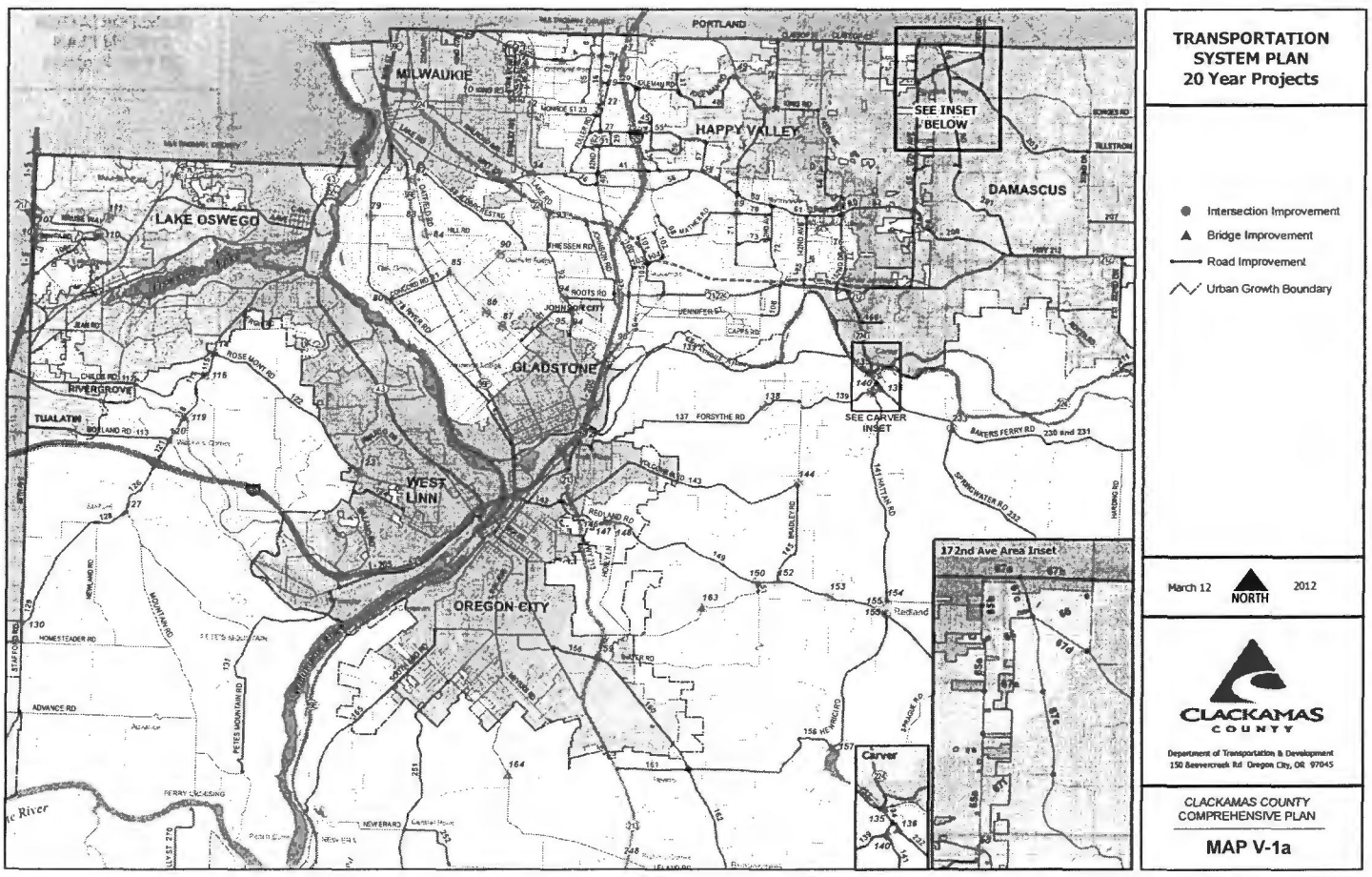
MAP	PROJECT	SECTION	DESCRIPTION
	US-26	Hwy-35 Junction to Wasco County Line	Add passing/climbing lanes (short term project)
	US-26	Hwy-35 Junction to Wasco County Line	Four lane widening with median
	I-205	I-205 at Sunnybrook	Complete interchange, add southbound auxiliary lanes on I-205
	I-205	I-205 bridge in Oregon City	To be determined - I-205 South Corridor Study
	I-205	Willamette River to West Linn	New southbound truck climbing lane
	I-205	Hwy-213 to I-84	To be determined - I-205 South Corridor Study
	I-205	West Linn to I-5	To be determined - I-205 South Corridor Study
	Highway 99E	South End Road/99E intersection	Realignment of South End Road approach, install southbound left-turn lane
	Highway 99E	New Era Road/99E intersection	Install northbound right-turn lane
	Highway 99E	Territorial Road/99E intersection	Install traffic signal
	Highway 99E	Barlow Road to Marion County Line	Four lane widening with median, left-turn lanes from m.p. 24.05
	Highway 99E	Barlow Road/99E intersection	Add turn lanes at Barlow Road
	Highway 99E	Lone Elder Road/99E intersection	Install north bound right-turn lane
	Highway 224	Metro UGB to Springwater Road	Four lane widening with left-turn lanes
	Highway 224	Springwater Road to 232nd Drive	Shoulder widening, horizontal realignment to ODOT standards
	Highway 224	Springwater Road/Hwy-224 intersection	Install traffic signal and turn lanes
	Highway 224	SE 232nd Drive to Bakers Ferry Road (short term)	Add passing lanes, realign of curves
	Highway 224	SE 232nd Drive to Bakers Ferry Road (long term)	Four lane widening with median, add left turn lanes
	Highway 224	se 232nd Drive/Hwy-224 intersection	Install eastbound left-turn lane and westbound right-turn lane
	Highway 224	Bakers Ferry Road to Estacada N. UGB	Add passing lanes
	Highway 224	Bakers Ferry Road/Hwy-224 intersection	Install eastbound right-turn lane
	Highway 224	Amisigger Road/Hwy-224 intersection	Install traffic signal, southbound and eastbound left turn lane and west bound right-turn lane
	Highway 224	Eaglecreek-Sandy Hwy/Hwy-224 intersection	Install roundabout
	Highway 224	Heiple Road/Hwy-224 intersection	Install southbound right-turn lane
	Highway 224	Fall Creek Road to Ripple Creek Road	Add passing/climbing lanes from m.p. 29.03
	Highway 213	I-205 to Redland Road	Add southbound lanes
	Highway 213	Washington Street at Hwy-213	Grade separate intersection
	Highway 213	Molalla Ave/Clack. Comm. College to Leland Rd.	Access management, widen to (4) lanes with left turn lanes
	Highway 213	Abernethy/Hwy-213 intersection	Intersection improvements
	Highway 213	I-205/Highway Interchange	Reconstruct I-205 ramps
	Highway 213	Beavercreek/Hwy-213 intersection	Phase 2 - Construct urban interchange
	Highway 213	Leland/Union Road intersection	Add passing lanes
	Highway 213	Carus Road/Hwy-213 intersection	Install southbound left-turn and right-turn lanes
	Highway 213	Spangler Road/Hwy-213 intersection	Installation of southbound right-turn lane
	Highway 213	Mulino Road/Hwy-213 intersection	Install northbound left-turn lane and southbound right-turn lane

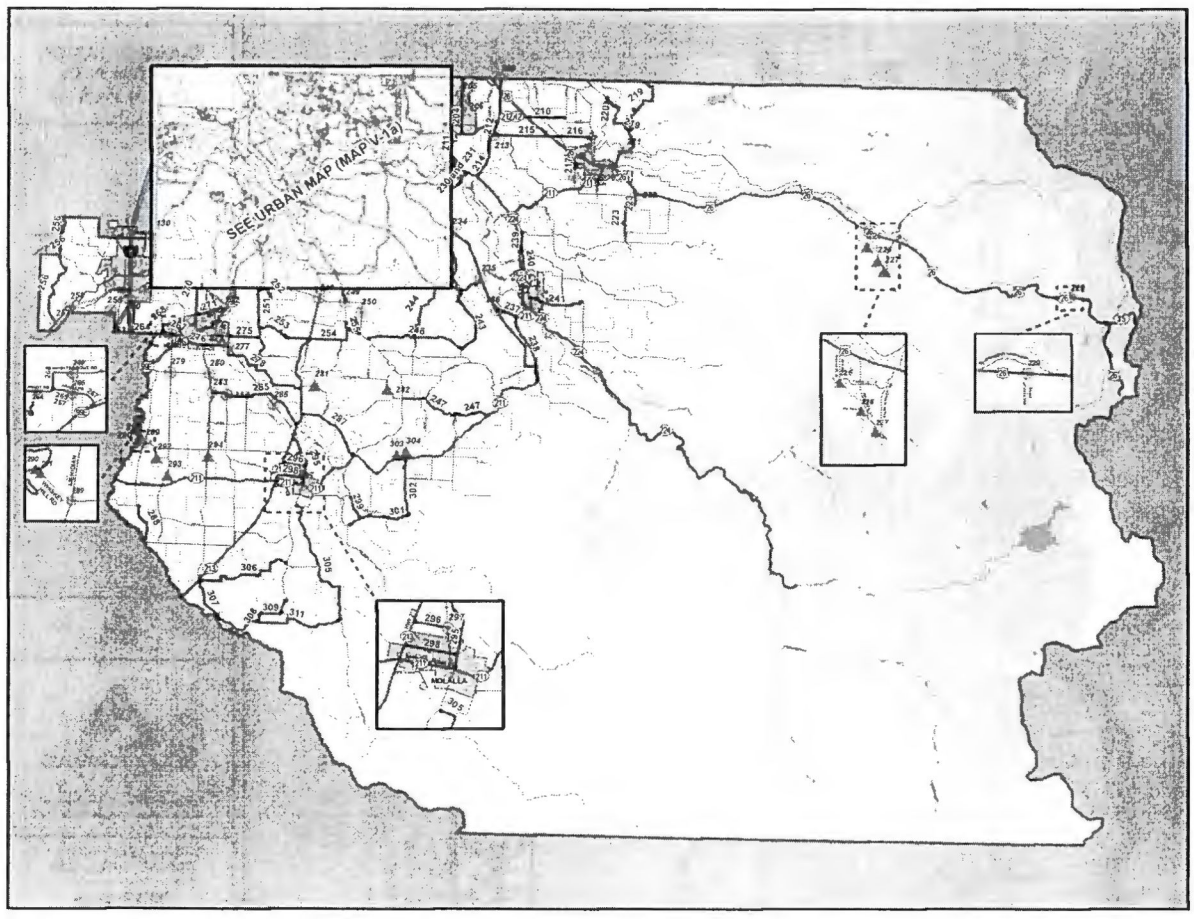
MAP	PROJECT	SECTION	DESCRIPTION
	Highway 213	Union Mills Road/Hwy-213 intersection	Install northbound right-turn lane
	Highway 213	Macksburg Road to Liberal Way	Widen shoulders to ODOT standards
	Highway 213	Liberal Way to Molalla Avenue	Install two-way center turn lane between Liberal Way and Molalla Avenue, widen turn radius on northwest corner of Hwy-213/Liberal Way
	Highway 213	Molalla Avenue to Toliver Road	Add passing lanes to mile post 15.34
	Highway 213	Barnards Road/Hwy-213 intersection	Install southbound right-turn lane
	Highway 213	Wright Creek	Replace bridge structure
	Highway 213	Butte Creek	Construct scour protection
	Highway 212	Armstrong Circle (E&W) to 172nd Avenue	Extension of 172nd Avenue to Hwy-212 with installation of signal, turn lanes at new Hwy-212/172nd Avenue intersection
	Highway 212	Foster Road to Rust Way	Extension of continuous two-way center turn lane between Foster Road and SE 222nd Avenue with installation of signal at Royer Road
	Highway 212	Foster Road/Hwy-212 intersection	Add southbound left lane on Foster Road approach
	Highway 212	SE 282nd Avenue/Hwy-212 intersection	Install traffic signal
	Highway 212	Rock Creek Junction to Damascus	Construct climbing lane
	Highway 211	Marion County Line to Canby-Marquam Highway	Add passing lanes at several locations
	Highway 211	Meridian Road/Hwy-211 intersection	Construct eastbound and westbound right-turn lanes and eastbound left-turn lane
	Highway 211	South Needy Road to .6 miles west	Remove or decrease vertical curve to allow passing zone, add passing lane in one or both directions, possible relocation of intersection
	Highway 212	Hwy-211/Leroy Street intersection	Widen, add curb and sidewalk
	Highway 211	So. Canby-Marquam Hwy/Hwy-211 intersection	Install eastbound and westbound left-turn lanes, eastbound right-turn lane, remove or decrease horizontal curve
	Highway 211	Mathias Road to Wright Road	Add passing lanes
	Highway 211	Wright Road/Hwy-211 intersection	Install eastbound right-turn lane
	Highway 211	Beavercreek Rd, Union Hall Rd to Dhooghe Rd	Add passing lanes from mile post 17.77
	Highway 211	Dhooghe Road/Hwy-211 intersection	Remove or decrease horizontal curve along Hwy-211, relocate intersection
	Highway 211	Schieffer Road/Hwy-211 intersection	Install eastbound right-turn lane
	Highway 211	Hayden Road to Hwy-224	Four lane widening with left-turn lanes
	Highway 211	Hayden Road/Hwy-211 intersection	Install westbound right-turn lane
	Highway 211	Eagle Creek Road to Tickle Creek Road	Add passing/climbing lanes
	Highway 211	Eagle Creek Road/Hwy-211 intersection	Install eastbound right-turn lane
	Highway 211	0.14 miles east of Coop Road to Jacknife Road	Realignment to remove or decrease horizontal and vertical curves, widen shoulders to ODOT standards
	Highway 211	Tickle Creek Road to 362nd Drive	Add passing/climbing lanes to mile post 2.78

MAP	PROJECT	SECTION	DESCRIPTION
	Highway 211	Tickle Creek Road/Hwy-211 intersection	Remove or decrease horizontal curve along Hwy-211, relocate intersection
	Highway211	SE 362nd Drive/Hwy-211 intersection	Remove or decrease vertical curve along Hwy-211 and remove vegetation
	Highway 211	SE 367th Avenue/Hwy-211 intersection	Install eastbound right-turn lane
	Highway 173	Timberline Lodge to Hwy-26	Provision of pull-offs, perform additional safety analysis to identify other improvements
	Highway 173	Hwy-26/Hwy-173 intersection	Remove or decrease horizontal and vertical curves along Hwy-26
	Highway 51	I-5 to Marion County Line	Add passing lanes from mile post 0.,41 to 1.47
	Highway 35	Warm Springs Hwy to Hood River County Line	Add passing/climbing lanes from mile post 57.59 to 58.26

Table V-5
Clackamas County
Access Requirements by Functional Classification, Urban Areas Only

Function Classification	Access Requirements
Major and Minor Arterials	**Signal spacing guidelines:** The preferred spacing of signalized or roundabout intersections is as follows: Along major arterials; signals should be at least 1,000 feet apart, along minor arterials: at last 600 feet apart. **Street access guidelines:** If feasible, only collectors, connectors or other arterials should intersect arterials. Non-signalized intersections may be constructed along major arterials if they are located at least 400 feet from the nearest signal (300 feet from the nearest signal along minor arterials). Such intersections may be required to offer circulation from neighborhoods but there should be no expectation of future signalization. Street networks for Community or Design Plan areas shall be implemented as shown in Chapter 10. Street networks for Special Transportation Plans shall be implemented as shown in adopted Plans Alternative spacing and access types may be used if an access management plan ensures that the arterial will operate within the acceptable standard. **Driveway access guidelines:** If feasible, access for developments located on arterial streets shall be located on streets with a lower functional classification. Joint accesses between developments shall be encouraged. Driveway accesses shall not be located within 400 feet of an intersection along major arterials or 300 feet of an intersection along minor arterials except when it is demonstrated that no other alternative is feasible. Single family residential driveways should not access a major or minor arterial. Access management targets shall be implemented when appropriate as shown in Chapter 10.
Collector	**Driveway access guidelines:** If feasible, single family driveways should not access a collector street. When single family residential driveways area allowed, driveway spacing should be at least 100 feet, with shared access used to increase distance between driveways. Commercial, industrial, multi-family, and institutional uses may have exclusive driveway access to a collector, with a minimum driveway spacing of 150 feet when feasible. No access is allowed within 150 fect of an existing or planned intersection.
Connector	**Driveway access guidelines:** Access for new single-family development is allowed. When feasible, developments should be designed to place driveway accesses on local streets rather than connector streets.
Local	**Driveway access guidelines:** Access for new single-family development is allowed. No driveway shall be allowed within 25 feet of the right-of-way lines at an intersection.


PORTLAND
MILWAUKIE
HAPPY VALLEY
SEE INSET BELOW
DAMASCUS
LAKE OSWEGO
GLADSTONE
RIVERGROVE
TUALATIN
WEST LINN
OREGON CITY
SEE CARVER INSET
Carver
17 2nd Ave Area Inset
Redland
Intersection Improvement
Bridge Improvement
Road Improvement
Urban Growth Boundary
TRANSPORTATION SYSTEM PLAN
20 Year Projects
March 12
NORTH
2012
CLACKAMAS COUNTY
Department of Transportation & Development
150 Beavercreek Rd Oregon City, OR 97045
CLACKAMAS COUNTY COMPREHENSIVE PLAN
MAP V-1a



TRANSPORTATION SYSTEM PLAN
20 Year Projects

- Road Improvements
- Intersection Improvement
- Bridge Improvement
- Project Segment

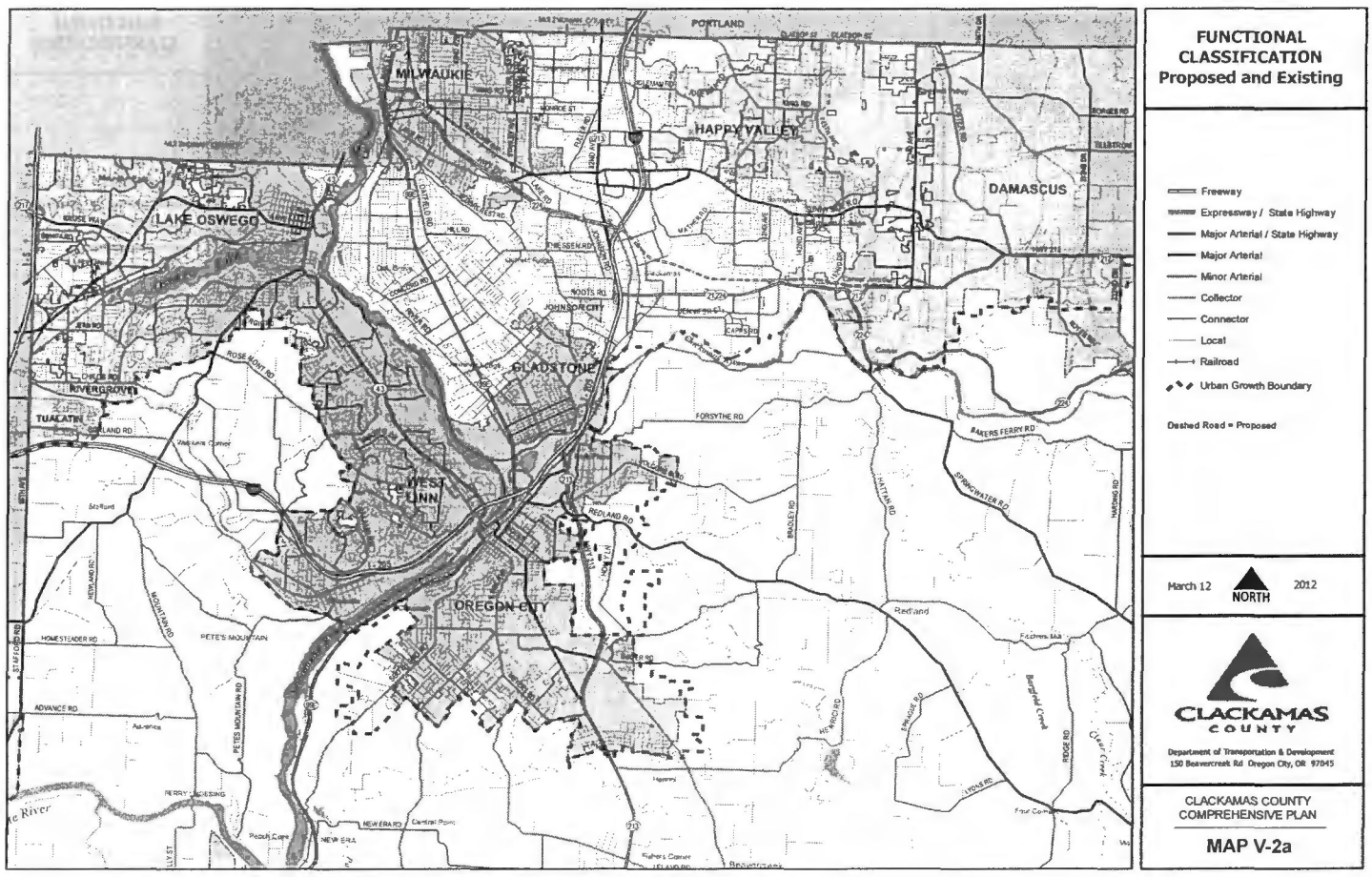
March 12 NORTH 2012

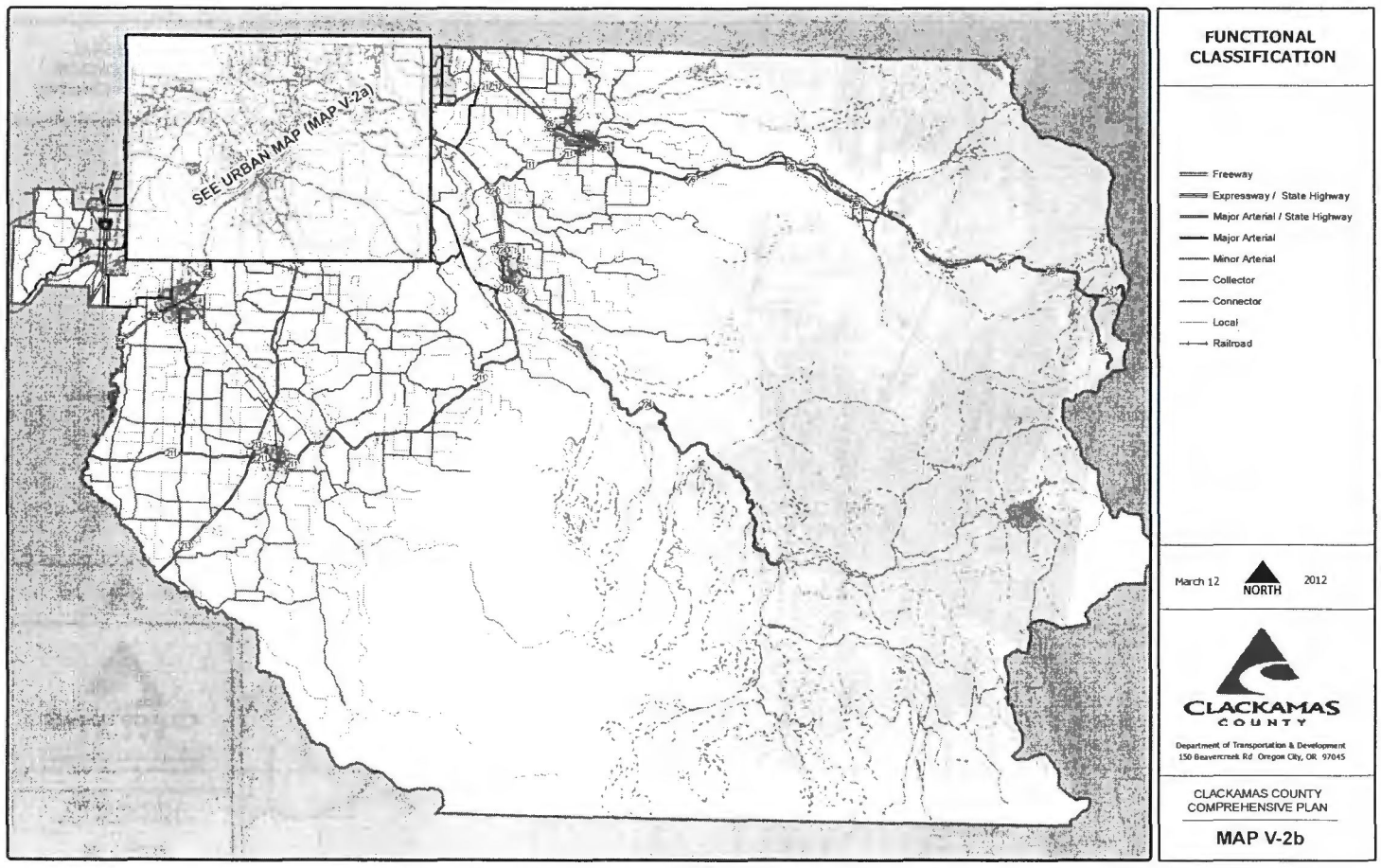
CLACKAMAS COUNTY

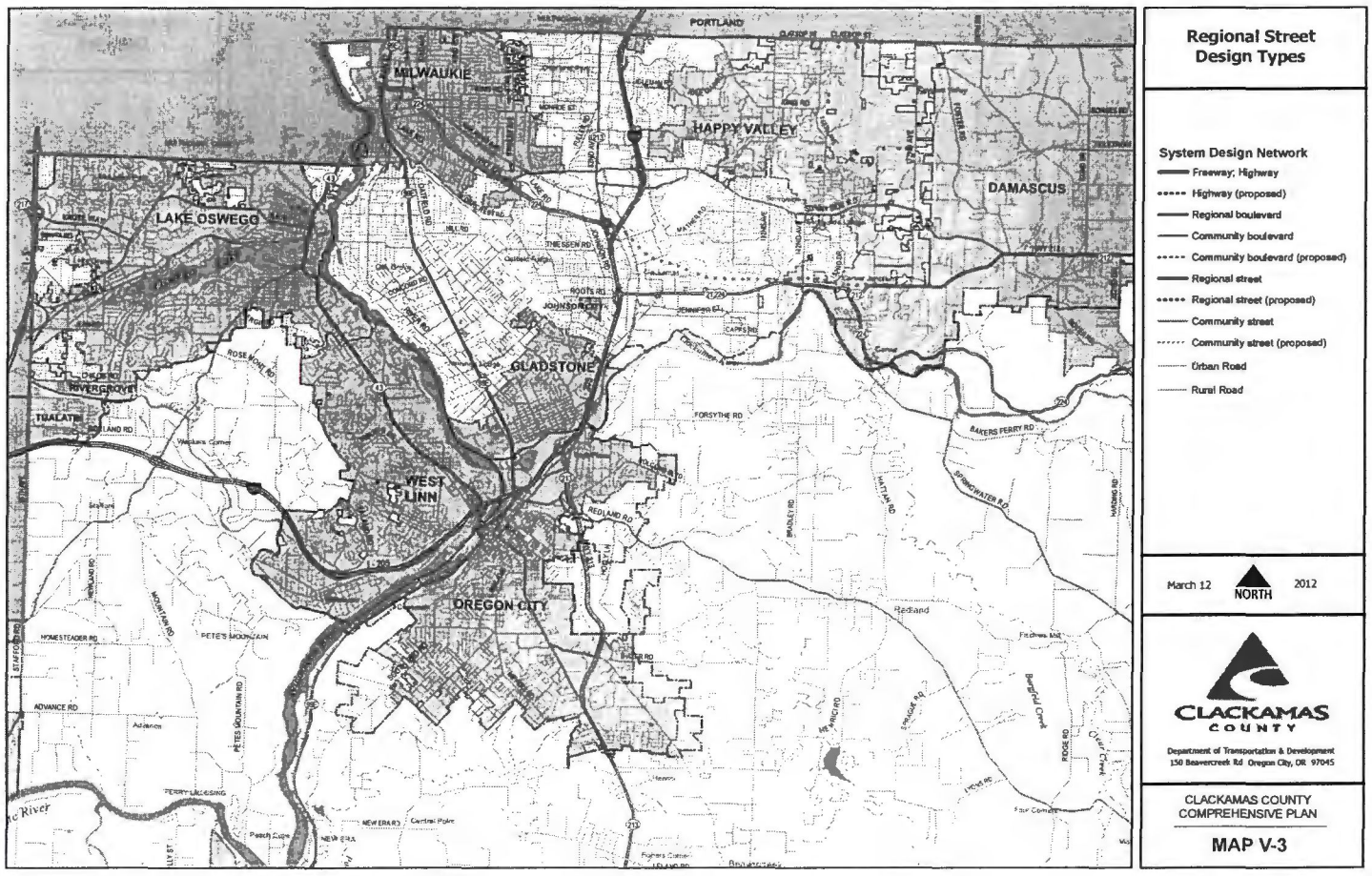
Department of Transportation & Development
150 Beavercreek Rd Oregon City, OR 97045

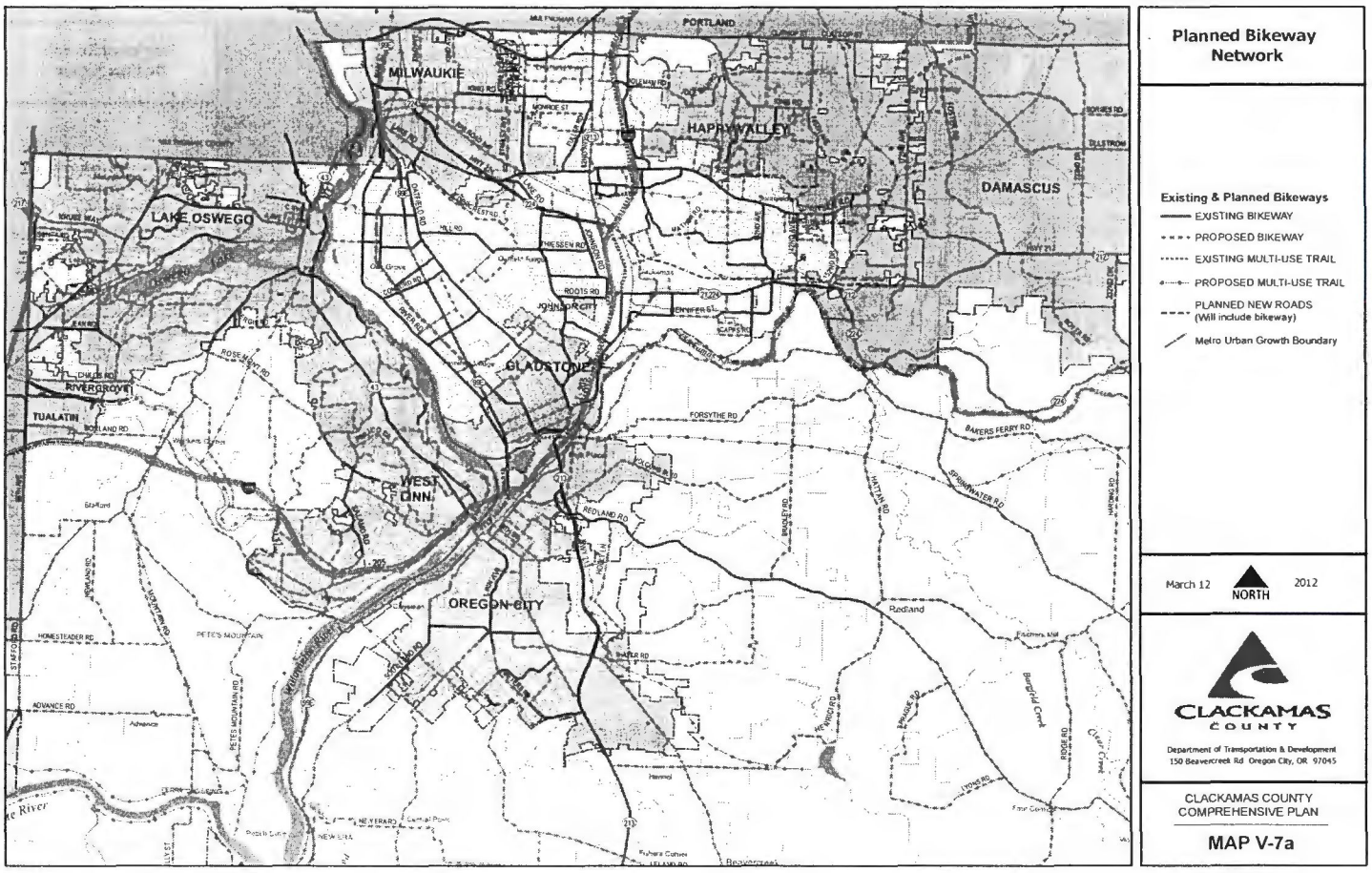
CLACKAMAS COUNTY COMPREHENSIVE PLAN

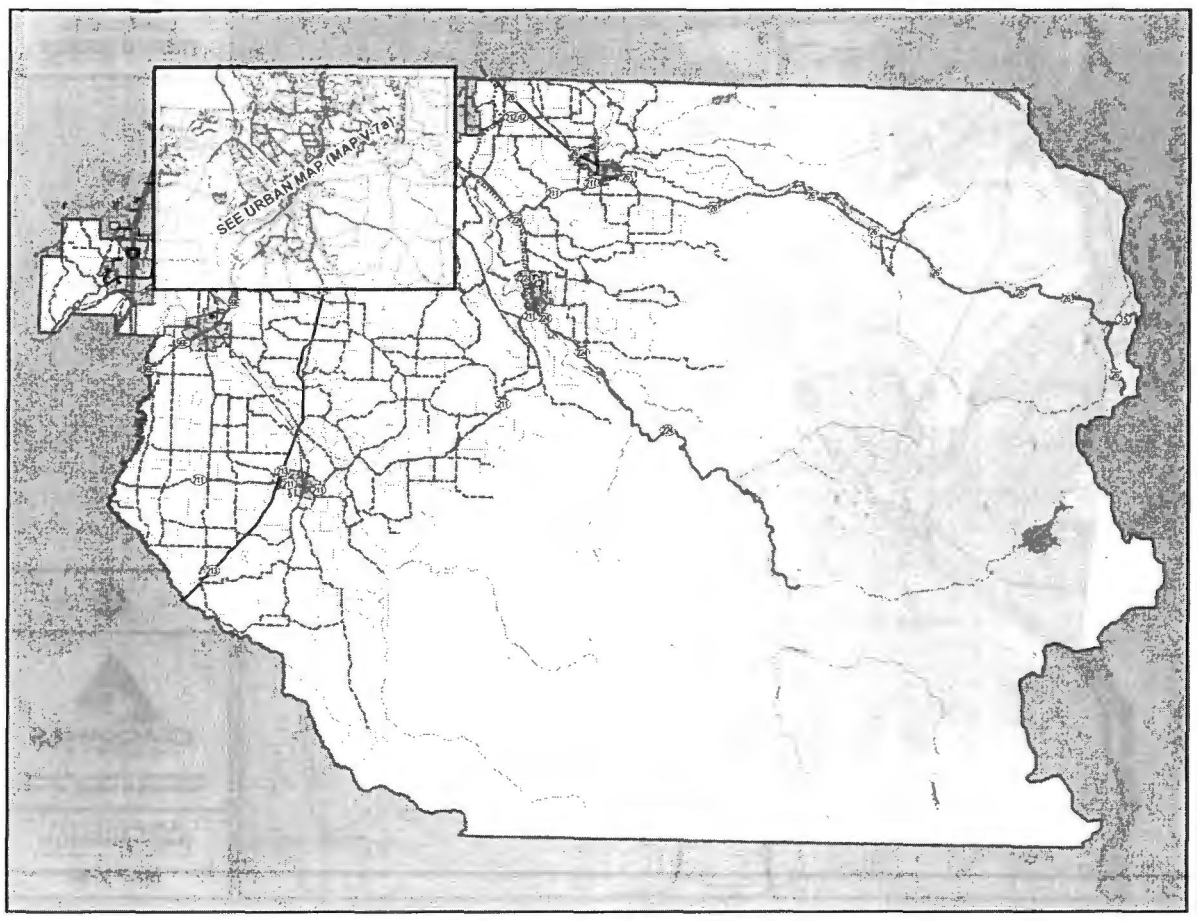
MAP V-1b


PORTLAND
MILWAUKIE
HAPPY VALLEY
DAMASCUS
LAKE OSWEGO
GLADSTONE
RIVERGROVE
TUALATIN
WEST LINN
OREGON CITY
JOHNSON CITY
FORSYTHE RD
BAKERS FERRY RD
SPRINGWATER RD
REDLAND RD
HOMESTEADER RD
ADVANCE RD
PETE'S MOUNTAIN
NEW ERA
Redland
FUNCTIONAL CLASSIFICATION
Proposed and Existing
Freeway
Expressway / State Highway
Major Arterial / State Highway
Major Arterial
Minor Arterial
Collector
Connector
Local
Railroad
Urban Growth Boundary
Dashed Road = Proposed
March 12
NORTH
2012
CLACKAMAS COUNTY
Department of Transportation & Development
150 Beavercreek Rd Oregon City, OR 97045
CLACKAMAS COUNTY
COMPREHENSIVE PLAN
MAP V-2a


SEE URBAN MAP (MAP V-2a)
FUNCTIONAL CLASSIFICATION
Freeway
Expressway / State Highway
Major Arterial / State Highway
Major Arterial
Minor Arterial
Collector
Connector
Local
Railroad
March 12
NORTH
2012
CLACKAMAS COUNTY
Department of Transportation & Development
150 Beavercreek Rd. Oregon City, OR. 97045
CLACKAMAS COUNTY COMPREHENSIVE PLAN
MAP V-2b


PORTLAND
MILWAUKIE
HAPPY VALLEY
DAMASCUS
LAKE OSWEGO
GLADSTONE
RIVERGROVE
TUALATIN
WEST LINN
OREGON CITY
Redland
Regional Street Design Types
System Design Network
Freeway; Highway
Highway (proposed)
Regional boulevard
Community boulevard
Community boulevard (proposed)
Regional street
Regional street (proposed)
Community street
Community street (proposed)
Urban Road
Rural Road
March 12
NORTH
2012
CLACKAMAS COUNTY
Department of Transportation & Development
150 Beavercreek Rd Oregon City, OR 97045
CLACKAMAS COUNTY COMPREHENSIVE PLAN
MAP V-3


Planned Bikeway Network
Existing & Planned Bikeways
EXISTING BIKEWAY
PROPOSED BIKEWAY
EXISTING MULTI-USE TRAIL
PROPOSED MULTI-USE TRAIL
PLANNED NEW ROADS (Will include bikeway)
Metro Urban Growth Boundary
March 12
NORTH
2012
CLACKAMAS COUNTY
Department of Transportation & Development
150 Beavercreek Rd Oregon City, OR 97045
CLACKAMAS COUNTY COMPREHENSIVE PLAN
MAP V-7a
PORTLAND
MILWAUKIE
HAPPY VALLEY
DAMASCUS
LAKE OSWEGO
GLADSTONE
RIVERGROVE
TUALATIN
WEST LINN
OREGON CITY
Redland
Advance
NEW ERA



Planned Bikeway Network

Existing & Planned Bikeways

- EXISTING BIKEWAY
- EXISTING MULTI-USE TRAIL
- PROPOSED BIKEWAY
- PROPOSED MULTI-USE TRAIL

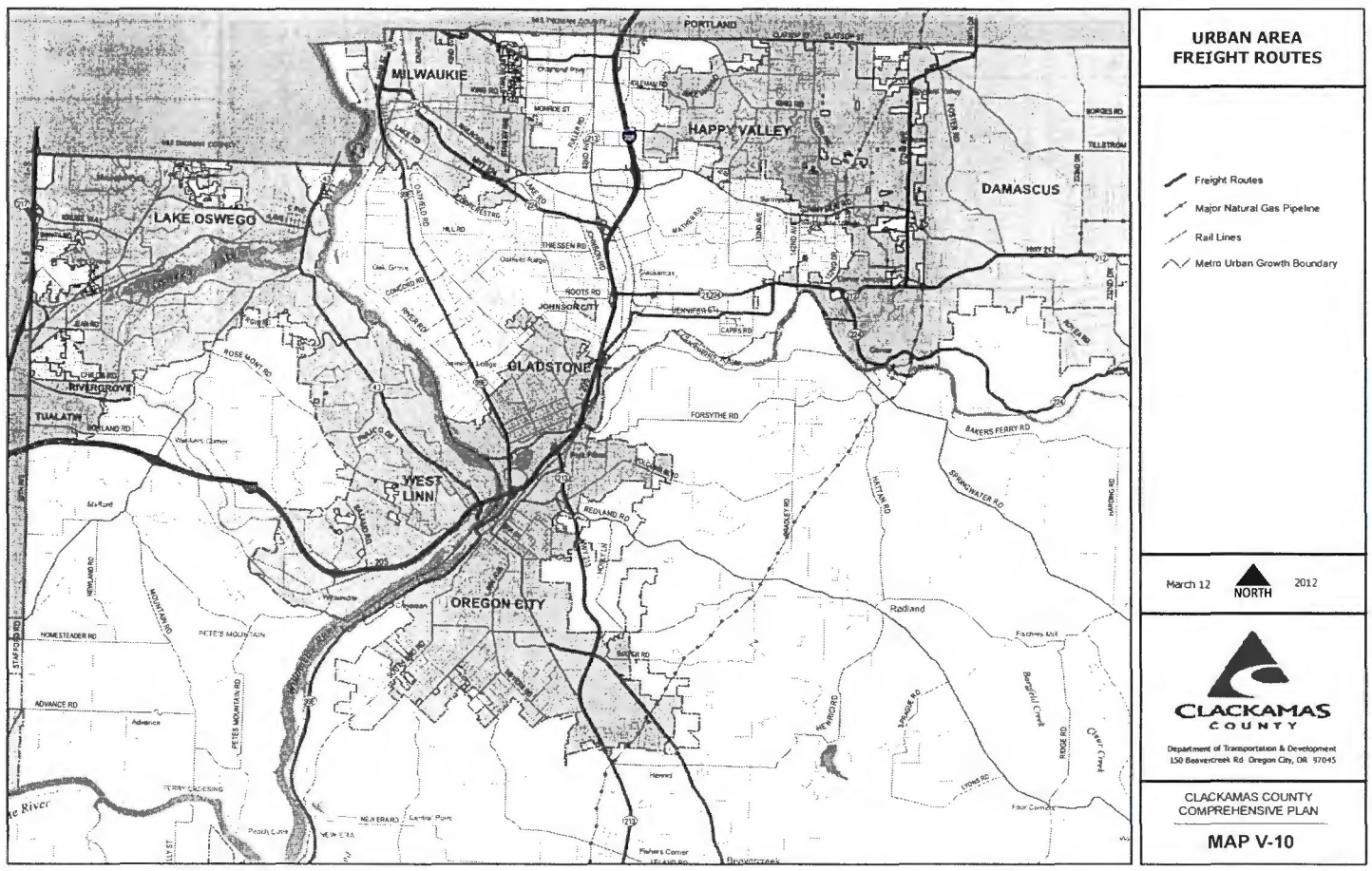
March 12 NORTH 2012

CLACKAMAS COUNTY

Department of Transportation & Development
150 Beavercreek Rd Oregon City, OR 97045

CLACKAMAS COUNTY COMPREHENSIVE PLAN

MAP V-7b



URBAN AREA FREIGHT ROUTES

- Freight Routes
- Major Natural Gas Pipeline
- Rail Lines
- Metro Urban Growth Boundary

March 12 NORTH 2012

CLACKAMAS COUNTY

Department of Transportation & Development
150 Beavercreek Rd Oregon City, OR 97045

CLACKAMAS COUNTY COMPREHENSIVE PLAN

MAP V-10

Appendix A

MAPS AND DOCUMENTS ADOPTED BY REFERENCE

The following maps and documents have been adopted by reference to the Comprehensive Plan. These documents are available for review at the Clackamas County Planning office.

NATURAL RESOURCES AND ENERGY

Habitat Conservation Area Maps (1/5/09)

Water Quality Resource Area Maps (1/5/09)

TRANSPORTATION

Clackamas County Pedestrian Master Plan

Clackamas County Bicycle Master Plan

Clackamas County Airport Plan (11/1/01)

SE 172nd Avenue/ SE 190th Drive Corridor Management Plan, Clackamas County, Oregon, December 2011

COMMUNITY AND DESIGN PLANS, Clackamas Regional Center Area Plan

Phillips Creek Greenway Framework Plan

Appendix B

SUMMARY OF SUPPORTING DOCUMENTS

CITIZEN INVOLVEMENT

Citizen and Agency Involvement Program.

Clackamas County Citizen Involvement Program. Comprehensive Plan Chapter 2.

Committee for Citizen Involvement Bylaws.

Committee for Citizen Involvement Roster.

Community Planning Organization Leaders. Lists and maps of CPO areas.

NATURAL RESOURCES AND ENERGY

Clackamas County Energy Project Publications, 1983:

1. An Energy Anthology
2. Clackamas County Energy Use and Supply Background Data
3. Clackamas County Energy Management Plan
4. Technical Memorandum, Energy Emergency Planning
5. Technical Memorandum, County Buildings
6. Technical Memorandum, County Motor Fleet
7. Technical Memorandum, County Organization

Clackamas County Resources Atlas, Clackamas County Dept. of Environmental Services, Planning Division. Includes maps of the following:

General Resources

Agricultural Land Types and Major Production Areas

Forest Zones and Vegetative Types

Cubic Foot Forest Site Classes

Forest Ownerships

Urban Forest Cover

Detailed SCS Soil Mapping Index

Unique National and Scenic Features

Open Urban Land Inventory

Park and Recreation Facilities; Historic and Cultural Sites

Fisheries and Wildlife Habitats

Aggregate Sites

Groundwater Studies Index

Geologic Hazards, Northwest Clackamas County

River Corridors, Existing Conditions and Management Strategies
Precipitation and Physiography

Draft Third Biennial Energy Plan, Action Plan and Recommendations, Oregon Department of Energy, October 1988.

Environmental Geology of the Kellogg Creek-Mt. Scott Creek and Lower Clackamas River Drainage Areas, Northwestern Clackamas County, Oregon, M.S. Thesis, Matthew John Brunego, March, 1978.

Federal Land Resource/Management Plans - Mt. Hood National Forest, Draft EIS, U.S. Forest Service, 1988; and Eastside Salem District Planning Area Land Use Plan (Clackamas Unit), Bureau of Land Management, 1982.

Fish and Wildlife Habitat Protection Plan for Clackamas County, Oregon Department of Fish and Wildlife, 1979.

Geologic Hazards of the Bull Run Watershed, Multnomah and Clackamas Counties, Oregon, Oregon Bulletin 82. Oregon Department of Geology and Mineral Industries, 1974.

Geology and Geologic Hazards of Northwestern Clackamas County, Oregon Bulletin 99, Oregon Department of Geology and Mineral Industries, 1979.

Geology and Ground Water of the Molalla-Salem Slope Area, Northern Willamette Valley, Oregon, U.S. Geological Survey, 1967.

Ground Water Resources in the French Prairie Area, Northern Willamette Valley, Oregon, U.S. Geological Survey, 1967.

Ground Water Resources in the East Portland Area, Oregon, U.S. Geological Survey, 1965.

Lakes of the Mt. Hood National Forest, Oregon Dept. of Fish and Wildlife and U.S. Forest Service, N.D.

National Wetlands Inventory, U.S. Dept. of the Interior, Fish and Wildlife Service, Individual Quad Maps Covering Clackamas County, 1981 to date.

1980 Major Water Tables Aquifers Map, supplied by Oregon Dept. of Environmental Quality, N.D.

1984 Census of Agriculture, U.S. Dept. of Commerce, Bureau of the Census, Vol. 1, part 36.

Oregon Air Quality, 1988 Annual Report, Dept. of Environmental Quality, Air Quality Control Division, Portland, Oregon.

Oregon Natural Areas Clackamas County, Oregon, Natural Heritage Program, the Nature Conservancy, 1977.

Oregon Nongame Wildlife Management Plan (Revised Draft), Oregon Dept. of Fish and Wildlife, June, 1984.

Oregon Outdoor Recreation "SCORP '83", State Parks and Recreation, Oregon Dept. of Transportation, 1983.

Oregon's Statewide Assessment of Nonpoint Source Problems, Oregon Dept. of Environmental Quality, 1978.

Planning Background Report, Energy; Clackamas County Dept. of Environmental Services, Planning Division.

Planning Background Report, Natural Hazards; Clackamas County Dept. of Environmental Services, Planning Division.

Planning Background Report, Natural Resources; Clackamas County Dept. of Environmental Services, Planning Division.

Planning Background Report, Rivers; Clackamas County Dept. of Environmental Services, Planning Division.

Preliminary Willamette River Greenway, Royston, Hanamoto, Beck and Abey, 1974.

Regional Urban Wildlife Habitat Maps, U.S. Army Engineer District Portland Corps of Engineers, 1978.

Review of Land, Water, Air Quality and Noise Control, 1980-88, Clackamas County Planning and Economic Development Division, 1988.

Rock Material Resources of Clackamas, Columbia, Multnomah and Washington Counties, Oregon, Oregon Dept. of Geology and Mineral Industries, 1978.

State Comprehensive Outdoor Recreation Plan, Technical Documents I, II, and III; ODOT, Parks and Recreation Branch.

Timber for Oregon's Tomorrow, Oregon State University School of Forestry, Beuter, John H.; Johnson, K. Norman; Scheurman, H. Lynn; Research Bulletin 19, January 1976.

U.S. Dept. of Agriculture Forest Service, "Timber Resource Statistics for Northwest Oregon," Basset, Patricia M.; preliminary copies of unpublished report, 1979.

Water Resources Data for Oregon 1976, 1977, U.S. Geological Survey.

Well Hydrographs Clackamas County, Oregon, Oregon Water Resources Dept., unpublished.

Wilderness Management Plan for the Table Rock Wilderness (Draft), U.S. Dept. of the Interior, Bureau of Land Management, 1986.

Willamette Greenway Plan, Bureau of Planning, Portland, Oregon, November, 1987.

The Willamette River Greenway, Oregon State Parks and Recreation Branch, Dept. of Transportation.

LAND USE

Comprehensive Plan, Clackamas County, Oregon, Planning Dept., Clackamas County, August, 1974.

Comprehensive Plan, Clackamas County, Oregon, Planning Dept., Clackamas County, June, 1980.

Comprehensive Plan Update, The Sunnyside United Neighbors, June 30, 1988, Revised August 22, 1988.

Comprehensive Plan, Clackamas County, Oregon, Planning Dept., Clackamas County, June 1992.

Let's Build A Revised Comprehensive Plan for Clackamas County, Dept. of Environmental Services, Clackamas County, January, 1979.

Sunrise Center Task Force, Clackamas County, December, 1987.

City of Sandy Safe Harbor Population Forecast, ECONorthwest, City of Sandy, July 22, 2008.

City of Estacada Economic Opportunity Analysis; Cogan Owens Cogan, LLC and Marketek, Inc., June 15, 2009

[Amended by Board Order 2008-191, 12/18/08; Amended by Ord. ZDO-227, 3/9/11]

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5 Year Transportation Capital Improvement Plan, Fiscal Years 1996-2000, Clackamas County, July, 1996.

Capital Improvement Plan, 5-Year Capital Improvement Program, FY 1998/99 to 2002/03, 20-Year Long Range Transportation Plan, 1998 to 2008, December 1998.

Getting There by Bike, Metropolitan Services District, Metro, 1988.

Handbook for Environmental Quality Elements of Land Use Plans, Air Quality, Oregon Dept. of Environmental Quality, 1978.

I-5/Canby/Highway 213 Access Improvement Study, Clackamas County Dept. of Transportation and Development, 1987.

Oregon Action Plan for Transportation, Oregon Dept. of Transportation, 1989.

Planning Background Report: Transportation, Clackamas County Dept. of Environmental Services, Planning Division, 1979.

Planning With Transit, Tri-Met, 1979.

Public-Private Task Force on Transit Finance, Policy Report, Barney and Worth, Inc., 1988.

Regional Bicycle Plan, Metropolitan Service District, August 1983.

Regional Transportation Plan, Metropolitan Service District, 1989.

Six-Year Highway Improvement Program 1989-1994, Oregon Dept. of Transportation, 1988.

State of Oregon Bicycle Master Plan, Oregon Dept. of Transportation, Highway Division, March 15, 1988.

Oregon Bicycle and Pedestrian Plan, Oregon Department of Transportation, Highway Division, June 14, 1995.

Sunnyside I-205 Split Diamond Interchange, Clackamas County Dept. of Transportation and Development, 1988.

Sunnyside Road, (I-205 to SE 172nd Avenue) Environmental Assessment. Clackamas County, August 21, 1998.

Sunrise Corridor Reconnaissance Study, Oregon Dept. of Transportation, Highway Division, Region 1, 1987.

A Systems Analysis of Major Regional Transportation Corridors, MSD, 1979.

Transportation Involvement Program, Metropolitan Service District, 1987.

Transportation Plan Background Document, Draft, Clackamas County Dept. of Transportation and Development, 1988.

Tri-Met Five-Year Transit Development Plan, Tri-Met, 1987.

SE 172nd Avenue/ SE190th Drive Corridor Management Plan, Appendix A - Environmental Baseline Report, MB&G, Inc., September 20, 2011

SE 172nd Avenue/ SE190th Drive Corridor Management Plan, Appendix B – Analysis of Preferred Alternative

SE 172nd Avenue/ SE190th Drive Corridor Management Plan, Appendix C – 15% Design Plans, Alignment Alternative AT2, Clackamas County, October 24, 2011

SE 172nd Avenue/ SE190th Drive Corridor Management Plan, Appendix E – Corridor Centerline Survey, November 10, 2011

HOUSING

Background Report for the Clackamas County Comprehensive Plan Update 1989, Goal 10 - Housing, Clackamas County Dept. of Transportation and Development, Economic Development Section, 1989.

Plan for Community Development, Clackamas County Dept. of Environmental Services, Planning Division, 1979.

The Regional Forecast, Population, Housing and Employment Forecast to 1995 and 2010, Metropolitan Service District, 1989.

PUBLIC FACILITIES AND SERVICES

Clackamas County School Directory 1988-1989, Education Service District, 1988.

CRAG 208 Areawide Wastewater Treatment Management Study, (Volumes 1 and 2, including technical supplements), CRAG, 1977.

DEQ Coordination Program Approved by LCDC, Dept. of Environmental Quality, 1978.

Draft Plan for Community Development - Clackamas County, Clackamas County, January, 1979.

Draft Regional Water Supply Plan, U.S. Army Corps of Engineers, 1979.

Drainage Management Flood Damage Reduction Measures, Kramer, Chin and Mayo, 1978.

Drainage Management Planning Manual, Review Draft, U.S. Army Corps of Engineers, March, 1979.

Drainage Study for the City of Milwaukie, Oregon, Stevens, Thompson and Runyan, 1970.

Drainage Study of the Oak Lodge Area, Clackamas County, Stevens, Thompson and Runyan, 1970.

Guide to Water and Sewer Systems, CRAG, 1976.

Interim Guidelines for Storm Water Run-off Management in the Johnson Creek Basin, MSD, 1979.

Inventory of Existing Water Supply Systems for Major Outlying Communities, U.S. Army Corps of Engineers, 1978.

Kellogg Creek Storm Drainage, Clackamas County, CH2M, 1970.

Master Plan Report, Clackamas Community College, 1977 (revised).

North Clackamas Urban Area Public Facilities Plan, Sanitary Sewerage Services, Clackamas County Dept. of Transportation and Development, Planning and Economic Development Division, January 1989.

North Clackamas Urban Area Public Facilities Plan, Storm Drainage Element, Clackamas County Dept. of Transportation and Development, Planning and Economic Development Division, February, 1989.

North Clackamas Urban Area Public Facilities Plan, Transportation Element, Clackamas County Dept. of Transportation and Development, Planning and Economic Development Division, November, 1988.

North Clackamas Urban Area Public Facilities Plan, Water Systems, Clackamas County Dept. of Transportation and Development, Planning and Economic Development Division, February, 1989.

Sewerage Facilities Plan and Study Treatment and Disposal Element--Tri-City Area, Clackamas County, CH2M-Hill, 1978.

Sewerage Facilities Plan for Mt. Hood Recreational Corridor, Stevens, Thompson and Runyan, 1977.

Solid Waste and Waste Management Ordinance, Clackamas County, 1970, Amended 1973, 1975, 1985, and 1989.

Solid Waste Landfill Study, Clackamas County, CH2M-Hill, 1971.

Statement of Taxes Levied in Clackamas County, Clackamas County Assessor, 1988.

Storm Sewer and Drainage Study of the Lake Oswego Area, CH2M, 1968.

Subdivision Manual, Clackamas County, 1975.

Water and Sewerage for Non-Urban Clackamas County, Clackamas County, 1970 (Vol. 1 and 2).

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Background Report for the Clackamas County Comprehensive Plan Update 1989, Goal 9 - Economy of the State, Dept. of Transportation and Development, Economic Development Section, 1989.

Economic Development Plan, Clackamas County Dept. of Transportation and Development, 1986.

Tourism Background Report with Appendices, Clackamas County, Dept. of Transportation and Development, August, 1985.

OPEN SPACE, PARKS, AND HISTORIC SITES

Clackamas County Cultural Resources Inventory, Volumes I through XV, Clackamas County, 1984 and 1986.

Clackamas County Historic Landmarks, Unincorporated Urban Area, Clackamas County Dept. of Transportation and Development, June, 1988.

Clackamas County Household Survey, 1978; Portland State University, CPRC.

Maps of the Barlow Road, Mt. Hood to Oregon City, Clackamas County, Oregon, Clackamas County Planning and Economic Development Division, November, 1988.

Metropolitan Area Parks, Metropolitan Service District, 1989.

Metropolitan Regional Recreation Resources 1995 and 2010, Metro, 1988.

Oregon Recreation Trails, State Parks and Recreation, Oregon Dept. of Transportation, 1979.

Our Oregon Trail, A Report to the Governor, Oregon Trail Advisory Council, 1988.

Parks and Recreation for the East Urban Area, Clackamas County Dept. of Transportation and Development, Planning and economic Development Division, 1989.

Plan for Community Development, Clackamas County, Clackamas County Dept. of Environmental Services, Planning Division.

Recreation Economic Decisions, Richard J. Walsh, Colorado State University, 1986.

Recreation, Park and Open Space Standards and Guidelines, National Recreation and Park Association, 1987.

Regional Factbook, Demographic, Employment and Land Development Trends - Portland and Metropolitan Area, Metro, 1988.

State Comprehensive Outdoor Recreation Plan, Technical Documents I, II, and III; ODOT, Parks and Recreation Branch.

Strategies for Parks and Recreation, Clackamas County, Technical Memorandum, 1981.

Trails for Oregon, A Plan for a Recreation Trails System; ODOT, Parks and Recreation Branch.

The 2010 Plan, State Parks and Recreation, ODOT, 1988.

The Urban Outdoors, Metropolitan Service District.

COMMUNITY AND DESIGN PLANS

Clackamas Industrial Area and North Bank of the Clackamas River Design Plan, Clackamas County Planning Department, February 13, 1997.

Clackamas Regional Center Transportation System Plan, Kittelson & Associates, Inc., January, 1999.

Kruse Way Design Plan, Clackamas County Department of Environmental Services, October, 1983.

McLoughlin Corridor Land Use and Transportation Study, Final Report, Clackamas County, June, 1999.

Mount Hood Community Plan, Clackamas County Planning Department, July, 1982.

Sunnyside Corridor Community Plan, Clackamas County Dept. of Transportation and Development, Planning Division, June, 2000.

Sunnyside Village Plan, Clackamas County Dept. of Transportation and Development, Planning Division, July, 1996.

Ordinance ZDO-232
Zoning and Development Ordinance Amendments

Text to be added is underlined. Text to be deleted is ~~struck through~~.

202 DEFINITIONS

ACCESSORY BUILDING OR USE: A subordinate building or use, the use of which is clearly incidental to that of the main building or use on the same lot.

ACCESSWAY: A public right-of-way, a portion of which is hard surfaced, for use by pedestrians and bicyclists providing a direct route where public roads require significant out of direction travel.

ACCESS DRIVE: A private way, with a travel surface generally no more than twelve (12) ft. in width, created by deed or easement to provide vehicular ingress to, or egress from not more than two (2) lots or parcels.

ACTIVE RECREATIONAL AREA: An area such as a park, sports field, or golf course, where turf provides a playing surface that is dedicated to active play.

ADJOINING: Contiguous or abutting exclusive of street width. It shall include the terms adjacent, abutting or contiguous.

ADULT BUSINESS: A range of commercial activities characterized by live, closed circuit, or reproduced material which has an emphasis on nudity and/or specified sexual activity. Such businesses generally limit their patrons to persons at least 18 years of age. Adult businesses include the following types of establishments: adult bookstores, adult theaters, adult arcades, adult cabarets, and adult paraphernalia shops, as defined below, and other establishments which feature any combination of activity or merchandise described below which collectively account for twenty-five (25) percent, or more, of the establishment's activity or merchandise. These definitions shall not be construed to allow uses or activities which are unlawful under State criminal laws.

"Adult bookstore" is an establishment having as twenty-five (25) percent or more of its merchandise for sale, rent, or viewing on the premises, such items as books, magazines, other publications, films, video tapes or video discs which are distinguished by their emphasis on specified sexual activities, as defined in this ordinance.

"Adult theater" is an establishment used for more than twenty-five (25) percent of showtime for presenting material (either live, closed circuit, or prerecorded) for observation by patrons therein which has as a dominant theme an emphasis on nudity and/or specified sexual activities, as defined in this ordinance.

"Adult arcade" is an establishment offering viewing booths or rooms for one or more persons in which twenty-five (25) percent, or more, of the material presented (either live, closed circuit, or reproduced) is characterized by an emphasis on nudity and/or specified sexual activities, as defined in this ordinance.

"Adult cabaret" is an establishment having as its primary attraction live exhibitions (either for direct viewing, closed circuit viewing, or viewing through a transparent partition) for patrons, either individually, or in groups, where the exhibition material presented is characterized by an emphasis on nudity and/or specified sexual activities, as defined in this ordinance.

"Adult paraphernalia shop" is an establishment having as twenty-five (25) percent or more of its merchandise objects which stimulate human genitalia and/or objects designed to be used to substitute for or be used with human genitalia while engaged in specified sexual activities, as defined in this ordinance.

AGRICULTURAL AIRSTRIP: An area designated by the user solely for the purpose of providing for temporary or occasional landings and takeoffs by aircraft engaged in aerial application of chemicals, fertilizers, or other substances to agricultural or forest lands.

AIRPORT, PERSONAL-USE: An airstrip restricted, except for aircraft emergencies, to use by the owner and, on an infrequent and occasional basis, by his invited guests, and to commercial activities in connection with agricultural operations only.

AIRPORT, PRIVATE USE: An airport restricted, except for aircraft emergencies, to use by the owner and his invited guests. The determination as to whether an airport is private or public-use is made by the Oregon Department of Aviation.

AIRPORT, PUBLIC-USE: An airport that is open to use by the flying public, with or without a request to use the airport.

ALLEY: Any public space or thoroughfare less than 16 feet but not less than 10 feet in width which has been dedicated or deeded to the public primarily for vehicular service access to the back or side of properties otherwise abutting on a street.

ALTERATION, CULTURAL RESOURCE: Any exterior change or modification, through public or private action, of any cultural resource or of any property located within an historic district including, but not limited to, exterior changes to or modification of structure, architectural details or visual characteristics such as paint color and surface texture, grading, surface paving, new structures, cutting or removal of trees and other natural features, disturbance of archaeological sites or areas, and the placement or removal of any exterior objects such as signs, plaques, light fixtures, street furniture, walls, fences, steps, plantings and landscape accessories affecting the exterior visual qualities of the property.

ANTIQUES: Goods that, by virtue of their age or unusual quality, are generally considered to be of historical and/or artistic interest, ordinarily such items are in good

state of preservation or are restorable to their original conditions.

ARCHITECTURAL FEATURES: Features include, but are not limited to cornices, canopies, sunshades, gutters, chimneys, fireplaces, flues and eaves. Architectural features shall not include any portion of a structure built for the support, occupancy, shelter or enclosure of persons or property of any kind.

ARCHITECTURAL FEATURES, CULTURAL RESOURCE: The architectural elements embodying style, design, general arrangement and components of all of the outer surfaces of an improvement, including, but not limited to, the kind, color, texture of the building materials and type and style of all windows, doors, lights, signs and other fixtures appurtenant to such improvements.

AUTOMATIC IRRIGATION CONTROLLER: An automatic timing device used to remotely control valves that operate an irrigation system. Automatic irrigation controllers schedule irrigation events using either evapotranspiration (weather-based) or soil moisture data.

BABYSITTER: Any person who goes into the home of a child to give care during the temporary absence of the parent or legal guardian or custodian.

BASEMENT: A portion of a building which has less than one-half (1/2) of its height measured from finished floor to finished ceiling above the average elevation of the adjoining ground, but not an "underground structure" as defined in this ordinance.

BEACON: Any light with one or more beams directed into the atmosphere or directed at one or more points not on the same site as the light source; also, any light with one or more beams that rotate or move.

BED AND BREAKFAST ESTABLISHMENT: A use carried on in a structure designed for a single-family dwelling, except as provided under Section 832, which provides rooms for rent on a daily basis to the public and which includes a breakfast meal as part of the cost of the room. Bed and breakfast establishments do not include other similar uses, such as motels, health or limited care facilities, boarding houses, group quarters, hostels, or rescue missions. All bed and breakfast establishments require tourist facility licensing by the appropriate agency. Bed and breakfast residences and inns, as defined below, must also satisfy the State Health Division requirements. Three levels of bed and breakfast establishments are as follows:

"Bed and Breakfast Homestay" provides overnight accommodations plus breakfast in an owner-occupied dwelling that provides 1-2 guest rooms for occasional bed and breakfast guests, not exceeding 5 guests at one time. Primary use of the dwelling remains as a dwelling, not as a lodging establishment. All reservations are made in advance. Income derived from bed and breakfast activity does not generally represent a primary source of income. Bed and breakfast homestays are major home occupations, subject to Section 822.

"Bed and Breakfast Residence" provides overnight accommodations plus

breakfast and occasional family-style meals for guests, in an operator- or owner-occupied dwelling that provides up to 5 rooms on an occasional or regular basis. Income derived from the bed and breakfast activity may represent a primary source of income. Bed and breakfast residences are subject to Section 832, and all requirements of the underlying district.

"Bed and Breakfast Inn" provides accommodations plus breakfast on a daily or weekly basis in an operator- or owner-occupied dwelling that is primarily used for this purpose. This use is operated as a commercial enterprise, encourages direct bookings from the public, and is intended to provide a major source of income to the proprietors. This level includes inns that operate restaurants offering meals to the general public as well as to overnight guests. Bed and breakfast inns are subject to Section 832 and all requirements of the underlying district.

BICYCLE RACK: An apparatus designed to support the central frame of a bicycle and allow locking of both wheels, without the removal of wheels.

BIKEWAY: A paved facility provided for use by cyclists. There are five~~four~~ types of bikeways.

Shared Roadway: A type of bikeway where motorists and cyclists occupy the same roadway area. Shared roadways are allowed on neighborhood streets and on rural roads and highways.

Shoulder Bikeway: A bikeway which accommodates cyclists on paved roadway shoulder.

Bike Lane: A section of roadway designated for exclusive bicycle use, at the same grade as the adjacent roadway.

Bike Path: A bike lane constructed entirely separate from the roadway.

Cycle Track: An exclusive "grade-separated" bike facility elevated above the street level using a low-profile curb and a distinctive pavement material.

BLANKETING: The visual blocking of one sign by another as seen by a motorist traveling a street or highway.

BLOCK: A parcel of land bounded by streets, railroad rights-of-way, waterways, parks, unsubdivided acreage, or a combination thereof.

BUILDING: Any structure used or intended for supporting or sheltering any use or occupancy.

BUILDING ENVELOPE: The three dimensional space which is to be occupied by a building.

BUILDING LINE: A straight line that is parallel and adjacent to the front side of the

main building and parallel to the front lot line.

BUILDING OR STRUCTURE HEIGHT: The term "height of building" shall be calculated by the methods identified in the State of Oregon Structural Specialty Code or the State of Oregon One and the Two Family Dwelling Specialty Code, as applicable.

BULK PLANT: Hazardous substances at the bulk plant level are manufactured, collected, repackaged, stored, or distributed, but are generally not used on the site. The primary emphasis of uses at the bulk plant level is on hazardous substances. Materials are stored in large permanent tanks. Bulk plant quantities are larger than amounts transported in or out in any single shipment. Processors of hazardous substances will generally be at this level. Uses which produce hazardous substances as a by-product or accessory to another product are not in this category.

CARE: The provision of room and board and other services as needed to assist in activities of daily living, such as assistance with bathing, grooming, eating, medication management, money management or recreation.

COGENERATION FACILITY: A facility that produces energy as a by-product of its normal industrial process and the energy produced can be used for industrial, commercial, heating or cooling purposes; and such facility is more than 50 percent owned by a person who is not a public utility, an electric utility holding company or an affiliated interest. When this definition differs from that in ORS 758.500, the definition in ORS 758.500 shall prevail.

COMMERCIAL USE: The use of land and/or structures for the conduct of retail, service, office, artisan, restaurant, lodging, daycare, entertainment, private recreational, professional, and similar uses.

COMMON OWNERSHIP: Land commonly owned to include open space lands dedicated in planned unit developments and lands dedicated for open space which are owned by homeowners associations.

COMPOSTING: The managed process of controlled biological decomposition of green feedstocks. It does not include composting for the purposes of soil remediation.

COMPOSTING FACILITY: A site or facility, excluding home composting areas as described in Section 202 and agricultural composting conducted as a farm use, which utilizes green feedstocks to produce a useful product through a managed process of controlled biological decomposition. Composting may include amendments beneficial to the composting process. Vermiculture and vermicomposting are considered composting facilities. Composting facilities or sites may include sales of the finished product, as well as accessory products limited to topsoil, barkdust and aggregate commonly used in landscaping to wholesale and retail customers. The area utilized for the sale of said accessory products shall not exceed 10% of the area used for composting, or two (2) acres, whichever is less subject to the provisions of

Subsection 834.03 and 834.04.

CONDITIONAL USE: A use addressing a limited or specific need but generally secondary to a primary use and, due to a potential adverse effect upon primary uses or public services and facilities, is only allowed subject to review and the use standards of the district and Section 800 and the criteria of Section 1203.

CONGREGATE HOUSING FACILITY: A building that contains more than one dwelling unit and provides common facilities and services for residents who require or desire a more supportive living environment than typically afforded to residents in multifamily, three-family, two-family, or single-family dwellings. Regular on-premise supervision by a registered physician, registered nurse, or other health care provider may be included.

CULTURAL RESOURCE: Improvements, buildings, structures, signs, features, sites, places, areas or other objects of scientific, aesthetic, educational, cultural, architectural, or historical significance to the citizens of the county.

CULTURAL RESOURCE INVENTORY: The official list of designated cultural features, sites, districts subject to the provisions of Section 707, Cultural Resources.

CULTURAL RESOURCES OBJECT: A material thing of functional, aesthetic, cultural, symbolic or scientific value, usually by design or nature movable.

DAYCARE FACILITY: A facility that provides regular daycare services to children under 13 years of age, including a day nursery, nursery school group or similar unit operating under any name. A daycare facility shall not include services provided by a physician or nurse, or facilities operated primarily for education or supervised training or instruction, or daycare provided by a "babysitter" or "family daycare provider" as defined in this Section. A daycare facility caring for seven or more children shall satisfy the certification requirements of the Children's Services Division.

DEDICATION: The designation of land by its owner for any general or public use.

DESIGNATED SITE (historic site, cultural resource site, landmark site): A parcel or part thereof on which a cultural resource is situated, and any abutting parcel or part thereof constituting part of the premises on which the cultural resource is situated, and which has been designated pursuant to this Ordinance.

DESIGNATED STRUCTURE (landmark, cultural resource, historic structure): Any improvement that has special historical, cultural, aesthetic or architectural character, interest or value as part of the development, heritage or history of the county, the State of Oregon, or the nation and that has been designated pursuant to this ordinance.

DIRECT ROUTE: The shortest reasonable route between two points. A route is considered direct if it does not involve significant out of direction travel that could be avoided. Out of direction travel is significant if it is more than 50% longer than the

straight line between two points.

DISTINCTIVE URBAN FOREST: Forested or woodland areas which are visually prominent or contain unique or rare tree and plant communities. These areas are usually found in association with other open space resources within the urban area.

DRIP IRRIGATION: Any non-spray low volume irrigation system utilizing emission devices with a flow rate measured in gallons per hour.

DRIP LINE: The outermost edge of a tree's canopy; when delineating the drip line on the ground, it will appear as an irregularly shaped circle defining the canopy's perimeter.

DROUGHT-TOLERANT PLANTS: Plants that will survive in the typical or somewhat less than typical amount of rainfall in the Willamette Valley, and therefore require very little or no supplemental water once established.

DWELLING: A building, or portion thereof, which contains one or more dwelling units. A dwelling may be a residential trailer or a manufactured dwelling but not a recreational vehicle.

DWELLING, ATTACHED SINGLE-FAMILY: A building, or portion thereof, that contains only one dwelling unit; shares at least one wall, or portion thereof, with another attached single-family dwelling; and is located on a separate lot of record from any other dwelling, except where otherwise permitted for an accessory dwelling unit. A manufactured dwelling or residential trailer is not an attached single-family dwelling.

DWELLING, DETACHED SINGLE-FAMILY: A building, or portion thereof, that contains only one dwelling unit and is detached from any other dwelling, except where otherwise permitted for an accessory dwelling unit. A manufactured dwelling or residential trailer is not a detached single-family dwelling.

DWELLING, MULTIFAMILY: A building, or portion thereof, that contains four or more dwelling units.

DWELLING, THREE-FAMILY: A building, or portion thereof, that contains three dwelling units.

DWELLING, TWO-FAMILY: A building, or portion thereof, that contains two dwelling units, both of which are located on the same lot of record. If one of the two dwelling units is an accessory dwelling unit, the building, or portion thereof, is not a two-family dwelling.

DWELLING UNIT: A building, or portion thereof, with one or more rooms designed for residential occupancy by one family.

DWELLING UNIT, ACCESSORY: A dwelling unit located on the same lot of

record as a primary dwelling. The primary dwelling may be an attached or detached single-family dwelling, as specified in the underlying zoning district provisions.

EASEMENT: A right of usage of real property granted by an owner to the public or to specific persons, firms, and corporations.

EDIBLE GARDEN: A garden that contains plants that produce food for human consumption.

ELECTRIC VEHICLE CHARGING STATION: A location where a vehicle can plug into an electrical source to re-charge its batteries.

FAMILY: Any individual or group of persons, regardless of relationship but not exceeding 15 persons, living together as a single housekeeping unit within a dwelling unit.

FAMILY DAYCARE PROVIDER: A daycare provider who regularly provides daycare to fewer than 13 children, including the children of the provider, regardless of full-time or part-time status, in the provider's home in the family living quarters. Provision of daycare to 13 or more children in the home of the provider shall constitute the operation of a "daycare facility," as defined in this section, and shall be subject to the requirements of this Ordinance for daycare facilities. A family daycare provider to seven or more children shall satisfy the certification requirements of the Children's Services Division.

FARM, COMMERCIAL: A farm unit with all of the following characteristics:

A. The land is used for the primary purpose of obtaining a profit in money from activities described in Sections 401.04(A);

B. The net income derived from farm products is significant; and

C. Products from the farm unit contribute substantially to the agricultural economy, to agricultural processors and to farm markets.

FARM, NONCOMMERCIAL: A parcel where all or part of the land is used for production of farm products for use or consumption by the owners or residents of the property, or which provides insignificant income.

FARM OPERATOR: A person who resides on and actively manages a "farm unit".

FARM UNIT: The contiguous and noncontiguous tracts within the county or a contiguous county held in common ownership and used by the farm operator for farm use as defined in 401.03(B).

FARMERS' MARKET: An organized seasonal outdoor market dedicated to the direct sales by growers of agricultural goods, including plants, produce, meats, and other animal products (e.g. eggs, cheese, honey).

FARMWORKER: Any person who, for an agreed remuneration or rate of pay, performs temporary or permanent labor for another in production of farm products or in the planting, cultivating or harvesting of seasonal agricultural crops or in reforestation of lands, including but not limited to, the planting, transplanting, tubing, pre-commercial thinning, and thinning of trees and seedlings, the clearing, piling and disposal of brush and slash and other related activities.

FARMWORKER HOUSING: Housing limited to occupancy by farmworkers and their immediate families and no dwelling unit of which is occupied by a relative of the owner or operator of the farmworker housing.

FEE-IN-LIEU OF LAND: Payment made instead of a land donation to satisfy a particular development requirement, such as park lands or school sites.

FINAL SUBDIVISION (plat): The Plat of a plan, subdivision, dedication or any portions thereof, approved and prepared for filing for record with the County Clerk and containing those elements and requirements as set forth in this Ordinance and as required by State statute.

FLAG: Any fabric, banner, or bunting containing distinctive colors, patterns, or symbols.

FLAG LOT: A lot or parcel which has access to a road, street or easement, by means of a narrow strip of lot or easement.

FLEX SPACE: A building constructed to accommodate a variety of commercial, office and/or light industrial uses, including: administration, direct and telephone sales, back-office operations, product assembly, component and inventory warehousing, shipping and related or similar activities.

FLOOR AREA: The area included within the surrounding exterior walls of a building or portion thereof, exclusive of porches and exterior stairs, multiplied by the number of stories or portion thereof. The floor area of a building, or portion thereof, not provided with surrounding exterior walls shall be the usable area under the horizontal projection of the roof or floor above. Floor area shall not include portions of buildings used for parking of vehicles, except the square footage of commercial uses in parking structures can be counted as part of the total floor area.

FLOOR AREA RATIO (FAR): A measurement of density expressed as the ratio of square footage of building floor area to the square footage of the net site area. The greater the ratio, the greater the density. For example, a building occupying one-fourth of the net site area has a FAR of .25: 1, or .25; adding a second floor to the same building increases the FAR to .50:1, or .5.

FRATERNITY OR SORORITY HOUSE: A building occupied by and maintained exclusively for students affiliated with a school or college.

GRADE: The line of the street or ground surface deviation from the horizontal.

GREEN FEEDSTOCKS: Are defined as including yard debris, non-treated wood waste, vegetative food waste, produce waste, vegetative restaurant waste, vegetative food processor by-products, crop waste and livestock manure. For the purpose of these provisions, "non-treated wood waste" excludes wood waste treated with paint, varnish or other chemicals or preservatives.

GREEN ROOF: A vegetated roof designed to treat storm runoff.

GUEST HOUSE/STUDIO: A guest house or studio is a separate accessory structure, or portion thereof, which is built to residential (R-3 occupancy) building code requirements and which is used by members of the family residing in the primary dwelling or their nonpaying guests or employees on the premises. A "guest house" or "studio" shall be a temporary living area, and shall not be used for boarders or lodgers.

HARDSCAPES: In the practice of landscaping, refers to the inanimate, manmade, non-planted, outdoor areas where the soil is no longer exposed and that are surfaced with pervious or non-pervious durable materials such as masonry, wood, stone, paving, tile, or similar material to create patios, walkways, water fountains, benches, gazebos, etc.

HAZARDOUS SUBSTANCE, MATERIAL OR WASTE: Any hazardous substance, material or waste listed in the following federal regulations:

A. Superfund Amendments and Reauthorization Act (SARA) of 1986, Section 302 Extremely Hazardous Substances List (40 C.F.R 355, App. A and B);

B. Comprehensive Environmental Response Compensation & Liability Act Superfund (CERCLA) of 1980, Hazardous Substances List (40 C.F.R 302, Table 302.4);

C. SARA of 1986, Section 313, Toxic Chemicals List (40 C.F.R Section 372.65);

D. Resource Conservation and Recovery Act (RCRA) of 1976 and 1984 Amendments, Hazardous Wastes List (P & U Categories) (40 C.F.R Section 261.33(e) and (f)); and

E. DOT Hazardous Materials Table (49 C.F.R Part 172.101).

HISTORIC AREA: Any area containing improvements which have a special character, historical interest or aesthetic value or which represent one or more architectural periods or styles typical of the history of the County and which improvements constitute a distinct section of the County that has been designated a cultural resource district pursuant to this ordinance.

HOME COMPOSTING: A composting area operated and controlled by the owner or person in control of a single family dwelling unit and used to dispose of vegetative waste, garden wastes, weeds, lawn cuttings, leaves and prunings generated from that

property.

HOME OCCUPATION: An occupation or business activity which results in a product or service; is conducted, in whole or in part, in a dwelling and/or an accessory building normally associated with primary uses allowed in the underlying zoning district; is conducted by at least one family member occupying the dwelling; and is clearly subordinate to the residential use of the subject property. Home occupations do not include garage sales, yard sales, holiday bazaars, or home parties which are held for the purpose of the sale or distribution of goods or services unless such sales and/or parties are held more than 6 times in a calendar year or operate in excess of 24 total days in a calendar year.

HOMEOWNERS ASSOCIATION: The grouping or uniting of persons residing within a defined area, such as a subdivision, into an incorporated entity for the prosecution of a common enterprise.

HOSPITAL, ANIMAL: A building or premises for the medical or surgical treatment of domestic animals or pets, including dog, cat, and veterinary hospitals.

HOTEL: A building which is designed or used to offer short-term lodging for compensation, with or without meals, for six (6) or more people. A facility that is operated for the purpose of providing care beyond that of room and board is not a "hotel".

HOUSEKEEPING UNIT: A living arrangement within a dwelling unit in which a common kitchen facility, laundry facility, living and dining rooms, and other general living areas of the dwelling unit, and the duties, rights, and obligations associated with the performance of domestic tasks and management of household affairs, are shared by the residents by virtue of legal relationship or mutual agreement.

HYDROELECTRIC FACILITY: Any facility relating to the production of electricity by waterpower, including, but not limited to the power generating plant, associated dams, diversions, penstocks, navigation locks, fish ladders, fish screens, reservoirs and detention areas, recreation facilities, interconnecting transmission lines, substations, access roads, offices or commercial and industrial structures proposed to be built in connection with the energy facility; and activities involved in their construction and operation.

IMPROVEMENT: Any building structure, parking facility, fence, gate, wall, work of art or other object constituting a physical betterment of real property, or any part of such betterment.

INDIRECT ILLUMINATION: A nonelectric sign illuminated by an indirect or separate light source.

INDUSTRIAL USE: The use of land and/or structures for the manufacturing or processing of primary, secondary, or recycled materials into a product; warehousing and associated trucking operations; wholesale trade; and related development.

INSTITUTIONAL USE: The use of land and/or structures for activities such as daycare and pre-school facilities, public and private schools, colleges, universities, art, music, trade and other educational and training facilities, convalescent care facilities, nursing homes, hospitals, places of worship, fraternal lodges, municipal and civic buildings, transit centers and park-and-ride facilities, parks, swimming pools and other recreational facilities open to the public or a membership group, senior and community centers, libraries, museums, cemeteries and mausoleums, utility facilities, and similar public and private uses.

INVASIVE NON-NATIVE OR NOXIOUS VEGETATION: Plant species that are listed in the Oregon Department of Agriculture's Noxious Weed Policy and Classification System.

KENNEL: Any lot or premises on which four or more dogs, more than six months of age or with permanent canine teeth, are kept for purposes other than a veterinary clinic.

KIOSK: A small structure used as a newsstand, information booth, refreshment stand, bandstand, or display of goods, etc.

LANDSCAPING: Areas of land planted with groundcover, grasses, shrubs, annuals, perennials, or trees.

LIMITED USE: A use allowed in a district on a limited basis and subject to conditions specified therein which are generally more restrictive than the conditions placed on primary or accessory uses within the same district.

LIVESTOCK: One or more domesticated animals raised in an agricultural setting to produce commodities such as food, fiber, and labor. The term "livestock" includes miniature livestock, poultry, and farmed fish.

LOT: A unit of land created by a subdivision of land. For the purposes of this Ordinance, lot includes parcel unless otherwise specified in the context of the specific provisions.

LOT AREA: The total horizontal area within the lot lines of a lot.

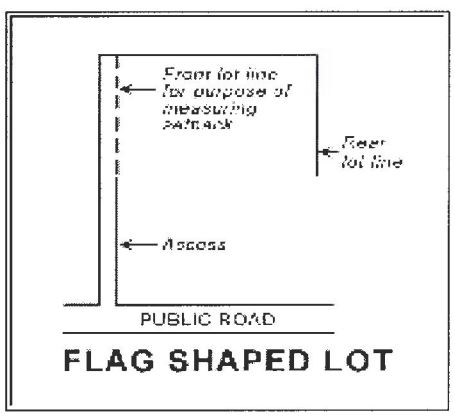
LOT, CORNER: A lot with street frontage on two streets intersecting at a corner of the lot. A lot within the radius curve of a single street is not a corner lot. A lot with access limited to, and frontage on, a state, County, public or private road and also with frontage on an intersecting private road or access drive is not a corner lot for the purpose of determining setbacks provided that the lot does not take access onto the latter abutting private road or access drive. In such a case, the frontage on the latter private road or access drive shall be treated as a side lot line.

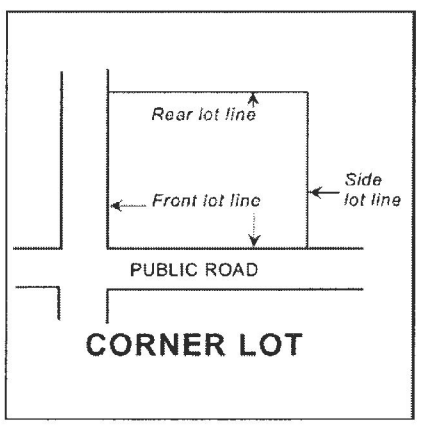
LOT COVERAGE: The area of a lot covered by a building or buildings expressed as a percentage of the total lot area.

LOT DEPTH: The "lot depth" is the mean horizontal distance between the front line and the rear lot line of a lot.

LOT, DOUBLE FRONTAGE: A lot with street frontage along two opposite boundaries. See also "LOT, REVERSE FRONTAGE" AND "LOT, THROUGH".

LOT LINE, FRONT: Any boundary line separating the lot from a County, public, state or private road, or access drive. Except as otherwise provided in Subsection 903.07 of this Ordinance, the front lot line of a flag lot, for the purpose of determining setbacks, shall be within the boundaries of the lot by a distance equal to the width of the narrow strip or easement providing access to the lot. The front lot line shall be parallel to the lot line extending from the road to the lot line opposite and most distant from the road. (See following illustration for flag shaped lot).





LOT LINE, REAR: Any boundary line opposite and most distant from the front lot line, and not intersecting a front lot line. In the case of a corner lot, the rear lot line shall be any one of the boundary lines opposite the front lot lines. Any other opposite boundary line shall be a side lot line (see illustration above for corner lot). In the case of a triangular-shaped lot, there shall be no rear lot line for setback purposes.

LOT LINE, SIDE: Any boundary line not a front or rear lot line.

LOT OF RECORD: A lot, parcel, other unit of land, or combination thereof, that conformed to all zoning and Subdivision Ordinance requirements and applicable Comprehensive Plan provisions, in effect on the date when a recorded separate deed or contract creating the lot, parcel or unit of land was signed by the parties to the deed or contract; except:

A. Contiguous lots under the same ownership when initially zoned shall be combined when any of these lots, parcels or units of land did not satisfy the lot size requirements of the initial zoning district, excluding lots in a recorded plat.

B. A unit of land created solely to establish a separate tax account, or for mortgage purposes, that does not conform to all zoning and Subdivision

Ordinance requirements and applicable Comprehensive Plan provisions, in effect on the date when a recorded separate deed, tax account or contract creating it was signed by the parties to the deed or contract, unless it is sold under the foreclosure provisions of Chapter 88 of the Oregon Revised Statutes.

LOT, REVERSE FRONTAGE: A double-frontage lot for which the boundary along one of the streets is established as the rear lot line. The rear lot line of the lot shall be that boundary abutting a primary arterial, railroad right-of-way or other feature which shall preclude access. See also "LOT, DOUBLE FRONTAGE" AND "LOT, REVERSE FRONTAGE".

LOT, THROUGH: Lots, other than corner lots, that abut on two or more streets. See also "LOT, DOUBLE FRONTAGE" AND "LOT, REVERSE FRONTAGE".

LOT WIDTH: The "lot width" is the mean horizontal distance between the side lot lines of a lot measured within the lot boundaries.

LOT, ZONING: A "zoning lot or lots" is a single tract of land located within a single block, which (at the time of filing for a building permit) is designated by its owner or developer as a tract to be used, developed, or built upon as a unit under single ownership or control. Therefore, a "zoning lot or lots" may or may not coincide with a lot of record.

LOW VOLUME IRRIGATION: The application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as drip, drip lines, and bubblers. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

MAJOR TRANSIT STREET: Major transit streets, for the purpose of setting standards for orientation of development to transit, shall be those streets planned for High Capacity Transit and Primary Bus as shown on Comprehensive Plan Map V-6, and any other street that receives 20 minute or better service at the PM Peak traffic peak.

MAP: A final diagram, drawing or other writing concerning a major or minor partition.

MANUFACTURED DWELLING: A mobile home or manufactured home, but not a residential trailer or recreational vehicle.

MANUFACTURED HOME: A structure constructed on or after June 15, 1976, for a movement on the public highways that has sleeping, cooking and plumbing facilities, that is designed, intended to be and/or being used for human occupancy by a family for residential purposes, and constructed in accordance with Federal manufactured housing construction and safety standards and regulations in effect at the time of construction.

MANUFACTURED HOME PARK: Any place where four or more manufactured homes are located within 500 feet of one another on a lot, tract or parcel of land under the same ownership, the primary purpose of which is to rent, lease or barter the use of such facilities. A manufactured home park does not include a lot or lots located within a subdivision.

MASTER PLAN: A sketch or other presentation showing the ultimate development layout of a parcel of property that is to be developed in successive stages or subdivisions. The plan need not be completely engineered but shall be of sufficient detail to illustrate the property's inherent features and probable development pattern.

MILL SITE, ABANDONED OR DIMINISHED: A mill, plant, or other facility engaged in the processing or manufacturing of wood products, including sawmills and facilities for the production of plywood, veneer, hardboard, panel products, pulp, and paper, that is located outside of urban growth boundaries; was closed after January 1, 1980, or has been operating at less than 25 percent of capacity since January 1, 2003; and contains or contained permanent buildings used in the production or manufacturing of wood products.

MIXED USE: A mix of uses located within a single building, such as retail on the first floor and residential or office uses on the upper floors.

MOBILE HOME: A structure constructed between January 1, 1962 and June 15, 1976, for movement on the public highways that has sleeping, cooking and plumbing facilities, that is designed, intended to be and/or being used for human occupancy by a family for residential purposes and met the construction requirements of Oregon mobile home law in effect at the time of construction.

MOBILE VENDING UNIT: A vehicle that is used in selling and dispensing goods or services to the customer. As used in this definition, a vehicle is motorized or non-motorized transportation equipment containing an axle and intended for use on public roads, including, but not limited to, a car, van, pickup, motorcycle, recreational vehicle, bus, truck, detached trailer, or a truck tractor with no more than one trailer.

MOTEL: A building or series of buildings in which lodging only is offered for compensation and which may have more than five (5) sleeping rooms or units for this purpose and which is distinguished from a hotel primarily by reason of providing direct independent access to and adjoining parking for each rental unit designed primarily for automobile tourists and transient persons. The term includes auto courts, tourist courts, tourist homes, and motor lodges.

MULTI-USE DEVELOPMENT: A Multi-Use Development is a development which includes a number of distinct categories of uses, one or more of which is not allowed as a primary or accessory use in the underlying zoning district. Multi-Use Developments are allowed as conditional uses subject to the procedures and standards set forth in Section 1016 of this Ordinance.

NATIVE PLANTS: Any indigenous or resident species currently or historically found in the Willamette Valley.

NATURAL AREA: An area of land or water that has substantially retained its character and functions as an important habitat for plant and animal life.

NONCONFORMING DEVELOPMENT: An element of development, such as landscaping, parking, height, signage, or setbacks that was created in conformance with development regulations which, due to a change in the zone or zoning regulations, is no longer in conformance with the current applicable regulations.

NONCONFORMING USE: A use of any building, structure or land allowed by right when established or that obtained a required land use approval when established but, due to a change in the zone or zoning regulations, is now prohibited in the zone.

NONFARM USE: A dwelling, or the creation of a lot for a dwelling, not provided in conjunction with a farm use in an agricultural district.

NUDITY OR NUDE: Being devoid of a covering for the male or female genitalia consisting of an opaque material which does not simulate the organ covered and, in the case of a female, exposing to view one or both breasts without a covering over the nipple that is at least three (3) inches in diameter and does not simulate the organ covered.

NURSERY: The propagation of trees, shrubs, vines or flowering plants for transplanting, sale, or for grafting or budding; planting of seeds or cuttings; grafting and budding one variety on another; spraying and dusting of plants to control insects and diseases, and buying and selling the above plant stock at wholesale or retail. Help and seasonal labor may be employed. The term "nursery" contemplates the sale of a product of such nursery. The conduct of a nursery business presumes parking places for customers, the keeping of sales records, and quarters for these functions. However, the use does not include the business of reselling goods purchased off the premises, except plant stock, or the establishment of a roadside stand.

NURSING HOME: A nursing, convalescent, or rest home facility licensed by the State under ORS chapters 441 and 442, or an assisting living facility licensed under ORS 443, which provides, for a period exceeding twenty-four (24) hours, the continuous services of licensed nursing personnel to care for chronically ill or infirm patients, exclusive of those patients related to the owner or facility administrator by blood or marriage. Such nursing, convalescent, or rest home must provide nursing services to those patients who, in the judgment of a physician, registered nurse, or facility administrator, require remedial, restorative, supportive, or preventive nursing measures.

OPEN SPACE: Land within a development which has been dedicated in common to the ownership within the development or to the public specifically for the purpose of providing places for recreational uses or for scenic purposes. Open space shall be used as such in perpetuity.

OVERBURDEN: Earth that lies above a natural deposit of a mineral.

OVERHEAD SPRINKLER IRRIGATION SYSTEMS: Systems that deliver water for irrigation from spray heads, rotors or other above-ground emitters that send water through the air.

OWNER: Person or persons holding fee title to a parcel, lot or tract of land, except in those instances when the land is being sold on contract, the contract purchaser shall be deemed the owner.

PARCEL: A unit of land created by a partition of land. For the purposes of this Ordinance, parcel includes lot and lot of record unless otherwise specified in the context of the specific provisions.

PARKING STRUCTURE: A structure having at least two levels which is designed and used for parking vehicles, or a structure having one level of covered parking area under an open space or recreational use. A one level surface parking area, garage or carport shall not be considered a "parking structure" for purposes of this Ordinance.

PARTITION: To divide an area or tract of land into two or three parcels within a calendar year when such area or tract of land exists as a unit or contiguous units of land under single ownership at the beginning of such year. "Partition" does not include divisions of land resulting from lien foreclosures, divisions of land resulting from foreclosure of recorded contracts for the sale of real property and divisions of land resulting from the creation of cemetery lots; and "partition" does not include any adjustment of a lot line by the relocation of a common boundary where an additional parcel is not created and where the existing parcel reduced in size by the adjustment is not reduced below the minimum lot size established by an applicable zoning ordinance. "Partition" does not include the sale of a lot in a recorded subdivision, even though the lot may have been acquired prior to the sale with other contiguous lots or property by a single owner.

PEDESTRIAN AMENITIES: Outdoor improvements directly visible and accessible to pedestrians that promote and facilitate pedestrian use, including plazas, pocket parks, courtyards, awnings or other weather protection, kiosks or gazebos, water features, drinking fountains, sculpture, outside seating areas, landscape planters, trellises, and street furniture.

PEDESTRIAN PATHWAY: A hard-surfaced or permeable hard-surfaced pedestrian facility adjacent to a public roadway where there is no curb, but is protected from vehicular traffic or set back behind a planting strip.

PEDESTRIAN-SCALE LIGHTING: Street lights designed to illuminate sidewalks to provide security for nighttime use by pedestrians. Pedestrian scale lighting includes ornamental lighting with a 14- to 25-foot mounting height and which meets the Illumination Society guidelines for Commercial Collector roadways.

PENNANT: Any lightweight plastic, fabric, or other material, whether or not

containing a message of any kind, suspended, usually in series, from a rope, wire, or string, and designed to move in the wind.

PERVIOUS: Any surface or material that allows the passage of water through the material and into the underlying soil.

PLANNING DIRECTOR: The administrative official of Clackamas County, or authorized staff member, designated to administer the responsibilities of the Planning Division.

PLAT: The final map which is a diagram, drawing, replat or other writing containing all the descriptions, locations, specifications, dedications, provisions, and information concerning a partition or subdivision.

POROUS PAVEMENT: Surface to walk, drive or park on that may reduce stormwater runoff by allowing water to soak into the ground. Examples are permeable pavers, pervious concrete, porous asphalt, and gravel.

PRELIMINARY PLAN: A clearly legible and approximate drawing of the proposed layout of streets, blocks, lots and other elements of a subdivision or partition which shall help furnish a basis for the approval or disapproval of the general layout of the major partition, short subdivision, subdivision or other development. For the purposes of this Ordinance, the terms "preliminary" and "tentative" as used in Chapter 92, Oregon Revised Statutes, shall be synonymous.

PREMISES: A lot, building, or portion of a lot or building, occupied by a use with its appurtenances.

PRESERVATION, CULTURAL RESOURCES: The identification, study, protection, restoration, rehabilitation or enhancement of cultural resources.

PRIMARY BUILDING WALL: Exterior building wall which contains a public entrance to the occupant's premises and faces either a street or a parking area.

PRINCIPAL DWELLING, NATURAL RESOURCE: A dwelling provided in conjunction with a farm or forest use in an agricultural or forest district which is occupied by the owner or primary operator of the farm or forest use on the property.

PRODUCE STAND: A table, bench (or similar), cart, or structure, any of which may be covered, that is located or erected for the purpose of direct sales by growers of agricultural goods, including vegetables, fruits, flowers, bulbs, herbs, plants, honey, and similar products as determined by the Planning Director, but not including processed foods such as jams or jellies, that are produced on the same site at which the produce stand is located.

PROFESSIONAL-TYPE SERVICES: A professional-type service shall include activities such as those offered by a physician, surgeon, dentist, lawyer, architect, engineer, accountant, artist, teacher, real estate and insurance sales.

PUBLIC OWNERSHIP: Land owned by federal, state regional or local government or governmental agency.

PUBLIC UTILITY: A utility regulated by the Public Utility Commission under ORS 757 or any other utility that provides electrical energy directly to consumers within the State of Oregon, including, but not limited to, municipalities, cooperatives and people's utility districts. When this definition differs from that in ORS 758.500, the definition in ORS 758.500 shall prevail.

PUBLIC WATER SYSTEM: A system for the provision to the public of piped water for human consumption, if such system has more than three service connections and is a facility licensed by the State of Oregon Health Division.

RAINWATER COLLECTION SYSTEM: A system of pipes, container (rain barrel, rainwater tank, pond, or rainwater reservoir), valves and associated apparatus for collecting and storing harvested rainwater runoff, typically from rooftops via rain gutters, but also from ground catchment systems.

RECORDER'S PLAT SHEET: A standard "recorder's plat sheet" shall be a good quality, white, cold-pressed, double-mounted drawing paper eighteen (18) inches by twenty-four (24) inches in size with the muslin extending three (3) inches at one end for binding purposes. No portion of the map or drafting shall be closer than one (1) inch of the edge of the board.

RECREATIONAL VEHICLE: A vehicle licensed by the Oregon State Department of Motor Vehicles, with or without motive power, which is designed, intended to be and/or used for temporary human occupancy for recreation, seasonal or emergency purposes, and has a gross floor area not exceeding 400 square feet in the set-up mode. These shall include but are not limited to park trailers, travel trailers, pickup campers, motor homes, fifth wheel trailers, camping and tent trailers.

RECYCLABLE DROP OFF SITE: A convenient location not within a public right-of-way where mobile depots or drop boxes may be sited as a recyclable material collection point for nearby residents prior to delivery to a broker or user of such materials.

RECYCLE/RECYCLING: A process by which solid waste materials are transformed into new products in such a manner that the original products may lose their identity. It shall also include the collection, transportation, or storage of products by other than the original user or consumer, giving rise to the product's being in the stream of commerce for collection, disposal, recycling, reuse, resource recovery, or utilization.

RECYCLING CENTER: A facility that primarily purchases for recycling or reuse principal recyclable materials which have been source-separated by type, such as vegetative yard debris, paper, glass, and metal, by the person who last used the unseparated solid wastes, but not a salvage or junk yard. Principal recyclable materials are those items defined as such by the Oregon Department of

Environmental Quality.

RELATIVE: A parent, child, brother, sister, grandparent or grandchild of a person or person's spouse.

RESERVE STRIP: A strip of land, usually one (1) foot in width, across the end of a street or alley which shall be under the ownership of the County to insure street extensions where needed.

RESIDENTIAL HOME: A dwelling operated as a single housekeeping unit for the purpose of providing food, shelter, personal services, care, and when appropriate, a planned treatment or training program of counseling, therapy, or other rehabilitative social service, for persons of similar or compatible conditions or circumstances.

RESIDENTIAL TRAILER: A structure constructed prior to January 1, 1962, for movement on the public highways that has sleeping, cooking and plumbing facilities, that is designed, intended to be and/or being used for human occupancy by a family for residential purposes and that was constructed in accordance with Federal Manufactured housing construction and safety standards and regulations in effect at the time of construction and is greater than 400 square feet and less than 700 square feet.

RESOURCE RECOVERY FACILITY: Any facility at which solid waste is processed for the purpose of extracting, converting to energy, or otherwise separating and preparing solid waste for reuse, but not a salvage or junk yard.

RIGHT-OF-WAY: A passageway conveyed for a specific purpose.

ROAD: A public or private way created to provide ingress to, or egress from, one or more lots, parcels, areas or tracts of land, or that provides for travel between places by vehicles. A private way created exclusively to provide ingress and egress to land in conjunction with a forest, farm or mining use is not a "road:". The terms "street", "access drive" and "highway" for the purposes of this Ordinance shall be synonymous with the term "road".

ROAD, COUNTY: A public way under County jurisdiction which has been accepted into the County road maintenance system by order of the Board of County Commissioners.

ROAD, PRIVATE: A private way created by deed or easement to provide vehicular ingress to, or egress from, three (3) or more lots or parcels. (11/5/98)

ROAD, PUBLIC: A public way dedicated or deeded for public use but not accepted into the County road maintenance system, intended primarily for vehicular circulation and access to abutting properties.

ROADWAY: That portion of a road or alley that has been improved for vehicular traffic.

SALVAGE: Separating, collecting or retrieving reusable solid waste for resale.

SALVAGE, JUNK YARD: A location on which solid wastes are separated, collected, and/or stored pending resale.

SCHOOL, COMMERCIAL: A building where instruction is given to pupils in arts, crafts, or trades, and operated as a commercial enterprise as distinguished from schools endowed and/or supported by taxation.

SCHOOL, PRIVATE: Includes private kindergartens, nurseries, play schools, and church-related schools.

SCREENING: Sight-obscuring fence, or sight-obscuring planting.

SERVICE STATION: A commercial establishment with sales and services limited to the sale of motor fuels and supplying goods and service generally required in the operation and maintenance of automotive vehicles and fulfilling a motorist's needs. These may include sale of petroleum products; sale and servicing of tires, batteries, automotive accessories and replacement items; washing and lubricating services; the performance of minor automotive maintenance and repair, and the supplying of other incidental customer services and products. Major automotive repairs, painting and fender work are excluded. An electric vehicle charging station is not a service station.

SHARED PARKING: Parking spaces used jointly by two or more uses within the same development, or separate adjacent developments, which either have peak hours of operation that do not overlap, or typically provide services to many of the same patrons (i.e. restaurant in an office complex or hotel providing lodging for convention participants within the same development), provided satisfactory legal evidence is presented in the form of deeds, leases, or contracts securing full access to such parking spaces for all parties jointly using them.

SIDEWALK: A concrete pedestrian facility adjacent to a curb along a public road or setback from the curb behind a planting strip.

SIGHT-OBSCURING FENCE: Any fence or wall which conceals or makes indistinct any object viewed through such fence or wall.

SIGHT-OBSCURING PLANTING: A dense perennial evergreen planting with sufficient foliage to obscure vision and which will reach a height of at least six (6) feet within thirty (30) months after planting.

SIGN: A presentation or representation, other than a house number. by words, letters, figures, designs, pictures or colors displayed out of doors in view of the general public so as to give notice relative to a person, a business, an article of merchandise, a service, an assemblage, a solicitation, or a request for aid or other type of identification. This definition specifically includes billboards, ground signs, freestanding signs, wall signs, roof signs, logo signs, and signs on the following:

marquees, awnings, canopies, street clocks and furniture and includes the surface upon which the presentation or representation is displayed.

SIGN, ANIMATED: Any sign that uses movement or change of lighting to depict action or create a special effect or scene.

SIGN AREA, OR SURFACE AREA: The area, on the largest single face of a sign, within a perimeter which forms the outside shape of a sign. If the sign consists of more than one module, the total area of all modules will constitute the sign area. The area of a sign having no such perimeter or boarder shall be computed by enclosing the entire copy area within the outline of either a parallelogram, triangle, circle or any other easily recognized geometric shape and then computing the area. Where a sign is of a three-dimensional, round or irregular shape, the largest cross section shall be used in flat projection for the purpose of computing sign area.

SIGN, BUILDING: Any sign attached to any part of a building, as contrasted to a freestanding sign.

SIGN, CHANGEABLE COPY: A sign or portion thereof with characters, letters, or illustrations that can be changed or rearranged without altering the face or the surface of the sign. A sign on which the message changes more than eight times per day shall be considered an animated sign and not a changeable copy sign for purposes of this ordinance.

SIGN, COMMERCIAL: Any sign associated with a commercial activity.

SIGN, ELECTRONIC MESSAGE CENTER: A sign, display or device, or portion thereof, whose message may be changed by electronic process or remote control, and includes electronic time and temperature displays and the device known in the advertising industry as a commercial electronic variable message sign.

SIGN, FREESTANDING: A sign not attached to a building.

SIGN, INCIDENTAL: A sign, generally informational, that has a purpose secondary to the use of the site on which it is located, such as "no parking," entrance," "loading only," "telephone," and other similar directives.

SIGN, INTEGRAL ROOF: Any sign erected or constructed as an integral or essentially integral part of a normal roof structure of any design, such that no part of the sign extends vertically above the highest portion of the roof and such that no part of the sign is separated from the rest of the roof by a space of more than six inches.

SIGN, LOGO: A sign consisting of a trademark or symbol.

SIGN, MESSAGE: Anything displayed on an electronic message center sign, including copy and graphics.

SIGN, MONUMENT: A sign which extends from the ground or which has a support

which places the bottom thereof less than two (2) feet from the ground.

SIGN, OFF-PREMISES: A sign which advertises goods, products or services which are not sold, manufactured, or distributed on or from the premises or facilities on which the sign is located.

SIGN, POLE: A sign erected and maintained on a freestanding frame, mast or pole and not attached to any building but does not include ground-mounted signs.

SIGN, PORTABLE: Any sign not permanently attached to the ground or other permanent structure, and/or designed to be transported, including, but not limited to, signs designed to be transported by means of wheels; signs converted to A- or T-frames; menu and sandwich board signs; balloons used as signs; umbrellas used for advertising; and signs attached to or painted on vehicles parked and visible from the public right-of-way, unless said vehicle is used as other than a sign in the normal day-to-day operations of the business for transportation of goods and/or personnel.

SIGN, PROJECTING: Any sign affixed to a building or wall in such a manner that its leading edge extends more than six inches beyond the surface of such building or wall.

SIGN, PUBLIC SERVICE INFORMATION: Any sign, or message on an electronic message center sign, which provides the time, date, temperature, weather, or information concerning civic, charitable or other noncommercial activities.

SIGN, RESIDENTIAL: Any sign associated with a dwelling.

SIGN, ROOF: Any sign erected and constructed wholly on and on top of the roof of a building, supported by the roof structure.

SIGN, SEGMENTED MESSAGE: Any message or distinct subunit of a message presented by means of at least one display change on an electronic message center sign.

SIGN, TEMPORARY: Any sign that is normally considered to be of temporary duration and is not permanently mounted. Examples include, but are not limited to: commercial signs for limited term events, election signs, real estate signs, etc.

SIGN, TRAVELING MESSAGE: A message which appears to move across an electronic message center sign.

SIGN, WALL: Any sign parallel to, and attached within six inches of a wall, painted on the wall surface, or erected and confined within the limits of an outside wall of any building or structure, which is supported by such wall or building, and which displays only one sign surface.

SIGN, WINDOW: Any sign, pictures, symbol, or combination thereof, that is placed inside a window or upon the window panes or glass and is visible from the exterior of

the window.

SIGNIFICANT NATURAL AREAS: Natural areas as defined in "Oregon National Areas - Clackamas County Data Summary" published by The Nature Conservancy. This list of natural areas may be amended by the County as additional areas are identified.

SMALL POWER PRODUCTION FACILITY: A facility that produces energy primarily by use of biomass, waste, solar energy, wind power, water power, geothermal energy or any combination thereof, having a power production capacity that, together with any other facilities located at the same site, is not greater than 80 megawatts; and such facility is more than 50 percent owned by a person who is not a public utility, an electric utility holding company or an affiliated interest. When this definition differs from that in ORS 758.500, the definition in ORS 758.500 shall prevail.

SOIL MOISTURE SENSING DEVICE OR SOIL MOISTURE SENSOR: A device that measures the amount of water in the soil. The device may also suspend or initiate an irrigation event.

SOLAR ENERGY SYSTEM: Any solar collector, or other solar energy device, the primary purpose of which is to provide for the collection, storage, and distribution of solar energy for space heating or cooling, water heating, or electricity. The power generating capacity of a "solar energy system" is limited to power consumed by the development to which the system is accessory, or—if the system feeds power into the grid of a public utility company—to an amount equivalent to no more than the annual usage of the development to which the system is accessory.

SOLID WASTE: Solid waste shall include all putrescible and non-putrescible waste, including, but not limited to: garbage; compost; organic waste; yard debris; brush and branches; land clearing debris; sewer sludge; residential, commercial and industrial building demolition or construction waste; discarded residential, commercial and industrial appliances, equipment and furniture; discarded, inoperable or abandoned vehicles or vehicle parts and vehicle tires; special vehicles and equipment that are immobile and/or inoperable; manufactured dwellings or residential trailers which are dilapidated, partially dismantled or fire damaged; manure; feces; vegetable or animal solid and semi-solid waste and dead animals; and infectious waste. Waste shall mean useless, unwanted or discarded materials. The fact that materials which would otherwise come within the definition of Solid Waste may, from time to time, have value and thus be utilized shall not remove them from the definition. The terms "solid waste" or "waste" do not include:

A. Environmentally hazardous wastes as defined in ORS 466.055;

B. Materials used for fertilizer or for other productive purposes on land in agricultural operations in the growing and harvesting of crops or the raising of

fowl or animals. This exception does not apply to the keeping of animals on land which has been zoned for residential non-agricultural purposes;

C. Septic tank and cesspool pumping or chemical toilet waste;

D. For purposes of Article V of this Ordinance, reusable beverage containers as defined in ORS 459A;

E. Source separated, principal recyclable materials as defined in ORS 459A and the Rules promulgated thereunder and under this Ordinance, which have been purchased or exchanged for fair market value, unless said principal recyclable materials create a public nuisance pursuant to Article II of this Ordinance;

F. Applications of industrial sludges or industrial waste by-products authorized through a Land Use Compatibility Statement of Management Plan approval and that have been applied to agricultural lands according to accepted agronomic practices or accepted method approved by the Land Use Compatibility Statement or Management Plan, but not to exceed 100 dry tons per acre annually;

G. Stabilized municipal sewage sludge applied for accepted beneficial uses on land in agricultural, non-agricultural, or silvicultural operations;

H. Sludge derived products applied for beneficial uses on land in landscaping projects.

SPECIFIED SEXUAL ACTIVITIES: Real or simulated acts of human sexual intercourse, human/animal sexual intercourse, masturbation, sadomasochism abuse (as defined on ORS 167.060), sodomy, or the exhibition of human sexual organs in a stimulated state, or the characterization thereof in printed form. This definition shall not be construed to allow uses or activities which are unlawful under State criminal laws.

STABLE, BOARDING OR RIDING: Premises that are used by the public for the training, riding, boarding, public exhibition or display of livestock for commercial or noncommercial purposes. An agricultural building, as defined in Chapter 4 of the Uniform Building Code, or premises used for the boarding, training or riding of three (3) or less livestock other than those of the operator of the premises shall not be a "stable" for the purposes of this Ordinance.

STATIONARY WINDOWS: A window that cannot be opened and is used for light only.

STORY: A portion of a building included between a floor and the ceiling next above it, exclusive of a basement.

STREAM: A body of perennial running water, together with the channel occupied by such running water.

STREAM CORRIDOR AREA: An area including the streambed and a required strip or buffer of land on each side of the streambed necessary to maintain streamside amenities and existing water quality. The width of the stream corridor area varies with the site conditions and shall be determined by on-the-ground investigation, as provided under Subsection 1002.05B. The intent of the stream corridor area shall be to preserve natural environmental qualities and the function of land to purify water before it reaches the stream but not to prohibit timber management activities pursuant to the State Forest Practices Act.

STREET FRONTAGE: The entire linear distance of a lot abutting a street. Toe strips or flair strips shall not be used to satisfy the minimum street frontage requirements of the Ordinance.

STREET: See "ROAD".

STREET FURNITURE: Any structural element other than residential, industrial or commercial buildings, streets, sidewalks and curbs shall be considered street furniture including, but not limited to, benches, bus shelters, newsstands, bulletin boards, kiosks, drinking fountains, bicycle stalls, etc.

STRUCTURE: Anything constructed or erected, which requires location on the ground or attached to something having a location on the ground.

SUBDIVIDE: To divide an area or tract of land into four (4) or more lots within a calendar year when such area or tract exists as a unit or contiguous units, under a single ownership at the beginning of such year, whether or not that area or tract of land is divided by a water course or a road right-of-way.

SUBDIVISION: A division of property creating four or more lots in the same calendar year.

SURFACE MINING: Includes the mining of minerals by removing overburden and extracting a natural mineral deposit thereby exposed, or simply such extraction. Surface mining includes open-pit mining, auger mining, production of surface mining waste, prospecting and exploring that extracts minerals or affects land, processing to include rock crushing and batch plant operations, and excavation of adjacent offsite borrow pits other than those excavated for building access roads.

SURFACE MINING, MINERALS: Includes soil, clay, stone, sand, gravel, and any other inorganic solid excavated from a natural deposit in the earth for commercial, industrial, or construction use.

SURFACE MINING, NONAGGREGATE MINERALS: Coal and metal-bearing ores, including but not limited to ores that contain nickel, cobalt, lead, zinc, gold, molybdenum, uranium, silver, aluminum, chrome, copper or mercury.

SURFACE MINING, OPERATOR: A legal entity engaged in surface mining or in an activity at a surface mining site preliminary to surface mining.

SURFACE MINING, RECLAMATION: Procedures designed to minimize the disturbance from surface mining and to provide for the rehabilitation of surface resources through the use of plant cover, soil stabilization, and other procedures to protect the surface and subsurface water resources, and other measures appropriate to the subsequent beneficial use of mined lands.

SUSTAINABILITY: Using, developing, and protecting resources in a manner that enables people to meet their current needs and also provides that future generations can meet their own needs. Sustainability requires simultaneously meeting environmental, economic, and community needs.

TRACT: One or more contiguous lots or parcels under the same ownership.

TRAIL: A hard- or soft-surfaced facility for pedestrians, bicyclists, or equestrians that is separate from vehicular traffic. Trails often go through natural areas and are designed to have a minimal impact on the natural environment.

TRANSFER STATION: A fixed or mobile facility used as part of a solid waste collection and disposal system or resource recovery system, between a collection route and a processing facility or a disposal site, including but not limited to drop boxes made available for general public use. This definition does not include solid waste collection vehicles.

TRANSIT STOP: Any posted bus or light rail stop.

TRANSITIONAL AREA: The lot or lots within any residential district, having a lot line abutting and impacted by a boundary of a commercial or industrial district and extending into the residential district where such use will not adversely impact existing residential uses.

TURF LAWN: A ground-cover surface made up of thick, closely mowed, cultivated grass.

UNDERGROUND STRUCTURE: A structure in which more than 50 percent of the cubic footage of the enclosed, covered space is (1) constructed below the highest elevation of the ground adjoining the structure site prior to excavation; and (2) covered over by ground materials, such as soil, sod, sand or exterior paving, which are continuous on at least one side of the structure with contiguous surface ground materials. Conventional roofing materials may be used to cover any portion of the structure which extends above ground elevation. For an underground structure to be a "dwelling unit" access must be provided to outdoor space at floor level (within two feet of elevation) equal to at least 20 percent of the square footage of the enclosed, covered area of the structure.

Underground structures must meet all appropriate Uniform Building Code regulations and the requirements of the subject zoning district, except as provided in Section 904 of this Ordinance.

UNINCORPORATED COMMUNITY: A settlement that conforms to the definition set forth in Chapter 660, Division 22 of the Oregon Administrative Rules. The County's unincorporated communities are identified in Chapter 4 of the Comprehensive Plan and shown on Map IV-7 of the Comprehensive Plan.

USE: The purpose for which land or a building is arranged, designed or intended, or for which either land or a building is or may be occupied.

UTILITY CARRIER CABINETS: A small enclosure used to house utility equipment intended for offsite service, such as electrical transformer boxes, telephone cable boxes, cable TV boxes, fire alarm boxes, police call boxes, traffic signal control boxes, and other similar apparatus.

VEHICLE, COMMERCIAL: A commercially licensed and operated vehicle exceeding the capacity of one ton.

VISUALLY SENSITIVE AREAS: Prominent natural landscape features such as hillsides, forests, and waterways; historic district; visual corridors along major highways and rivers. Natural landscapes that occur within the urban area and along traffic corridors are of higher visual significance.

WALKWAY: A hard-surfaced facility for pedestrians, within a development or between developments, distinct from surfaces used by motor vehicles. A walkway is distinguished from a sidewalk by its location on private property.

WASTE-RELATED USES: Waste-related uses are characterized by uses that receive solid or liquid wastes from others for disposal on the site for transfer to another location, uses which collect sanitary wastes, or uses that manufacture or produce goods or energy from the composting of organic material. Waste-related uses also includes uses which receive hazardous wastes from others and which are subject to the regulations of OAR 340.100-110, Hazardous Waste Management.

WETLANDS: Areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. (1/5/09)

YARD: The open space, on a lot, between a structure or structures and any lot line. The minimum horizontal distance between any point on a lot line and the nearest part of any structure or building is the yard depth.

YARD, FRONT: Any yard abutting a state highway, County road, public road, private road, or access drive, except as modified by Subsections 903.01 and 903.07 or this Ordinance. (11/5/98)

YARD, REAR: Any yard abutting a rear lot line.

YARD, SIDE: Any yard abutting a side lot line.

[Amended by Ord. ZDO-224, 5/31/11; Amended by Ord. ZDO-231, 1/31/12]

1007 ROADS AND CONNECTIVITY

[The title of Section 1007 changed by Ord. ZDO-224, 5/31/11]

1007.01 PURPOSE

Section 1007 is adopted to:

A. Provide for safe, efficient, convenient, and economical movement of vehicles, freight, transit, bicycles, and pedestrians on a balanced and sustainable transportation system network;

B. Implement the provisions of Chapters 5 and 10 of the Comprehensive Plan pertaining to the design and construction of necessary transportation system improvements required in conjunction with new development;

C. Protect public safety through functional, efficiently designed improvements addressing the impact of new development upon the roadway system;

D. Support sustainable development by efficient utilization of land and resources;

E. Facilitate and encourage the use of non-auto modes of transportation, such as transit, walking, and bicycling;

F. Provide a highly interconnected transportation system with suitable access and route choices for pedestrians, bicyclists, and drivers;

G. Support improved public health by providing safe and attractive pedestrian and bicycle facilities;

H. Reduce vehicle miles traveled;

I. Create walkable centers, corridors, and neighborhoods with pedestrian, bicycle, and vehicular connections within and between destinations;

J. Reduce impacts from the transportation system on vegetation, natural features, neighborhoods, and public facilities; and

K. Recognize and support the importance of streets and streetscapes as an ubiquitous aspect of the public realm in our landscape, and build streets that support and enhance community interaction.

[Amended by Ord. ZDO-224, 5/31/11]

1007.02 APPLICABILITY

Section 1007 applies to the design of new and reconstructed transportation improvements in public rights-of-way, private roads, and accessways required through development permit approvals that are subject to Section 1007.

[Added by Ord. ZDO-224, 5/31/11]

1007.03 GENERAL PROVISIONS

A. The location, alignment, design, grade, width, and capacity of all roads shall be planned, coordinated, and controlled by the Department of Transportation and Development and shall conform to Section 1007, Chapters 5 and 10 of the Comprehensive Plan, and the Clackamas County Roadway Standards. Where conflicts occur between Section 1007, the Comprehensive Plan, and the Clackamas County Roadway Standards, the Comprehensive Plan shall control.

B. Right-of-way dedications and improvements shall be required of all new developments, including partitions, subdivisions, multifamily dwellings, two- and three-family dwellings, condominiums, single-family dwellings, and commercial, industrial, and institutional uses, as deemed necessary by the Department of Transportation and Development and consistent with Section 1007, Chapters 5 and 10 of the Comprehensive Plan, and the Clackamas County Roadway Standards.

C. New developments shall have access points connecting with existing private, public, county, or state roads.

1. Intersection spacing and access control shall be based on Comprehensive Plan Table V-5, *Access Requirements by Functional Classification, Urban Areas Only*; Comprehensive Plan Map V-4, *Undeveloped Sites Larger Than 5 Acres*; Chapters 5 and 10 of the Comprehensive Plan; and the Clackamas County Roadway Standards.

2. Access control shall be implemented pursuant to Chapter 5 of the Comprehensive Plan and the Clackamas County Roadway Standards considering best spacing for pedestrian access, traffic safety, and similar factors as deemed appropriate by the Department of Transportation and Development.

3. Approaches to public and county roads shall be designed to accommodate safe and efficient flow of traffic and turn control where necessary to minimize hazards for other vehicles, pedestrians, and bicyclists.

4. Joint access and circulation drives utilizing reciprocal easements shall be utilized as deemed necessary by the Department of Transportation and Development.

5. Access to state highways shall require a road approach permit issued by the Oregon Department of Transportation pursuant to Oregon Revised Statutes Chapter 374.

D. Street alignments, intersections, and centerline deflection angles shall be designed according to the standards set forth in Chapters 5 and 10 of the Comprehensive Plan and the Clackamas County Roadway Standards.

E. All roads shall be designed and constructed to adequately and safely accommodate vehicles, pedestrians, and bicycles according to Chapters 5 and 10 of the Comprehensive Plan and the Clackamas County Roadway Standards. Development-related roadway adequacy and safety impacts to roadways shall be evaluated pursuant to the Clackamas County Roadway Standards and also to Oregon Department of Transportation standards for state highways.

F. Roadways shall be designed to accommodate transit services where transit service is existing or planned and to provide for the separation of motor vehicles, bicycle, and pedestrian traffic, and other modes as appropriate.

G. The needs of all modes of transportation shall be balanced to provide for safe and efficient flow of traffic. Where practical, pedestrian crossing lengths shall be minimized and the road system shall be designed to provide frequent pedestrian connections.

[Renumbered and amended by Ord. ZDO-224, 5/31/11; Amended by Ord. ZDO-230, 9/26/11]

1007.04 VEHICLE ACCESS

[Moved to Subsections 1007.03 and 1007.04 and amended by Ord. ZDO-224, 5/31/11]

1007.04 PUBLIC AND PRIVATE ROADWAYS

A. All roadways shall be developed according to the classifications, guidelines, tables, figures, and maps in Chapters 5 and 10 of the Comprehensive Plan and the provisions of the Clackamas County Roadway Standards.

1. Development along streets with specific design standards specified in Chapter 10 of the Comprehensive Plan shall improve those streets as shown in Chapter 10.

2. Development along streets identified as Regional or Community Boulevards on Comprehensive Plan Map V-3, *Regional Street Design Types*, shall:

    a. Comply with the design guidelines in Comprehensive Plan Table V-4, *Regional Street Design Types*, or demonstrate why compliance is not feasible;

    b. Provide pedestrian, bicycle, transit, and visual amenities in the public right-of-way. Such amenities may include, but are not limited to, the following: street trees, landscaping, kiosks, outdoor lighting, outdoor seating, bike racks, bus shelters, other transit amenities, pedestrian spaces and access to the boulevard, landscaped medians, noise and pollution control measures, other environmentally sensitive uses, aesthetically designed lights, bridges, signs, and turn bays as appropriate rather than continuous turn lanes; and

    c. Strictly control vehicle access and sight distance requirements.

3. Development adjacent to scenic roads identified on Comprehensive Plan Map V-5, *Scenic Roads*, shall conform to the following design standards, as deemed appropriate by the Department of Transportation and Development:

    a. Road shoulders shall be improved to accommodate pedestrian and bicycle traffic; and

    b. Turnouts shall be provided at viewpoints or for recreational needs.

4. In centers, corridors, and station communities, as identified on Comprehensive Plan Map IV-8, *Urban Growth Concept*, roads shall be designed to minimize the length of street crossings and to maximize connectivity for pedestrians as deemed appropriate by the Department of Transportation and Development. Other streetscape design elements in these areas include:

    a. On-street parking;

    b. Street trees;

    c. Street lighting;

    d. Pedestrian amenities; and

    e. Truck routes shall be specified for deliveries to local businesses.

5. In centers, corridors, and station communities, as identified on Comprehensive Plan Map IV-8, *Urban Growth Concept*, on local streets within the Portland Metropolitan Urban Growth Boundary (UGB), and in unincorporated communities, when conflicts exist between the dimensional requirements for vehicles and those for pedestrians, pedestrians shall be afforded additional consideration in order to increase safety and walkability. In industrial and rural areas, the needs of vehicles shall take precedence.

B. The layout of new public and county roads shall provide for the continuation of roads within and between the development and adjoining developments when deemed necessary and feasible by the Department of Transportation and Development.

1. When public access to adjoining property is required, this access shall be improved and dedicated to the County.

2. Street stubs shall be provided to allow for future access to adjacent undeveloped property as deemed necessary by the Department of Transportation and Development.

3. These standards may be deviated from when the County finds that safe and efficient alternate designs would better accommodate:

a. Sustainable development features such as "Green Streets" as defined in the Clackamas County Roadway Standards;

b. Sustainable surface water management solutions such as low infiltration planters and basins, swales, ponds, rain gardens, trees, porous pavement, and minimal disruption to natural drainage systems;

c. Preservation of existing significant trees and native vegetation;

d. Preservation of natural terrain and other natural landscape features;

e. Achievement of maximum solar benefit for new development through orientation and block sizing;

f. Existing forest or agricultural uses;

g. Existing development;

h. Scenic qualities;

i. Planned unit developments;

j. Local access streets less than 200 feet in length which are not extendible; and

k. Interior vehicular circulation for multifamily, commercial, institutional, and industrial developments.

C. New county and public roads terminating in cul-de-sacs or other dead-end turnarounds are prohibited except where natural features (such as topography, streams, or wetlands), parks, dedicated open space, or existing development preclude road connections to adjacent properties, existing street stubs, or existing roads.

D. Developments shall comply with the intersection sight distance and roadside clear zone standards of the Clackamas County Roadway Standards. In addition:

1. No planting, signing, or fencing shall be permitted which restricts motorists' vision; and

2. Curbside parking may be restricted along streets with visibility problems for motorists, pedestrians, and/or bicyclists as deemed appropriate by the Department of Transportation and Development.

E. New developments, subdivisions, and partitions may be required to dedicate land for right-of-way purposes and/or make road frontage improvements to existing rights-of-way as deemed necessary by the Department of Transportation and Development and consistent with Section 1007, Chapters 5 and 10 of the Comprehensive Plan, and the Clackamas County Roadway Standards.

F. Road frontage improvements in the UGB and Mt. Hood urban villages shall include:

1. Surfacing, curbing, or concrete gutters as specified in Section 1007, Chapters 5 and 10 of the Comprehensive Plan, and the Clackamas County Roadway Standards;

2. Pedestrian, bikeway, accessway, and trail facilities as specified in Subsection 1007.06;

3. Transit amenties as specified in Subsection 1007.07; and

4. Street trees as specified in Subsection 1007.08.

G. Within public and county rights-of-way, the following uses may be permitted, subject to compliance with the Clackamas County Roadway Standards:

1. Solar energy systems owned and operated by a public entity or utility;

2. Electric vehicle charging stations owned and operated by a public entity or utility; and

3. On-street parking within the UGB.

[Renumbered and amended by Ord. ZDO-224, 5/31/11]

1007.05 PRIVATE ROADS AND ACCESS DRIVES

A. Private roads and access drives shall be developed according to classifications and guidelines listed in Section 1007, Comprehensive Plan Tables V-2, *Roadway Classifications and Guidelines*, and V-3, *Roadway Classification and Guidelines (Continued)*, Chapter 10 of the Comprehensive Plan, and the Clackamas County Roadway Standards, except:

1. When easements or "flag-pole" strips are used to provide vehicular access to lots or parcels, the minimum width shall be 20 feet, unless a narrower width is approved by the Department of Transportation and Development and the applicable fire district's Fire Marshal;

2. Where the number of lots served exceeds three, a wider width may be required as deemed appropriate or necessary by the Department of Transportation and Development consistent with other provisions of Section 1007, the Comprehensive Plan, and/or the Clackamas County Roadway Standards;

3. Access easements or "flag-pole" strips may be used for utility purposes in addition to vehicular access;

4. The standards listed above may be deviated from when deemed appropriate by the Department of Transportation and Development to accommodate one-half streets or private common access drives and roads within developed urban areas providing access to not more than seven lots; and

5. The intersection of private roads or access drives with a public or county road and intersections of two private roads or access drives shall comply with the sight distance and clear zone standards pursuant to Subsection 1007.04(D).

[Added by Ord. ZDO-224, 5/31/11]

1007.06 PEDESTRIAN AND BICYCLE FACILITIES

A. General Standards: Pedestrian and bicycle facilities shall be developed according to the classifications and guidelines listed in Section 1007, Comprehensive Plan Tables V-2, *Roadway Classifications and Guidelines*, and V-3, *Roadway Classification and Guidelines (Continued)*, Chapters 5 and 10 of the Comprehensive Plan, and the Clackamas County Roadway Standards.

B. Pedestrian and Bicycle Facility Design: Pedestrian and bicycle facilities shall be designed to:

1. Minimize conflicts among automobiles, trucks, pedestrians, and bicyclists;

2. Provide safe, convenient, and an appropriate level of access to various parts of the development and to locations such as schools, employment centers, shopping areas, adjacent developments, recreation areas and open space, and transit corridors;

3. Allow for unobstructed movements and access for transportation of disadvantaged persons; and

4. Be consistent with Chapters 5 and 10 of the Comprehensive Plan and Comprehensive Plan Maps V-7a, *Planned Bikeway Network, Urban*, V-7b, *Planned Bikeway Network, Rural*, and V-8, *Essential Pedestrian Network*, North Clackamas Parks and Recreation District's Park and Recreation Master Plan, and Metro's Regional Trails and Greenways Map.

C. Requirements for Pedestrian and Bicycle Facility Construction: Within the Portland Metropolitan Urban Growth Boundary (UGB), sidewalks, pedestrian pathways, and accessways shall be constructed as required in Subsection 1007.06 for subdivisions, partitions, multifamily dwellings, three-family dwellings, attached single-family dwellings where three or more dwelling units are attached to one another, and commercial, industrial, or institutional developments, except that for structural additions to existing commercial, industrial, or institutional buildings, development of such facilities shall be required only if the addition exceeds 10 percent of the assessed value of the existing structure, or 999 square feet.

D. Requirement for Sidewalk Construction: Within the UGB, sidewalks shall be constructed, as required in Subsection 1007.06(F), for two-family dwellings, detached single-family dwellings, attached single-family dwellings where two

dwelling units are attached to one another, and manufactured dwellings outside a manufactured dwelling park.

E. Sidewalks or Pedestrian Pathways in Unincorporated Communities: In an unincorporated community, either a sidewalk or a pedestrian pathway shall be constructed on arterial or collector street frontage(s) of a lot upon which a subdivision, partition, multifamily dwelling, three-family dwelling, attached single-family dwelling where three or more dwelling units are attached to one another, or a commercial, industrial, or institutional development is proposed.

F. Sidewalk Location: Sidewalks required by Subsection 1007.06(C) or (D) shall be constructed on:

1. Both sides of a new or reconstructed road, except that sidewalks may be constructed on only one side of the road if:

   a. The road is not a through road;

   b. The road is 350 feet or less in length and cannot be extended; or

   c. In consideration of the factors listed in Subsection 1007.04(B)(3).

2. The street frontage(s) of a lot upon which a subdivision, partition, multifamily dwelling, three-family dwelling, attached single-family dwelling where three or more dwelling units are attached to one another, or a commercial, industrial, or institutional development is proposed; and

3. Local or collector road street frontage(s) of a lot upon which a two-family dwelling, a detached single-family dwelling, an attached single-family dwelling where two dwelling units are attached to one another, or a manufactured dwelling is proposed. This requirement shall be imposed as a condition on the issuance of a conditional use permit, building permit, or manufactured dwelling placement permit, but

   a. The requirement shall be waived if the dwelling is a replacement for one destroyed by an unplanned fire or natural disaster; and

   b. The sidewalk requirement shall apply to no more than two street frontages for a single lot.

G. Pedestrian Pathways: Inside the UGB, a pedestrian pathway may be constructed as an alternative to a sidewalk on a local or collector road when it is recommended by the Department of Transportation and Development; the surface water management regulatory authority approves the design; and at least one of the following criteria is met:

1. The site has topographic or natural feature constraints that make standard sidewalk construction unusually problematic;

2. No sidewalk exists adjacent to the site;

3. Redevelopment potential along the road is limited; or

4. The road is identified for a pedestrian pathway by the River Forest Neighborhood Plan adopted by the City of Lake Oswego.

H. Sidewalk and Pedestrian Pathway Width: Sidewalks and pedestrian pathways shall be constructed to the minimum widths shown in Table 1007-1, and be consistent with applicable requirements of Chapters 5 and 10 of the Comprehensive Plan.

Table 1007-1: Minimum Sidewalk and Pedestrian Pathway Width

Street Type	**Residential Sidewalk**	**Commercial or Institutional Sidewalk**	**Industrial Sidewalk**
Local	5 feet	7 feet	5 feet
Connector	5 feet	7 feet	5 feet
Collector	5 feet	8 feet	5 feet
Arterial	6 feet	8 feet	6 feet

1. The entire required width of sidewalks and pedestrian pathways shall be unobstructed.

2. Sidewalks and pedestrian pathways at transit stops shall be a minimum of eight feet wide for a distance of 20 feet centered on the transit shelter or transit stop sign.

3. A sidewalk set back from the curb by at least five feet may be one foot narrower (but not less than five feet) than the standard listed above. This five-foot separation strip shall be landscaped and shall be maintained by the adjacent property owner. The separation strip may contain fixed objects provided that sight distance and roadside clear zone standards are satisfied pursuant to the Clackamas County Roadway Standards.

4. Uses located in the Campus Industrial, Light Industrial, General Industrial, or Business Park District and containing over 5,000 square feet of office space shall comply with the requirements for Commercial and Institutional uses.

I. Accessways: Accessways shall comply with the following standards:

1. Accessways shall be required where necessary to provide direct routes to destinations not otherwise provided by the road system and where topography permits. Developments shall not be required to provide right-of-way for accessways off-site to meet this requirement. If right-of-way is available off-site, the developer may be required to improve an accessway off-site up to 150 feet in length.

2. Accessways shall provide safe, convenient access to facilities generating substantial pedestrian or bicycle trips, such as an existing or planned transit stop, school, park, church, daycare center, library, commercial area, or community center. Facilities such as these shall be accessible from dead-end streets, loops, or mid-block locations. Where required, accessways shall be constructed at intervals of no more than 330 feet, unless they are prevented by barriers such as topography, railroads, freeways, pre-existing development, or environmental constraints such as streams and wetlands.

3. An accessway shall include at least a 15-foot-wide right-of-way and an eight-foot-wide hard surface. For safety, accessways should be as straight as practicable and visible from an adjacent use if practicable. Removable bollards or other large objects may be used to bar motor vehicular access.

4. So that they may be safely used at night, accessways shall be illuminated by street lights or luminaires on shorter poles. Separate lighting shall not be required if existing lighting adequately illuminates the accessway.

5. Fences are not required, but the height of a fence along an accessway shall not exceed six feet.

6. Ownership and maintenance responsibility for accessways shall be resolved during the development review and approval process.

J. Bikeways: Bikeways shall be required as follows:

1. Shoulder bikeways, bike lanes, ~~or~~ bike paths, or cycle tracks shall be included in the reconstruction or new construction of any street if a bikeway is indicated in Chapters 5 and 10 of the Comprehensive Plan and on Comprehensive Plan Maps V-7a, *Planned Bikeway Network, Urban*, or

V-7b, *Planned Bikeway Network, Rural*, North Clackamas Parks and Recreation District's Park and Recreation Master Plan, or Metro's Regional Trails and Greenways Map.

2. Shoulder bikeways, bike lanes, ~~or~~ bike paths, or cycle tracks shall be considered in the reconstruction or new construction of any other arterial or collector.

3. Within urban growth boundaries, shoulder bikeways, bike lanes, ~~or~~ bike paths, or cycle tracks shall be constructed from new public or private elementary, middle school, and high school facilities to off-site bikeways to provide continuous bicycle route connections within and between surrounding developments, unless precluded by existing development.

K. Trails:

1. Trail dedications or easements shall be provided and developed as shown on Comprehensive Plan Map IX-1, *Open Space Network & Recreation Needs*, the Facilities Plan (Figure 4.3) in North Clackamas Parks and Recreation District's Park and Recreation Master Plan, and Metro's Regional Trails and Greenways Map.

2. Off-road sections of trails shall have a minimum 30-foot right-of-way or easement width.

[Renumbered and amended by Ord. ZDO-224, 5/31/11]

1007.07 OFFSTREET PARKING REGULATIONS

[Moved to Section 1015 and amended by Ord. ZDO-224, 5/31/11]

1007.07 TRANSIT AMENITIES

All residential, commercial, institutional, and industrial developments on existing and planned transit routes shall be reviewed by Tri-Met or other appropriate transit provider to ensure appropriate design and integration of transit amenities into the development. The design shall not be limited to streets, but shall ensure that pedestrian/bikeway facilities and other transit-supportive features such as shelters, bus pull-outs, park-and-ride spaces, and signing will be provided. The designs shall comply with Tri-Met standards and specifications.

[Renumbered and amended by Ord. ZDO-224, 5/31/11]

1007.08 OFFSTREET LOADING REGULATIONS

[Moved to Section 1015 and amended by Ord. ZDO-224, 5/31/11]

1007.08 STREET TREES

A. Street trees are required for developments fronting on designated boulevards in the Comprehensive Plan and shall comply with the following standards:

1. Partial or complete exemptions from the requirement to plant street trees may be granted on a case-by-case bases. Exemptions may be granted, for example, if the exemption is necessary to save existing significant trees which can be used as a substitute for street trees, or where trees approved under Subsection 1007.08(A)(2) are to be planted on the property adjoining the street right-of-way.

2. Street trees to be planted shall be chosen from a County-approved list of street trees (if adopted), unless approval for planting of another species is given by the Department of Transportation and Development.

3. Location and planting of street trees may be influenced by such conditions as topography, steep terrain, soil conditions, existing trees and vegetation, preservation of desirable views, and solar access.

4. Planting of street trees shall be coordinated with other uses which may occur within the street right-of-way, such as bikeways, pedestrian paths, storm drains, utilities, street lights, shelters, and bus stops.

5. Street trees at maturity shall be of appropriate size and scale to complement the width of the street or median area.

B. Street trees are required for developments in the Clackamas Regional Center Area as shown on Comprehensive Plan Map X-CRC-1, *Regional Center, Corridors, and Station Community*, and shall comply with the following standards:

1. Street trees are required along all streets, except for drive aisles in parking lots.

2. When determining the location of street trees, consideration should be given to accommodating normal retail practices in front of buildings such as signage, outdoor display, loading areas, and pullout lanes.

3. Street trees are required along private access streets under the following conditions:

   a. On both sides when the access point is a signalized intersection;

   b. On both sides when the street section has four or more lanes at the

access point;

c. On both sides when the private street is developed to comply with building orientation standards;

d. On a minimum of one side when the street section has one or two lanes, and the street is not at a signalized intersection or is not used to meet the structure orientation standards of Subsections 1700.03(C) and 1700.04(B); and

e. On a minimum of one side of the street when access is shared with adjacent property. Adjoining property shall be required to install trees on its side of the access street when the property is developed.

4. In the Fuller Road Station Community, as identified on Comprehensive Plan Map X-CRC-1, *Regional Center, Corridors, and Station Community*, street trees are required along both sides of all street types, and as shown in Comprehensive Plan Figure X-CRC-11 for Type E pedestrian/bicycle connections. Street trees shall be spaced from 25 to 40 feet on center, based on the selected tree species and any site constraints. Street trees shall otherwise comply with the other provisions of Subsections 1007.08(A) and (B).

C. In the Business Park District, street trees are required at 30- to 40-foot intervals along periphery and internal circulation roads, except where significant trees already exist.

D. In the Campus Industrial District, street trees are required.

E. Street trees are required for developments in the Sunnyside Village Community Plan area shown on Comprehensive Plan Map X-SV-1, *Sunnyside Village Plan Land Use Plan Map*, along both sides of all connector and local streets. In addition:

1. One to two street trees are required per interior lot, and two to four for corner lots depending on the canopy of the tree species proposed. If a small canopy (less than or equal to 25 feet in diameter at maturity) is proposed, then two per interior lot and four per corner lot are required. If a larger canopy (greater than 25 feet in diameter at maturity) is proposed, then one per interior lot and two per corner lot are required.

2. As each portion of a project is developed, a specific species of street tree will be chosen for each street. The developer may choose the species of street tree to be planted so long as the species is not known to cause sidewalks to buckle, does not have messy fruits or pods, is not prone to

insects or having weak wood, and is not on the list of prohibited trees. The County will have final approval regarding the type of street tree to be planted.

3. Along connector streets or streets with a higher classification, metal grating, non-mortared brick, grasscrete, or similar material shall be installed at grade over the planting area around street trees, or raised planters shall be constructed to prevent soil compaction and damage to the trunk. Planting strips or tree wells are required along streets with a classification below connector status.

4. The trees listed in Table 1007-2 are prohibited as street trees.

Table 1007-2: Prohibited Street Trees in the Sunnyside Village Community Plan Area

Scientific Name	**Common Name**	**Reason for Prohibition**
Acer macrophyllum	Big-leaf Maple	Leaves block drainage; Roots buckle sidewalks
Acer negundo	Box Elder	Insect prone; Weak wood
Acer saccharinum	Silver Maple	Shallow roots; Weak wood
Aesculus hippocastanum	Common Horsechestnut	Messy fruits
Betulus species	Birches	Insect prone; Weak wood
Carya species	Hickories	Fruits cause litter and safety problems
Catalpa species	Catalpas	Seed pods cause litter problem
Corylus species	Filberts	Fruits cause litter and safety problems
Crataegus species	Hawthorns	Thorns; Fruits cause litter and safety problems

Fraxinus species	Ashes	Seed pods cause litter problem
Gleditsia triacanthos	Honey Locust (species, does not include horticultural variants)	Seed pods cause litter problem
Juglans species	Walnuts	Fruits cause litter problem
Morus species	Mulberries	Fruits cause litter and safety problems
Populus species	Poplars	Shallow roots; Weak wood
Robinia species	Locusts	Weak wood; Suckers
Salix Species	Willows	Shallow roots; Weak wood
Ulmus fulva	Slippery Elm	Insect prone; Shallow roots; Weak wood
Ulmus pumila	Siberian Elm	Shallow roots; Weak wood

F. For additional street tree requirements in the Sunnyside Village Community Plan area shown on Comprehensive Plan Map X-SV-1, *Sunnyside Village Plan, Land Use Plan Map*, see Subsection 1600.03.

[Moved from Sections 601, 606, 1009, 1600, and 1700 and amended by Ord. ZDO-224, 5/31/11]

1007.09 TRANSPORTATION FACILITIES CONCURRENCY

A. The purpose of Subsection 1007.09 is to ensure that transportation infrastructure is provided concurrent with the new development it is required to serve or, within a reasonable period of time following the approval of new development.

B. Subsection 1007.09 shall apply to the following development applications: design review, subdivisions, partitions, and conditional uses.

C. Approval of a development shall be granted only if the capacity of transportation facilities is adequate or will be made adequate in a timely manner. The following shall be exempt from this requirement:

1. Development that is located:

a. In the Light Industrial, General Industrial, or Business Park District; and

b. North of the Clackamas River; and

c. West of Highway 224 (south of Highway 212) or 152nd Drive (north of Highway 212); and

d. South of Sunnyside Road (east of 82nd Avenue) or Harmony Road (west of 82nd Avenue) or Railroad Avenue (west of Harmony Road); and

e. East of Interstate 205 (south of Milwaukie Expressway) or the city limits of Milwaukie (north of the Milwaukie Expressway).

2. Modification or replacement of an existing development (or a development that has a current land use approval even if such development has not yet been constructed) on the same property, provided that an increase in motor vehicle traffic does not result;

3. Unmanned utility facilities, such as wireless telecommunication facilities, where no employees are present except to perform periodic servicing and maintenance;

4. Mass transit facilities, such as light rail transit stations and park-and-ride lots;

5. Home occupations to host events, which are approved pursuant to Section 806; and

6. Development in the Government Camp Village, as shown on Comprehensive Plan Map X-MH-4, *Government Camp Village Plan Land Use Plan & Boundary*, that is otherwise consistent with the Comprehensive Plan and zoning designations for the Village.

D. As used in Subsection 1007.09(C), "adequate" means a minimum of Level-of-Service (LOS) D, except:

1. Portions of 82nd Avenue, Sunnyside Road, and Johnson Creek Boulevard located in the Clackamas Regional Center or the Fuller Road Station Community, as identified on Comprehensive Plan Map X-CRC-1, *Regional Center, Corridors, and Station Community*, shall be subject to the following minimums:

a. LOS E during the weekday midday peak one-hour period; and

b. LOS F during the first hour and LOS E during the second hour of the weekday PM peak two-hour period.

2. Portions of 82nd Avenue, Sunnyside Road, and Johnson Creek Boulevard located in the Clackamas Regional Center Area but outside the Clackamas Regional Center and the Fuller Road Station Community, as identified on Comprehensive Plan Map X-CRC-1, *Regional Center, Corridors, and Station Community*, shall be subject to the following minimums:

   a. LOS D during the weekday midday peak one-hour period; and

   b. LOS E during the first hour and LOS E during the second hour of the weekday PM peak two-hour period.

3. Roadways—other than 82nd Avenue and Sunnyside Road—in the Clackamas Regional Center, as identified on Comprehensive Plan Map X-CRC-1, *Regional Center, Corridors, and Station Community*, shall be subject to the following minimums:

   a. LOS E during the weekday midday peak on-hour period; and

   b. LOS E during the first hour and LOS E during the second hour of the weekday PM peak two-hour period.

4. Except as established by Subsections 1007.09(D)(1) through (3), LOS E shall apply to developments proposed on property in a Campus Industrial, Light Industrial, General Industrial, Rural Industrial, or Business Park zoning district.

5. Except as established by Subsections 1007.09(D)(1) through (3), LOS E shall apply to high-employment developments. A high-employment development is one that provides a minimum of 50 FTE per acre. Only jobs where the employee reports to work at the subject property shall be included in this calculation.

6. The performance standards identified in the latest edition of the Oregon Highway Plan shall apply to facilities under the jurisdiction of the State of Oregon, with the exception of those facilities identified in Subsections 1007.09(D)(1) and (2).

E. For the purpose of calculating capacity as required by Subsections 1007.09(C) and (D), the following standards shall apply:

   1. Both the method of calculating LOS and the definitions given to the LOS letter designations are established by the Clackamas County Roadway

Standards. The method of calculating capacity on state facilities is established by the Oregon Highway Plan.

2. The minimum capacity standards shall apply to all roadways and intersections within the impact area of the proposed development. The impact area shall be established by the Clackamas County Roadway Standards.

3. Capacity shall be evaluated for motor vehicle traffic only.

4. Except as established by Subsections 1007.09(D)(1) through (3), capacity shall be evaluated for the peak 15-minute period of both the AM weekday and PM weekday peak hours of the transportation system within the impact area. The requirement to evaluate either the AM or the PM peak hour, or both, may be waived if the proposed use will not generate motor vehicle trips during the period(s).

F. As used in Subsection 1007.09(C), "timely" means:

1. For facilities under the jurisdiction of the County, necessary improvements are included in the Five-Year Capital Improvement Program, fully funded, and scheduled to be under construction within three years of the date land use approval is issued;

2. For facilities under the jurisdiction of the State of Oregon, necessary improvements are included in the Statewide Transportation Improvement Plan and scheduled to be under construction within four years of the date land use approval is issued;

3. For facilities under the jurisdiction of a city or another county, necessary improvements are included in that jurisdiction's capital improvement plan, fully funded, and scheduled to be under construction within three years of the date land use approval is issued.

4. Alternatively, "timely" means that necessary improvements will be constructed by the applicant or through another mechanism, such as a local improvement district. Under this alternative:

   a. Prior to issuance of a certificate of occupancy for a conditional use or a development subject to design review and prior to recording of the final plat for a subdivision or partition, the applicant shall do one of the following:

      i. Complete the necessary improvements; or

ii. For transportation facilities under the jurisdiction of the County, the applicant shall provide the county with a deposit, letter of credit, performance bond, or other surety satisfactory to county staff pursuant to Section 1104. For transportation facilities under the jurisdiction of the state, a city, or another county, the applicant shall comply with the respective jurisdiction's requirements for guaranteeing completion of necessary improvements. This option is only available if the jurisdiction has a mechanism in place for providing such a guarantee.

5. For a phased development, the first phase shall satisfy Subsections 1007.09(F)(1) through (4) at the time of land use approval. Subsequent phases shall be subject to the following:

   a. At the time of land use approval, necessary improvements shall be identified and the phase for which they are necessary shall be specified.

   b. Necessary improvements for a particular phase shall either:

      i. Comply with Subsections 1007.09(F)(1) through (3) at the time of building permit approval, except that the improvements shall be scheduled to be under construction within three years of building permit approval rather than within three years of land use approval; or

      ii. Comply with Subsection 1007.09(F)(4), in which case the improvements shall be completed or guaranteed prior to issuance of a certificate of occupancy or recording of the final plat for the applicable phase.

G. As used in Subsection 1007.09(F), "necessary improvements" are:

   1. Improvements identified in a transportation impact study as being required in order to comply with the adequacy standard identified in Subsection 1007.09(D).

      a. A determination regarding whether submittal of a transportation impact study is required shall be made based on the Clackamas County Roadway Standards, which also establish the minimum standards to which a transportation impact study shall adhere.

      b. If a transportation impact study is not required, County traffic engineering or transportation planning staff shall identify necessary

improvements or the applicant may opt to provide a transportation impact study.

H. As an alternative to compliance with Subsection 1007.09(C), the applicant may make a voluntary substantial contribution to the transportation system.

1. As used in this subsection, "substantial contribution" means construction of a roadway or intersection improvement that is all of the following:

a. A complete project or a segment of a roadway identified in the Clackamas County 20-Year Capital Improvement Plan (CIP), the Statewide Transportation Improvement Plan (STIP), or the capital improvement plan (CIP) of a city or another county.

i. For a segment of a roadway to qualify as a substantial contribution, the roadway shall be on or abutting the subject property; no less than the entire segment that is on or abutting the subject property shall be completed; and there shall be a reasonable expectation that the entire project—as identified in the Clackamas County 20-Year CIP the STIP or the CIP of a city or another county—will be completed within five years;

b. Located within the impact area of the proposed development. The impact area shall be established by the Clackamas County Roadway Standards;

c. Estimated to have a minimum construction cost of $527,000 in year 2004 dollars. The minimum construction cost shall on January 1st of each year following 2004 be adjusted to account for changes in the costs of acquiring and constructing transportation facilities. The adjustment factor shall be based on the change in average market value of undeveloped land, except resource properties, in the County according to the records of the County Tax Assessor, and the change in construction costs according to the Engineering News Record (ENR) Northwest (Seattle, Washington) Construction Cost Index; and shall be determined as follows:

i. Change in Average Market Value X 0.50 + Change in Construction Cost Index X 0.50 = Minimum Construction Cost Adjustment Factor

ii. After the adjustment factor is applied to the previous year's minimum construction cost, the result shall be rounded to the nearest thousand.

2. Prior to issuance of a certificate of occupancy for a conditional use or a development subject to design review and prior to recording of the final plat for a subdivision or partition, the applicant shall do one of the following:

   a. Complete the substantial contribution; or

   b. For transportation facilities under the jurisdiction of the County, the applicant shall provide the county with a deposit, letter of credit, performance bond, or other surety satisfactory to county staff pursuant to Section 1104. For transportation facilities under the jurisdiction of the state, a city, or another county, the applicant shall comply with the respective jurisdiction's requirements for guaranteeing completion of necessary improvements. This option is only available if the jurisdiction has a mechanism in place for providing such a guarantee.

[Moved from Section 1022 and amended by Ord. ZDO-224, 5/31/11]

1007.10 FEE IN LIEU OF CONSTRUCTION

For all or part of the road frontage improvements required by Section 1007; located within the Portland Metropolitan Urban Growth Boundary (UGB) and required for a partition, a two- or three-family dwelling (where no more than one such dwelling is proposed), an attached or detached single-family dwelling, or a manufactured dwelling; the developer may elect to pay a fee in lieu of construction as follows. ()

A. The fee in lieu of construction may be paid if the road frontage improvements are located on a local or collector road that is not identified on Comprehensive Plan Map V-8, *Essential Pedestrian Network*, and payment of the fee is deemed by the Department of Transportation and Development to be an acceptable alternative to construction of the required improvements; or ()

B. The fee in lieu of construction may be paid if the road frontage improvements are located on a road that is identified on Comprehensive Plan Map V-8, *Essential Pedestrian Network*; payment of the fee is deemed by the Department of Transportation and Development to be an acceptable alternative to construction of the required improvements; and at least one of the following criteria is met:

   1. The improvements are included in the Five-Year Capital Improvement Program;

   2. The improvements are located on a road where significant topographical or natural feature constraints exist; or

3. The improvements are located on a local or collector road where a sidewalk or pathway does not exist within 200 feet of the required improvements.

C. For a two-family dwelling, a detached single-family dwelling, an attached single-family dwelling where two dwelling units are attached to one another, or a manufactured dwelling, the fee in lieu of construction shall be $25.00 per lineal foot of frontage. The fee shall be adjusted annually to account for the change in construction costs according to the Engineering News Record (ENR) Northwest (Seattle, Washington) Construction Cost Index. The annual adjustment shall be made in January on the date that the ENR publishes its first index of the year.

D. For a partition, a three-family dwelling, or an attached single-family dwelling where three or more dwelling units are attached to one another, the fee in lieu of construction shall be equal to the estimated cost of constructing the required frontage improvements and shall be calculated as follows.

1. A frontage improvement cost construction estimate acceptable to the Department of Transportation and Development shall be completed by an engineer who is registered by the State of Oregon.

2. The elements to be considered when calculating the fee shall include, but shall not necessarily be limited to, mobilization/start-up, grading, rock, drainage, asphalt, curb, sidewalk, and retaining wall.

E. All fees in lieu of improvements collected, and interest thereon, shall be placed in a "Sidewalk Improvement Fund." Fees shall be spent on sidewalk or pedestrian pathway construction on local or collector roads within the UGB.

[Moved from Subsection 1007.03 (renumbered as 1007.04) and amended by Ord. ZDO-224, 5/31/11]

- The agencies will review the Corridor Management Plan pursuant to the "triggers" described below to ensure that the original assumptions and recommendations regarding the Corridor Management Plan, funding obligations, access management, right-of-way, and coordination efforts are still appropriate and effective given the current and projected future conditions. This review should be conducted through a meeting initiated by the City of Happy Valley, City of Damascus, and/or Clackamas County.
- In addition to the established triggers for the Corridor Management Plan review, the agencies can request a review of the Corridor Management Plan at any time if, in their determination, specific land use or transportation changes warrant a review of the underlying assumptions and/or recommendations within the Corridor Management Plan.
- If the participants in the Corridor Management Plan review meeting agree that, once the impacts of the "trigger" that necessitated the review are examined, an amendment to the Corridor Management Plan is not warranted a recommendation of "no action" may be documented and submitted in the form of a letter to the City of Happy Valley, City of Damascus, and Clackamas County.
- If the findings and conclusions of the Corridor Management Plan review meeting demonstrate the need for an update to the plan, review participants will initiate a Corridor Management Plan update process. Initial steps in updating the Corridor Management Plan will include scoping the planning process, identifying funding, and outlining a schedule for plan completion.

Corridor Management Plan Review Triggers

Periodically, the Corridor Management Plan implementation program will need to be evaluated to ensure it is meeting the needs of the managing agencies. Events that will trigger a review of the Corridor Management Plan include:

- Every fifth year from the date of Corridor Management Plan adoption or its latest update.
- Identified safety issues as noted by periodic review of crash data, statewide ranking and prioritization, and findings from traffic impact studies.
- Identified mobility failures as noted through periodic agency review and findings from traffic impact studies.
- Comprehensive Plan and Zone change applications.
- Adoption of the City of Damascus Comprehensive Plan.
- Adoption of the City of Damascus TSP

- *Administration of Cash-in-Lieu Payments (Optional):* The local agencies may seek to receive cash-in-lieu of construction payments for land use actions that would result in isolated elements of the corridor being constructed prior to use. These funds would need to be properly administered by the local agencies in order to both preserve and allocate the funds in the most appropriate manner to facilitate the implementation of the overall Corridor Management Plan.

Implementation of Plan Elements through Capital Improvement Projects

The implementation of the Corridor Management Plan by the City of Damascus, City of Happy Valley, and/or Clackamas County will be initiated by associated project(s) being incorporated into the respective capital improvement plans. Once the project(s) is incorporated into the capital improvement plan, the lead local agency will initiate a design and construction project that is consistent with the specified centerline and 15-percent plans contained in Appendix C. Any deviations to the Corridor Management Plan and/or the specified centerline must be approved in writing by the Clackamas County.

Monitoring Process

The purpose of the Corridor Management Plan is to ensure that adequate safety and capacity is provided for highway users throughout the 20-year horizon. While general monitoring thresholds are included within the plan to assist agencies in reviewing the need and timing of phased implementation, the Corridor Management Plan should remain dynamic and responsive to development and changes to the adopted land use and transportation plans. To accomplish this goal, a monitoring process should be agreed upon by the Cities and County in an IGA that identifies triggers for reviewing the Corridor Management Plan and how development within the surrounding area will be reviewed and coordinated with all parties.

Inter-Governmental Agreement

To ensure that the Corridor Management Plan continues to preserve operational integrity and safety of the 172nd-190th corridor, the City of Happy Valley, City of Damascus, and Clackamas County should develop an inter-governmental agreement (IGA) stipulating each agency's funding obligations to the transportation improvements in the Corridor Management Plan and to the following monitoring and update program:

IMPLEMENTATION OF PLAN ELEMENTS

The following three subsections describe the processes through which the Corridor Management Plan could be implemented in the future based private development actions, non-federally funded capital improvement project(s), and/or federally funded capital improvement project(s).

Implementation of Plan Elements through Private Development Actions

The following section outlines the transportation requirements for development and land use amendment applications and describes how the City of Damascus, City of Gresham, City of Happy Valley, and Clackamas County should coordinate in reviewing these applications. The intent of the Implementation Plan and associated transportation requirements is to allow development within the City and County to rely upon the planning work completed for this Corridor Management Plan that identifies the transportation needs in the corridor.

DEVELOPMENT REVIEW PROCEDURES AND COMPLIANCE PROCESS

The implementation of the Corridor Management Plan through private development land use actions and/or land use amendments will follow the development application and approval procedures of the local agency having land use jurisdiction. The Corridor Management Plan through its adoption will serve as the transportation system plan element and provide guidance for identifying the necessary transportation facility provisions (e.g., right-of-way, improvements, traffic control devices, etc.) associated with a specific land use action(s) and amendment(s). However, the Corridor Management Plan's adoption does require the local agency with land use jurisdiction to consider the following elements when reviewing and approving specific land use actions:

- *Right-of-Way Dedication Requirements:* Right-of-way dedications should be consistent with the Corridor Management Plan and the delineated and surveyed centerline and 15-percent plans contained in *Appendix C*. Any deviations to the Corridor Management Plan and/or the specified centerline must be approved in writing by the Clackamas County.
- *Direction of Requiring Construction of Improvements, Partial Improvements, or Cash-in-Lieu Payments:* The local agency with land use jurisdiction will require through conditions of approval and/or development agreements the specific improvements, partial improvements, or cash-in-lieu payments consistent with and necessary to implement the Corridor Management Plan based on the impacts and properties associated with the specific land use action and/or amendment.

3. The City of Happy Valley and Clackamas County should amend their respective land use codes, as needed, to adopt the strategies to ensure that the corridor is preserved and developed consistent with the Corridor Management Plan (see *Appendix D* for specific amendment materials).

4. Metro should amend the RTP to include the SE 172nd Avenue/190th Drive Corridor Management Plan, if deemed necessary.

5. Subsequent to the local adoption of the Corridor Management Plan, the City of Happy Valley, City of Damascus, and Clackamas County should explore potential funding sources, monitoring and improvement responsibilities, and project prioritization. These efforts should be captured within an Intergovernmental Agreement (IGA) or similar agreement.

Figure 8-1 illustrates the overall adoption process.

Figure 8-1: SE 172nd Avenue/190th Drive Corridor Management Plan adoption process.

IMPLEMENTATION PLAN FRAMEWORK

Steps necessary to adopt the Corridor Management Plan include the following:

1. Draft City of Happy Valley and Clackamas County plan and land use code amendments.

2. Obtain an endorsement for the Corridor Management Plan by the Project Management Team.

3. Provide 45-day notice to the Department of Land Conservation and Development (DLCD).

4. Conduct City of Happy Valley Planning Commission and City Council hearings on the Corridor Management Plan.

5. Conduct Clackamas County Planning Commission and Board of Commission hearings on the Corridor Management Plan.

6. Following local adoption, forward the Corridor Management Plan to Metro for review and adoption as an amendment to the RTP, if deemed necessary.

- Review corridor right-of-way and access management needs prior to adopting local plan amendments or approving local land use actions.
- Develop an interagency monitoring program that includes periodic safety and operational reviews to determine the need and timing of corridor plan improvements.

ADOPTION ELEMENTS

Implementation of the SE 172nd-190th Drive Corridor Management Plan will occur at several levels of government. The City of Happy Valley and Clackamas County will need to amend their TSPs and Comprehensive Plans to incorporate the relevant elements of the Corridor Management Plan or adopt in its entirety by reference. The City of Damascus will need to incorporate the Corridor Management Plan elements into its future TSP. In addition, new ordinances, or amendments to existing ordinances, resolutions, and/or Inter-Governmental Agreements (IGA) will be required to ensure that the improvements, right-of-way, access management, and coordination elements of the Corridor Management Plan are achieved in a way that will allow the transportation system to build toward the long-term needs of the project study area.

This adoption process will include City Planning Commission and City Council hearings at the city level and Planning Commission and Board of County Commissioner's hearings at the county level. Following successful adoption at the City of Happy Valley and Clackamas County, the Corridor Management Plan will be presented to the Metro for adoption as an amendment to the Regional Transportation Plan (RTP), if necessary.

To implement the Corridor Management Plan, the following actions should occur:

1. The City of Happy Valley should adopt the SE 172nd Avenue/190th Drive Corridor Management Plan as an amendment to the City's TSP and Comprehensive Plan. The Corridor Management Plan will serve as the long-range comprehensive management plan for providing the transportation facilities that are specifically addressed in this plan, including specific improvements, access management considerations, and right-of-way needs.
2. Clackamas County should adopt the SE 172nd Avenue/190th Drive Corridor Management Plan as an amendment to its TSP and Comprehensive Plan. The Corridor Management Plan will serve as the long-range comprehensive management plan for providing the transportation facilities that are specifically addressed in this plan, including specific improvements, access management considerations, and right-of-way needs.

8. IMPLEMENTATION PLAN

This section describes the SE 172nd Avenue/190th Drive Corridor Management Plan implementation strategy, and the purpose is to identify the process and steps required to fully adopt, monitor, and implement the plan. The implementation plan also includes discussion on potential financing mechanisms and monitoring procedures that will ensure transportation improvements are constructed and funded as development occurs, and so that the plan will be updated as needed over time.

IMPLEMENTATION OVERVIEW

To ensure that the Corridor Management Plan remains relevant and dynamic to changes over time, the City of Happy Valley, City of Damascus, and Clackamas County should ensure the following:

- The City of Happy Valley and Clackamas County should amend their respective Transportation System Plans (TSP) to adopt the SE 172nd Avenue/190th Drive Corridor Management Plan by reference.
- Clackamas County's adoption by reference will serve as interim implementation, pending full integration of the Corridor Management Plan into the updated Clackamas County TSP.
- Happy Valley should adopt amendments to their TSP that fully implement the Corridor Management Plan.
- The City of Damascus should incorporate the SE 172nd Avenue/190th Drive Corridor Management Plan into its future TSP, and ensure their future Development Code is consistent with the adopted TSP.
- The City of Happy Valley and Clackamas County should amend their development codes, as needed, per the code amendments provided in *Appendix D*.
- Develop an interagency funding strategy outlining improvement prioritization, affected area, and agency roles and responsibilities.

Ordinance ZDO-232, Exhibit C

Section 8 Implementation Plan

Ordinance ZDO-232, Exhibit C

Planning for right-of-way acquisition and roadway design will consider the area required for stormwater treatment facilities such as swales and planters adjacent to roads.

Water Quality Treatment

Clackamas County has placed a high priority on using vegetative treatment of runoff water. These facilities utilize infiltration of water and are most cost effective if underdrains are not required. On-site infiltration tests will be required to assist in choosing the type of water quality treatment system to be applied to different sections of the project. For the contributing roadway surface area, treatments for managing stormwater runoff may include a variety of options such as linear swales and rain gardens located at low positions within the eight-foot landscape strip within the roadways rights of way.

Regional Detention Facilities

Opportunities for developing regional detention facilities beyond the project boundaries should be evaluated. These could serve the proposed SE 172nd Avenue/190th Drive Corridor Management Plan as well as other privately-owned properties needing detention. As an interim design, 17 smaller detention ponds are sized and located throughout the PSA to collect runoff from the roadway surface only. Future development could increase the size and number of detention ponds, whose size and location must be determined through a separate analysis. The right-of-way needed for the ponds is shown on the 15 Percent Design Plans and provided in the estimate.

trunk line runs up the Rock Creek corridor from SE Sunnyside Road to SE Troge Road, then continues up SE 172nd Avenue to Scouters Mountain School. For all other road improvements, new sanitary lines are provided in the estimate. Using the roadway lengths, 8 and 12-inch sanitary lines are estimated, with the 8-inch lines serving the roadways at the high points – generally from the northeast corner of the PSA running downhill to the southwest corner at the connection point near Rock Creek.

The stormwater conveyance system proposed at this level of design considers the contributing area for roadway improvements only, not future developments. Per Clackamas County Stormwater Management Guidelines, new developments are required to detain and treat stormwater onsite prior to releasing the water to a public system or stream. Depending on timing of property developments, a parallel stormwater sewer system serving adjacent property developments may be constructed within the right-of-way before outfalling to the nearest body of water. Pipe sizing for the stormwater system results from general approximations to convey the roadway runoff. The stormwater pipe sizes were estimated using the CIA method to relate required pipe sizes to contributing impervious area:

- 12-inch pipe for contributing areas less than 5 acres,
- 18-ince pipe for contributing areas between 5 and 15 acres, and
- 24-inch pipe for contributing areas over 15 acres.

Other utility infrastructure that may be incorporated as the roadway network develops may include natural gas, telecommunications, ITS technology for traffic management, and electricity. Each roadway is planned for an eight-foot public utility easement (PUE) on each side of the proposed roadway. This area will serve the private utility companies, providing a space for an underground joint trench and vaults or for placement of poles for aerial utilities. The space was reserved, but the cost to supply and install the infrastructure is not included in the cost estimates, with the exception of conduit for ITS infrastructure.

Drainage Constraints

Designers will need to provide for water quality treatment and detention for all runoff from new or redeveloped impervious area, utilizing vegetated treatment facilities where appropriate. Soils appear to have relatively low permeabilities and on-site testing will be necessary to assess how well any proposed infiltration facilities will drain. Clackamas County WES requires infiltration of the first 0.5 inches of runoff, detention for a range of storm events, and water quality treatment for all runoff from new or redeveloped impervious area. Infiltration rates will depend upon numerous factors including the soil characteristics and the depth to groundwater. Many of the suggested pond sites are in relatively low areas and may be impacted by the seasonal water tables found in those areas

Several existing electrical lines converge near the widening of SE 172nd Avenue just south of the new intersection with Cheldelin. The final design for the roadway widening should aim to avoid impacting the existing steel towers, but may impact a number of wood pole structures and guy anchors. The crossing of SE 172nd Avenue over the gas line occurs at a 90-degree angle, minimizing the crossing impacts; however, careful protection of the underground pipe will be necessary when compacting the structural section for the widened roadway. Any construction activity across or near the large gas line will likely require a permit from the pipeline owner; coordination is anticipated to require a 6-month lead time. Additionally, the large water main paralleling SE 172nd Avenue from SE Sunnyside Road to SE Troge Road will require careful consideration when altering surrounding roadways and the proposed bridge structure crossing Rock Creek.

Utility Infrastructure

Perhaps more significant than relocation is the opportunity to bring new public infrastructure to the properties within the PSA as the 172nd/190th Corridor Plan develops. While nearly all properties in the PSA are served by electricity and communication utilities, public services such as domestic water, sanitary sewer, and stormwater treatment do not extend north beyond Scouters Mountain School, the most recent development in the PSA. Careful coordination among utility designers will allow for upgrades to existing lines and an opportunity to expand service areas.

In planning the improvements to the roadways, the design team included the cost for new public utilities. These costs, while managed by separate public agencies/jurisdictions, are included to reflect the overall cost for public improvements. This includes stormwater conveyance, detention storage and treatment, sanitary sewer mainlines, and domestic water pipes and appurtenances. Pipe sizing is provided in the cost estimate resulting from general approximations. A detailed engineering study to determine pipe sizing should be performed prior to any construction improvements.

Proposed domestic water infrastructure will likely begin at connection point near Scouters Mountain School. An 18-inch water line exists within SE 172nd from this point south to SE Sunnyside Road. It is estimated that the water main, with an average pipe diameter of 12 inches, will be extended throughout the project on all improved streets. Appurtenances including hydrants, air release valves, valves at intersections, and service connections are estimated at 10% of the mainline cost. Reservoir improvements, pressure release valves, booster pumps or the like are not included in the design and estimate at this phase.

The cost estimate includes line items for proposed sanitary sewer infrastructure to connect the majority of the PSA properties which utilize septic tanks and drain fields. An existing sanitary sewer

Table 7-4: Estimated Construction Costs

#	Project	Estimated Cost
1	SE 172nd Avenue (SE Sunnyside Road to SE 172nd-190th Connector)	$43M
2	SE 172nd Avenue (SE 172nd-190th Connector to SE Cheldelin Road)	$10M
3	SE 172nd-190th Connector (SE 172nd Avenue to SE Foster Road)	$10M
4	SE 172nd-190th Connector (SE Foster Road to SE 190th Avenue)	$18M
5	SE Cheldelin Road (SE 172nd Ave to SE Foster Rd)	$5M
6	SE Cheldelin Road (SE Foster Rd to SE 190th Dr)	$7M
7	SE Foster Road (SE Cheldelin Rd to SE Troge Rd)	$28M
8	SE Tillstrom Road (SE Foster Rd to SE Borges Rd)	$11M
9	SE Hemrick Road (SE 172nd Ave to SE Foster Rd)	$8M
10	SE Troge Road (SE 172nd Ave to approx. 1000' east of SE 172nd Ave)	$4M
	GRAND TOTAL	**$144M**

Details of the construction cost estimates can be found in *Appendix C.*

OTHER DESIGN CONSIDERATIONS

Retaining Walls

The preliminary design shown on the 15 Percent Design Plans anticipates mechanically-stabilized earth (MSE) retaining walls. Walls of this type consist of a wall panel (typically concrete blocks) tied into the slope using reinforcing materials between compacted soil layers. Retaining walls are proposed in areas where the roadway section requires a cut or fill with a depth over five-feet. Areas with a depth less than five-feet will be graded to catch the existing ground at a 2H:1V slope and may require slope easements.

Relocation of Significant Utilities

Relocation of utilities will generally be a minor task in reconstruction of the roadway network within the PSA. The two utilities that are unlikely to be relocated and shall be considered as fixed in future planning efforts are the 30-inch natural gas pipeline and the overhead electrical transmission lines. Cost and coordination efforts for relocating these items will likely surpass efforts to prepare alternate roadway alignments. Careful design and coordination with these utility providers will be critical when designing the roadway widening of SE 172nd Avenue and the new interserction of Cheldelin and 172nd Avenue for the protection of the gas main and electrical lines.

typical roadway section will be carried through the culvert crossing, with a pedestrian rail at the headwalls to minimize earthwork fill and length of structure. The cost for each structure is provided on an individual basis, and further engineering studies will tighten these costs at the time of final design.

CONSTRUCTION COST ESTIMATE

Planning-level cost estimates were prepared for individual segments of the overall corridor plan using current construction material costs, tax assessor data for property acquisitions, and historical cost data. The major disciplines comprising roadway construction were consulted in preparing estimates: roadway/civil engineering, bridge/structural engineering, stormwater treatment, traffic design, wetland mitigation, and property analysis. For each discipline, an estimate of the materials necessary to complete construction was made. While not comprehensive in scope, the items quantified are intended to define the major construction elements needed to complete the work using a typical engineering design. For example, estimates include a cost per foot of roadway section; features such as landscaped medians or widened road versus new roadway are noted. Aggregated items shown in previous reports have been separated into further detail for ease of tracking costs and isolating construction activities.

The unit costs for construction materials are provided in 2011 dollars and are are based upon historic bid tabulation data from the Oregon Department of Transportation (ODOT), estimate work from previous arterial roadway and bridge construction, and other estimating procedures based on project experience and construction cost trends in the region.

Finally, contingencies were included as a percentage of the overall construction cost. Three separate contingencies are noted. Soft costs, set at 30%, account for costs incurred through necessary permitting, plan review fees, additional studies, and design and consultation fees. Construction contingencies, also set at 30%, account for the general level of design detail available upon which to complete the estimate, material price fluctuations, and to cover items not quantified or for which a cost cannot currently be determined. Construction Engineering contingency, set at 10%, is a standard contingency found in both planning projects and those anticipating construction. This contingency covers administration of the construction contract, inspections, and testing services.

Preliminary cost estimates, including contingencies, for each segment of the Corridor Management Plan are shown in Table 7-4.

- **SE 182nd Avenue Extension** – This new roadway will continue the planned extension of the SE 182nd Avenue corridor (as proposed in the *Pleasant Valley District Plan*) from SE Cheldelin Road south to the future extension of SE Borges Road.
- **SE Sager Road Extension** – The planned extension of SE Sager Road from the Happy Valley TSP will be further extended in an easterly direction from SE Foster Road to the Future SE 182nd Avenue Extension.
- **SE Borges Road Extension** – This improvement would realign the westernmost portion of SE Borges Road to intersect SE Tillstrom Road at a more perpendicular angle. It would then extend the corridor in a westerly direction to the Future "177th Avenue" corridor, aligning with the planned new collector facility as established in the Happy Valley TSP.
- **Future "Scouters Mountain Road" Extension** – The planned new east-west collector from the Happy Valley TSP will be extended eastward from the Future "177th Avenue" to SE Foster Road.

BRIDGE AND CULVERT CONSIDERATIONS

Two bridges are designed and included in the plan set and cost estimate. The largest bridge is located on SE 172nd Avenue south of the existing intersection with SE Troge Road, crossing Rock Creek. The second bridge is smaller and is located on a new extension of SE Troge Road, immediately west of SE 172nd Avenue. Each bridge will be a single span structure, straddling the regulated 100-year floodway and will maintain or improve the existing flow capacity. The larger bridge will consist of precast pre-stressed deck bulb-t girders; the shorter bridge will utilize precast, pre-stressed slabs. Items of note during the final design phase are the high skew angle at the 172nd crossing resulting in a long bridge, and the proximity of the proposed signalized intersection.

Scour potential and wildlife corridor crossing will be addressed by raising the bridge and roadway elevation. The proposed roadway typical sections, with the exception of the landscaped planters, will be carried through the bridge segment and appropriate bridge rail will protect pedestrians and bicyclists at the outer edge of the sidewalk. The bridges will accommodate utilities underneath the roadway or sidewalk surface

Two culverts are assumed in this design package: one at a tributary of Rock Creek near the 172nd-190th Connector Road east of the Foster intersection, and one immediately north of the Foster/Hemrick intersection. Each culvert will be a fish-passable box culvert, utilizing either a bottomless structure or a countersunk box. Alternatively, bridges may be used in lieu of culverts, if found to be cost effective. The

- SE Baxter Road – to be realigned with SE Clatsop Street and extended from SE 162nd Avenue to SE Foster Road, aligning with SE Cheldelin Road.
- SE Sager Road – to be extended from SE 172nd Avenue to SE Foster Road.
- SE Hemrick Road – to be extended from SE 172nd Avenue to the future extension of SE 162nd Avenue.
- SE Troge Road – to be extended from SE 172nd Avenue to SE 162nd Avenue.
- SE Vogel Road – to be extended from SE 172nd Avenue to SE 162nd Avenue, aligning with SE Misty Drive.

Additionally, the Happy Valley TSP establishes four *new* east-west collector roadways that will cross SE 172nd Avenue within the PSA. These include two new roadways located between SE Sager Road and SE Hemrick Road, the future "Scouters Mountain" roadway between SE Hemrick Road and SE Hagen Road, and a new roadway between SE Troge Road and SE Vogel Road.

Finally, the Happy Valley TSP proposes intermittent north-south connections along the alignment of SE 177th Avenue to be provided between various east-west roadways.

PLEASANT VALLEY DISTRICT PLAN

The City of Gresham's *Pleasant Valley District Plan* identifies one new collector roadway within the PSA: an extension of SE 182nd Avenue. This future collector would extend from the existing southern terminus of SE 182nd Avenue, follow a portion of the existing SE Richey Road alignment, and connect to SE Cheldelin Road approximately 800 feet east of SE Foster Road.

ADDITIONAL NEW ROADWAYS

This Corridor Management Plan identifies a number of additional collector-level roadways to complete the local circulation network within the PSA. These new roads are shown schematically in Figure 7-1A and described as follows.

- **Future "177th Avenue" Corridor** – The Corridor Management Plan will connect the missing segments of this planned north-south collector corridor from the Happy Valley TSP, to provide a continuous corridor from SE Sager Road to SE Vogel Road. This collector will serve the local circulation needs while SE 172nd Avenue and SE Foster Road will serve more regional travel needs.

of traffic control. Table 7-3 summarizes the intersection lane configurations and traffic control treatments, as identified in this Corridor Management Plan.

Table 7-3: Summary of Intersection Treatments

Intersection	Proposed Intersection Form
172nd Ave / Vogel Rd	Signal
172nd Ave / Troge Rd	Signal
172nd Ave / Future Scouters Mountain Rd	2-Lane Roundabout
172nd Ave / Hemrick Rd	2-Lane Roundabout
172nd Ave / 172nd-190th Connector	2-Lane Roundabout
172nd-190th Connector / Foster Rd	2-Lane Roundabout
172nd-190th Connector / 190th Ave	2-Lane Roundabout
172nd-190th Connector / Cheldelin Rd / 190th Ave	2-Lane Roundabout
172nd Ave / Sager Rd	1-Lane Roundabout
172nd Ave / Cheldelin Rd	Signal
Foster Rd / Cheldelin Rd	1-Lane Roundabout
Foster Rd / Tillstrom Rd	Stop Controlled
Foster Rd / Hemrick Rd	1-Lane Roundabout
Foster Rd / Troge Rd	1-Lane Roundabout
190th / Tillstrom Rd	1-Lane Roundabout

LOCAL ACCESS PLAN

Local access and circulation within the PSA will be accommodated through a combination of new and upgraded collector and local streets. The future network of collector-level roadways is comprised of planned roadways from the City of Happy Valley's *Transportation System Plan* (TSP), the City of Gresham's *Pleasant Valley District Plan*, and a number of additional new roadways from this CORRIDOR MANAGEMENT PLAN. These new collector roadways are shown on the Corridor Management Plan Overview Map in Figure 7-1A and described below.

HAPPY VALLEY TSP

The City of Happy Valley's TSP identifies five existing east-west roadways within the PSA to be extended and upgraded as collector facilities. These roadways are shown schematically in Figure 7-1A and listed as follows:

PARKING

Parking may be provided within the vicinity of commercial centers. Where provided, parking stalls will be eight feet wide and located between the bike lane and sidewalk, as shown in Figures 7-3A and 7-3B.

RIGHT-OF-WAY WIDTH

As shown in Figures 7-3A and 7-3B, the total required right-of-way width is 105 feet for the five-lane corridor and 83 feet for three-lane corridors. Additionally, an eight-foot public utility easement is required on both sides for all arterial locations, except within the commercial centers where utilities may be provided underground within the right-of-way. Additional slope easements may also be needed outside of the standard right-of-way width, depending on final grading limits. A preliminary assessment of the future right-of-way footprint can be found in the preliminary 15 Percent Design Plans (see *Appendix C).*

INTERSECTION LANE CONFIGURATIONS AND TRAFFIC CONTROL

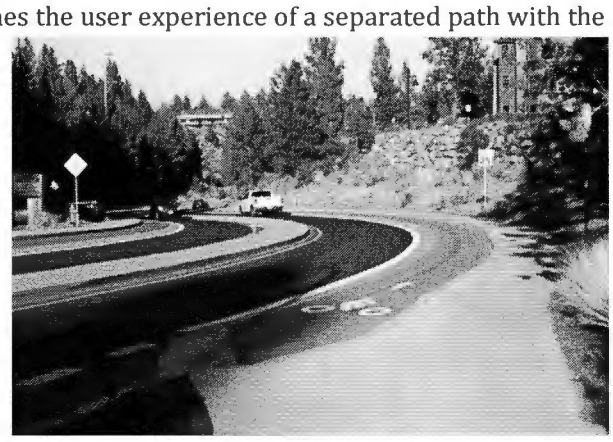
Traffic analysis results for the 2035 design year were presented in Chapter 6 of this report. Based on the results of the capacity analysis, the lane configurations and traffic control forms were determined for each study intersection. In general, roundabouts were selected as the preferred form for major intersections, if feasible based on the environmental constraints and traffic analysis results. Roundabouts provide several advantages over signalized intersections, including:

- Safety benefits – roundabouts have been shown to have significantly fewer fatal and injury crashes.
- Operational benefits – roundabouts typically have lower overall delay compared to signalized intersections, especially during non-peak travel periods.
- Environmental benefits – roundabouts result in fewer stops and less time idling than signalized intersections.
- Complementary with community values – roundabouts provide opportunities for aesthetic enhancements such as artwork and landscaping. Additionally, roundabouts promote a slower speed environment, which enhances the comfort level for pedestrians, bicyclists, and other non-motorized modes.

At some study intersections, roundabouts were found to require additional travel lanes and/or did not fit well with the surrounding network. In these, cases traffic signals were selected as the preferred form

CYCLE TRACKS

A cycle track is an exclusive bike facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane. Although located adjacent to the travel lane (similar to a standard bike lane), cycle tracks on the 172nd Avenue/190th Drive corridor are elevated above the street level using a low-profile curb and a distinctive pavement material. By separating cyclists from motor vehicle traffic, cycle tracks can offer a higher level of security than bike lanes and are attractive to a wider spectrum of the public.



Example cycle track in Bend, Oregon

As shown in Figures 7-3A and 7-3B, cycle tracks shall be eight feet wide, which includes the low-profile curb and shy distance to the vehicular travel lane. The cycle tracks shall be constructed using concrete pavement with coloring to be specified by Clackamas County.

BIKE LANES

For segments of the corridor within commercial centers or on two-lane roadways, the cycle tracks may be eliminated and replaced by standard six-foot bike lanes. In these areas, the two-foot surplus width (in comparison to the eight-foot cycle tracks used elsewhere) will be used to provide wider sidewalks.

PLANTER STRIPS

Planter strips separating the roadway from the sidewalk shall be provided in all areas along the corridor, except within commercial centers. Planter strips will be eight feet wide and may be used to provide water quality treatments and/or other green street design elements.

In commercial centers, planter strips can be eliminated and replaced by wider sidewalks, tree wells, and other street furniture, as shown in Figures 7-3A and 7-3B.

SIDEWALK WIDTH

Sidewalks will generally be at least seven-feet wide for segments of the corridor outside of commercial centers. Within commercial centers, sidewalks will be 18 feet wide where on-street parking is not provided, and 10 feet wide where on-street parking is provided.

Table 7-2 summarizes the streetscape features and dimensions for various land use environments.

Table 7-2: Corridor Management Plan Streetscape Characteristics and Typical Dimensions

Street Element	Residential or Industrial Areas	Commercial Centers (No Parking)	Commercial Centers with Parking
Vehicle Travel Lane Width	11 feet	11 feet	11 feet
Median Width	13 feet	13 feet	13 feet
Cycle Track Width	8 feet	--	--
Bike Lane Width	--	6 feet	6 feet
Planter Strip Width	8 feet	--	--
Sidewalk Width	7 feet	18 feet	10 feet
Parking	--	--	8 feet
Total ROW – Five-Lane Corridor	105 feet	105 feet	105 feet
Total ROW – Three-Lane Corridor	83 feet	83 feet	83 feet
Five-Lane Corridor Illustration	5A (1 or 2)	5B	5C
Three-Lane Corridor Illustration	3A (1 or 2)	3B	3C
Two-Lane Corridor Illustration	2A	--	--

Additional discussion of the streetscape design elements is provided below.

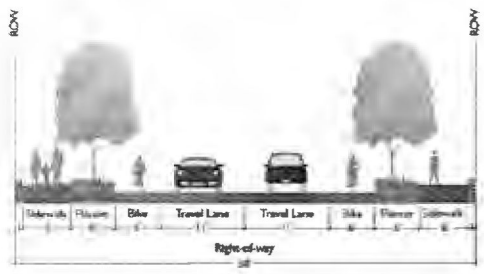
VEHICLE TRAVEL LANES

Standard lane widths of 11 feet shall be used for the project corridors. These lane widths correspond to the minimum dimension allowed by *Clackamas County Roadway Standards*. Where necessary to accommodate truck turning movements at intersections (especially roundabout intersections), wider travel lanes may be used.

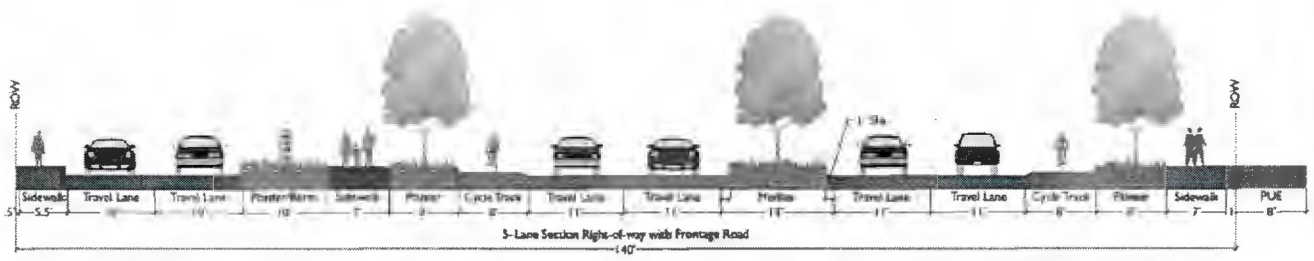
MEDIANS

A consistent median width of 13 feet shall be provided for the 172nd Avenue/190th Drive and SE Foster Road corridors within the PSA. At intersections and access points requiring left-turn lanes, the 13-foot median width can be striped to demarcate an 11-foot left-turn lane with a two-foot median (striped and/or raised) between opposing directions of traffic. For segments between intersections where no left-turn lane is required, a raised landscaped median should generally be provided. The raised median will generally be 11 feet wide, providing one-foot shy distance to the travel lanes on either side.

2A



2-Lane Section



2B 5-Lane Section with Median and Frontage Road

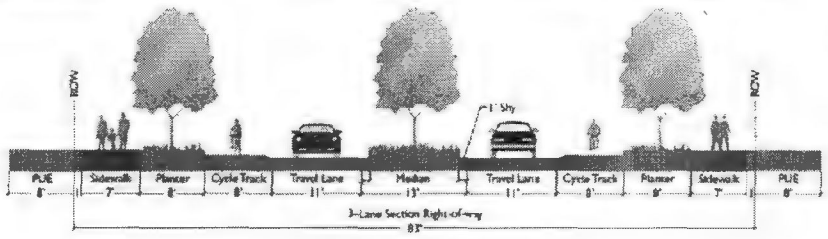
Corridor Management Plan
2-Lane Streetscape

172nd / 190th Corridor Plan

CLACKAMAS COUNTY

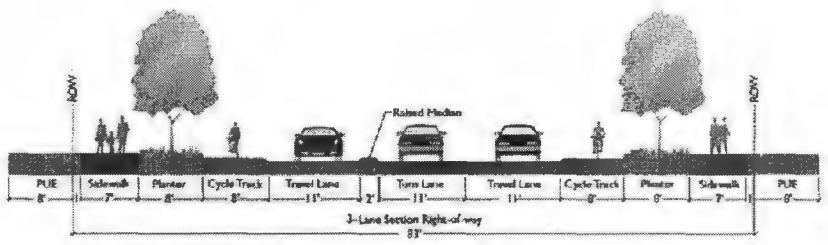
Figure 7-3C

3A-1



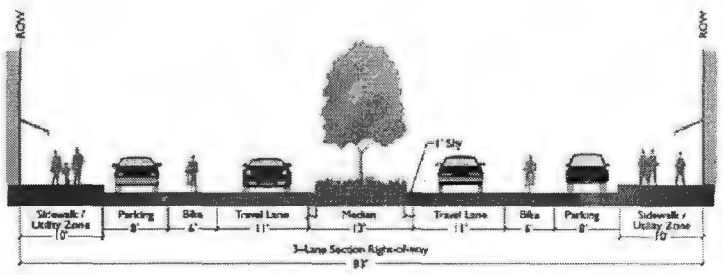
3-Lane Section with Median

3A-2



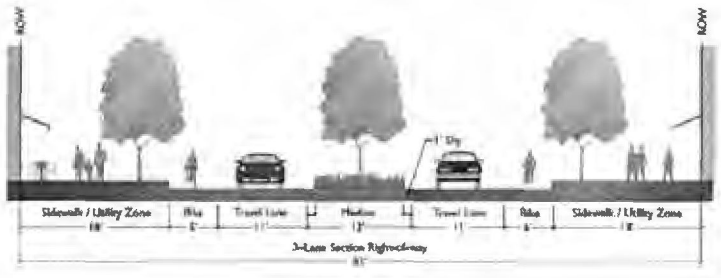
3-Lane Section with Left Turn Lane

3B



3-Lane Section with On-street Parking in Urban Center

3C



3-Lane Section in Urban Center

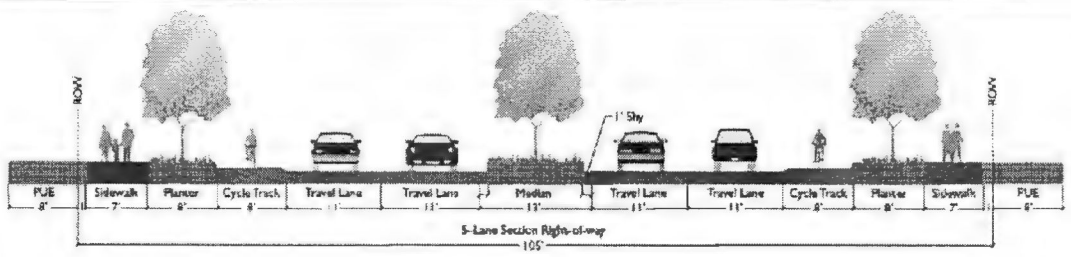
Corridor Management Plan 3-Lane Streetscape

172nd / 190th Corridor Plan

CLACKAMAS COUNTY

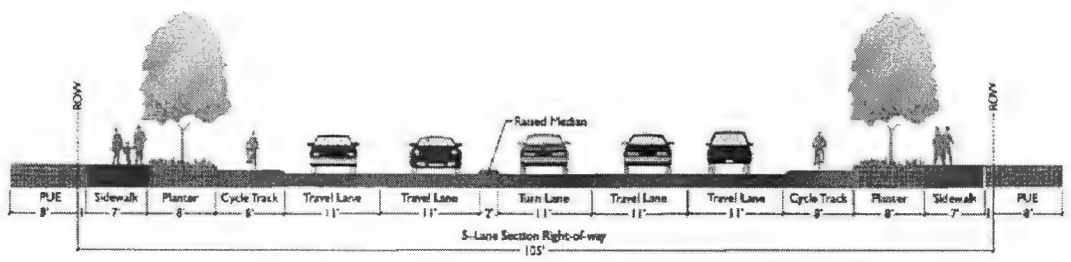
Figure 7-3B

5A-1



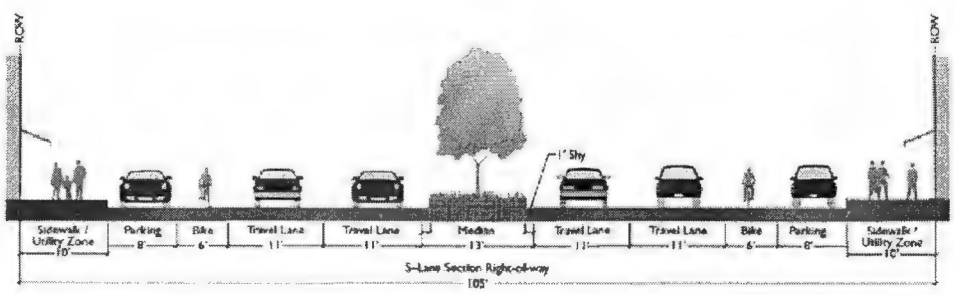
5-Lane Section with Median

5A-2



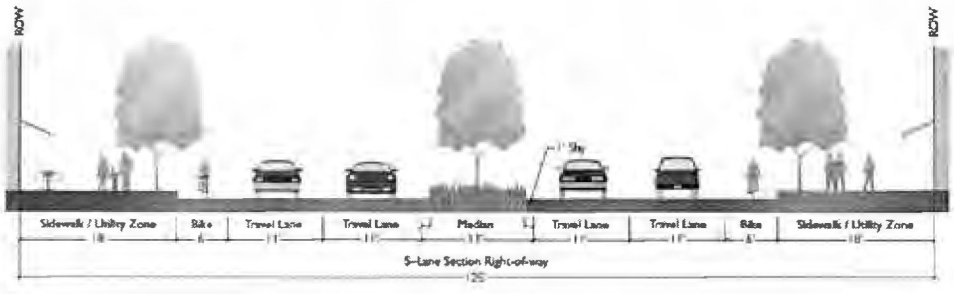
5-Lane Section with Left Turn Lane

5B



5-Lane Section with On-street Parking in Urban Center

5C



5-Lane Section in Urban Center

Corridor Management Plan
5-Lane Streetscape

172nd / 190th Corridor Plan

CLACKAMAS COUNTY

Figure 7-3A

- Integrating green street features.
- Supporting future public transit opportunities.
- Encouraging lower speeds within commercial centers.
- Accommodating emergency service vehicles and freight vehicles.
- Providing an aesthetically pleasing design.
- Balancing streetscape features with maintenance considerations.

To that end, the streetscape designs shown in Figures 7-3A, 7-3B, and 7-3C were developed for varying lane configuration and land-use environments.

6) SE Tillstrom Road

As shown in Figure 7-2A, SE Tillstrom Road will be widened to a three-lane roadway between SE Foster Road and SE Borges Road, with a new roundabout intersection at the realigned SE 190th Drive. Additionally, the western end of the road will be realigned beginning at a point approximately 1,800 feet east of SE Foster Road, in order to separate the SE Tillstrom Road/SE Foster Road intersection by approximately 800 feet (no closer than 600 feet) away from the new 172nd-190th Connector/SE Foster Road intersection. Additionally, SE 190th Drive will be realigned near its southern terminus to form a more perpendicular roundabout intersection with SE Tillstrom Road, as shown in Figure 7-2B.

7) SE Hemrick Road

As a collector roadway, SE Hemrick Road will be widened to urban design standards, including bike lanes and sidewalks. Left-turn lanes may be provided at intersections, depending on future development plans and associated traffic analyses. The cross sectional details of SE Hemrick Road will be based on applicable city and/or county design standards. Figure 7-2B shows a symmetrical widening of SE Hemrick Road about its existing centerline. Extensions to the existing underground culverts will be necessary to provide drainage to the Rock Creek watershed.

8) SE Troge Road

As shown in Figure 7-2C, the Corridor Management Plan includes realigning SE Troge Road beginning approximately 1,000 feet east of SE 172nd Avenue and shifting the SE Troge Road/SE 172nd Avenue intersection approximately 300 feet south of the current intersection location. The purpose of this realignment is twofold: (1) to provide for local circulation to the new frontage road, and (2) to allow the two existing bridges over Rock Creek to be replaced by two single-span bridges. Without the realignment, the structure needed to span Rock Creek would be a complex, three-legged bridge that would cover a large portion of the stream. A new 70-foot long bridge along the western leg of the realigned SE Troge Road will provide access to the future redevelopment of the golf course. More discussion of the bridge design considerations is provided later in this chapter.

TYPICAL STREETSCAPE SECTIONS

The streetscape characteristics for the SE 172nd Avenue/190th Drive Corridor Management Plan were developed to meet the vehicular travel needs while achieving the other project objectives, including:

- Providing a safe and comfortable route for pedestrians and bicyclists.

northeast connecting to SE 190th Drive just south of SE Cheldelin Road. The new roadway cuts diagonally across existing properties and intersects with SE Foster Road at approximately the location of the existing SE Foster Road/SE Tillstrom Road intersection.

4) SE 172nd-190th Connector: SE Foster Road to SE 190th Avenue

As shown in Figure 7-2A, the SE 172nd-190th Connector completes the connection from SE Foster Road to SE 190th via a new alignment continuing in a northeasterly direction and joining the existing SE 190th alignment immediately south of SE Cheldelin Road.

In conjunction with the new 172nd-190th Connector, SE Tillstrom Road would be realigned beginning at a point approximately 1,200 feet east of SE Foster Road. The realignment entails curving SE Tillstrom Road in a westerly direction and creating a new intersection with SE Foster Road approximately 800 feet (no closer than 600 feet) south of the new 172nd-190th Connector/SE Foster Road intersection.

Similarly, SE 190th Drive would be realigned where it intersects the new 172nd-190th Connector. Beginning at a point approximately 1,200 feet south of SE Cheldelin Road, SE 190th Drive would curve in a northwesterly direction to intersect the new 172nd-190th Connector approximately 800 feet (no closer than 600 feet) south of the 172nd-190th Connector/SE Cheldelin Road intersection.

North of SE Cheldelin Road, SE 190th Drive will be widened symmetrically on both sides to provide a five-lane cross section consistent with the SE 172nd Avenue-190th Drive Connector. As the five-lane expansion extends north of the project study area boundary, the typical cross section may modified slightly, subject to the requirements of the City of Gresham and the Pleasant Valley District Plan.

5) SE Cheldelin Road: SE 172nd Avenue to SE Foster Road

The conceptual design plan for the SE Foster Road corridor is shown in Figures 7-2A through 7-2C. As demonstrated in the traffic analysis results presented in Section 6, SE Foster Road will function acceptably under projected design year traffic conditions as a three-lane roadway. In this design and per the *Pleasant Valley District Plan*, SE Foster Road will be disconnected to the north beyond SE Cheldelin Road.

Given the multitude of existing and potential future access points along its length, a consistent three-lane cross-section is maintained within the project study area. The design widens SE Foster Road symmetrically on each side of the existing centerline. Ultimately when construction drawings are prepared for the SE Foster Road corridor, it may be appropriate to consider refinements to the design, including possible adjustments to the existing centerline alignment.

1) SE 172nd Avenue: SE Sunnyside Road to SE 172nd-190th Connector

The preliminary horizontal design for the SE 172nd Avenue corridor from the new 172nd-190th Connector to SE Sunnyside Road is displayed in Figures 7-2B through 7-2D. As shown, the design consists of widening the corridor to five lanes and matching to the existing five-lane cross-section approximately 350 feet north of SE Sunnyside Road.

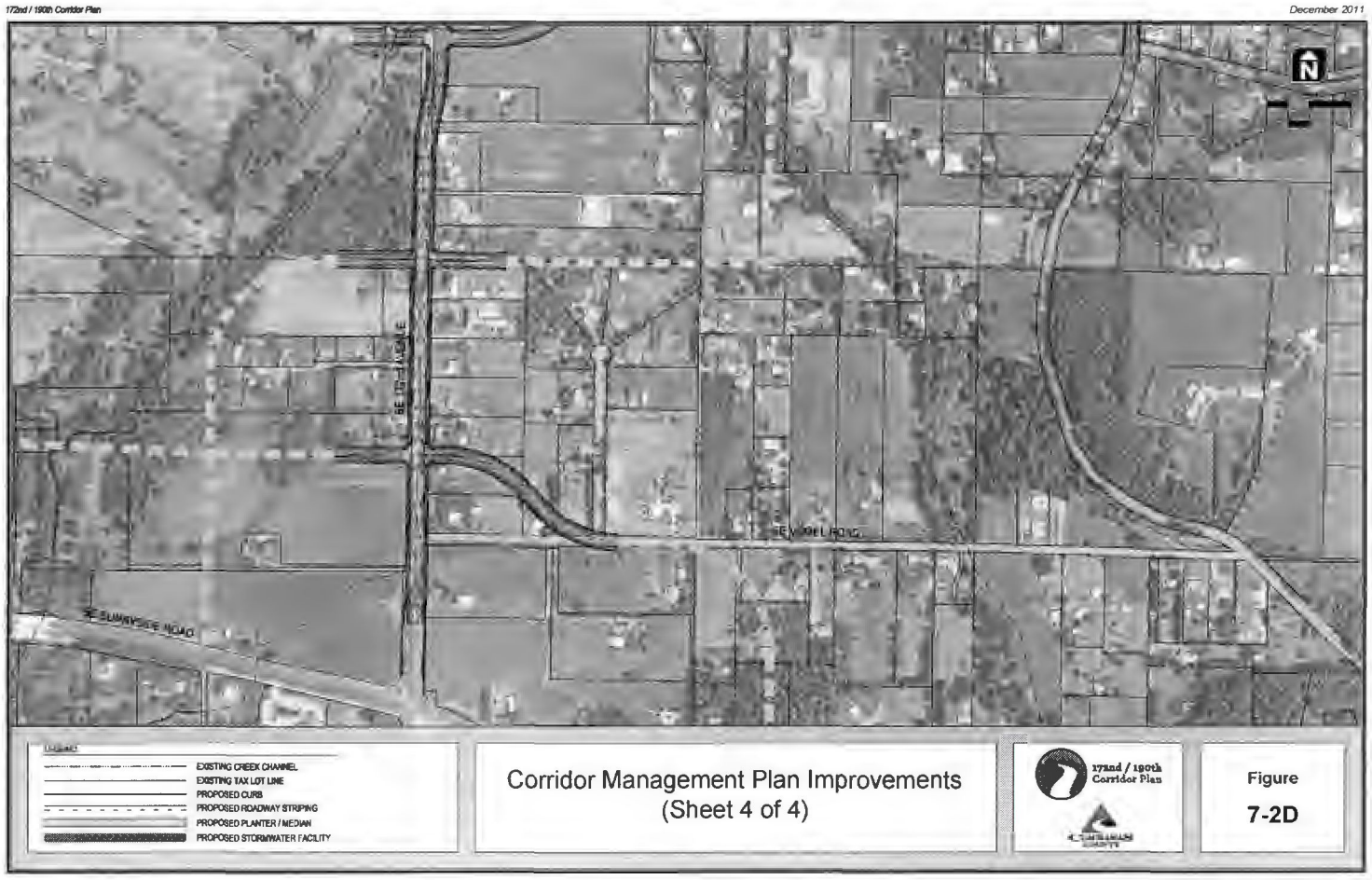
The Corridor Management Plan calls for widening symmetrically on both sides of the existing centerline, with the exception of the section generally located between SE Hagen Road and SE Troge Road. This quarter-mile section includes twelve existing single-family residences on the west side, each with individual access to SE 172nd Avenue. Maintaining these accesses onto the five-lane arterial would not be consistent with access management guidelines, and modifying or consolidating accesses while keeping SE 172nd Avenue on its existing centerline would not be feasible without substantially impacting all of the residences. Therefore, the roadway centerline alignment shifts approximately 45 feet east of the existing centerline in this section. As shown on Figure 7-2C, a two-lane frontage road would be constructed between SE Hagen Road and SE Troge Road to provide access to the residential properties on the west side of SE 172nd Avenue. The frontage road will outlet to SE Hagen Road and a new SE Troge Road extension, respectively. SE Hagen Road will be disconnected from SE 172nd Avenue. Immediately south of the existing SE Troge Road intersection, a new bridge will replace the existing Rock Creek crossing. This structure will be approximately 140-feet long to account for the sharp angle at which the roadway and stream intersect.

2) SE 172nd Avenue: SE 172nd-190th Connector to SE Cheldelin Road

As shown in Figure 7-2A, the remaining segment of SE 172nd Avenue north of the new 172nd-190th Connector would be widened to provide a three-lane cross-section and would primarily remain on its current alignment from SE Cheldelin Road to the new 172nd-190th Connector intersection. The only exception is the southernmost portion of the roadway, which will be realigned approximately 200 feet north of the SE Maple Hill Lane intersection to the new 172nd-190th Connector intersection. The alignment utilizes a roundabout intersection with the northern leg of SE 172nd Avenue intersecting the new 172nd-190th Connector perpendicularly.

3) SE 172nd-190th Connector: SE 172nd Avenue to SE Foster Road

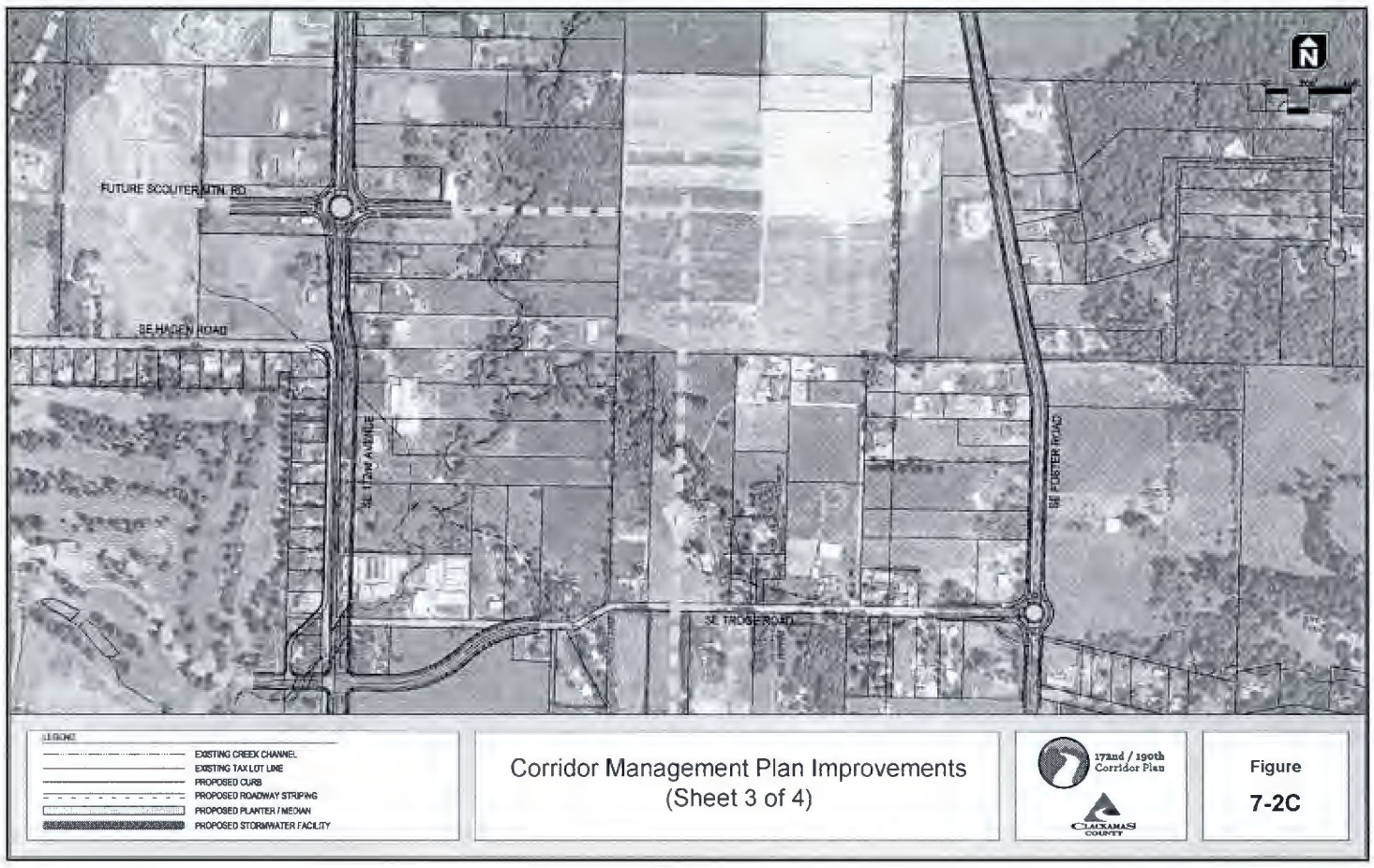
Figure 7-2A displays the proposed horizontal alignment for the new five-lane roadway connecting SE 172nd Avenue and SE 190th Drive. As shown, this new alignment diverges from the existing SE 172nd Avenue alignment beginning just south of the SE Wooded Heights Road intersection and heads north-



Corridor Management Plan Improvements
(Sheet 4 of 4)

172nd / 190th Corridor Plan

Figure
7-2D



Corridor Management Plan Improvements
(Sheet 3 of 4)

172nd / 190th Corridor Plan

CLACKAMAS COUNTY

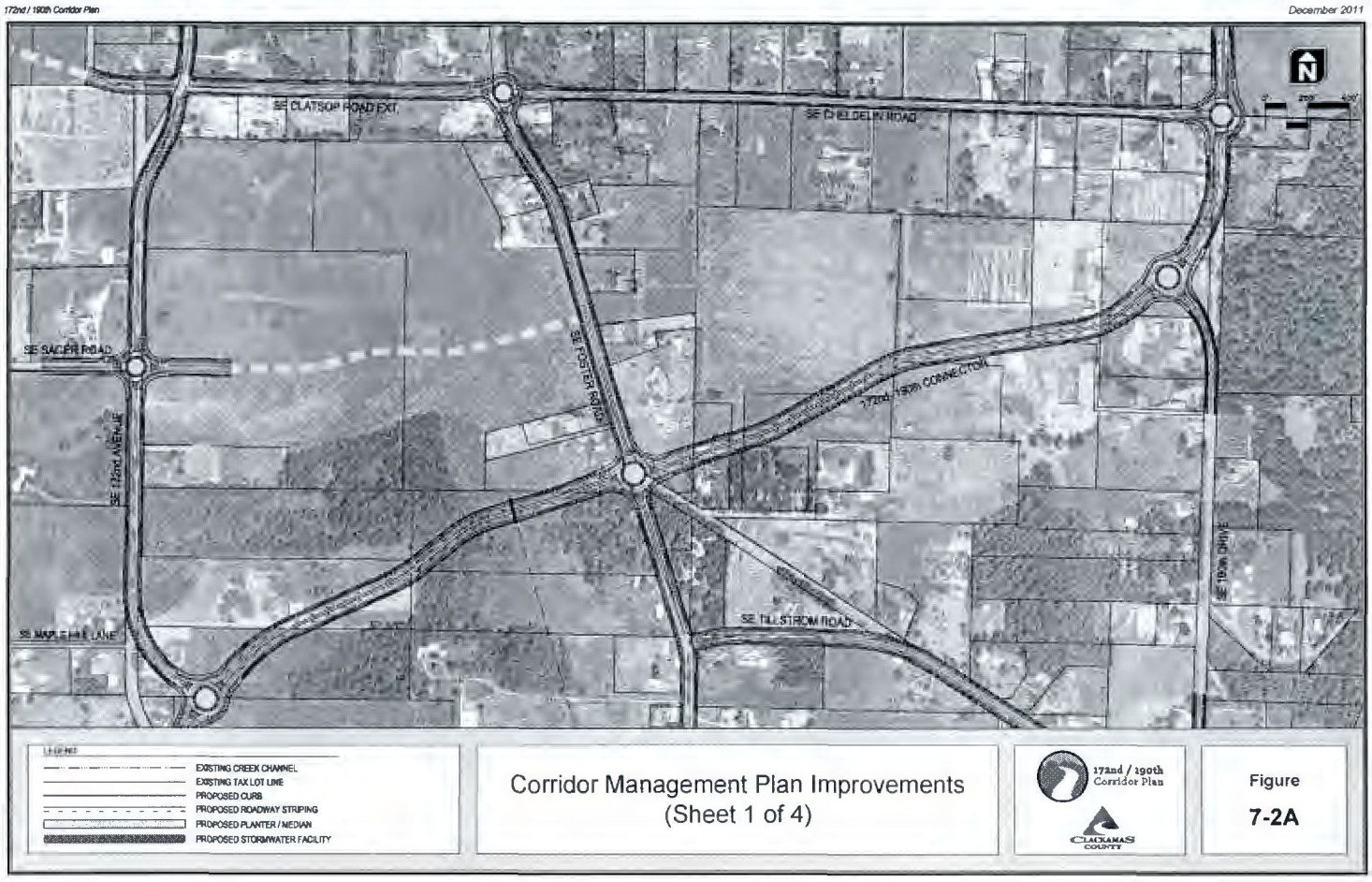
Figure

7-2C

Corridor Management Plan Improvements
(Sheet 2 of 4)

172nd / 190th Corridor Plan

Figure
7-2B



Corridor Management Plan Improvements
(Sheet 1 of 4)

172nd / 190th Corridor Plan

CLACKAMAS COUNTY

Figure
7-2A

Table 7-1 summarizes roadway improvement projects identified in this Corridor Management Plan. The list is not comprehensive; minor connections to existing or future roadways will be subject to planning approvals and requirements at the time of development.

Table 7-1: Summary of Corridor Management Plan Roadway Improvements

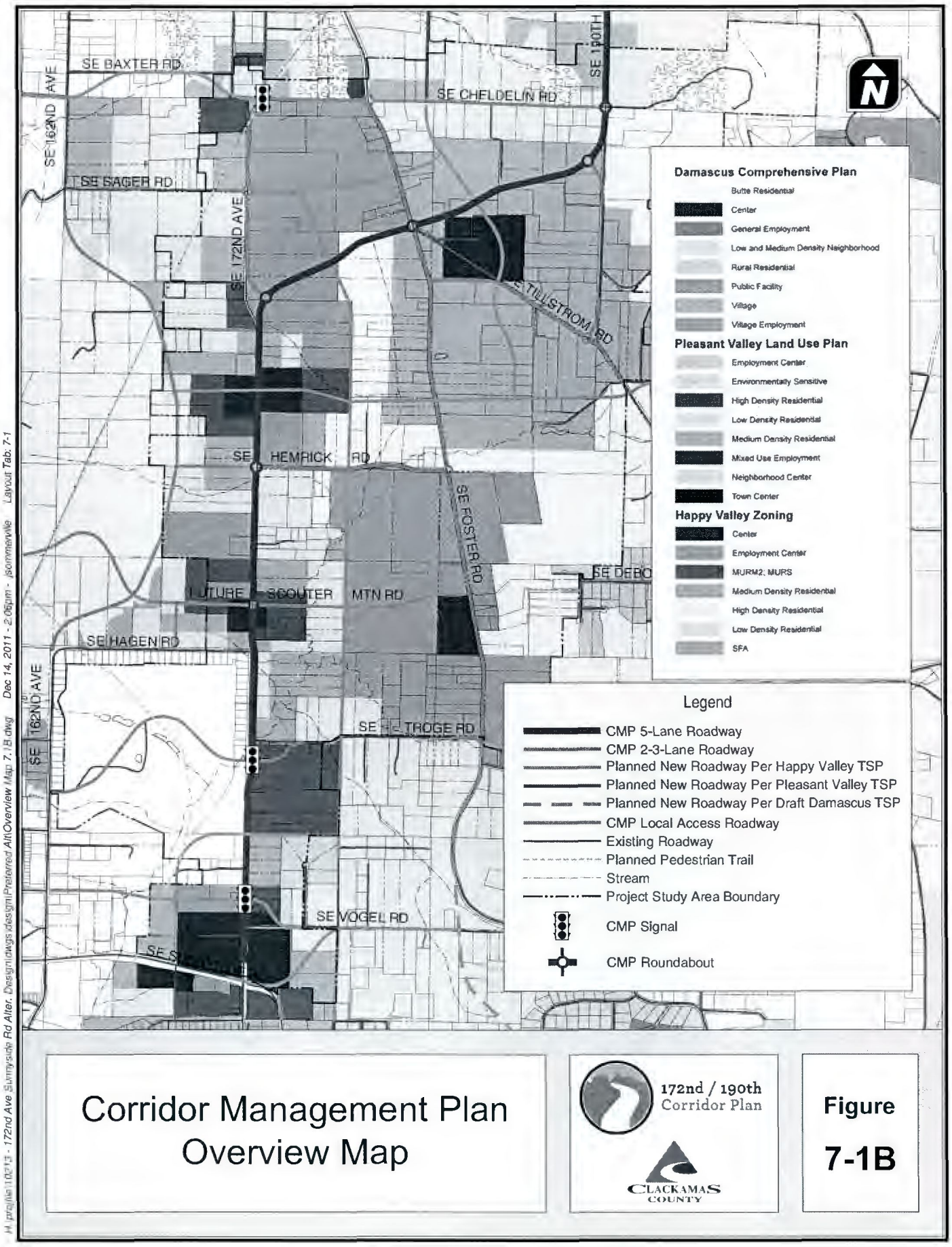
#	Roadway	Location	Description
1	SE 172nd Avenue	SE Sunnyside Road to SE 172nd-190th Connector	Widen to five lanes
2	SE 172nd Avenue	SE 172nd-190th Connector to SE Cheldelin Road	Widen to three lanes
3	SE 172nd-190th Connector	SE 172nd Avenue to SE Foster Road	Construct new five-lane roadway
4	SE 172nd-190th Connector	SE Foster Road to SE 190th Drive	Construct new five-lane roadway
5	SE Cheldelin Road (SE Clatsop Street Extension)	SE 172nd Avenue to SE Foster Road	Construct new two-lane roadway
6	SE Cheldelin Road	SE Foster Road to SE 190th Drive	Widen to two lanes
7	SE Foster Road	SE Cheldelin Road to SE Troge Road	Widen to three lanes
8	SE Tillstrom Road	SE Foster Road to SE 190th Drive	Widen to three lanes and realign at Foster Road intersection
9	SE Hemrick Road	SE 172nd Avenue to SE Foster Road	Widen to two/three lanes
10	SE Troge Road	SE 172nd Avenue to approx. 1000' east of SE 172nd Avenue	Realign roadway and construct new bridge

Details related to the alignments, cross-sections, intersection treatments, and additional design considerations are provided in the remainder of this section.

PRELIMINARY ALIGNMENT DESIGN

The conceptual design for the Corridor Management Plan improvements is shown in Figures 7-2A through 7-2D. These figures display 1"=400' scale drawings of the preliminary (15% level) horizontal design, including intersection layouts, pedestrian and bicycle facilities, and approximate right-of-way needs. Additional design information can be found in *Appendix C,* which includes 1"=100' scale horizontal plan views, preliminary vertical alignment design information, and conceptual stormwater utility plans.

The key features and design considerations for each of the various segments of the Corridor Management Plan are described below.



H:\projfile\10213 - 172nd Ave Sunnyside Rd Alter. Design\dwgs\design\Preferred Alt\Overview Map 7.1B.dwg Dec 14, 2011 - 2:06pm - jsommerville Layout Tab: 7-1

Corridor Management Plan Overview Map

172nd / 190th Corridor Plan

CLACKAMAS COUNTY

Figure 7-1B

Ordinance ZDO-232, Exhibit C

Corridor Management Plan Overview Map

172nd / 190th Corridor Plan

CLACKAMAS COUNTY

Figure 7-1A

Ordinance ZDO-232, Exhibit C

7. CORRIDOR MANAGEMENT PLAN

This chapter presents the Corridor Management Plan for connecting SE 172nd Avenue and 190th Drive between SE Sunnyside Road and SE Cheldelin Road. Specifically, the plan identifies the following elements:

- Preliminary alignment design,
- Typical streetscape sections,
- Intersection lane configurations and traffic control treatments,
- Local access plan,
- Bridge and culvert considerations,
- Construction cost estimate, and
- Other design considerations.

OVERVIEW

The Corridor Management Plan provides a comprehensive plan of transportation improvements to establish the long-term vision for the SE 172nd Avenue/190th Drive Corridor and to serve the growing multi-modal travel needs within the area for the next 25 years and beyond, as described in the purpose and need statement in Chapter 1. The plan was developed with extensive public involvement through the alternative screening and evaluation process, as described in Chapters 2 and 6.

Figure 7-1A and 7-1B present an overview map of the Corridor Management Plan, including the roadway improvements and intersection treatments within the PSA. In addition to the existing roads and environmental features, this map also displays planned new roadways based on the adopted transportation plans from the cities of Gresham and Happy Valley. The City of Damascus's transportation plan is currently under development, and the planned new roadways from the city's *draft* plan are also shown.

Ordinance ZDO-232, Exhibit C

Section 7 Corridor Management Plan

Ordinance ZDO-232, Exhibit C

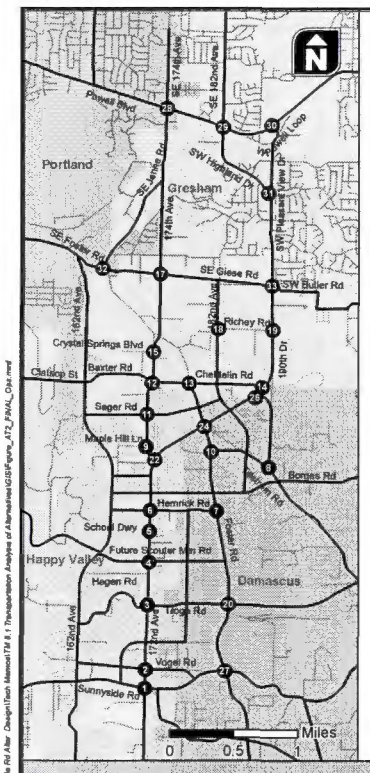
Ordinance ZDO-232, Exhibit C

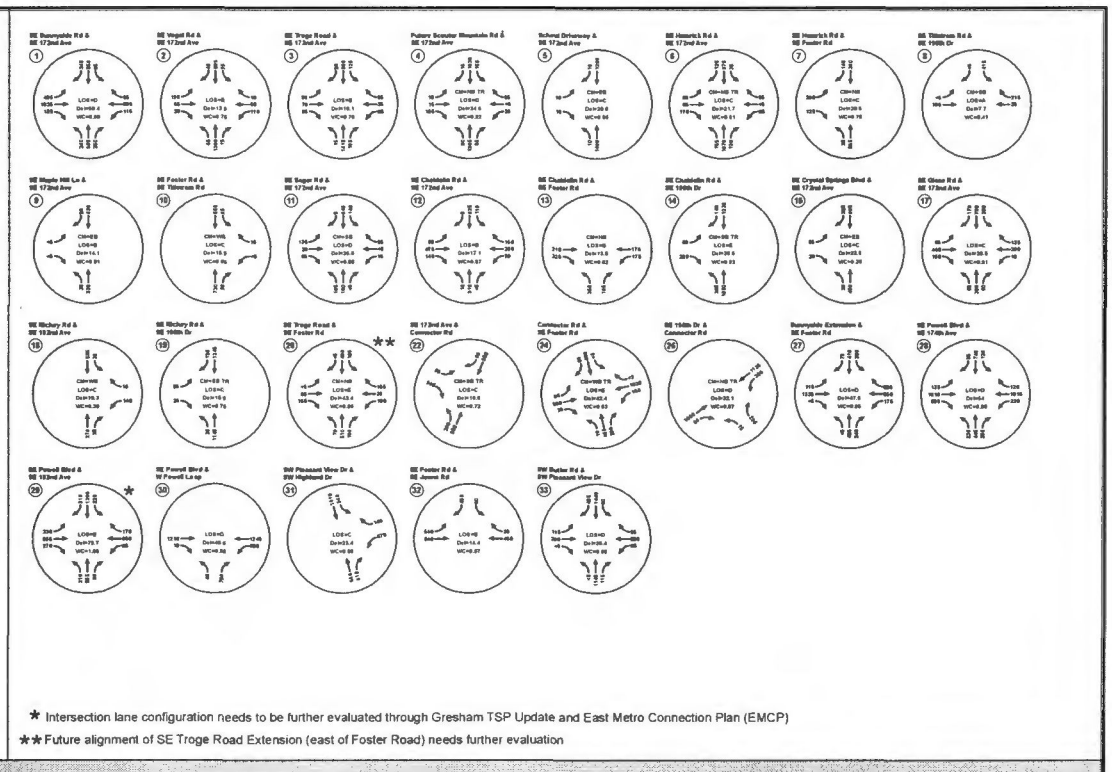
Year 2035 traffic forecasts developed for the SE 172nd Avenue/190th Drive Corridor Management Plan indicate that the SE Powell Boulevard/SE 182nd Avenue intersection will operate slightly over capacity with a volume-to-capacity ratio of 1.05. Based on these forecasts and the current mobility standards within the City of Gresham, additional northbound and/or southbound through lanes would be required for the intersection to operate within capacity. However, it should be noted that Metro is updating its 2035 land use projections at the time of this plan's publication which could result in different, and likely lower traffic demand at this intersection. It is also important to note that this intersection is outside the PSA, and its capacity needs were examined for informational purposes to the City of Gresham. Thus, the SE 172nd Avenue/190th Drive Corridor Management Plan should not be considered for the final determination of intersection needs at this location. Moreover, providing additional through lanes is not in compliance with Metro's policy stating that arterials should not be greater than five lanes.

The East Metro Connections Plan (EMCP) and Gresham TSP Update will further examine future needs at SE Powell Boulevard/SE 182nd Avenue intersection based on the updated 2035 land use projections. In addition, the Clackamas County TSP Update will also include the updated 2035 land use projections to determine whether north-south corridor volumes will change as compared to current model forecasts.

This intersection, as well as other intersections outside the PSA, was analyzed to determine the impacts of various corridor alignment concepts on the surrounding transportation system and facilitate the selection of alignment concepts. As a result, the Corridor Management Plan was not intended to recommend improvements outside the PSA. Analyses of various alignment concepts shown in *Tech Memo #7.1 - Refined Corridor Alignment Concepts* and *Tech Memo #8.1 - Transportation Analysis of Alternatives* indicate that the different corridor alignment concepts have little impact on needs at the SE Powell Boulevard/SE 182nd Avenue intersection. Therefore, the selection of the Preferred Build Alternative has little effect on the intersection needs at the SE Powell Boulevard/SE 182nd Avenue intersection.

Appendix B includes the intersection analysis worksheets. Details of the Preferred Build Alternative development process can be found in *Tech Memo #8.3 – Preferred Build Alternative* in the *Technical Appendix*.





* Intersection lane configuration needs to be further evaluated through Gresham TSP Update and East Metro Connection Plan (EMCP)

** Future alignment of SE Troge Road Extension (east of Foster Road) needs further evaluation

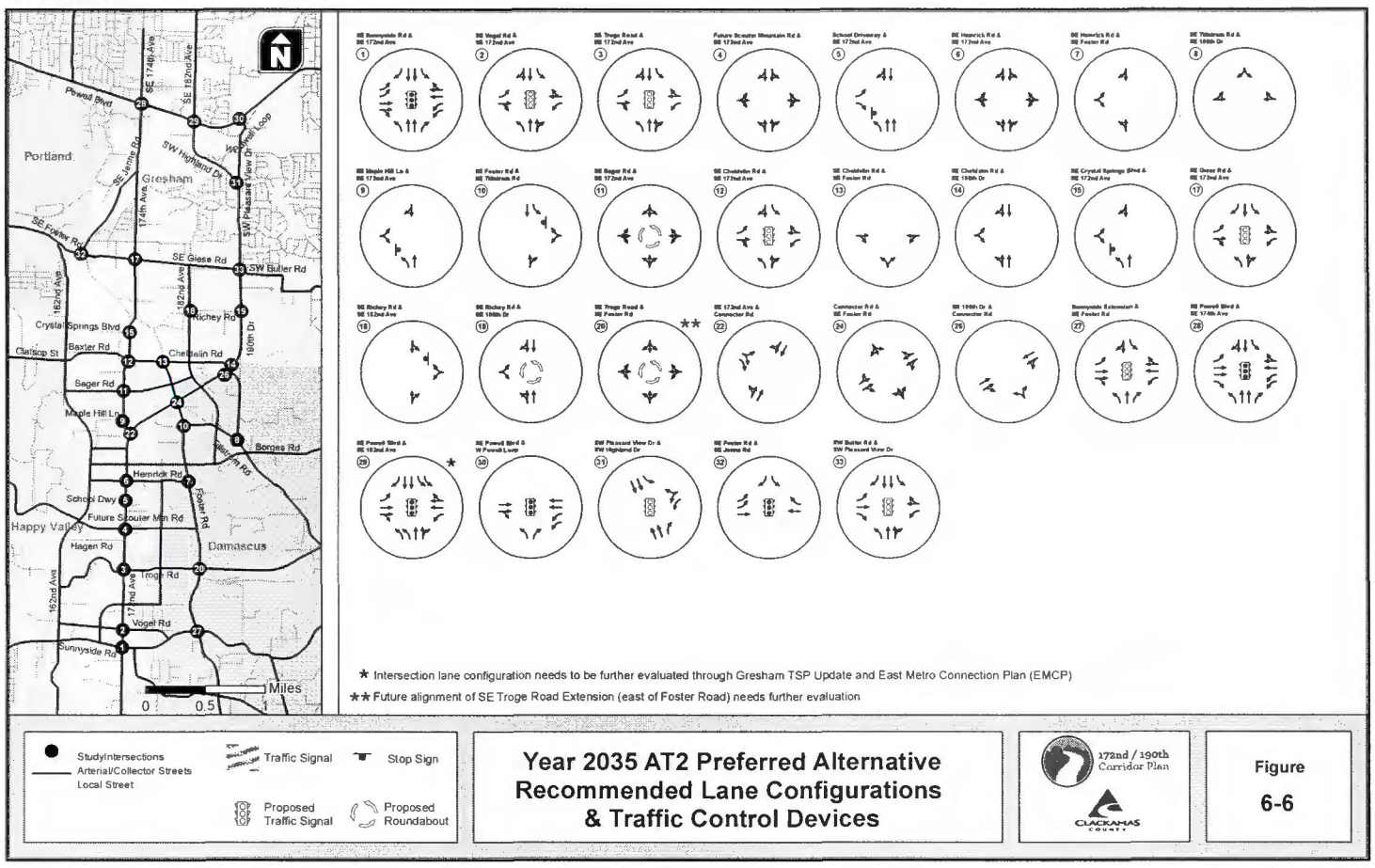
Study Intersections
Arterial/Collector Streets
Local Street

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

Year 2035 AT2 Preferred Alternative Weekday PM Peak Hour Traffic Conditions

172nd / 190th Corridor Plan
CLACKAMAS COUNTY

Figure 6-7



Year 2035 AT2 Preferred Alternative Recommended Lane Configurations & Traffic Control Devices

172nd / 190th Corridor Plan

CLACKAMAS COUNTY

Figure 6-6

Ordinance ZDO-232, Exhibit C

Ordinance ZDO-232, Exhibit C

configurations at intersections. Figure 6-6 shows the recommended lane configurations and traffic control devices for the preferred alternative AT2.

Figure 6-7 summarizes the intersection operations for the preferred alternative AT2 during weekday pm peak hour. As shown in the figure, all intersections operate under capacity and within the respective jurisdiction's mobility standards (level-of-service (LOS) D and 0.99 volume-to-capacity ratio (v/c ratio)), with the exception of the intersections listed below:

- SE 190th Drive/SE Cheldelin Road (roundabout)
- SE Foster Road/Troge Road (roundabout)
- SE Foster Road/Connector Road (roundabout)
- SE Powell Boulevard/SE 182nd Avenue (signal)

The three roundabouts listed above are forecast to operate with LOS E, which does not meet Clackamas County's mobility standard of LOS D. Additionally, the roundabout at SE 172nd Avenue/"Future Scouters Mountain Road" is projected to exceed the City of Happy Valley's performance standard of 0.90 v/c ratio. Given the long-term safety benefits of roundabouts, the need for system consistency, and the fact that the intersections are forecast to operate under capacity, the PMT was comfortable moving forward with these treatments and lane configurations. Furthermore, the roundabout methodology outlined in the *2010 Highway Capacity Manual* is based on current US experience. Experience in Europe and Australia has shown that capacity of roundabouts generally increases over time as driver familiarity improves. Therefore, although these intersections are forecasted to operate slightly over mobility standards as roundabouts, roundabouts may actually operate acceptably 25 years into the future. In addition, a single-lane roundabout generally has a better safety performance than a double-lane. Therefore, under certain circumstances, a single-lane roundabout may be preferred over a double-lane roundabout even if it suffers slightly in operational performance during the peak traffic hour.

Extension, and *Sunnyside Road Extension*, the following planned roadway extensions were included in the analysis:

- Vogel Road between 162nd Avenue and 172nd Avenue
- Troge Road between 162nd Avenue and Tillstrom Road
- Future Scouters Mountain Road between 162nd Avenue and Foster Road
- Hemrick Road between 162nd Avenue and 172nd Avenue
- Borges Road between 162nd Avenue and 172nd Avenue
- Sager Road between 162nd Avenue and new north-south collector road between Foster Road and 190th Drive
- North-south collector roads between 172nd Avenue and Foster Road, and between Foster Road and 190th Drive
- Other collector roads within the Pleasant Valley area
- Foster Road disconnection between Jenne Road and Cheldelin Road
- Realigned 162nd Avenue to better reflect the alignment illustrated in Happy Valley TSP

Inclusion of the above planned roadways, even though they are not part of the financially constrained projects, serves two main purposes:

- They off-load a portion of traffic from study roadways, which better reflect the anticipation of reduced future growth on our study roadways in year 2035, as compared to what is originally planned in Metro's 2035 Regional Transportation Plan (RTP).
- A fully built roadway network within the PSA would better reflect the roadway cross-section and intersection lane configuration needs in year 2035 when the roadway network is fully built out.

Appendix B includes the VISUM model outputs illustrating the lane configuration and roadway network assumptions, as well as the modeling results.

Consistent with previous analyses, model volumes were post-processed using National Cooperative Highway Research Program (NCHRP) 255 methodology to obtain turning movement volumes used to perform intersection analysis. Each study intersection was reviewed to determine the lane configurations and traffic control devices needed to meet the respective jurisdiction's mobility standards. Cross-sections of roadway segments were also taken into account when determining lane

public, and the PAC through a newsletter, meetings, an open house, and virtual open house to solicit feedback. Based on the evaluation and the feedback received at the Public Open House and Virtual Open House, the PAC recommended AT2 over AS10A as the Preferred Build Alternative to the PMT. Based on PAC recommendation and the uncertainties surrounding the Foster Road extension, the PMT selected AT2 as the Preferred Build Alternative due to its high scores and ability to connect destinations inside and beyond the study area, while relying less on roadway projects planned by others. The Preferred Streetscape Concept was also refined based on the feedback received from the public and project stakeholders as well as recommendations from the PMT. Details of the Round #3 Evaluation can be found in *Tech Memo #8.2 - Three Most Promising Corridor Alignment Alternatives* in the *Technical Appendix*.

ROUND #4 – PREFERRED BUILD ALTERNATIVE

The Preferred Build Alternative AT2 proposes a new roadway heading north-northeast beginning from a point on 172nd Avenue just south of the Wooded Heights Road intersection and connecting to 190th Drive at Cheldelin Road. The new roadway cuts diagonally across existing properties, many of which are larger than five acres. This alternative proposes a five-lane arterial for the primary movement from 172nd Avenue to 190th Drive. This cross-section includes four lanes with a landscaped median/turn lane on 172nd Avenue from Sunnyside Road north to the new roadway, along the entire portion of the new roadway, and on 190th Drive from Cheldelin Road to the County line. A three-lane section is proposed on Foster Road, Cheldelin Road, Hemrick Road, and Tillstrom Road. Minor realignments will reposition the Tillstrom Road/Foster Road connection approximately 800 feet south of the existing intersection. North of Wooded Heights Road, 172nd Avenue will be reconstructed as a three-lane section to the County line and Cheldelin Road will be extended west to intersect with 172nd Avenue.

As mentioned previously, the Preferred Streetscape Concept consists of cross-sectional designs for five-lane section, three-lane section, two-lane section and frontage road section. Variations in streetscape elements were developed within each cross-sectional design to better suit the varied needs in the proposed alignment. Details of the Preferred Build Alternative and Preferred Streetscape Concept can be found in Chapter 7.

The transportation analysis was updated to better reflect year 2035 future conditions based on a more extensive collector network to reflect planned roadways documented in the Pleasant Valley Plan, and Happy Valley Transportation System Plan (TSP). Proposed roadway assumptions in Damascus were also discussed with City of Damascus staff. In addition to the *174th Avenue Extension, Foster Road*

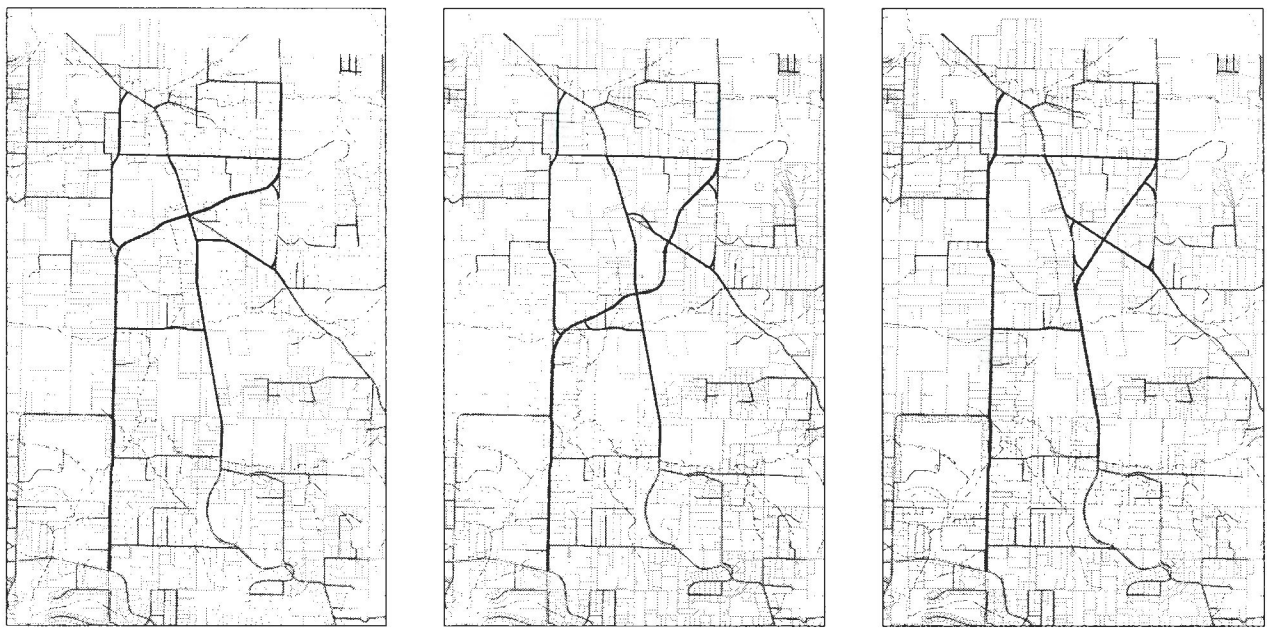
Table 6-6: Summary of Most Promising Alternative Evaluation Scores

EVALUATION CRITERIA	AT2	AT6	AS10A
Vehicular Mobility	+1.5	+1.5	+1.5
Multi-Modal Mobility	+1	+1	+1
Local Access	+0.5	+0.5	+0.5
Multi-Modal Safety	+1	+1	+1.67
Impacts to Natural Environment	+0.33	-0.67	+1.33
Impacts to Built Environment	-0.67	-1.33	-0.33
Land Use Compatibility	+1.5	-0.5	+1
Flexibility of Implementation	+0.5	0	+0.5
Cost Effectiveness	0	0	+1
Aesthetic Character	+0.33	+2	-0.33
Environmental Enhancement	0	0	0
Maintenance	+0.5	+0.5	+0.5
Functionality	+2	+2	+1.5
Total Score	**8.49**	**6.00**	**9.84**

Upon review of the total scores for each of the Most Promising Alternatives, Alternative AS10A was initially recommended for the public, project stakeholders, PAC, and PMT to consider as the Preferred Build Corridor Alignment Alternative. AS10A addressed the purpose and need of the project, accommodates future traffic projections, and serves the proposed land uses in the project study area while having the fewest overall impacts and lowest construction cost (within the project study area) compared to alternatives AT2 and AT6.

While AS10A offers several advantages within the project study area, it is also more dependent on several significant transportation projects being completed outside the study area. In particular, it relies on the southern extension/realignment of Foster Road from Vogel to Highway 212 (connecting via the existing 187th Avenue alignment) and the eastern extension/realignment of Sunnyside Road from 172nd Avenue to Foster Road. Without these two planned corridor improvement projects, AS10A would not effectively provide the necessary long-term transportation needs. As such, the initial recommendation of AS10A as the preferred alternative was made understanding the need for these external projects and the potential risk involved should they not be completed within the planning horizon.

The evaluation results and the initial recommendations for the Preferred Build Corridor Alignment Alternative and the Preferred Streetscape Concept were presented to the project stakeholders, the



3 Most Promising Roadway Alignment Alternatives

Proposed 172nd - 190th Corridor

Proposed 3-Lane Roadway

172nd / 190th Corridor Plan

CLACKAMAS COUNTY

Figure 6-5

Figure 6-5 illustrates the three Most Promising Alternatives. The alternatives highlight a combination of major and minor arterial improvements. The major arterials consist of a five-lane section that includes four travel lanes and landscaped medians/turn lanes. The three-lane section consists of two travel lanes and a center turn lane with the option of a landscaped median. Both sections include an 8-foot raised cycle track on each side to accommodate bicyclists, as well as 8-foot sidewalks for pedestrians.

The Preferred Streetscape Alternative was also developed based on feedback from the public, project stakeholders, the PAC and the PMT. This Preferred Streetscape Alternative includes cross-sectional designs for five-lane section, three-lane section, two-lane section, and frontage road section.

During this stage of the project, a more in-depth analysis of the various corridor alignment evaluation criteria including the potential environmental impacts, land acquisition requirements, and major construction quantities was conducted to identify conceptual-level cost estimates for each alternative. Table 6-6 provides the overall scoring results for the three Most Promising Alternatives.

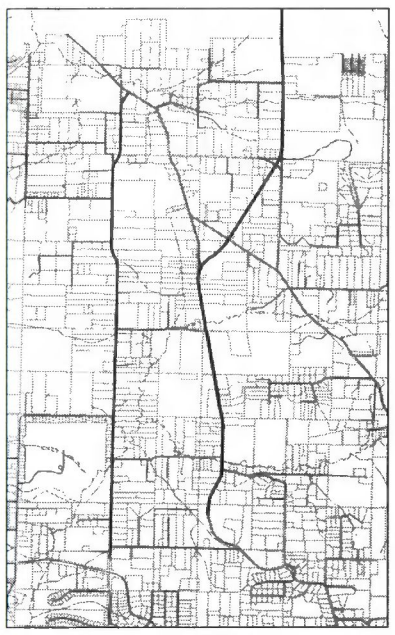
As can be seen in Table 6-5, Concept AS10A received the highest overall score and appeared to provide distinguishable overall advantages in comparison to the other concepts. This concept may have additional costs and impacts outside the project study area that were considered as the concepts were further developed. Concepts AT2 and AT6 had total scores very similar to each other and also appear to provide notable advantages in comparison to the remaining two concepts. Finally, Concepts AT4 and AT5 received the lowest total scores, with net scores substantially lower than the other three.

Based on the preliminary assessment of the five refined design concepts, the project team initially recommended Concepts AT2, AT6, and AS10A be carried forward for more detailed design and analysis. Concepts AT4 and AT5 were initially recommended for dismissal.

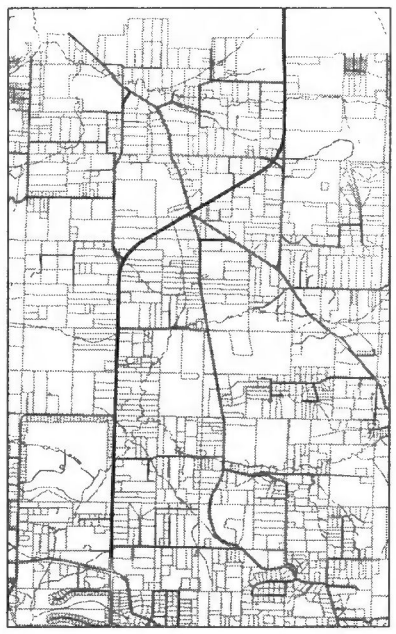
These five refined concepts were again presented to project stakeholders, the PAC and the public through a series of meetings and public workshops. The public feedback confirmed the project team's initial recommendations to further develop Concepts AT2, AT6, and AS10A and eliminate Concepts AT4 and AT5. The PMT also concurred with these recommendations. Details of the Round #2 Evaluation can be found in *Tech Memo #7.1 - Refined Corridor Alignment Concepts* in the *Technical Appendix.*

ROUND #3 – MOST PROMISING ALTERNATIVES

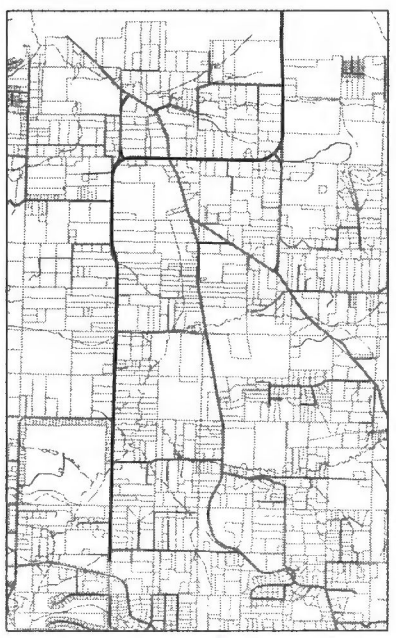
During this phase of the project, the three Most Promising Alternatives, AT2, AT6 and AS10A, were modified slightly from their initial conceptual alignment. These alignment designs took into account the existing conditions of the project study area including topography, land uses, environmental considerations and existing right-of-way. Consideration was also given to future conditions such as adopted zoning classifications, intersection spacing, travel speeds, and potential green street treatments. Each alignment was further refined to include intersection types, such as roundabouts and/or signals at major arterial and minor arterial-collector intersections. Where streams and roadways intersect, the alignments were shifted to minimize the number of crossings or length of crossing when possible.



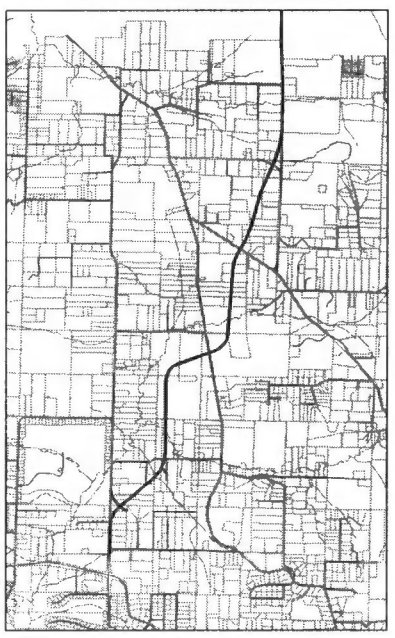
AS-10A



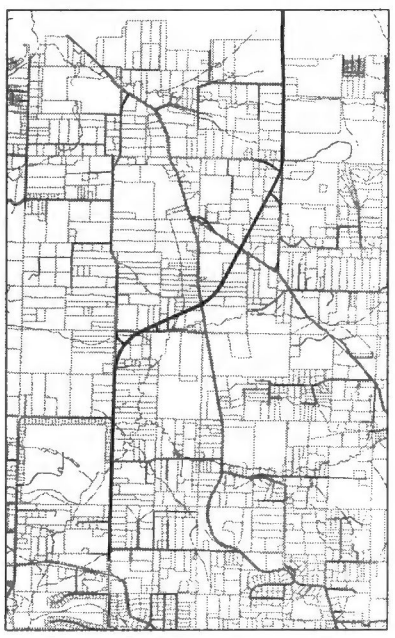
AT-02



AT-04



AT-05



AT-06

5 Refined Roadway Alignment Alternatives

Proposed 172nd - 190th Corridor

172nd / 190th Corridor Plan

CLACKAMAS COUNTY

Figure 6-4

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Ordinance ZDO-232, Exhibit C

significant environmental impacts and does not conform with Pleasant Valley's future roadway plans. For this reason, the project team recommended Concept AS4 be eliminated. With these modifications, the project team recommended the following five refined concepts be considered for further evaluation:

- AT2 (AS9-AT2 hybrid)
- AT4
- AT5 (AT7-AT5 hybrid)
- AT6
- AS10A

Figure 6-4 illustrates these five refined concepts. These five refined concepts were again evaluated using the alignment evaluation criteria. Table 6-5 summarizes the overall evaluation scoring results for each of the five refined alignment concepts. Compared to the evaluation scores in Round #1, these scores were based on a wider scale so that a higher resolution could be obtained to distinguish different concepts. The average scores for all the evaluation criteria are summed to provide a total score for each alignment concept.

Table 6-5: Summary of Alignment Evaluation Scores

Evaluation Criteria	AT2	AT4	AT5	AT6	AS10A
Vehicular Mobility	+2	+1	+1.5	+1.5	+2
Multi-Modal Mobility	+1	+0.33	-0.33	+0.33	+0.33
Local Access	+0.5	-0.5	+2	+1.5	+0.5
Multi-Modal Safety	+1	-0.67	+0.67	+1	+1
Impacts to Natural Environment	+0.67	+1.33	-2	-0.33	+1.33
Impacts to Built Environment	-0.33	-0.67	0	-0.33	0
Land Use Compatibility	+1	0	-2	-1	+2
Flexibility of Implementation	0	+1	-1	0	+1
Cost Effectiveness	-1	0	-1	0	+1
Aesthetic Character	-0.33	-1.67	+1	+2	-0.67
Total Score	**+4.51**	**+0.15**	**-1.16**	**+4.67**	**+8.5**

Table 6-3: Initial Project Team Corridor Alignment Concept Recommendations

Initial Project Team Recommendations	Corridor Alignment Concepts
Recommended for Further Review	AT2, AT4, AT6, AS4, and AS9
Under Consideration for NO Further Review	AT1, AT5, AT7, AT8, AS2, AS5, AS7, AS8, and AS10.
Recommended for NO Further Review	AT3, AS1, AS3, and AS6

The 18 streetscape cross-sectional concepts were qualitatively assessed against the proposed corridor needs and project goals. Streetscape Concepts SO2A, SO3A, SO4A, SO5A, SO5B, S5G and SO5C did not provide proper access for bicycle and/or pedestrian traffic per local roadway standards, and therefore, were not recommended for further consideration. The remaining eleven concepts were recommended for further consideration as the corridor alignment concepts continued to be evaluated and refined to meet the necessary future traffic capacity needs as well as meet the project's overall purpose and need. Table 6-4 summarizes the initial project team recommendations for the 18 initial streetscape concepts.

Table 6-4: Initial Project Team Streetscape Concept Recommendations

Initial Project Team Recommendations	Streetscape Alignment Concepts
Recommended for Further Review	S2A, S3A, S3B, S4A, S5A, S5B, S5C, S5D, S5E, S5F, S5H
Recommended for NO Further Review	SO2A, SO3A, SO4A, SO5A, SO5B, S5G and SO5C

These evaluation results were reviewed by the public and agency staff at a series of workshops and on the project web site. Feedback was solicited on each concept, and five corridor concepts were selected by the PMT for further study. Based on the feedback received by the public and project stakeholders, the Preferred Streetscape Concept was developed. Details of Round #1 Evaluation can be found in *Tech Memo #6.2 – Initial Design Concepts* in the *Technical Appendix.*

ROUND #2 – REFINED CONCEPTS

The project team identified the top eight scoring concepts (AS10A, AT6, AS9, AT2, AT7, AT5, AS4 and AT4) based on the PAC and public responses and focused the evaluation on these concepts. Concept AS10A was chosen to replace Concept AS10 to avoid the existing buttes and associated grading to the east. Upon review of the concepts, the project team noted that Concepts AS9 and AT2 have a similar diagonal connection between 172nd Avenue and 190th Drive and could be carried forward as one concept. Similarly, Concepts AT7 and AT5 were combined into one concept with northern and southern alignment variations for the east-west connection. The project team also found that Concept AS4 had

Table 6-1: Evaluation Matrix of "Transitional" Alignment Concepts

Criteria	Concept							
	AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8
Vehicular Mobility	1	1	1	1	1	1	1	1
Multimodal Mobility	0	0	-1	0	-1	0	0	-1
Local Access	0	0	1	-1	0	0	0	0
Safety	0	0	0	0	-1	0	0	0
Impacts to Natural Environment	0	1	-1	1	-1	0	0	0
Impacts to Built Environment	-1	0	-1	0	0	0	-1	0
Land Use Compatibility	0	1	-1	-1	1	1	1	0
Flexibility of Implementation	0	0	-1	1	1	-1	-1	-1
Cost Effectiveness	0	0	-1	1	0	0	-1	0
Total Score	**0**	**3**	**-4**	**2**	**0**	**1**	**-1**	**-1**

Table 6-2: Evaluation Matrix of "System" Alignment Concepts

Criteria	Concept									
	AS1	AS2	AS3	AS4	AS5	AS6	AS7	AS8	AS9	AS10
Vehicular Mobility	0	-1	-1	0	-1	-1	-1	-1	-1	1
Multimodal Mobility	0	0	0	0	0	0	-1	0	0	1
Local Access	0	0	0	1	-1	0	0	-1	0	0
Safety	0	0	0	0	0	0	-1	0	0	0
Impacts to Natural Environment	0	1	0	-1	1	-1	1	1	1	-1
Impacts to Built Environment	-1	0	0	0	0	-1	1	0	0	-1
Land Use Compatibility	-1	-1	-1	-1	-1	-1	-1	-1	1	1
Flexibility of Implementation	-1	-1	-1	1	1	-1	1	1	0	-1
Cost Effectiveness	-1	1	1	1	1	-1	1	1	1	-1
Total Score	**-4**	**-1**	**-2**	**1**	**0**	**-6**	**0**	**0**	**2**	**-1**

Based on the initial high level assessments, the project team assigned the 18 corridor alignments concepts into the following three categories according to each concept's score; "Recommended for Further Review", "Under Consideration for NO Further Review", and "Recommended for NO Further Review". Table 6-3 summarizes the initial project team recommendations for the 18 initial corridor concepts.

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18 Initial Roadway Alignment Concepts (13-18)

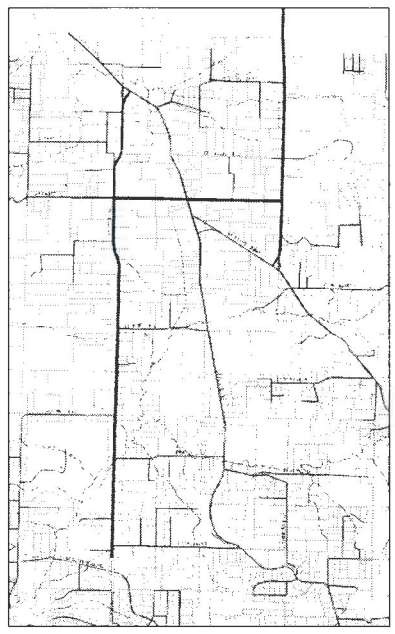
Proposed 172nd - 190th Corridor

172nd / 190th Corridor Plan

CLACKAMAS COUNTY

Figure 6-3C

Ordinance ZDO-232, Exhibit C



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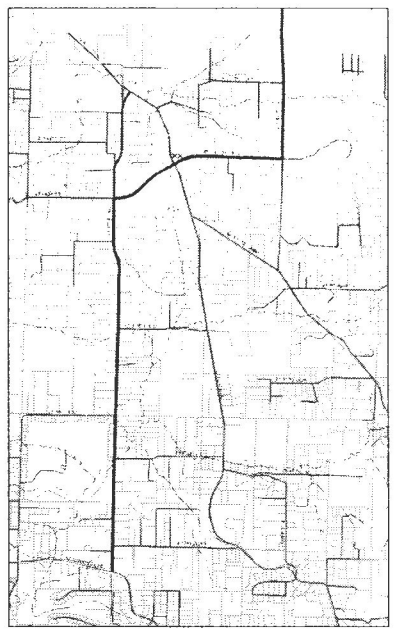

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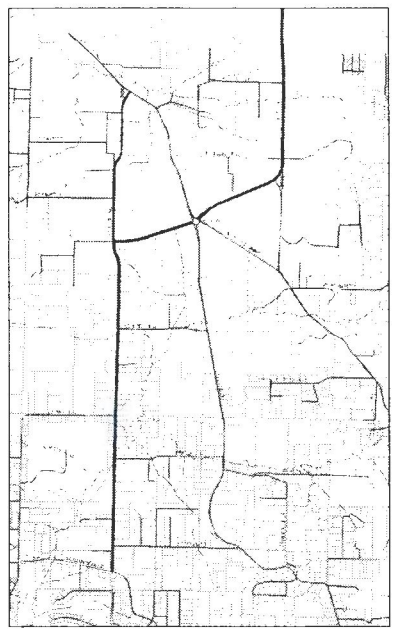

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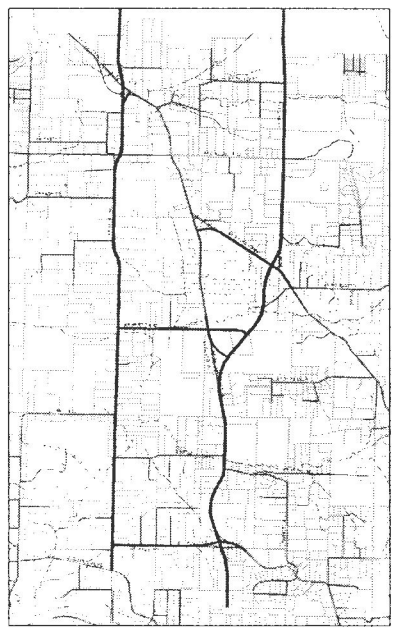

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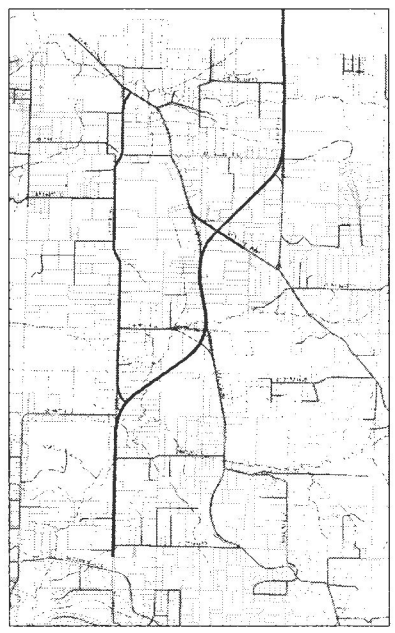
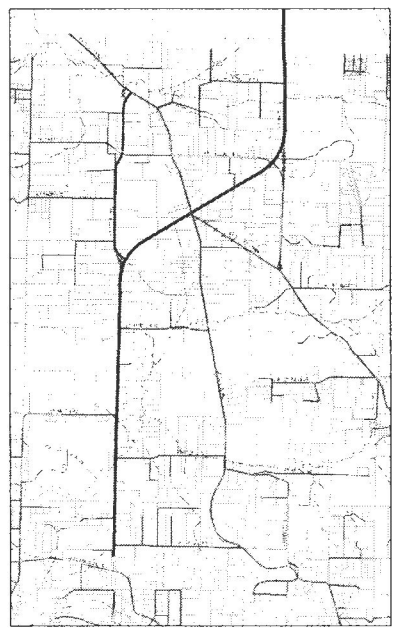


AT-01



AT-02

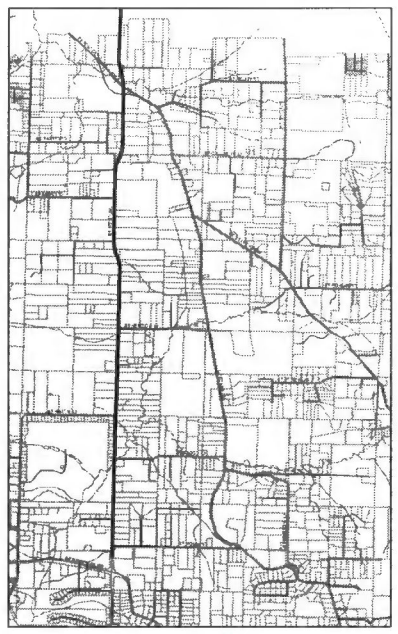
18 Initial Roadway Alignment Concepts (7-12)

Proposed 172nd - 190th Corridor

172nd / 190th Corridor Plan

CLACKAMAS COUNTY

Figure 6-3B



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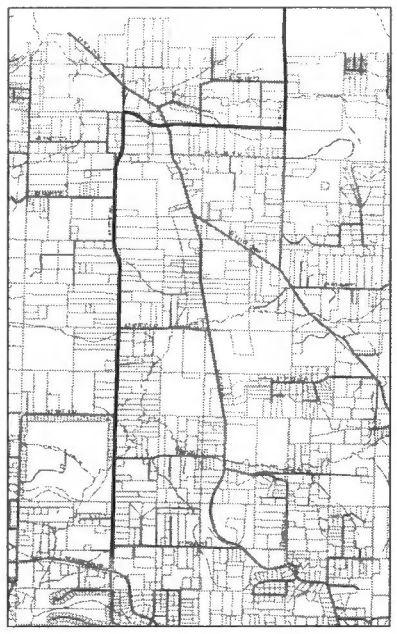

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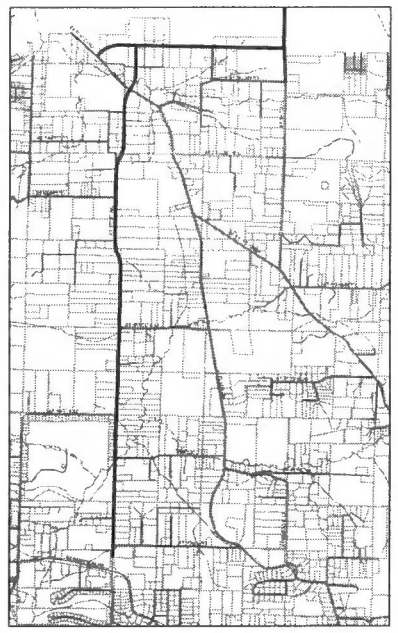

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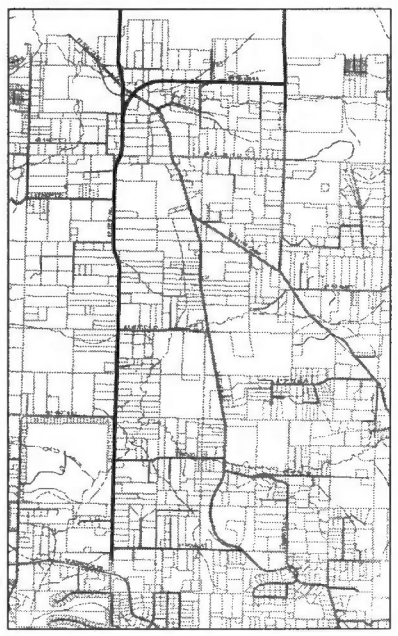

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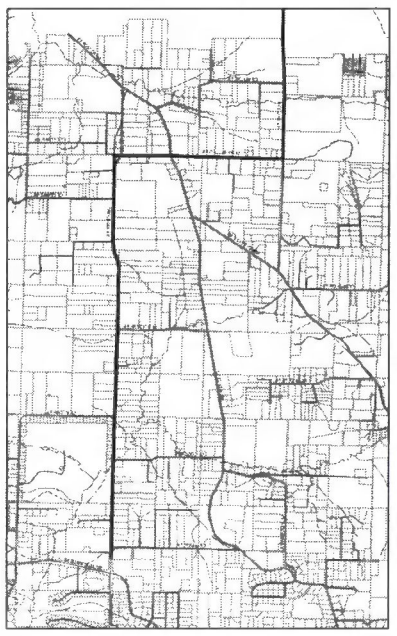

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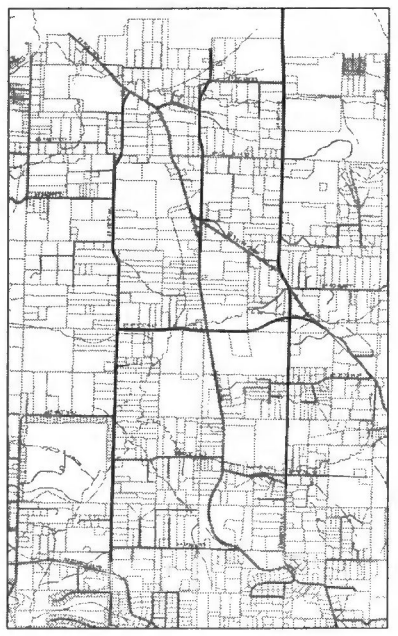

AS-06

18 Initial Roadway Alignment Concepts (1-6)

——— Proposed 172nd - 190th Corridor

172nd / 190th Corridor Plan

CLACKAMAS COUNTY

Figure

6-3A

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ROUND #1 – INITIAL SOLUTION CONCEPTS

Eighteen (18) corridor alignment concepts and 18 streetscape concepts were initially developed based on the outcome of the public forums held in October 2010. These corridor alignment concepts were grouped into two distinct categories: "Transitional" and "System" concepts. The "Transitional" concepts generally feature direct diagonal, southwest to northeast connections between SE 172nd Avenue and SE 190th Drive, while the "System" concepts generally utilize new and existing east-west and north-south grid connections to connect these two roadways. The eight Transitional corridor alignment concepts, denoted by the "AT" prior to the concept number, and the ten System corridor alignment concepts, denoted by the "AS" prior to the concept number, are illustrated in Figures 6-3A, 6-3B and 6-3C.

The 18 streetscape concepts were also grouped into two categories: Symmetric (denoted by "S" prior to the concept number) and Offset/Asymmetric (denoted by "SO" prior to the concept number). There were 11 symmetric streetscape concepts and seven offset streetscape concepts. These 18 streetscape concepts vary by the number, dimensions, and arrangement of different streetscape elements and street furniture, including travel lanes, bike lanes, parking, center turn-lanes, landscape medians, landscape buffer, tree wells, sidewalks, and multi-use path.

The 18 corridor alignment concepts were evaluated using the alignment evaluation criteria. Tables 6-1 and 6-2 summarize the evaluation results.

Design criteria for the SE 172nd Avenue/190th Drive Corridor were established using Clackamas County's Roadway Standards as the primary basis. The PMT, which consists of staff from Clackamas County, City of Happy Valley, City of Damascus, City of Gresham, Metro, and the project team, provided further input and specific direction for the corridor design parameters. Design criteria for other PSA roadways were guided by the relevant plans and design standards of the applicable jurisdictions.

These design criteria were used as the basis to develop various corridor alignment and streetscape concepts. Details of these design criteria can be found in *Tech Memo #6.1 – Design Criteria* in the *Technical Appendix.*

CORRIDOR ALIGNMENT EVALUATION CRITERIA

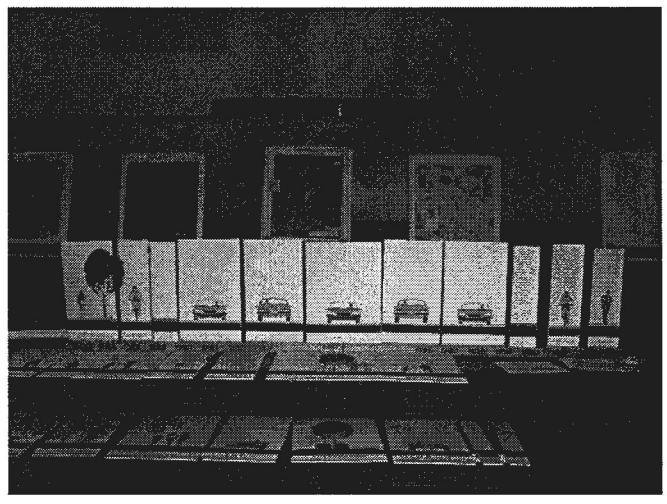
Various corridor alignment concepts were evaluated using the project evaluation criteria described in Chapter 1. The same evaluation criteria were applied in each stage of concept evaluation so that consistent results could be achieved. Each corridor alignment concept was assigned a negative score (poor), zero score (fair) or positive score (good) depending on how the concept does, or does not, meet each of the specific evaluation criteria. At each stage of the concept development process, the evaluation was performed through independent analyses and multiple meetings amongst the project team's environmental, transportation, land use, and civil engineering experts to assess each concept individually and relative to other concepts to determine its effectiveness in meeting the various project goals, objectives, and evaluation criteria. Some criteria (e.g. aesthetic character, environmental enhancement, multi-modal safety, maintenance and functionality) were only evaluated at later stages of the concept evaluation process when more in-depth analyses were warranted.

streetscape concepts were also evaluated. Seven streetscape concepts did not meet County's design criteria and were not carried forward for further evaluation, leaving eleven concepts for further evaluation.

The five remaining corridor alignment concepts were refined and further reviewed prior to presenting to the PAC and the public at a series of meetings and workshops during March and April 2011. Based on the evaluation results and the public feedback, the PMT screened two of the concepts (AT4 and AT5) and selected the three Most Promising Alternatives (AT2, AT6, and AS10A) for continued study. At the same time, the remaining 11 streetscape concepts and their respective elements were discussed between project stakeholders and the PMT to facilitate the development of the Preferred Streetscape Concept.

The three Most Promising Alternatives were further evaluated prior to presenting to the project stakeholders, public and PAC in a series of meetings and open houses in July 2011. The Preferred Streetscape Concept was also presented and discussed. Based on the evaluation and the feedback received, the PAC and PMT recommended Alternative AT2 as the Preferred Build Alternative. Alternative AT2 proposes a new roadway heading north-northeast between 172nd Avenue just south of the Wooded Heights Road and 190th Drive at Cheldelin Road, with a five-lane arterial proposed for the SE 172nd Avenue/190th Drive Corridor. Refinement of the Preferred Streetscape Concept was also made based on the public feedback and recommendation from the PMT.

The remainder of this chapter summarizes the corridor alignment and streetscape concepts developed in different stages throughout the process, and how and why certain concepts were selected or modified at the end of each stage.



DESIGN CRITERIA

Because there are a number of government agencies that own and maintain the different roadways within the PSA, the project design criteria considered applicable standards from Clackamas County, City of Happy Valley, and City of Gresham. The City of Damascus does not currently maintain any roadways within the PSA, and therefore County standards are used for those streets within the City limits.

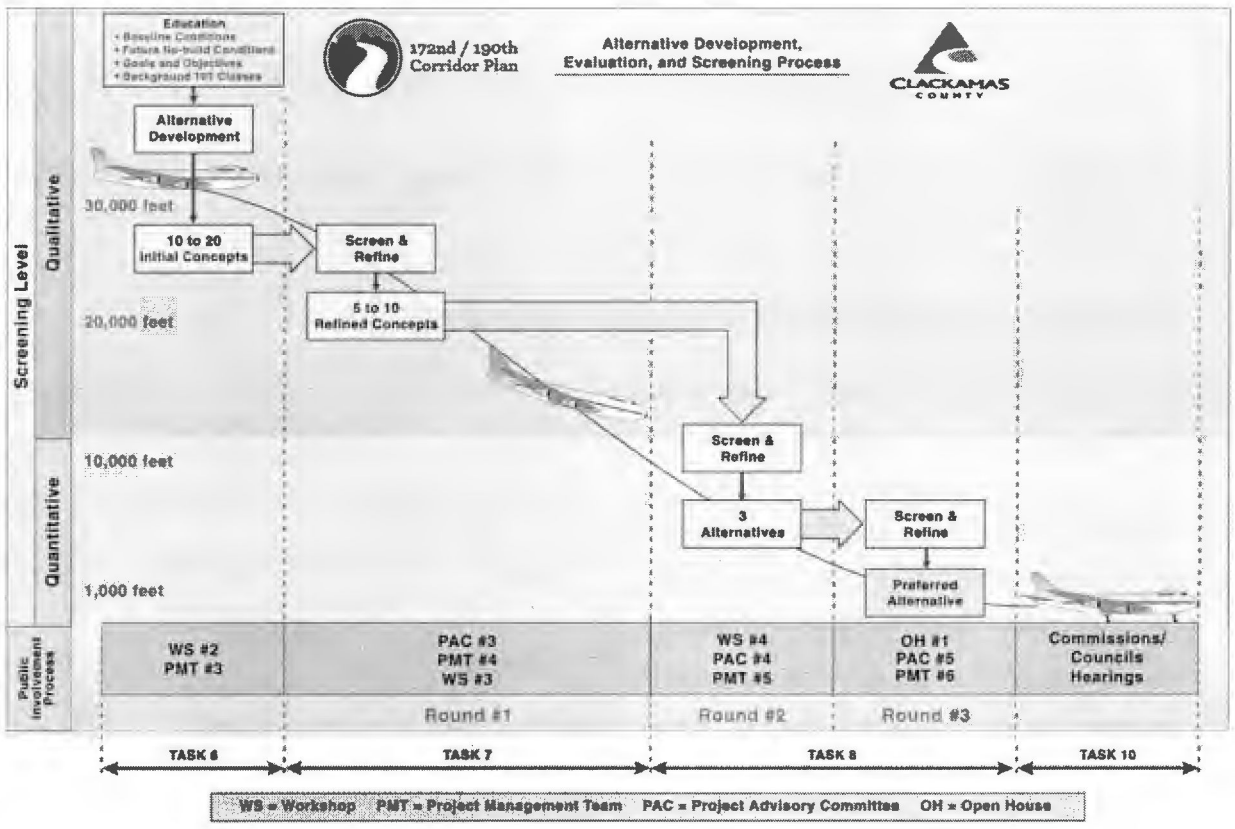


Figure 6-2: Alternative Development, Evaluation, and Screening Process

Based on the bottom up approach, the project team developed an initial range of 18 initial corridor alignment concepts and streetscape cross-sections for the SE 172nd Avenue/190th Drive Corridor. These concepts were based on input and ideas gathered from numerous stakeholders, public participants, and agency staff. The project team performed an initial, high-level assessment of all 18 corridor alignment concepts and streetscape cross-sections using the project evaluation criteria. In addition, these initial corridor alignment concepts were presented to and reviewed by the public and agency staff at a series of workshops and on the project web site through virtual workshops. Based on the technical evaluation of concepts and the input provided, the project team and the Project Management Team (PMT) screened the concepts to five selected concepts for further study. The initial

6. ALTERNATIVE DEVELOPMENT AND SELECTION PROCESS

This chapter provides a summary overview of the process through which the Preferred Build Alternative was chosen.

CONCEPT DEVELOPMENT PROCESS OVERVIEW

The alternative development process used a bottom-up approach, and began in Fall 2010 with several educational workshops. As shown in Figure 6-1, the Project Advisory Committee (PAC) and the public were involved in the entire process of alternative development, from overview of the project process, to understanding various design elements, and finally participating in the concept development. These workshops were used to solicit various corridor alignment and streetscape concepts. These workshops resulted in over 60 corridor alignment sketches and 3D-model based photos and 28 streetscape cross-section photos for consideration. The developed concepts formed the basis for developing, refining, and ultimately selecting the preferred corridor alignment and streetscape cross-sections. Figure 6-2 illustrates the alternative development and public process used to support these preferred elements of the project.

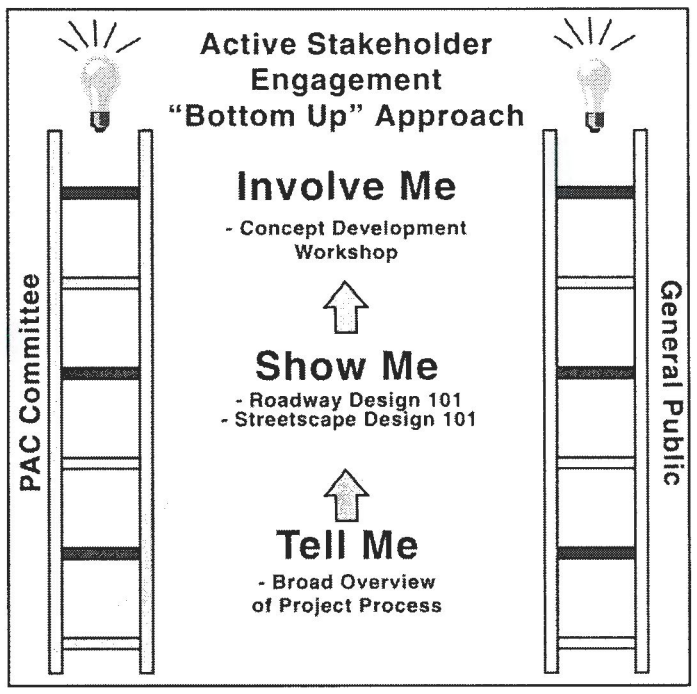


Figure 6-1: Bottom-Up Approach Alternative Development Process

Ordinance ZDO-232, Exhibit C

Section 6 Alternative Development and Selection Process

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- Under year 2035 post-processed weekday p.m. peak hour traffic demand, the No-Build PSA intersections generally do not meet applicable intersection standards. The only exceptions are:
  - SE Richey Road/SE 182nd Avenue,
  - SE 190th Drive/Cheldelin Road, and
  - SE Foster Road/Richey Road.
- Of the six study intersections outside the PSA, three of them meet the applicable intersection standards. These include:
  - SW Pleasant View Drive/SW Butler Road,
  - SW Powell Boulevard/SE 182nd Avenue (subject to further analysis), and
  - SW Powell Boulevard/W Powell Loop.
- Initial mitigation solutions were identified for intersections not meeting applicable standards under the year 2035 conditions to provide context to the alternative development phase of the project (see Chapter 6). The following is a general summary:
  - At the majority of study intersections, a three-lane major roadway cross-section is sufficient to accommodate year 2035 traffic demands. The two exceptions are SE 172nd Avenue between SE 170th Avenue and SE Sager Road, and SE 172nd Avenue at Hagen Road, both requiring new through lanes (five lane section).
  - Twelve study intersections will require a new form of intersection control, such as a roundabout or traffic signal.

The initial mitigation analysis does not address other critical considerations, such as safety, land use compatibility, or environmental impacts. These factors as well as many of the identified goals and objectives for the project may require substantially different mitigation solutions and/or alignments. As such, the mitigation information provided above provided context for the concept development phase.

These intersections are not recommended for improvement; rather, mitigations would be necessary to meet jurisdictional operational standards assuming no other transportation network changes in the corridor. Given the preliminary nature of this analysis, any operational effects associated with the interaction of the additional traffic signals (or roundabouts) at these intersections was not evaluated as part of the 2035 No-Build conditions.

In many locations within the PSA, it appears a three-lane roadway cross-section may be sufficient to accommodate traffic demands. The two exceptions are on SE 172nd Avenue between SE 170th Avenue and SE Sager Road, and at the SE 172nd Avenue/SE Hagen Road intersection. Both of these sections of SE 172nd Avenue would require additional through lanes to meet current operational standards.

SUMMARY OF FUTURE 2035 NO-BUILD CONDITIONS

The results of the 2035 No-Build analysis are summarized below.

- Table 5-1 summarizes the ADT approximated based on year 2035 forecast volume for No-Build conditions.

Table 5-1: Future Year 2035 No-Build Conditions Average Daily Traffic

Roadway	Location	ADT
SE 172nd Avenue	north of SE Hagen Road	20,250
SE 190th Drive	north of SE Richey Road	24,250
SE Foster Road	south of SE Cheldelin Road	15,000
SE Sunnyside Road	west of SE 172nd Avenue	33,500
SE Tillstrom Road	east of SE 190th Drive	11,250
SE Richey Road	east of SE 182nd Avenue	6,250
SE 182nd Avenue	north of SE Richey Road	1,500

- Households in the primary study area are forecast to grow by more than 300 percent between 2005 and 2035. Jobs in the same area are forecast to grow by more than 1,200 percent.
- Growth in the expanded study area, which includes additional lands in Portland, Gresham, Damascus, Happy Valley, and the Pleasant Valley Town Center area, is expected to result in an increase of approximately 200 percent in households and 170 percent in jobs.

INITIAL 2035 INTERSECTION OPERATIONAL MITIGATION

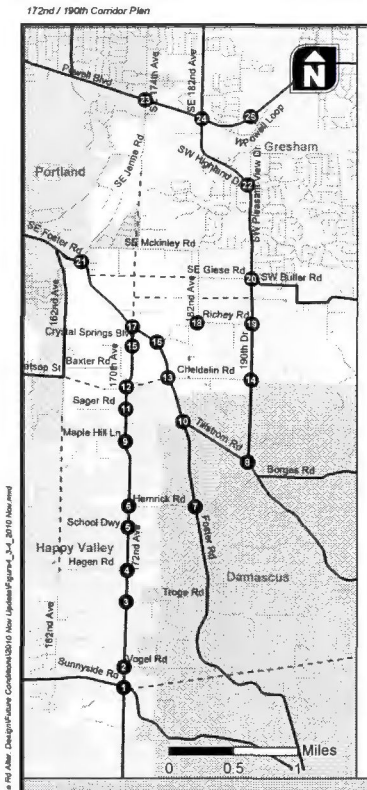
The vast majority of the failing intersections under 2035 No-Build conditions are currently unsignalized, two-way stop-controlled intersections. Thus, changes to intersection traffic control, such as signalization, and increased lane capacity at the following intersections were considered in the initial 2035 No-Build mitigation analysis to meet the applicable standards for each jurisdiction.

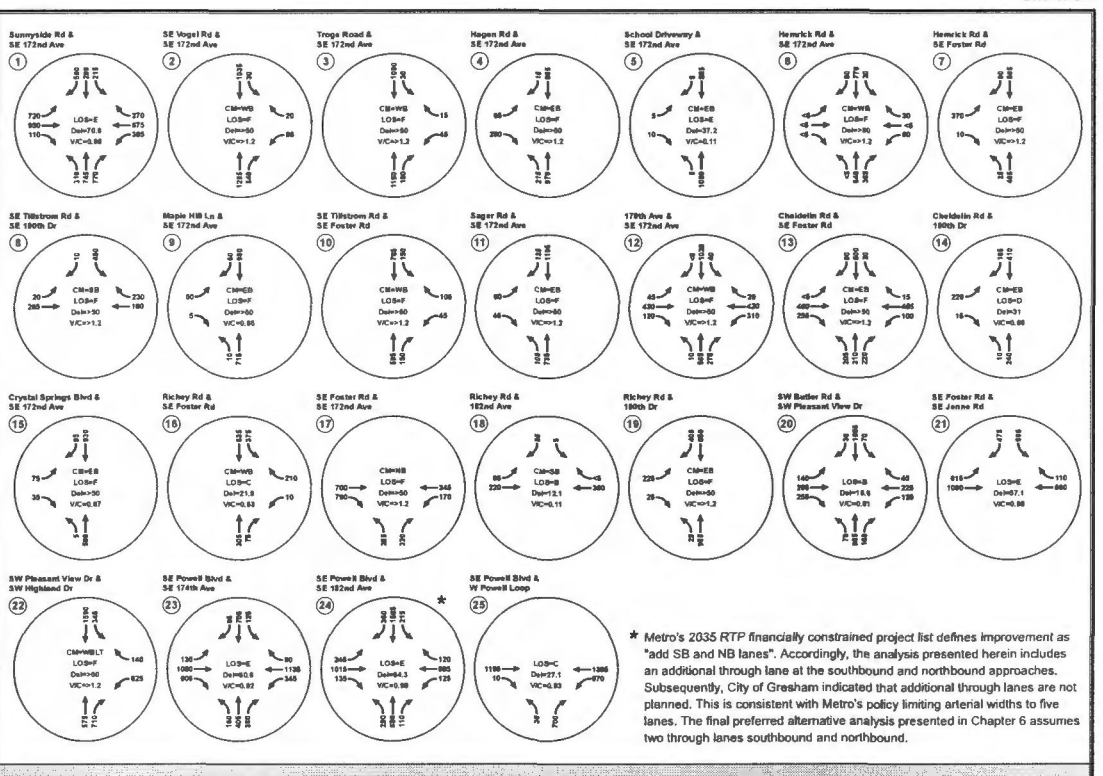
Increased Lane Capacity (Additional Turn Lanes and/or Through Lanes) Only:

- SE 172nd Avenue/SE Sunnyside Road
- SE 172nd Avenue / SE Troge Road:
- SE 172nd Avenue / Scouters Mountain School Driveway
- SE 172nd Avenue / SE Sager Road
- SE 172nd Avenue / SE Crystal Springs Boulevard
- SE Foster Road / SE Jenne Road
- SE Powell Boulevard / SE 174th Avenue

Changes to Intersection Traffic Control (Potential for Signal or Roundabout) and Increased Lane Capacity as Needed:

- SE 172nd Avenue / SE Vogel Road
- SE 172nd Avenue / SE Hagen Road
- SE 172nd Avenue / SE Hemrick Road
- SE Foster Road / SE Hemrick Road
- SE Tillstrom Road / SE 190th Drive
- SE Tillstrom Road / SE Foster Road
- SE Foster Road / SE Cheldelin Road
- SE 172nd Avenue / SE 170th Avenue
- SE Foster Road / SE Richey Road
- SE 172nd Avenue / SE Foster Road
- SE 190th Drive / SE Richey Road
- SW Pleasant View Drive / SW Highland Drive





* Metro's 2035 *RTP* financially constrained project list defines improvement as "add SB and NB lanes". Accordingly, the analysis presented herein includes an additional through lane at the southbound and northbound approaches. Subsequently, City of Gresham indicated that additional through lanes are not planned. This is consistent with Metro's policy limiting arterial widths to five lanes. The final preferred alternative analysis presented in Chapter 6 assumes two through lanes southbound and northbound.

- Study Intersections
- Arterial/Collector Streets
- Local Street
- 2035 FC Project

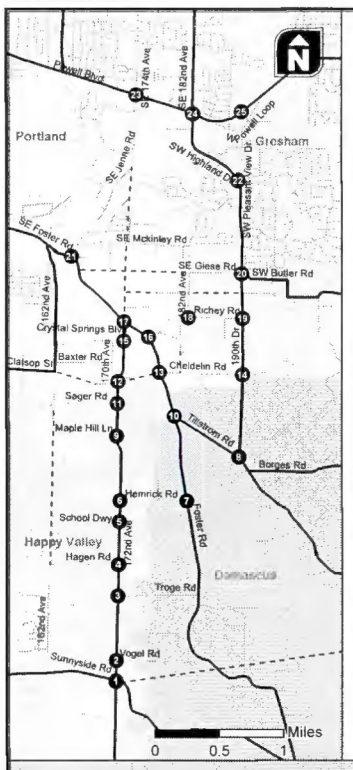
CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

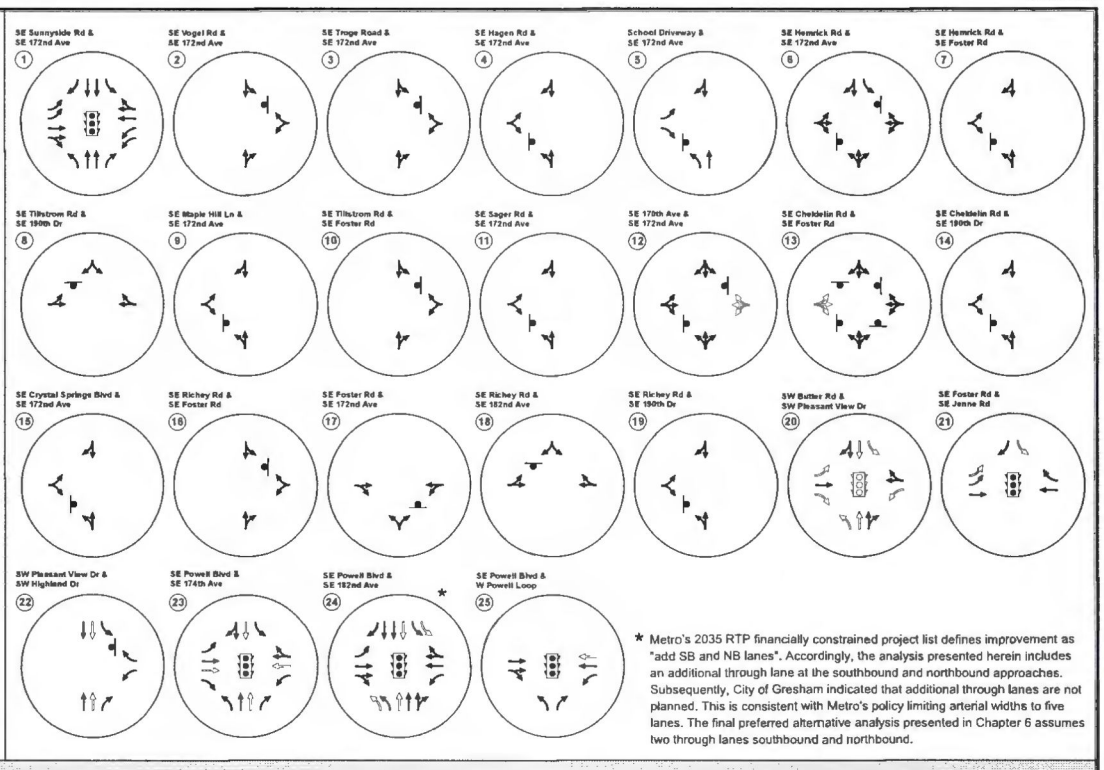
Year 2035 No-Build Weekday PM Peak Hour Traffic Conditions

172nd / 190th Corridor Plan

CLACKAMAS COUNTY

Figure 5-2





* Metro's 2035 RTP financially constrained project list defines improvement as "add SB and NB lanes". Accordingly, the analysis presented herein includes an additional through lane at the southbound and northbound approaches. Subsequently, City of Gresham indicated that additional through lanes are not planned. This is consistent with Metro's policy limiting arterial widths to five lanes. The final preferred alternative analysis presented in Chapter 6 assumes two through lanes southbound and northbound.

Study Intersections
Arterial/Collector Streets
Local Street
2035 FC Project
Traffic Signal
Stop Sign
New Traffic Signal under FC Projects
New Lane under FC Projects

Year 2035 No-Build Lane Configurations & Traffic Control Devices

172nd / 190th Corridor Plan
CLACKAMAS COUNTY

Figure 5-1

H:\projfile\10213 - 172nd Ave Sunnyside Rd Alter Design\Future Conditions\2010 Nov Update\Figure5_3-1_2010 Nov.mxd

approximately 15,000 households) between 2005 and 2035. Jobs in the same area are forecast to grow by more than 1,200 percent (growth of approximately 9,800 jobs).

- The analysis period focuses on typical weekday p.m. peak hour. A factor of 0.52 was applied to the model weekday p.m. 2-hour peak volumes to estimate the single weekday p.m. peak hour volumes.
- The 2035 Financially Constrained (FC) model was modified to represent a 2035 No-Build scenario within the PSA. To accomplish this, the following adjustments to the model were carried out to reestablish a No-Build network geometry within the PSA:
  - SE 172nd Avenue was reduced from five lanes to the current 2-lane cross-section from SE Foster Road to SE Sunnyside Road;
  - The SE 172nd Avenue to SE 190th Drive new east-west roadway was removed from the model to reflect No-Build conditions; and,
  - The east-west connector between SE 172nd Avenue and SE Foster Road, north of Tillstrom Road, acting as an extension of Sager Road, was removed.

2035 PSA NO-BUILD INTERSECTION ANALYSIS

This analysis includes review of the 2035 traffic volumes assuming a No-Build transportation network within the PSA. Metro's financially constrained projects outside of the PSA are included in this analysis. Metro's model volumes were post-processed using NCHRP 255 methodology to obtain year 2035 forecast volumes under No-Build conditions. Potential mitigations in the PSA intersections were reviewed to address operational deficiencies. Figure 5-1 shows the PSA 2035 No-Build lane configurations and traffic control. Figure 5-2 shows the 2035 post-processed PSA No-Build traffic volumes and weekday p.m. peak hour operational results.

As shown in Figure 5-2, 19 out of 25 study intersections will not meet the applicable level of service and volume-to-capacity standards under the current traffic control and lane geometry. The congested conditions can be attributed to the 300+ percent increase in households and 1,200+ percent increase in jobs projected within the PSA. As a result, the current roadway infrastructure cannot support the projected increase in traffic demand in 2035 during the weekday p.m. peak hour.

5. 2035 No-Build Transportation Conditions Analysis

INTRODUCTION

This chapter summarizes the future year 2035 "No-Build" conditions for the 172nd Avenue/190th Drive Corridor. Forecast traffic volumes were developed based on a modified version of Metro's 2035 financially constrained model network. The purpose of conducting the No-Build analysis is to determine the need for corridor improvements to meet forecast travel demand in the PSA. The remainder of this chapter discusses the background transportation and land use assumptions used, the 2035 No-Build intersection operational analysis, and the initially identified intersection operational mitigation for 2035 No-Build conditions. The detailed explanation of assumptions, methodology, findings and conclusions for the future No-Build transportation conditions can be found in *Tech Memo #4.3 - Future No-Build Transportation Conditions* in the *Technical Appendix.*

BACKGROUND ASSUMPTIONS

The 2035 No-Build forecast was assigned on Metro's 2035 Regional Transportation Plan (RTP) financially constrained model network. The Metro model provides consistency with the updated 2035 RTP and all of the related assumptions for growth and planned transportation improvements in the region and the study area. This also represents a regionally agreed upon set of transportation improvements as being fundable and constructible by the planning horizon of year 2035. The following summarizes the constraints and assumptions of the volume forecast effort:

- Metro prepared a subarea model, using the 2035 RTP model as its basis, to support the 172nd Avenue/190th Drive Corridor Management Plan project. The model included a connection from SE 172nd Avenue to SE 190th Drive.
- The Metro 2035 RTP financially constrained model network includes projects contained in Metro's 2035 RTP: Appendix 1.3, Modeling Assumptions. The recently completed Sunnyside Road project and widening of SE 172nd Avenue between Sunnyside Road and OR 212 are also reflected in the model.
- The Comprehensive Plans of Gresham, Happy Valley, and Damascus (not yet adopted) have the greatest impacts on this corridor, as each anticipates continued urbanization. Households in the PSA are forecast to grow by more than 300 percent (growth of

Ordinance ZDO-232, Exhibit C

Section 5 2035 No-Build Transportation Conditions Analysis

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During the review of historical records and field reconnaissance, over 50 properties were identified as having potential environmental conditions. Aboveground heating oil tanks and other aboveground storage tanks with unknown contents were observed at 11 properties in the PSA. Other hazardous substance containers (e.g., 55-gallon drums) were also observed at properties within the PSA. In addition, heating oil underground storage tanks and septic systems are also anticipated throughout the PSA. Solid waste, refuse and debris were observed at three properties within the PSA during field reconnaissance. An in-depth site inspection of the various debris piles was not conducted to determine if they contained hazardous materials such as asbestos or lead-paint materials. There were no indications of large surficial spills or releases of petroleum products or hazardous materials. Potential PCB-containing equipment, florescent or mercury vapor lighting and treated timbers were also observed within the PSA.

Summary of Environmental Conditions

Existing environmental resources and concerns within the PSA were identified for several proposed roadway improvement alternatives associated with the SE 172nd Avenue/190th Drive Corridor Management Plan. The PSA is comprised of mostly rural residential properties (a few of which meet eligibility criteria for listing on the National Register for Historic Places) surrounded by farmland and second-growth forests. Land uses and population within the PSA have been relatively stable for the past 30 years, but are transitioning from a rural to a more urban environment as new development enters the region. Natural resources including multiple wetlands, wildlife-habitat communities and riparian areas are prevalent throughout the PSA. Hazardous materials are also potentially located throughout the PSA. These existing environmental conditions may have implications for future planned development within the PSA.

Water quality is documented as being degraded within Rock Creek (the primary waterway in the PSA) due to E. coli and temperature-related water quality standards. There are also 100-year floodplains and floodways within the PSA along Rock Creek and the SE Hemrick Road Tributary to Rock Creek.

Air Quality

A records-based review of existing documentation and discussions with local experts was conducted to document existing air quality within the PSA that may be affected by the proposed project alternatives. Preliminary analysis indicates that the region, including the PSA, is now within attainment and should be able to continue to attain air quality standards.

Noise

A records-based review of existing documentation, discussions with local experts, and field reconnaissance were undertaken to document potential noise impacts within the PSA by the proposed project alternatives. The exiting noise environment along the PSA is dominated by traffic noise on arterial and local roadways, and by residential and commercial activities. Maximum noise levels are due to truck traffic, construction and commercial and industrial activities, and are expected to reach 75 to 85 A-weighted decibels maximum sound level (dBA Lmax) at 50 feet from major roadways. During field reconnaissance, noise levels ranged from 55 to 66 dBA Leq (equivalent sound level) which is within FHWA's noise abatement criteria.

Hazardous Materials

A hazardous materials assessment was conducted to summarize the potential environmental conditions (sources of hazardous materials or contaminated media) that may affect future development associated with regional traffic growth within the PSA. The potential presence of hazardous waste or other environmental contamination within the PSA was identified during an office-based review and subsequent field reconnaissance.

Two properties were identified in federal and Oregon Department of Environmental Quality (DEQ) databases as suspected to generate, store, and/or transport hazardous waste. Eighty-one properties within or adjacent to the PSA were identified in state and tribal databases as having recognized environmental conditions, as per the American Society for Testing and Materials (ASTM) E 1527-00 (2006).

Very little archaeological research has been conducted in the immediate vicinity of the PSA. No archaeological sites have been recorded within the PSA. No prehistoric or demonstrably-historical archaeological artifacts, features or sites were identified during a field reconnaissance survey.

Biological Resources

A review of the best available published resources and databases and subsequent field reconnaissance resulted in the identification of biological resources potentially within the PSA. Ten sensitive botanical species have potential habitat within the PSA: cold-water corydalis (*Corydalis aquae-gelidae*), Howell's daisy (*Erigeron howelli*), Nelson's checkermallow (*Sidalcea nelsoniana*), pale blue-eyed grass (*Sisyrinchium sarmentosum*), peacock larkspur (*Delphinium pavonaceum*), tall bugbane (*Cimicifuga elata* var. *elata*), thin-leaved peavine (*Lathyrus holochlorus*), water howellia (*Howellia aquatilis*), white rock larkspur (*D. leucophaeum*), and Willamette Valley larkspur (*D. oreganum*); however, field reconnaissance was conducted outside of the flowering period for all but one of the sensitive botanical species and biologists were unable to determine if sensitive botanical species are actually present within the PSA. Several noxious weeds were identified within the PSA, with Himalayan blackberry (*Rubus armeniacus*) and English ivy (*Hedera helix*) most prevalent throughout the PSA.

The PSA contains five wildlife-habitat communities based on O'Neal and Johnson (2001): Urban and Mixed Environs, Low-Density Zone (46%); Agriculture, Pastures, and Mixed Environs (35%); Westside Lowlands Conifer-Hardwood Forest (8%); Herbaceous Wetlands (7%); and Westside Riparian-Wetlands (4%). Fourteen sensitive wildlife species have potential habitat within the PSA. No sensitive species were directly observed during the field reconnaissance; however, anecdotal evidence from property owners has identified northern red-legged frogs (*Rana aurora aurora*) being present in the SE Hemrick Road tributary to Rock Creek. An existing records review of data sources revealed that the PSA supplies a potential habitat for five identified sensitive fish species. No fish surveys were conducted during the field reconnaissance.

Wetland and Waters Resources

A review of the best available published resources and subsequent field reconnaissance resulted in the identification of approximately 36 acres of wetlands within the PSA. Forty-nine total wetlands were identified and consisted of Palustrine Emergent/Scrub-Shrub, Palustrine Forested, and Palustrine Emergent wetlands. Palustrine emergent wetlands were the most common with 39 wetlands totaling approximately 23 acres. Six streams and 131 ditches were also identified throughout the PSA during the field reconnaissance.

Land Use and Socioeconomics

Although there are a variety of land uses within the PSA, the majority of land use is primarily rural residential uses. Land use within the PSA has been relatively stable for the last 30 years. The inclusion of the PSA in the Regional Urban Growth Boundary (UGB) in 2002 started a transition process that will eventually result in the land use in this area shifting from rural residential uses to urban uses. The adoption of the East Happy Valley Land Use Plan in 2009 and the SE 172nd Avenue/190th Drive Corridor Management Plan is further evidence of this transition from rural to urban land uses.

The population within the PSA has been relatively stable for the last 30 years and has a high percentage of long-term residents. Forecast development of the PSA into an urban area is expected to substantially increase the population over the next 20 years. It is anticipated to continue to change as a new urban infrastructure, community, and social systems evolve along with a new land development pattern.

The PSA is currently split between five local governments: Damascus, Gresham, Happy Valley, Clackamas County, and Multnomah County. The population within the PSA has been estimated at approximately 950 people living in 323 housing units, with a vacancy rate of 4.6 percent. There are no identified concentrations of environmental justice populations within the PSA.

The PSA retains land uses developed under the two counties' rural plans and zones. During the past century, these lands have existed as farmland. Recent development, since the area has been brought into the UGB include construction of a fire station, elementary school, and community church; improvements to SE Sunnyside Road; minor commercial property upgrades; and several individual residential developments. The majority of the local businesses within the PSA are either small business or rural business. This is anticipated to change as the land designated for future commercial uses and employment uses are developed over the next 20 years.

Historic and Cultural Resources

A review of the best available published resources and databases and subsequent field reconnaissance for the project resulted in the identification of previously-recorded historical resources within the PSA. There are six historic resources that appear to meet the eligibility criteria for listing on the National Register of Historic Places in the PSA. The historic resources are dispersed throughout the PSA, and there does not appear to be potential for a historic district within the PSA boundaries. There are eight additional historic resources within the PSA that remain unevaluated, but they should be considered potentially eligible until they can be assessed.

Structures

There are five existing structures serving the transportation network within the PSA – four bridges and one concrete box culvert. Specific elements of the existing bridge structures fall below current standards. Some bridge railing, approach guardrail, roadway width and indications of scour devalue the overall condition of the structures. However, the structures are adequate for the existing hydraulic and traffic conditions. The concrete box culvert along SE Foster Road continues to perform, but exhibits concrete deterioration.

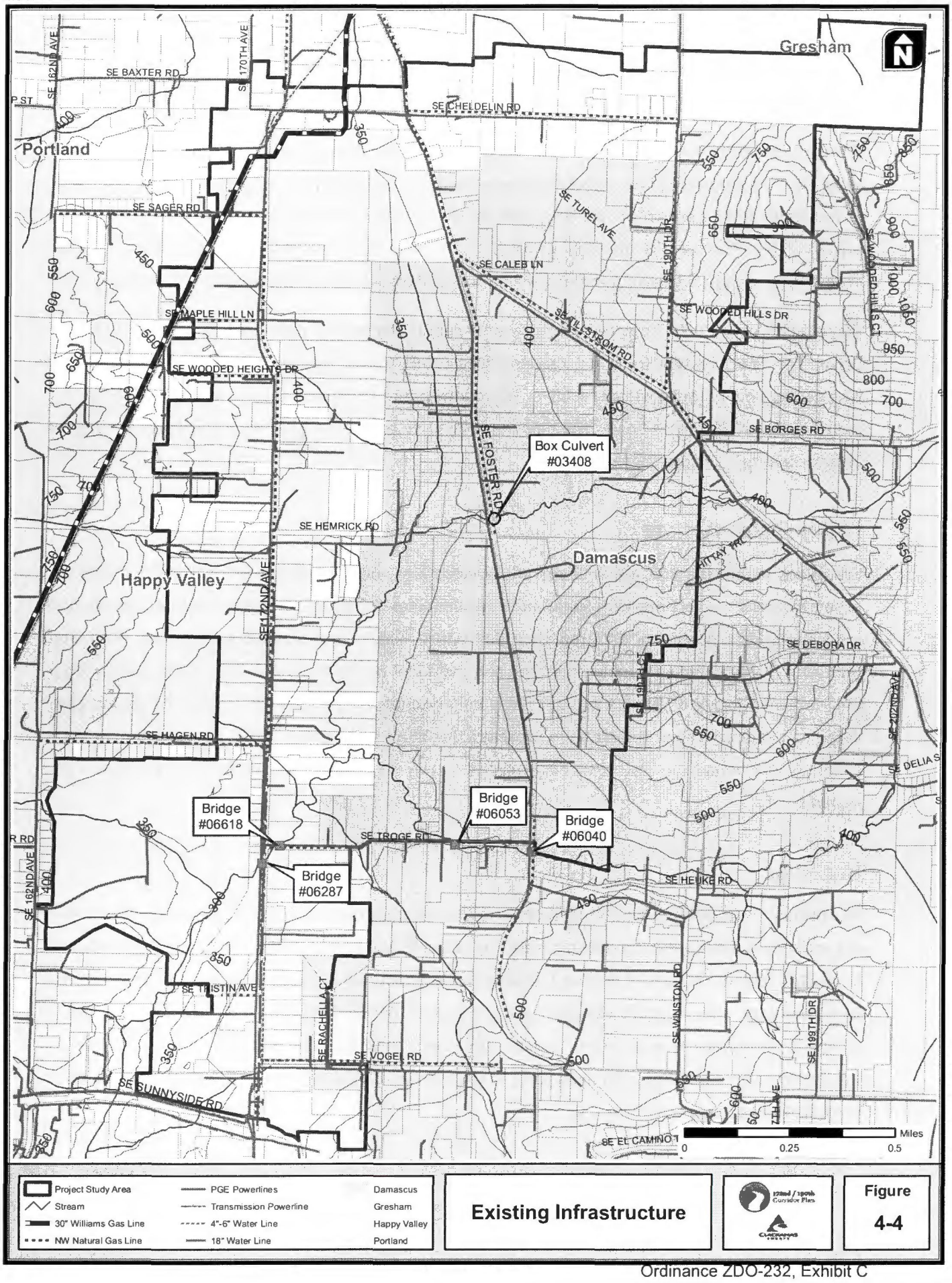
Summary of Existing Infrastructure

The existing physical infrastructure is adequate to serve the relatively low density rural-suburban uses in the area. As urbanization occurs, the infrastructure will need updating to meet the greater associated needs.

EXISTING ENVIRONMENTAL CONDITIONS

The following sections provide a brief summary of the existing environmental conditions identified within the PSA during an office-based records review and field reconnaissance for this project. Details of the existing environmental conditions can be found in the following technical memorandums in the *Technical Appendix* and also in the *Environmental Baseline Report* found in *Appendix A*.

- *Tech Memo #5.1 – Preliminary Natural Resources*
- *Tech Memo #5.2 – Preliminary Historical and Cultural Resources*
- *Tech Memo #5.3 – Preliminary Hazardous Materials Reconnaissance*
- *Tech Memo #5.4 – Socio Economic and Land Use Reconnaissance*
- *Tech Memo #5.5 – Biological Resources*
- *Tech Memo #5.6 – Wetlands and Water Resources*
- *Tech Memo #5.7 – Historical and Cultural Resources*
- *Tech Memo #5.8 – Hazardous Materials Reconnaissance*
- *Tech Memo #5.9 – Soils and Geological Resources*
- *Tech Memo #5.10 – Air Quality Analysis*
- *Tech Memo #5.11 – Noise Analysis*



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EXISTING INFRASTRUCTURE

The existing infrastructure elements are clustered in the southern and western portion of the PSA, along SE 172nd Avenue. Utility infrastructure, for the most part, aligns with the existing roadway rights-of-way, with the exception of the large gas and transmission powerline in the extreme northwest corner of the PSA. Details of existing infrastructure can be found in *Tech Memo #4.2 – Existing Infrastructure* in the *Technical Appendix*. Figure 4-4 displays a composite of the existing infrastructure.

Topographic constraints, however, are more prevalent in the eastern portion of the PSA, near SE 190th Drive. The PSA is centered within a localized valley; thus, the extents of Rock Creek will be significant when siting new roadway infrastructure. All roadways in the PSA are eligible for rehabilitation, with the exception of SE Foster Road. The following narrative provides a general conclusion regarding the individual infrastructure elements.

Utility Infrastructure

Properties within the PSA are well served by electricity and communication utilities. Services are primarily aerial connections with some undergrounding to individual properties. Natural gas services are available to a portion of the properties, and future expansion is planned for the area. Two large utilities, a 30" underground natural gas line and overhead electrical transmission lines, are located in the northwest corner of the PSA and will likely influence future development. Public utilities, including water and sanitary sewer services, are present along a one-mile stretch of SE 172nd Avenue near the southern PSA boundary. The remaining properties rely on groundwater wells and individual septic systems.

Drainage

The primary watershed in the PSA is Rock Creek, draining approximately 80 percent of the land within the study area. Drainage in the northern portion of the PSA drains to Kelley Creek, part of the Johnson Creek Watershed. The size of drainage system elements appears to match the runoff for existing land uses. Drainage infrastructure elements are maintained by Clackamas County and appear to be in adequate condition to pass storm events and carry existing flow volumes. While the existing infrastructure is satisfactory for managing existing flows, the level of treatment and detention falls below current County standards.

- Fixed route transit service does not currently exist within the PSA, although there are two transit routes (#82 and #155) with service within one mile the PSA. Tri-Met's LIFT program for the disabled does operate in the PSA.
- Intersection crash rates are all well within acceptable standards in the PSA. As traffic volumes grow, motorists turning from the many unsignalized accesses onto higher speed rural roadways will likely have greater difficulties, resulting in a potential increase in crashes. Crash trends identified in the study area were taken into consideration as project roadway concepts and alternatives were developed.
- Signal and public street spacing does meet Clackamas County guidelines under existing conditions along the SE 172nd Avenue. A total of 122 accesses exist along SE 172nd Avenue (10 public, 112 private) within the PSA. This results in an average access density of approximately 1 access per120 feet (1 public per 1,500 feet) in the PSA; and
- A total of 43 accesses exist along SE 190th Drive (4 public, 39 private) within the PSA. This results in an average access density of approximately 1 access per 130 feet (1 public per 1,400 feet) in the PSA. Driveway access spacing on SE 172nd and 190th Avenues does not meet Clackamas County, Multnomah County, City of Gresham or City of Happy Valley guidelines/standards.
- Table 4-2 summarizes the ADT approximated based on historical and recent traffic counts.

Table 4-2: Existing Year Average Daily Traffic

Roadway	Location	ADT
SE 172nd Avenue	north of SE Hagen Road	8,000
SE 190th Drive	north of SE Richey Road	7,250
SE Foster Road	south of SE Cheldelin Road	7,000
SE Sunnyside Road	west of SE 172nd Avenue	13,250
SE Tillstrom Road	east of SE 190th Drive	4,250
SE Richey Road	east of SE 182nd Avenue	3,750
SE 182nd Avenue	north of SE Richey Road	1,000

intersections. Most jurisdictions in the PSA adhere to a LOS "D" for intersection operations.[2] Chapter 6 summarizes the alternatives analysis that led to the preferred mitigation treatments at these two intersections to address existing and future operational deficiencies.

Roadway Access

The existing number of existing accesses along key roadways within the PSA is summarized below.

- SE 172nd Avenue – has a total of 122 accesses (10 public, 112 private) within the PSA, resulting in an average access density of approximately 1 access per 120 feet (1 public per 1,500 feet) over approximately 2.5 miles. Based on the assessment of existing cross street locations, Clackamas County's public street spacing of 300 feet is met, while Happy Valley's public street spacing standard (of 1,000 feet) is not met in many cases, and its 500-foot spacing for private accesses is not met in most cases.
- SE 190th Drive – has a total of 43 accesses (4 public, 39 private) within the PSA, resulting in an average access density of approximately 1 access per 130 feet (1 public per 1,400 feet) over approximately one mile. Based on the assessment of existing cross street locations, it appears the 300 foot County standard for public roadway street spacing along SE 190th Drive is met, although the County's driveway spacing standard is not met in many cases. The City of Gresham has not established formal street standards yet. However, the SE 190th Drive corridor complies with City's policy to provide connecting streets for traffic flow, safety, and turning movements. Gresham's driveway access guidelines are not met at multiple locations along SE 190th Drive with respect to 100 foot spacing standard.

Summary of Existing Transportation Conditions

Key findings for existing transportation conditions analysis are summarized below:

- All of the study area intersections operate acceptably during the critical weekday p.m. peak hour per applicable intersection standards, with the exception of Foster Road/172nd Avenue and SW Highland Drive/SW Pleasant View Drive.

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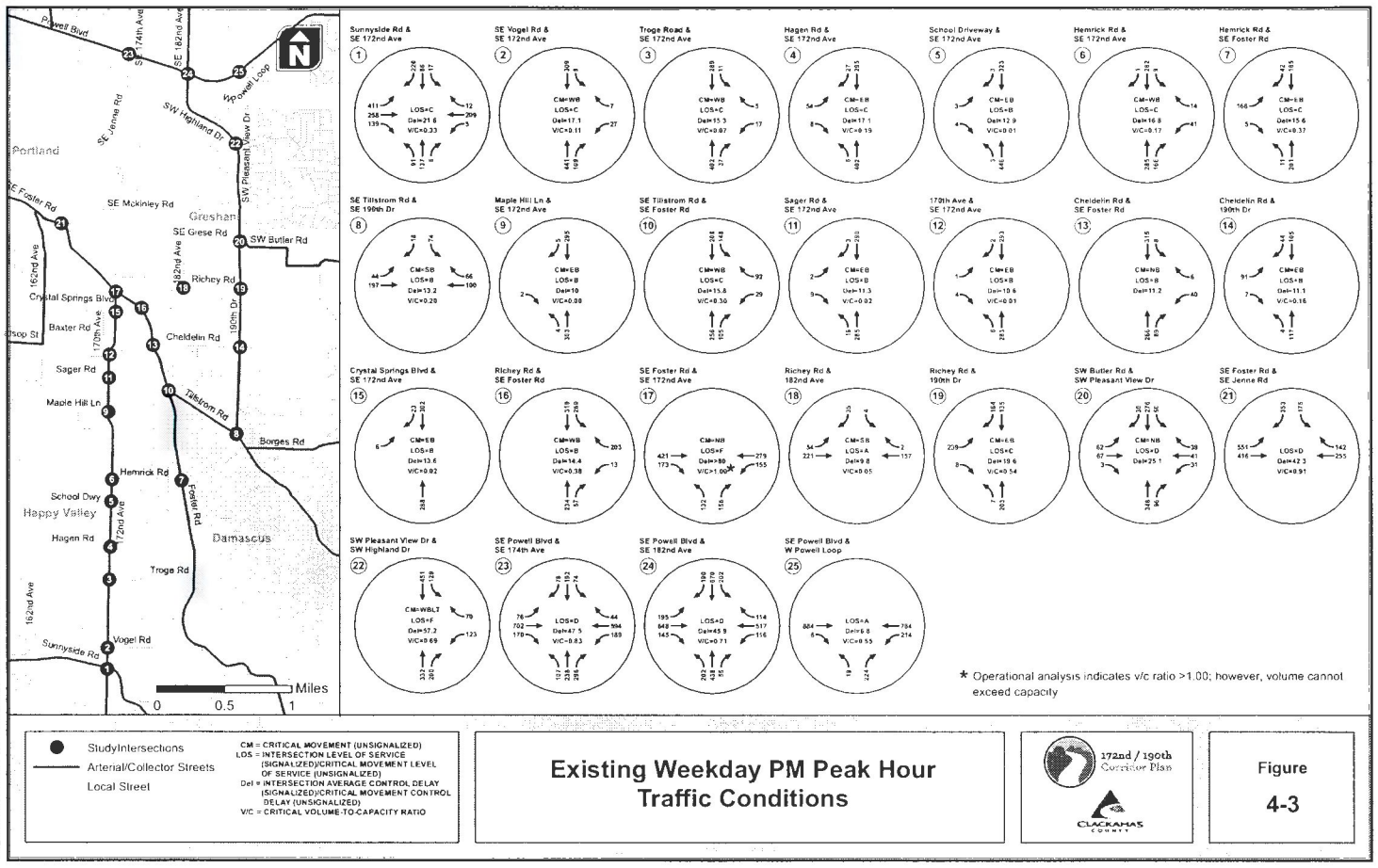
[2] Damascus has not yet defined operational standards, and Happy Valley and Portland allow unsignalized intersections to operateat LOS "E". Gresham allows all intersections to operate at LOS "E".



Existing Weekday PM Peak Hour Traffic Conditions

172nd / 190th Corridor Plan
CLACKAMAS COUNTY

Figure 4-3

Existing Traffic Volumes and Operations

This section describes the existing traffic volumes and resultant peak hour traffic operations within the PSA. In recognition that the weekday p.m. peak hour is typically the most critical time period with respect to vehicle traffic volume demand on the street system, traffic operations were only evaluated during this critical time period. Careful examination of local traffic volumes revealed that weekday p.m. peak hour volumes are approximately 30-40% greater than the equivalent weekday a.m. peak hour volumes. Figure 4-2 shows the average weekday daily volume profile on 172nd Avenue.

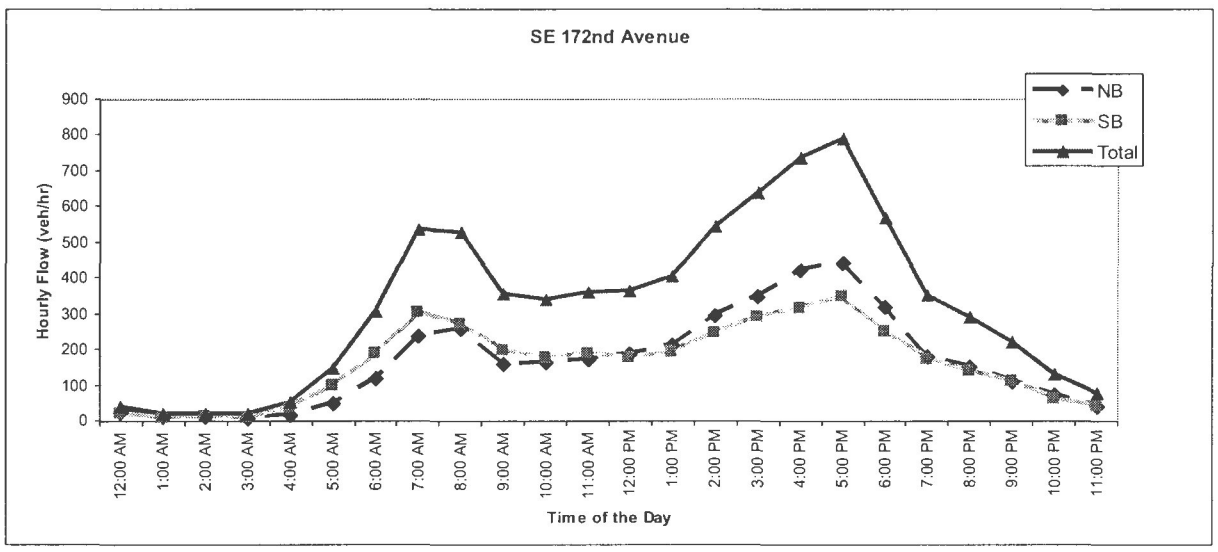


Figure 4-2: Average Weekday Daily Volume Profile on 172nd Avenue

The two-way average weekday daily traffic (ADT) volume at the link count location for 172nd Avenue (north of Hagen Road) was 8,000, with average daily truck percentage of approximately six percent. The 85th-percentile speed along 172nd Avenue is approximately 47 mph, which is close to the speed limit of 45 mph on this roadway.

The weekday p.m. peak hour volumes and operational indicators are shown in Figure 4-3. As shown in this figure, all of the study intersections meet the County and Metro standards (i.e. level-of-service (LOS) "D" or better and 0.99 volume-to-capacity ratio (v/c ratio) or better), with the exception of the stop-controlled Foster Road/172nd Avenue and SW Highland Drive/SW Pleasant View Drive

CRASH HISTORY

Crash histories between years 2005 and 2009 of each of the study intersections were reviewed to identify potential safety issues. The following observations are made based on a review of the crash data:

- Intersection crash rates are all well below 1.0 (crashes per million entering vehicles), which is generally considered a threshold that may trigger further investigation. A crash trend is noticed at Tillstrom Road/Foster Road (turning-type), 182nd Avenue/Richey Road (turning-type), Richey Road/Foster Road (rear-end), 172nd Avenue/Foster Road (fixed object and turning-type), Powell Boulevard/174th Avenue (turning-type, rear-end and fixed object), Powell Boulevard/182nd Avenue (turning-type, rear-end and fixed object), Powell Boulevard/West Powell Loop (turning-type and rear-end), and 190th Drive/Giese Road-Butler Road (angle crashes).
- In the five years of crash data analyzed, there were two fatalities reported. One fatality occurred along Richey Road, which was a fixed object crash on a rainy night, where the driver (48 year old male) was speeding and ran off the road at the horizontal curve just west of the 182nd Avenue intersection, not following the curve warning sign. Another fatality occurred at the 190th Drive/Giese Road-Butler Road intersection where drivers of both vehicles violated traffic controls (stop signs).

These crash trends and reported fatalities were taken into consideration as project roadway concepts and alternatives were developed.

PHYSICAL ELEMENTS THAT MAY AFFECT SAFETY

There are numerous physical characteristics of transportation facilities that may affect safety, including:

- Passing zones – as the area has become more suburban, these passing zones may promote higher speeds where these speeds may be undesirable;
- Fences and obstructions that obstruct sight distance;
- Inconsistent street signs that increase drivers confusion, and;
- Poorly aligned intersections.

OTHER KEY FACILITIES

Other key arterial and collector streets in the study area include:

- SE Foster Road – a rural, minor arterial 2-3 lane roadway with no shoulders, and drainage ditches, which serves as a continuous connection through the PSA, oriented northwest-to-southeast directionally and terminating from the City of Portland to Damascus.
- SE Tillstrom Road – a rural, minor arterial 2-3 lane with no shoulders, and drainage ditches which is oriented northwest-to-southeast directionally in the PSA.

Pedestrian and Bicycle Facilities

Sidewalks and bicycle lanes are not provided throughout most of the PSA. The one exception is Sunnyside Road, which has both bike lanes and sidewalks. The major pedestrian and bicycle trip generators within the PSA include the Pleasant Valley Elementary School, Scouters Mountain Elementary School, and the Abundant Life Church. Planned land uses will likely increase the number of pedestrian and bicycle generators.

There are no current trail or greenway connections identified within the PSA, although there are numerous trail corridors planned.

Public Transportation Facilities

Fixed route transit service does not currently exist within the PSA, although there are two transit routes (#155 and #82) with service within one mile the PSA. :

- Route 155: Sunnyside runs east and west along Sunnyside Road between the Clackamas Town Center Transit Center and Happy Valley (at 157th Avenue).
- Route 82: Eastman/182nd provides weekday service between Gresham and Rockwood, running on SE 190th Drive on the north end of the study area.

Tri-Met's LIFT program for the disabled does operate in the PSA.

Safety

This section summarizes the crash history and existing physical elements that may affect corridor safety.

As shown in Figure 4-1, the majority of the project study area includes two-lane rural roadways, with two-way stop controlled intersections for minor approaches. The exceptions are SE Sunnyside Road, a major arterial, recently widened to five lanes, which has an existing traffic signal in the study area at the recently reconstructed intersection of SE Sunnyside Road and SE 172nd Avenue. The four other traffic signals at study intersections are located along SE Powell Boulevard at 174th Avenue, 182nd Avenue, and W Powell Loop (east end), and one at the SE Foster Road/SE Jenne Road intersection.

A summary of the key arterial roadway facilities is provided below.

SE 172ND AVENUE

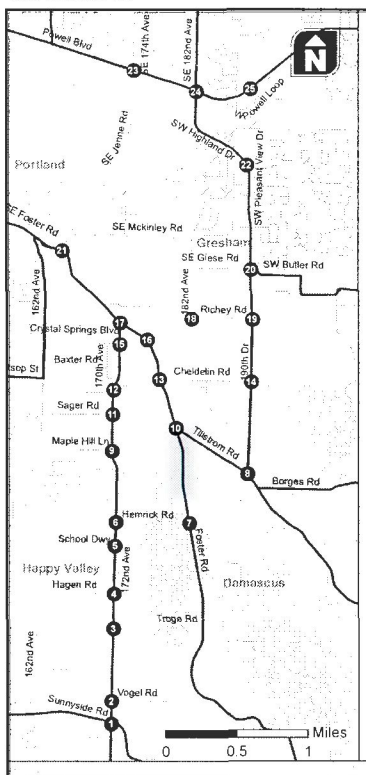
SE 172nd Avenue, north of SE Sunnyside Road is currently a two-lane rural road with limited or no shoulders and open drainage treatments on each side of the roadway. SE 172nd Avenue terminates on the north at SE Foster Road as a stop-controlled approach. The SE 172nd Avenue corridor terminates to the south outside the PSA at Highway 212. Within the PSA, SE 172nd carries about 6,000 to 9,000 vehicles per day at the north end (Foster) and south end (Sunnyside), respectively. It's worth noting that the recently completed widening and modernization project along SE 172nd Avenue immediately south of the PSA to Highway 212 converted the roadway from a rural two-lane roadway to a suburban 5-lane cross-section.

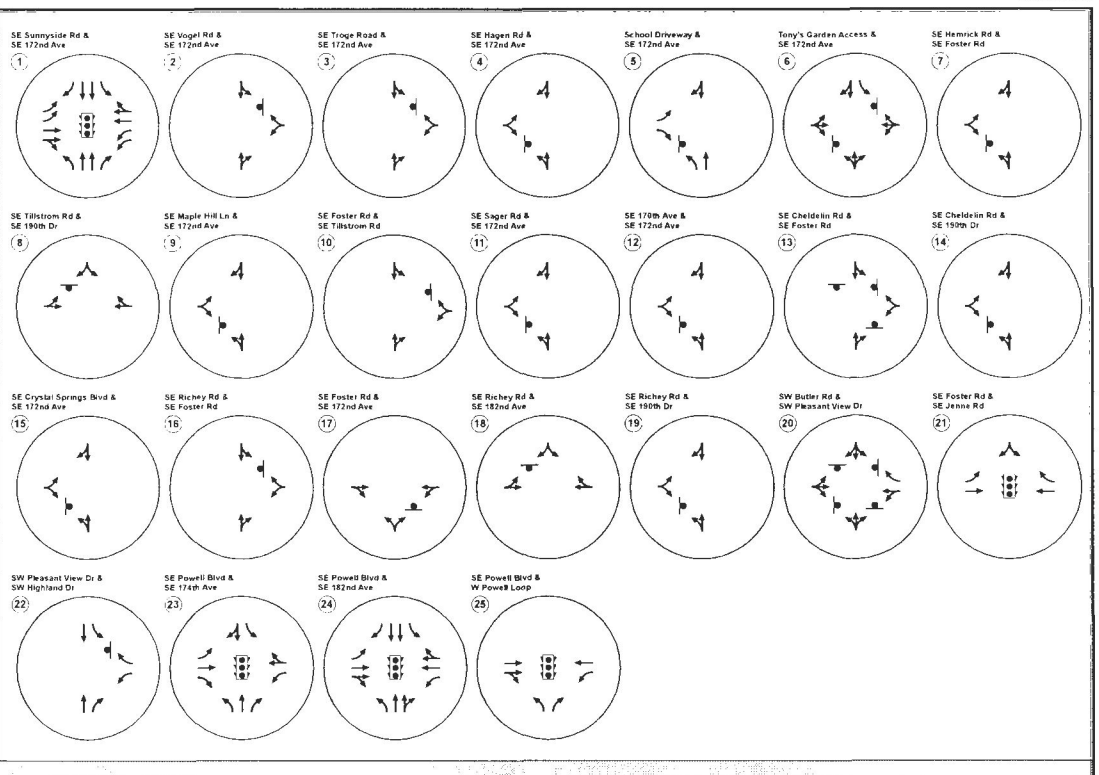
SE 190TH DRIVE

SE 190th Drive is currently a two-lane rural road with no shoulders, and drainage ditches on each side. All intersections within the PSA are two-way stop controlled from the side streets. SE 190th Drive terminates on the south end at Tillstrom Road/Borges Road at a stop-controlled approach. SE 190th Drive contains relatively steep terrain up and over a forested butte in the southern portion (south of Cheldelin Road). SE 190th Drive transitions to a suburban character roadway in Gresham, and carries about 2,000 to 7,000 vehicles per day at the south and north end, respectively. This key north-south roadway offers a strategic corridor for mobility and access into the PSA in Clackamas and Multnomah Counties.

SE SUNNYSIDE ROAD

SE Sunnyside Road was recently widened and upgraded in the PSA to a suburban 5-lane section, with bike lanes and sidewalks. The intersection of SE Sunnyside Road with SE 172nd Avenue was built out to support long-term future growth as shown in Figure 4-1. SE Sunnyside Road is a key east-west connection (major arterial per Clackamas County and Happy Valley) between the PSA and Interstate 205 to the west.





Study Intersections
Arterial/Collector Streets
Local Street
Traffic Signal
Stop Sign

Existing Lane Configurations & Traffic Control Devices

172nd / 190th Corridor Plan
CLACKAMAS COUNTY

Figure 4-1

Transportation Facilities

Figure 4-1 identifies the existing lane configurations and traffic control devices at the study intersections. Table 4-1 provides a summary of the key roadway facilities within the PSA.

Table 4-1: Existing Transportation Facilities within the PSA and Roadway Designations

Roadway	Classification (Ownership)[1]	Cross-Section (lanes)	Speed-Limit	Side-walks	Bicycle-Lanes	On-Street-Parking
SE 172nd Avenue	Minor Arterial (Clackamas Co.) Rural Collector (Multnomah Co.) Major Arterial[5] (Happy Valley)	2 / 3[2]	45[3]	No	No	No
SE 190th Drive	Collector (Clackamas Co.) Rural Arterial (Multnomah Co.) Minor Arterial (Gresham)	2	40	No	No	No
SE Sunnyside Road	Major Arterial (Clackamas Co., Happy Valley[5])	5[2]	45	Yes	Yes	No
SE Foster Road	Minor Arterial (Clackamas Co.) Rural Arterial (Multnomah Co.) District Collector (Portland)	2	45[4]	No	No	No
SE Tillstrom Road	Minor Arterial (Clackamas Co.)	2	Not Posted[3]	No	No	No
Scouters Mountain School Driveway	Local (Clackamas Co.)	2	Not Posted[3,4]	Yes	Yes	No
Other Clackamas County Local Roadways	Local (Clackamas Co.)	2	40 / 45 / Not Posted[3,7]	No	No	No

[1] Roadway ownership and classification designation is based upon the Clackamas County TSP, Multnomah County TSP, Happy Valley TSP, Gresham TSP, and Portland TSP.

[2] Roadway cross section expands to 6+ lanes at the intersection of SE 172nd Avenue and SE Sunnyside Road

[3] Unposted speed defaults to 55 miles per hour, according to Oregon Vehicle Code, 811.105 (e).

[4] School zone near Scouters Mountain Elementary School of 20 mph when children are present.

[5] Per City of Happy Valley TSP, Happy Valley does not own or maintain roadway.

[6] Roadway cross section expands to four or five lanes between study intersections.

[7] SE Vogel Road and SE Hagen Road are posted at 40 mph; SE Cheldelin Road is posted at 45 mph.

4. EXISTING CONDITIONS

This chapter provides a summary overview of the existing transportation operations and safety conditions, existing infrastructure, and existing environmental conditions.

EXISTING TRANSPORTATION

This section identifies the current transportation system, traffic operations, and access conditions within the SE 172nd Avenue and SE 190th Drive Project Study Area (PSA). Traffic counts used in this analysis were collected in October 2010, after the completion of the roadway construction project on SE 172nd Avenue between Sunnyside Road and Clackamas Highway (OR 212). The PSA is focused along the SE 172nd Avenue and SE 190th Drive corridors and is largely within Clackamas County; however, six intersections immediately north of the PSA in Pleasant Valley and Gresham are also included in the operational analysis. Details of existing transportation conditions can be found in *Tech Memo #4.1 - Existing Transportation Conditions Analysis* in the *Technical Appendix.*

The existing transportation system in the PSA includes a skeleton-level of arterials and collectors with very minimal pedestrian and bicycle facilities. No transit or other transportation related facilities (except for pipeline and transmission lines discussed in Section 4C) exist within the PSA. The remainder of this subsection discusses the roadway, pedestrian, bicycle, and nearby transit facilities.

Ordinance ZDO-232, Exhibit C

Section 4 Existing Conditions

Ordinance ZDO-232, Exhibit C

COORDINATION WITH NEPA PROCESS

This planning effort has been conducted to provide information and coordination necessary for future National Environmental Policy Act (NEPA) efforts. This would allow Federal Highway Administration (FHWA) to make findings that they are in agreement with the assumptions, and processes used to develop the Preferred Build Alternative that could eventually be relied upon in a future NEPA action that evaluates potential impacts of build and no-build alternatives.

SUMMARY

There is substantial consistency across the relevant planning and policy documents related to land use and transportation in the SE 172nd Avenue/190th Drive Corridor planning area. The plans that provide direction to the ultimate development of this area lead to a balanced land use-transportation system. The elements of this system are described below. Urban levels of development are anticipated by all jurisdictions with land use authority. A mix of land uses is anticipated that provides housing, services, and employment, along with parks, recreation facilities, and other urban amenities. The mix, density, and arrangement of land uses are expected to be walkable, transit-oriented, and transit-supportive. Industrial and other employment areas are planned that will provide jobs at a sub-regional scale and generate and/or attract freight movements to/from the area. A network of arterials and collectors is planned that includes parallel facilities on both sides of 172nd Avenue, along with an interconnected set of pedestrian and bicycle facilities that link neighborhoods to transit facilities and all pedestrian and bicycle generators. Transit service is expected on 172nd Avenue and to other transit-supportive places in the planning area. Freight movements are also anticipated on the corridor. Finally, a plan is in place to provide a typical four-lane roadway with left-turn opportunities, along with attractive pedestrian, bicycle, and transit facilities and services.

The fact that the Damascus Comprehensive Plan is not yet adopted creates a coordination issue for Clackamas County to develop this corridor plan, due to the uncertainty of the mix and density of future land uses in Damascus. The boundary between Happy Valley and Damascus/Clackamas County crisscrosses the SE 172nd Avenue/190th Drive Corridor. Lacking an adopted Damascus Comprehensive Plan, this area falls under the County's jurisdiction and Comprehensive Plan. The County's Plan does not provide the opportunity for urban densities within the City. Thus, agreements among the decision makers must be reached as to the appropriate land use assumptions to be made for the Damascus urban growth boundary. This planning effort has included careful coordination with City of Damascus officials, and consideration of preliminary land use and transportation plans, goals and objectives, with the intent to maintain consistency with their planning efforts.

of the local comprehensive plans, contain policies relating to the multimodal transportation system and outline planned transportation improvements, regardless of jurisdiction or funding source.

The transportation and land use plans reviewed for policies and regulations applicable to the SE 172nd Avenue/190th Drive Corridor Management Plan, are shown in Table 3-1.

Table 3-1: Applicable Plans and Policy Documents

Plan / Policy Document
Oregon Statewide Planning Goals (2010)
– Goal 1: Public Involvement
– Goal 2: Land Use Planning
– Goal 5: Natural Resources, Scenic and Historical Areas, and Open Spaces
– Goal 6: Air, Water and Land Resources Quality
– Goal 7: Areas Subject to Natural Hazards
– Goal 8: Recreational Needs
– Goal 9: Economic Development
– Goal 12: Transportation and Oregon Administrative Rule 660, Division 12 (TPR)
Metro Plans
– Metro Regional 2040 Growth Concept (Metro, December 1995)
– Metro Regional Transportation Plan Update (Metro, March 2010)
– Metro Powell/Foster Corridor Transportation Plan (Metro November 2003)
– Wildlife Crossings
– Creating Livable Streets
Clackamas County Plans
– Clackamas County Comprehensive Plan (Land Use Element)
– Clackamas County Transportation System Plan
– Sunrise Corridor EIS (draft)
City Plans
– City of Happy Valley Comprehensive Plan (Land Use Element)
– City of Happy Valley Transportation System Plan
– City of Damascus Comprehensive Plan (draft) (Land Use Element)
– City of Gresham Transportation System Plan
– City of Gresham Community Development Plan, Vol. 1.1, Vol. 1.2 (Pleasant Valley Plan), Vol. 3 (Pleasant Valley Plan District)

REGULATORY FRAMEWORK

The planning documents that provide the regulatory framework for this plan are described below.

Statewide Plan and Policies

The Statewide Planning Goals express the state's policies on land use and related topics such as economic development, public facilities, and transportation. Oregon's statewide goals are achieved through local comprehensive planning. State law requires each city and county to adopt a comprehensive plan and the zoning and land-division ordinances needed to put the plan into effect. These local comprehensive plans must be consistent with the Statewide Planning Goals. Plans are reviewed for such consistency by the state's Land Conservation and Development Commission (LCDC). When LCDC officially approves a local government's plan, it becomes the controlling document for land use in the area covered by that plan.

The Transportation Planning Rule (TPR) Statewide Goal #12 requires that land use plans and the transportation system plan are consistent with one another. It requires cities, counties, and the state to adopt transportation system plans that integrate land use and transportation planning.

The Oregon Highway Plan and the Oregon Transportation Plan are not directly relevant because the SE 172nd Avenue/190th Drive corridors do not connect to an ODOT facility. Thus, these two documents were not reviewed.

Regional Plans and Policies

All transportation plans developed within the Portland metropolitan area are required to be consistent with the Regional Transportation Plan (RTP), developed by the Metro Regional Government (Metro). The RTP includes goals and policies that integrate land use and transportation planning, identifies needed improvements to the transportation system, and defines a cost-feasible set of improvements the region intends to fund and implement over the next 20+ years.

Local Plans and Policies

For local governments, the comprehensive plan documents contain objectives and policies that are intended to guide growth and development over a 20-year planning horizon. They are based on the specific qualities and characteristics of the community and reflect local plans and needs for future improvements. The comprehensive plans are intended to be consistent with the Statewide Planning Goals and the RTP. The city and county Transportation System Plans (TSPs), the transportation element

3. REVIEW OF ADOPTED PLANS AND POLICIES

INTRODUCTION

This chapter provides an overview of the plan and policy documents that affect the land use and transportation systems in the vicinity of the SE 172nd Avenue/190th Drive Corridor. The regulatory context involves state, regional, county, and local levels of governance that directly impact transportation planning in the area. A policy framework for the corridor planning process is provided which identifies any policy or regulatory amendments that may need to be made to implement the SE 172nd Avenue/190th Drive Corridor Management Plan. Details of the technical analysis can be found in *Tech Memo #3.1 - Purpose and Need* in the *Technical Appendix*.

BACKGROUND

The land surrounding the SE 172nd Avenue/190th Drive Corridor was recently added to the Portland Metropolitan Urban Growth Boundary (part in 1998 and the remainder in 2002) and is planned for urban development at an average residential density of at least 10 units per net buildable acre[1]. There also are planned commercial and employment areas within the cities of Damascus and Happy Valley. Today, SE 172nd Avenue and SE 190th Drive lack the needed continuity and capacity to serve future traffic demand created by this anticipated urban growth. Thus, the purpose of this SE 172nd Avenue/190th Drive Corridor Management Plan is to identify and assess transportation system improvements needed to serve future north-south traffic demand that will result from the build-out of developable land in Happy Valley, Damascus, and Gresham, and to accommodate regional growth.

There are two jurisdictions within which lands in the study area lie: the cities of Happy Valley and Damascus. In addition, lands just outside the study area are within the jurisdiction of Clackamas County, Multnomah County and the City of Gresham. Figure 1-1 shows these jurisdictional boundaries.

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[1] In Damascus, residential densities were assumed to be eight units per acre.

Ordinance ZDO-232, Exhibit C

Section 3 Review of Adopted Plans and Policies

Meeting Event	Date/Location	Meeting Purpose/Objectives
Clackamas County Board of Commissioners Hearing	January 19th, 2012 Board of County Commissioners	Project team presents project documentation to Board of Commissioners for approval.
Happy Valley Planning Commission Hearing	January 24th, 2012 Happy Valley City Hall	Project team presents project documentation to Planning Commission for approval.
Happy Valley City Council Hearing	February 21st, 2012 Happy Valley City Hall	Project team presents project documentation to City Council for approval.

Meeting Event	Date/Location	Meeting Purpose/Objectives
		The project team presented a summary of the feedback received from the stakeholders, PAC and Public along with a preliminary recommendation the Concept AT2 be chosen as the Preferred Build Roadway Alignment Alternative. The group then discussed the three remaining Alternatives and agreed that AT2 should be the Build Alternative. The group also discussed the 3-lane and 5-lane typical streetscapes that were developed by the project team and agreed on a few modifications. The group then discussed implementation and funding strategies for the corridor and agreed to address this further at the next meeting.
CTAC Meeting #3	August 23rd, 2011/ Clackamas County Development Services Building	- Current Alignments - Next Steps The project team briefed the CTAC on the public involvement process since the last CTAC presentation in February. The team also presented the preferred roadway alignment and streetscape and discussed the upcoming adoption process.
FHWA Meeting #3	September 14th, 2011	- Current Status - Next Steps The project team provided an update on the project status and discussed final project documentation.
PMT Meeting #7	September 22nd, 2011 Happy Valley City Hall	TBD
Happy Valley Planning Commission/City Council Joint Work Session	October 18th, 2011 Happy Valley City Hall	-Project History -Impact to Happy Valley TSP The project team presented a brief summary of the project history and public involvement summary, as well as an overview of the impacts of the plan on the Happy valley Transportation System Plan.
Clackamas County Planning Commission Work Session	October 24th, 2011 Clackamas County Development Services Building	-Project History -Impact to County Roadway Network The project team presented a brief summary of the project history and public involvement summary, as well as an overview of the impacts of the plan on the County Roadway system.
FHWA Meeting #4	October 26th, 2011	- Current Status - Next Steps The project team provided an update on the project status and discussed final project documentation.
FHWA Meeting #5	December 30th, 2011	- Current Status - Next Steps The project team reviewed the CMP and Environmental Baseline with representatives from ODOT and FHWA.
Clackamas County Planning Commission Hearing	December 12th, 2011 Clackamas County Development Services Building	Project team presents project documentation to Planning Commission for approval.
Clackamas County Board of Commissioners Work Session	January 10th, 2012 Board of County Commissioners	-Project History -Impact to County Roadway Network The project team presents a brief summary of the project history and public involvement summary, as well as an overview of the impacts of the plan on the County Roadway system.

Meeting Event	Date/Location	Meeting Purpose/Objectives
	Development Services Building	involvement process. The team also presented the current alignments and streetscapes being considered for implementation and the next steps in the project.
PMT Meeting #6	June 27th, 2011/ Happy Valley City Hall	- Recent Meetings - Updated/New Technical Memorandums - Recent Concept Development - Concept Evaluation The project team briefed the group on recent meetings with the FHWA, Clackamas County and the Cities of Happy Valley, Gresham, Damascus and Portland. The team then presented the results of the existing environmental conditions study transportation analysis. The PMT then reviewed the recent updates to the Three Most Promising Roadway Alignments and decided that any of the three would adequately meet the project goals and that, though AS10A scored highest based on the evaluation criteria, it relies heavily on a future connection from Foster Road south to 212, which is uncertain.
Planning Commission	June 27th, 2011 Gresham City Hall	- Projected Traffic Volumes in Gresham - Current Alignments - Next Steps The project team briefed the City Council on the public involvement process to date and provided traffic volume projections and operations at intersections north of the study area in the City of Gresham. The team also presented the current alignments and streetscapes being considered for implementation and the next steps in the project.
Stakeholder Interviews – Round 3	Summer 2011	- Concept Input - Streetscape Input The purpose of Interview Round 3 was to give stakeholders the opportunity to review the 3 roadway alignment concepts and streetscape concepts and indicate their preference as to what should be chosen as the Build Alternative.
Public Open House	July 20th, 2011 Scouters Mountain Elementary School	- Review of Public Involvement - Updated Traffic Projections - Evaluation Criteria - Concept Evaluation/Preferred Alternative The project team presented a recap of public involvement to date and the results of the traffic analysis for the 3 roadway alignments currently under consideration. The team also presented the project evaluation criteria and then conducted a work session where participants could review the project team's evaluation of the 3 remaining concepts and choose the 1 that they desired to have further evaluated.
PAC Meeting #4	July 27th, 2011 Scouters Mountain Elementary School	- Review of Public Involvement - Updated Traffic Projections - Evaluation Criteria - Concept Evaluation/Preferred Alternative The project team presented a recap of public input to date and the results of the traffic analysis for the 3 roadway alignments currently under consideration. The team also presented the project evaluation criteria and then conducted a work session where participants could review the project team's evaluation of the 3 remaining concepts and indicate the 1 that they desired to have further evaluated.
PMT Meeting #7	August 4th, 2011/ Happy Valley City Hall	- Review of Stakeholder/PAC/Public Feedback - Work Sessions on Roadway Alignment and Streetscape - Discussion of Implementation Plan

Meeting Event	Date/Location	Meeting Purpose/Objectives
		remaining concepts and choose the 3 that they desired to have further evaluated.
PMT Meeting #5	April 11th, 2011/ Happy Valley City Hall	- Review of Public Involvement - Traffic Projections - Evaluation Criteria - Concept Evaluation The project team presented the results of the traffic analysis for the 5 roadway alignments currently under consideration. The team also presented the project evaluation criteria and then conducted a work session where the PMT members could review the project team's evaluation of the 5 remaining concepts, as well as the public and PAC feedback, and choose the 3 that they desired to have further evaluated (AT2, AT6, AS10A).
Federal Highway Administration (FHWA) Meeting #1	April 21, 2011 Kittelson & Associates	- Project Background - FHWA Process The project team provided FHWA officials with a project background and discussed what steps the team can take to ensure that the final documentation can readily be moved forward through the NEPA process, if funding becomes available in the future.
Damascus City Planning Commission	April 26th, 2011 City of Damascus City Hall	- Current Alignments - Next Steps The project team briefed the City Council on the public involvement process. The team also presented the current alignments and streetscapes being considered for implementation and the next steps in the project.
City of Portland Bureau of Transportation (PBOT)	April 27th, 2011 City of Portland	- Coordination with Outer Powell Project - Briefing on 172nd Status Larry Conrad briefed representatives from PBOT on the scope and status of the 172nd Avenue project and discussed coordination efforts with the outer Powell Boulevard project.
City Council	May 3, 2011 Happy Valley City Hall	- Current Alignments - Next Steps The project team briefed the City Council on the public involvement process. The team also presented the current alignments and streetscapes being considered for implementation and the next steps in the project.
FHWA Meeting #2	May 18, 2011 Kittelson & Associates	- Current Status - Next Steps The project team provided an update on the project status and discussed final project documentation.
City Council	June 14th, 2011 Gresham City Hall	- Projected Traffic Volumes in Gresham - Current Alignments - Next Steps The project team briefed the City Council on the public involvement process to date and provided traffic volume projections and operations at intersections north of the study area in the City of Gresham. The team also presented the current alignments and streetscapes being considered for implementation and the next steps in the project.
Clackamas County Board of Commissioners	June 14th, 2011 Clackamas County	- Current Alignments - Next Steps The project team briefed the County Commissioners on the public

Meeting Event	Date/Location	Meeting Purpose/Objectives
	Elementary School	- Review PAC Feedback After a review of the project goals and objectives and existing/future traffic analysis findings, participants were presented with a summary of the local design standards. The 18 remaining roadway alignments and streetscape designs were then presented in poster form, along with PAC feedback, and participants provided feedback on which concepts they thought should be further considered and which should be eliminated.
Damascus City Council	December 16th, 2010 City of Damascus City Hall	- Project Background - Project Process/Schedule The project team briefed the City Council on the project background, process and schedule as well as the purpose and current roadway alignment and streetscape concepts.
PMT Meeting #4	December 16th, 2010/ Happy Valley City Hall	- Review PAC and Public Feedback - Roadway Alignments on 3-D model - Work Session on Roadway Alignments and Streetscapes The PMT reviewed feedback received from the public and PMT on the roadway alignments and streetscapes. The project team displayed a projection of the 18 roadway alignment on a 3-D model of the study area. The PMT decided on the 5 alignments and 11 streetscapes that should be carried forward for further analysis.
Stakeholder Interviews – Round 2	Winter 2010	- Concept Input - Streetscape Input The purpose of Interview Round 2 was to give stakeholders the opportunity to review the 5 roadway alignment concepts and streetscape concepts and decide what elements they thought would best meet the project goals and objectives.
CTAC Meeting #2	February 22, 2011/ Clackamas County Development Services Building	- Current Alignments - Next Steps The project team briefed the CTAC on the public involvement process since the last CTAC presentation in July. The team also presented the current alignments and streetscapes being considered for implementation.
PAC Meeting #4	March 16th, 2011 Scouters Mountain Elementary School	- Review of Public Involvement - Traffic Projections - Evaluation Criteria - Concept Evaluation The project team presented a recap of public involvement to date and the results of the traffic analysis for the 5 roadway alignments currently under consideration. The team also presented the project evaluation criteria and then conducted a work session where participants could review the project team's evaluation of the 5 remaining concepts and choose the 3 that they desired to have further evaluated.
Public Workshop #4	March 30th, 2011 Scouters Mountain Elementary School	- Review of Public Involvement - Traffic Projections - Evaluation Criteria - Concept Evaluation The project team presented a recap of public involvement to date and the results of the traffic analysis for the 5 roadway alignments currently under consideration. The team also presented the project evaluation criteria and then conducted a work session where participants could review the project team's evaluation of the 5

Meeting Event	Date/Location	Meeting Purpose/Objectives
		the future corridor alignment and streetscape will address. Stakeholders were also asked if there were certain areas that should be avoided by the future alignment and how they would like to be involved in the project process.
PMT Meeting #2	September 1, 2010/ Happy Valley City Hall	- Metro Modeling - PAC Membership - Technical Memorandum Review - Finalize PSA and Purpose and Need The PMT discussed the timing of Metro's current traffic forecasting model and its impact on future traffic analysis. The group also finalized the PAC roster and reviewed Technical Memorandums summarizing stakeholder feedback; Policy and Plan; Purpose and Need; Existing and Future Traffic Conditions; and existing environmental conditions.
PAC Meeting #2	September 15th, 2010 Scouters Mountain Elementary School	- Bus Tour of Study Area - Review of Public Workshop #2 - Review Technical Memorandums - Work Session to Finalize Purpose and Need (*Technical Memorandum 3.2*) PAC Meeting #2 began with a bus tour of some of the key sections of the existing roadways in the study area to identify constraints. The group then reviewed feedback provided by the public at Workshop #1 and by the stakeholders. The group also commented on the existing traffic analysis summarized in *Tech Memo #4.1 – Existing Transportation Conditions Analysis* in the *Technical Appendix*.
Public Workshop #2	October 6th, 2010 Scouters Mountain Elementary School	- Opportunities/Constraints - Streetscape Design - Corridor Alignment Design The project team presented the public with their findings on the existing environmental constraints within the study area and future proposed land uses. Attendees used this information to draw their preferred roadway alignments on maps depicting environmental constraints and future land use zoning. Participants also used large-scale roadway models to create their preferred roadway cross-sections for the future corridor.
PMT Meeting #3	October 14th, 2010/ Happy Valley City Hall	- Review Goals and Objectives and Design Criteria - Review Design Standards - Review Concepts from Public Workshop #2 The PMT gave their final input on the "Goals and Objectives" and "Design Standards" documents. The group also discussed the proposed speed limit for the future corridor and reviewed the roadway design and roadway alignment sketches from Public Workshop #2.
PAC Meeting #3	December 1st, 2010 Scouters Mountain Elementary School	- Review Goals and Objectives - Updated Existing/Future Traffic Projections - Review Design Criteria - Work Session to Choose Roadway Alignments/Streetscapes After a review of the project goals and objectives and existing/future traffic analysis findings, the PAC was presented with a summary of the local design standards. The 18 remaining roadway alignments and streetscape designs were then presented in poster form and participants provided feedback on which concepts they thought should be further considered and which should be eliminated.
Public Workshop #3	December 8th, 2010 Scouters Mountain	- Updates to Technical Memorandums - Review of Local Design Standards

Table 2-1: Meeting Summary

Meeting Event	Date/Location	Meeting Purpose/Objectives
Kick-off Meeting	June 3rd, 2010/ Clackamas County Development Services Building	- Review Project Background and Known Issues - Review Project Schedule - Review Staff Roles - Review Draft Public Involvement Program The kick-off meeting included the PMT, representatives from Clackamas County and the project team. The meeting included discussion of the project background, schedule, team member roles and a discussion of the public involvement process.
PMT Meeting #1	July 1st, 2010/ Happy Valley City Hall	- Review Project Reference Materials - Review Project Program and Public Involvement Plan - Work Session on Agency Desires - Review Project Schedule The purpose of PMT Meeting #1 was to become familiar with the project materials; review the project schedule; discuss potential PAC members and review the project's policy framework. The project team explained the least cost planning and the 5-D Planning Methods. Potential construction schedule and current status of the Regional Transportation Plan projections were also discussed.
CTAC Meeting #1	July 27th, 2010/ Clackamas County Development Services Building	- Introduce Project Team - Project Introductory Video - Key Project Elements - Public Involvement Plan The purpose of Meeting #1 was to provide an overview of the project process and team members. The group was introduced to some of the key project elements (roadway alignment, streetscape, land use, implementation) and was given an overview of how the project team will be engaging the public throughout the project.
PAC Meeting #1	August 9th, 2010 Scouters Mountain Elementary School	- Project Background - Roles and Responsibilities - Project Timeline and Meeting Schedule - Purpose and Need - Project Elements The purpose of the first PAC meeting was to review the project background and roles and responsibilities and schedule. The group discussed potential future transit needs along the corridor. A work session was held to refine the draft "Purpose and Need" statement and the PAC was introduced to the project elements (roadway alignment, streetscape, land use, implementation)
Public Workshop #1	August 18th, 2010 Scouters Mountain Elementary School	- Project Overview - Development of the Corridor Plan Story - Work Session #1 on Purpose & Need - Work Session #2 on Community Desires/Values for Corridor The purpose of the first public workshop was to educate the public on the project process and engage the participants to help develop a "Purpose and Need" statement and to discuss the community's desires and values for the corridor.
Stakeholder Interviews – Round 1	Summer 2010	- Corridor Use and Function - Desires for Corridor - Stakeholder Involvement in Process The purpose of Interview Round 1 was to get a sense for how stakeholders are using the corridor today and what issues they hope

PUBLIC INVOLVEMENT PLAN

To ensure that adequate project coordination and public participation occurred throughout the development of the SE 172nd Avenue/190th Drive Corridor Management Plan, a series of PMT and PAC meetings, public workshops, and stakeholder interviews were held over the course of the project. Virtual Public Workshops were also conducted on the project website (http://172nd.com) to gather feedback from those unable to attend the public workshops. A summary of all of the meetings associated with the project, as well as the meeting objectives, are summarized in Table 2-1. A detailed account of the Public Involvement Plan is included in *Tech Memo #2.1 – Public Involvement Plan* in the *Technical Appendix,* while stakeholder feedback and public feedback are included in *Tech Memo #2.2 – Stakeholder Interview Summary* and *Tech Memo #2.3 – Public Involvement Summary* in the *Technical Appendix, respectively.*

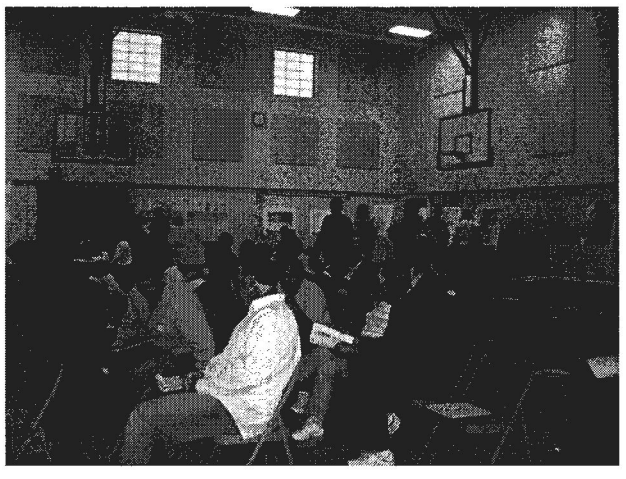
PUBLIC AND AGENCY INVOLVEMENT

The PAC was responsible for reviewing all work products, providing input on all project documents, including the goals and objectives, technical analysis, and the proposed alternatives. A group of stakeholders were also interviewed for feedback on the proposed roadway alternatives and to assess the interests of local citizens and business owners. The Project Management Team (PMT) was the project decision-making body, reviewing feedback from the public, stakeholders and PAC. The PMT was made up of representatives from Oregon Department of Transportation (ODOT), Clackamas County, Metro and the Cities of Happy Valley and Damascus. The PMT members were selected in order to provide representation from the planning and engineering departments for each agency involved. An outline of all of the PMT, PAC, public and stakeholder meetings is included in the next section.

PAC membership was established through an application process to the Clackamas County Board of Commission. The project stakeholder group was established through input from PMT. A complete list of PAC and PMT members is included in the preface.

The project team also provided project updates periodically to the City of Damascus, City of Gresham, City of Happy Valley, the Clackamas Board of Commissioners and the Clackamas Transportation Advisory Committee (CTAC), a group of local planning officials from local agencies. These entities provided feedback on the project alternatives.

2. PUBLIC INVOLVEMENT PROCESS



As part of the SE 172nd Avenue/190th Drive Corridor Management Plan, public involvement occurred through: stakeholder interviews conducted with business owners and citizens, a Project Advisory Committee (PAC), five public Workshops/Open Houses involving local citizens, property owners, and business owners, and public comments posted on the project website. In addition, project briefings were held throughout the project with the Clackamas County Board of Commissioners, Clackamas Transportation Advisory Committee (CTAC), the Damascus Planning Commission and City Council, Gresham Planning Commission and City Council, and the Happy Valley Planning Commission and City Council. In addition, joint pre-adoption work sessions were held with the City of Happy Valley Planning Commission and City Council and the Clackamas County Planning Commission and Board of Commissioners. Finally, public adoption hearings were held at the City of Happy Valley, Clackamas County and Metro. An overview of the meetings and stakeholder interviews are summarized below.

PURPOSE

The project team spent a significant effort on public involvement with the intent of answering four primary questions:

- What should be the theme or character of the corridor?
- How do we engage and address the needs of the three affected cities and two counties?
- How do we gain public acceptance of the preferred plan?
- How do we maintain the viability of existing land uses while developing a vision for future urbanization?

More detailed information on the public involvement process can be found in *Tech Memo #2.1 - Public Involvement* in the *Technical Appendix*.

Ordinance ZDO-232, Exhibit C

Section 2 Public Involvement Process

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How is Right-of-Way (ROW) acquired under a staged and/or development –related approach?

The preferred corridor alignment alternative will require significant ROW acquisition along both the existing and proposed roadways. The method of acquiring the ROW will vary depending on whether the ROW is dedicated on a parcel basis through development, or acquired in larger segments. Chapters 7 and 8 address the needed right-of-way and mechanisms for acquiring it through land use actions or capital improvement programs.

Are wetland impacts mitigated through on-site mitigation or the Foster Creek mitigation bank? Should mitigation impacts be pre-purchased?

A thorough assessment of wetland impacts has been accomplished through the project environmental assessment. All roadway alignment alternatives involve impacts to wetlands and a strategy for mitigating the impacts will be essential before construction can occur.

Will future development be conditioned to construct segments or pay cash in lieu of physical improvements?

Metro projections show much of the study area growing significantly in coming years. In order to ensure that development contributes to establishment of the corridor, a plan must be established clearly defining whether construction or cash in lieu payments will be preferred by the local municipalities.

Further details about the project purpose and need, goals and objectives, and evaluation criteria can be found in *Tech Memo #3.2 -Purpose and Need* in the *Technical Appendix*.

LONG-TERM IMPLEMENTATION CONSIDERATIONS

A goal of project implementation is to not only create a preferred build alternative that meets the long-term needs of the surrounding communities, but also to establish a clear plan by which it can be implemented. With no identified funding source and no definitive timeline for improvements, the Corridor Management Plan must be adaptable such that it can be readily implemented through design and construction in a variety of manners. For this reason, the plan has given consideration to the following questions throughout the alternative development and selection management refinement process:

Is the NEPA process applicable to this project and, if so, are we prepared to move forward in that way?

Given the physical size and potential impact of the proposed corridor improvement plan, the National Environmental Policy Act (NEPA) process may be applicable if the project were to receive federal funding for construction. The plan was coordinated with Federal Highway Administration (FHWA) representatives to ensure that the necessary analysis has been completed and documented in this report so that the NEPA process, if needed, can be efficiently navigated once initiated.

Will the project be privately or publicly funded?

Given the large development potential within project area, portions of the corridor may be funded and constructed privately as development occurs. A discussion of options for potentially developing the corridor through development fees and frontage improvements is described in *Chapter 8 – Implementation Plan*. This chapter also discusses considerations for establishing of inter-governmental agreements.

Can the project be staged to address timing and funding uncertainties?

Given the high cost of constructing the entire SE 172nd Avenue/190th Drive Corridor Management Plan, it is likely that improvements will be implemented in phases, as funding allows and as development occurs. Throughout the alternative development process, concepts were evaluated with respect to their "Flexibility of Implementation", or the ability to accommodate phased development. *Chapter 7 – Corridor Management Plan* – includes considerations for how the Preferred Build Alternative could be implemented in phases.

Table 1-1 Evaluation Criteria

CRITERIA	CONSIDERATIONS
Vehicular Mobility	Provide an efficient north-south connection Accommodate vehicles entering from the east and west
Multi-Modal Mobility	Enhance travel distance and comfort of pedestrians and bicyclists Provide connections to trails and other multi-modal facilities Minimize grade increases and decreases Provide for future transit potential
Local Access	Maintain or enhance access to neighborhoods, businesses, and public facilities Provide efficient access for future development
Multi-Modal Safety	Improve safety and comfort for all users, especially non-auto travelers Improve emergency response time Provide flat terrain and intersections without skewed angles
Impacts to Natural Environment	Minimize impacts to streams, wetlands, riparian areas, wildlife habitats, open spaces, and other natural resources Minimize stream crossings Minimize new pavement and encroachments on area buttes
Impacts to Built Environment	Minimize right-of-way impacts on existing and future development Minimize socio-economic and cultural resource impacts Minimize noise/air impacts Minimize hazardous waste sites
Land Use Compatibility	Provide consistency with plans and standards of Clackamas County, Damascus, Happy Valley, Gresham, Metro, and special districts Provide connections to proposed future retail and residential developments
Flexibility of Implementation	Accommodate phased construction Accommodate expansion concurrent with development needs
Cost	Provide positive economic benefits compared to costs Provide high overall value
Aesthetic Character	Enhance potential visual character of the corridor Provide aesthetic elements such as landscaping Preserve the rural character of the corridor
Environmental Enhancement	Minimize environmental impact of street footprint Provide green street features
Maintenance	Minimize on-going maintenance and upkeep, including drainage systems, pavement, and landscaping
Functionality	Effectively serve role as a major arterial Provide efficient movements for all travel modes

a. Ensure integration and coordination with plans and standards of Clackamas County, Damascus, Happy Valley, Gresham, Metro and special districts.

b. Provide clearly defined separation of land uses from transportation corridors (i.e. separation of residential land use frontage from arterial Right-of-way).

c. Minimize displacement of community facilities and institutions as well as existing businesses and residences.

9. Ensure that the corridor plan supports local economic development.

a. Locate roadways with consideration of how existing development is impacted, supported or leveraged for future development.

b. Encourage quality development.

c. Focus on employment that supports family wage jobs.

Project Implementation

10. Ensure effective project implementation over time.

a. Employ "least cost planning" and "backcasting" techniques to help evaluate costs and benefits and to ensure that proposed improvements are correctly sized to maximize benefits.

b. Develop state, regional and local partnerships to fund and implement the corridor plan.

c. Identify phased potential funding options.

d. Consider staged and/or development-related construction if full funding is not available.

e. Develop an ongoing monitoring program to assess plan implementation and to identify needed adjustments.

EVALUATION CRITERIA

Evaluation criteria were used to compare the various SE 172nd Avenue/190th Drive Corridor concepts and alternatives for the purpose of screening design alternatives that do not achieve the community goals, and for identifying the most viable concepts for further development. These criteria reflect the project goals and objectives as well as practical considerations such as cost and constructability. Table 1-1 lists the evaluation criteria.

b. Promote compatible land uses and help reach the jurisdictions' visions of the community.

c. Provide reasonable access to a variety of land uses.

d. Balance streetscape features with maintenance considerations.

5. Integrate environmental/Green Streets design with the natural features.

a. Enhance semi-urban streetscape place-making while preserving the historic rural character.

b. Minimize future maintenance with native or other low-maintenance vegetation.

c. Provide for an improved rainwater management that minimizes impervious surfaces.

d. Design project to avoid/minimize short and long-term erosion potential; design with the existing topography to the greatest extent possible.

6. Improve traffic safety for all users.

a. Provide for appropriate access for emergency vehicles.

b. Provide appropriate speed management measures among other improvements to enhance safety.

c. Provide for an access management plan that minimizes the number and frequency of driveway accesses.

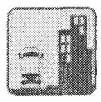
7. Support healthy and walkable communities.

a. Plan for public transportation with appropriate access points and frequency and linkages to pedestrian, bicycle and motor vehicle travel modes.

b. Ensure that all intersections provide pedestrian/cyclist compatibility.

c. Provide boulevard-style treatments to new roadways, including medians and sidewalks buffered by planting strips with trees.

d. In commercial districts, provide urban street features to encourage lower speeds in these districts.



Land Use/Transportation Integration

8. Protect the long-term function of the corridor.

b. Provide for freight mobility without creating a primary north-south freight route.

c. Protect the function and operation of the existing local street network within the study area and maintain or improve local circulation.

d. Connect 2040 Growth Concept Centers.

e. Connect existing and planned parks, open space and trails.

2. Ensure that the planning and design of transportation system improvements minimize environmental, cultural and social impacts to the greatest extent possible.

a. Avoid geographic constraints and sensitive environmental resources, especially wetlands/riparian areas and stream crossings, to the greatest extent possible.

b. Preserve, improve, or create connectivity of existing habitat and tree canopy (upland and waterway) within and beyond the project area for wildlife/fish passage.

c. Identify ways to reduce carbon impacts through facility design, changes to land use patterns, and traffic flow patterns.

d. Minimize impacts to community facilities and institutions and minimize property takings and displacement of existing businesses and residences.

3. Provide flexibility to respond to changing socio-economic conditions, concurrency of development and the opportunities and constraints represented by the various plans of the jurisdictions within and adjacent to the corridor.

a. Coordinate with future land use and transportation plans for the area.

b. Consider phased development as well as projected ultimate build-out.

c. Avoid pre-empting future choices by limiting the corridor alignment.

Streetscape Features

4. Provide a unique and aesthetically pleasing design that is integrated with the place-making of each community and with sustainability goals.

a. Provide for streetscape features to integrate a relevant sense of place to various locations within the corridor while maintaining an overall appearance of consistency throughout the corridor.

- Without a continuous north-south sub-regional corridor to connect OR 212/224 with I-84, north-south travel demand will continue to depend on the I-205 as well as other north-south arterial corridors in the east Portland region. The Metro travel demand model indicates that a continuous SE 172nd Avenue/SE 190th Drive corridor will attract approximately 22,000 daily trips in 2035.
- The existing SE 172nd Avenue/SE Foster Road, SE Tillstrom Road/SE Foster Road, and SE 190th Drive/SE Tillstrom Road intersections have inadequate capacity to accommodate projected 2035 peak period travel demands.
- Development along and between the SE 172nd Avenue and SE 190th Drive corridors is imminent. Identification of the future footprint of these two roadways and their potential connection is necessary to preserve and obtain right-of-way and avoid the preclusion of this connection in the future.
- There is a need to develop a well-connected, multimodal transportation system that meets the land use needs that arise from planned growth in Damascus, Happy Valley, the Pleasant Valley Plan Area and Gresham, and growth of other sub-regional north-south travel demands between I-205 and US 26 to the year 2035.

GOALS AND OBJECTIVES

The goals and objectives identified below were derived from input received from the PMT, PAC, project stakeholders, and participants in Open House #1, as well as from transportation-related goals in applicable comprehensive and transportation system plans for the project area.

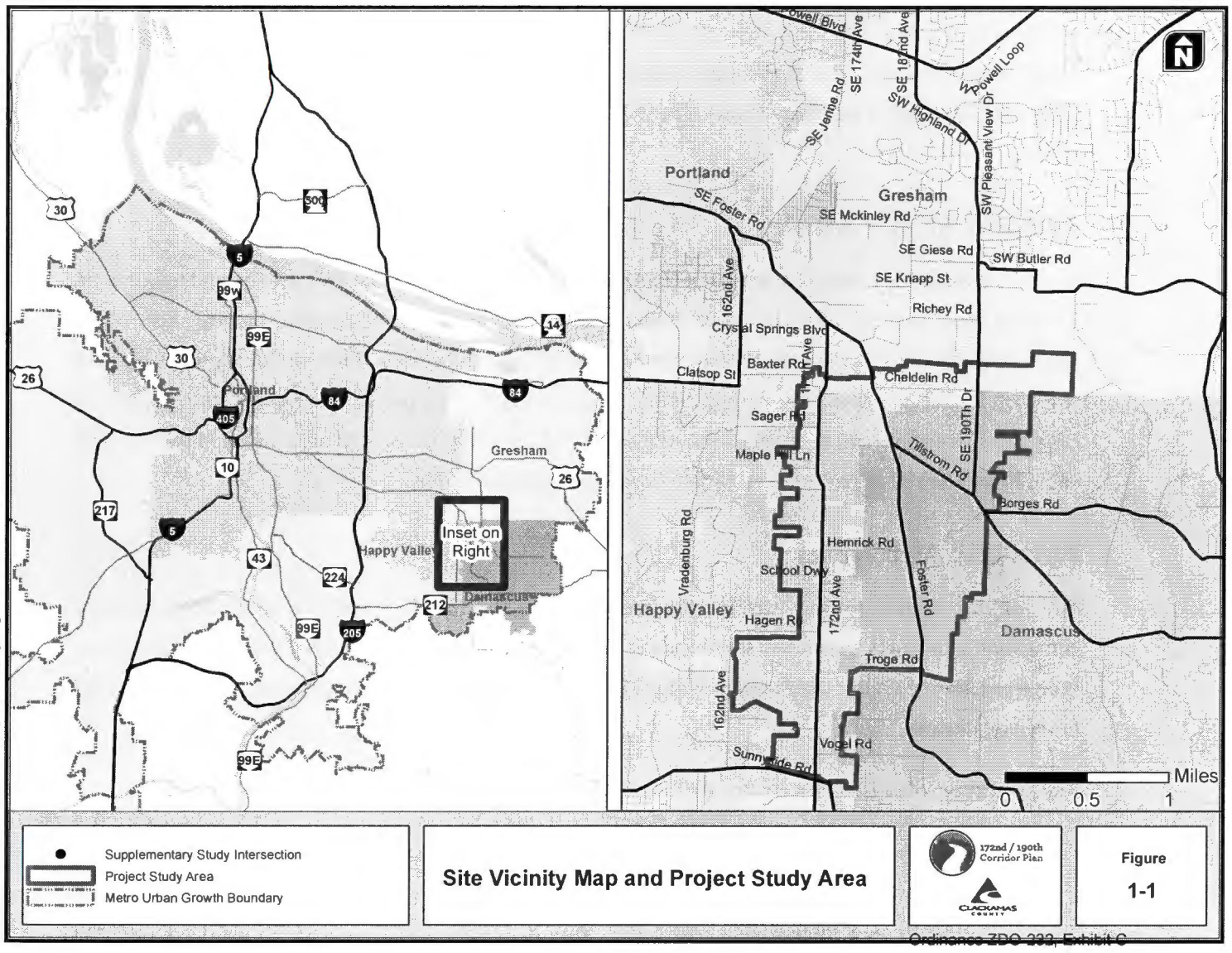
A qualitative process was used to evaluate the design alternatives with respect to the criteria. The Evaluation Criteria were used to ensure that each concept and alternative was evaluated for consistency with the overall intent of the community and the project.

Goals, objectives and evaluation criteria are organized around key plan elements.

Corridor Alignment

1. Improve mobility by accommodating through traffic and freight movement, as well as serve local community/commercial/multi-family nodes.

a. Protect the function and operation of the corridor as a transportation facility of regional significance.



Ordinance ZDO-232, Exhibit C

1. INTRODUCTION

This Corridor Management Plan was prepared for the SE 172nd Avenue/190th Drive roadway network in Clackamas County, Oregon. The following sections summarize the project study area, purpose and need, the goals, objectives, and evaluation criteria, and other long-term implementation considerations. These elements were defined through a collaborative effort between the Project Management Team (PMT) and the Project Advisory Committee (PAC) based on feedback from the project stakeholders and public.

PROJECT STUDY AREA

Figure 1-1 illustrates project study area (PSA) and the study vicinity. The PSA is focused along the SE 172nd Avenue and SE 190th Drive corridors and is largely within Clackamas County. The traffic operations study area goes beyond the PSA, and includes portions of Multnomah County as well as the cities of Damascus, Gresham, Happy Valley, and Portland. To better understand the impact on Gresham's street system, the operations study included intersections immediately north of the PSA that could be influenced as part of the ultimate Corridor Management Plan.

PURPOSE AND NEED

The purpose of this project was to effectively address the SE 172nd Avenue/190th Drive Corridor congestion and safety problems, serve future north-south traffic, serve expected population growth in Damascus, Happy Valley, the Pleasant Valley Plan Area and Gresham, and to serve the growing demand for regional travel.

The project purpose is demonstrated with the following Statement of Need:

- Regional and local plans for urbanization of Damascus, Happy Valley, the Pleasant Valley Plan area, and the western Clackamas County sub-region project population growth of over 15,000 new households and 9,800 jobs by 2035, which cannot be achieved without improvement to transportation facilities in the corridor and connection of SE 172nd Avenue with SE 190th Drive.
- The lack of a local street network, enhanced transit facilities and services, and a fully interconnected network of pedestrian and bicycle facilities within the SE 172nd Avenue/190th Drive Corridor prohibits the density, form, and character of development anticipated in regional and local plans.

Ordinance ZDO-232, Exhibit C

Section 1
Introduction

Ordinance ZDO-232, Exhibit C

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Preface

The development of this plan was guided by the Project Management Team (PMT) and Project Advisory Committee (PAC). The PMT and PAC members are identified below, along with members of the consultant team. The PMT was responsible for reviewing all work products and providing overall project direction and final recommendations to the decision making bodies that held public hearings on the plan. The PMT included representation from Clackamas County, Damascus, Gresham, Happy Valley and Metro. The PAC was responsible for reviewing all work products and providing input and local knowledge as well as recommendations to the PMT. The PAC was made up of local citizens, business owners and local officials. Their participation was instrumental in the development of the overall Corridor Management Plan that is presented in this report.

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APPENDICES

Appendix A Environmental Baseline Report

Appendix B VISUM Analysis of Preferred Alternative

Appendix C Design Documentation of Preferred Build Alternative

Appendix D Ordinance Language

Appendix E Corridor Centerline Survey

The above appendixes, as well as the *Technical Appendix* that includes all of the original technical memoranda, are available under separate cover.

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Final Report

SE 172nd Avenue/190th Drive Corridor Management Plan

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Project Principal: Dan Seeman

Project No. 10213.0

December, 2011

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December 2011

SE 172nd Avenue/190th Drive
CORRIDOR MANAGEMENT PLAN

CLACKAMAS COUNTY

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

Ordinance ZDO-232, Exhibit C

CLACKAMAS COUNTY

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CERTIFICATE OF MAILING

I hereby certify that the enclosed Ordinance No. ZDO-232 was deposited in the mail on February 9, 2012

Signed: Cheryl Cornelison

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