600 NORTHEAST GRAND AVENUE | PORTLAND, OREGON 97232 2736
TEL 503 797 1542 | FAX 503 797 1793

METRO

Agenda

MEETING: METRO COUNCIL
DATE: July 12, 2007
DAY: Thursday
TIME: 2:00 PM
PLACE: Metro Council Chamber

CALL TO ORDER AND ROLL CALL

1. INTRODUCTIONS

2. CITIZEN COMMUNICATIONS

3. METRO COMMITTEE FOR CITIZEN INVOLVEMENT DIVERSITY OUTREACH STRATEGIES FOR METRO AND METRO COMMITTEES Warren

4. CONSENT AGENDA

4.1 Consideration of Minutes for the July 5, 2007 Metro Council Regular Meeting.

4.2 **Resolution No. 07-3823**, For the Purpose of Confirming the Appointment of Judy Andreen to the Metro Committee for Citizen Involvement (MCCI)

5. ORDINANCES – FIRST READING

5.1 **Ordinance No. 07-1157,** For the Purpose of Dissolving the Greenspaces Policy Advisory Committee (GPAC) and Repealing Metro Code Section 2.19.160.

6. ORDINANCES - SECOND READING

6.1 **Ordinance No. 07-1147A,** Amending Metro Code Chapters 5.01, 5.02, 5.05, and 7.01 to Ensure that All of the Region's Non-Putrescible Waste Undergoes Material Recovery Prior to Disposal, to Eliminate the Regional System Fee and Excise Tax Credit Program, and to Make Related Changes. Harrington

6.2 **Ordinance No. 07-1148,** For the Purpose of Amending the Employment and Industrial Areas Map of Title 4 (Industrial and Other Employment Areas) of the Urban Growth Management Functional Plan to Change the Designation of a Portion of the Brickworks Property from Industrial to Inner Neighborhood. Park

7. RESOLUTIONS

7.1 **Resolution No. 07-3802**, For the Purpose of Committing Metro South and Metro Central Transfer Stations to Achieve and Report on Dry Waste Material Recovery Standards for Specified Loads. — Harrington

8. EXECUTIVE SESSION HELD PURSUANT TO ORS 192.660(1)(d), FOR THE PURPOSE OF DELIBERATING WITH PERSONS DESIGNATED TO CONDUCT LABOR NEGOTIATIONS.

9. CHIEF OPERATING OFFICER COMMUNICATION

10. COUNCILOR COMMUNICATION

ADJOURN

Television schedule for July 12, 2007 Metro Council meeting

Clackamas, Multnomah and Washington counties, and Vancouver, Wash. Channel 11 -- Community Access Network www.tvctv.org -- (503) 629-8534 2 p.m. Thursday, July 12 (live)	**Portland** Channel 30 (CityNet 30) -- Portland Community Media www.pcmtv.org -- (503) 288-1515 8:30 p.m. Sunday, July 15 2 p.m. Monday, July 16
Gresham Channel 30 -- MCTV www.mctv.org -- (503) 491-7636 2 p.m. Monday, July 16	**Washington County** Channel 30 -- TVC-TV www.tvctv.org -- (503) 629-8534 11 p.m. Saturday, July 14 11 p.m. Sunday, July 15 6 a.m. Tuesday, July 17 4 p.m. Wednesday, July 18
Oregon City, Gladstone Channel 28 -- Willamette Falls Television www.wftvaccess.com -- (503) 650-0275 Call or visit website for program times.	**West Linn** Channel 30 -- Willamette Falls Television www.wftvaccess.com -- (503) 650-0275 Call or visit website for program times.

PLEASE NOTE: Show times are tentative and in some cases the entire meeting may not be shown due to length. Call or check your community access station web site to confirm program times.

Agenda items may not be considered in the exact order. For questions about the agenda, call Clerk of the Council, Chris Billington, (503) 797-1542. Public hearings are held on all ordinances second read and on resolutions upon request of the public. Documents for the record must be submitted to the Clerk of the Council to be considered included in the decision record. Documents can be submitted by e-mail, fax or mail or in person to the Clerk of the Council. For additional information about testifying before the Metro Council please go to the Metro website www.metro-region.org and click on public comment opportunities. For assistance per the American Disabilities Act (ADA), dial TDD 797-1804 or 797-1540 (Council Office).

MCCI

Metro Committee for Citizen Involvement

Diversity Outreach Strategies for Metro and Metro Committees

June 2007

Background

At the September 2006 meeting of the Metro Committee for Community Involvement (MCCI), members were asked to review a draft Metro Diversity Plan. MCCI was requested to deliver suggestions and recommendations on how Metro committees may more effectively reach diverse populations and a broader audience. Following MCCI's review of the Plan, discussion ensued within the committee about how to achieve a result using the Plan's mission. MCCI began working to address diversity within Metro committees in hope of developing successful outreach strategies. MCCI's findings and recommendations follow.

Goals of Diversity Outreach

- Inform all citizens in Metro's jurisdiction of its activities, deliberations, proceedings, committees, and initiatives in meaningful and relevant ways.
- Increase awareness of, and participation in Metro initiatives and policy processes among citizens in all communities through Diversity Outreach.
- Adopt a Diversity Plan that includes a more extensive list of "diversities" than are specifically federally recognized.
- Implement Metro's Diversity Plan in a manner which accomplishes broader public involvement/outreach goals, maximizing knowledge of, and public input from a broader audience regarding Metro initiatives. Diversity Outreach activities should extend beyond Metro's committee membership.
- Encourage participation within under-served, underutilized, unresponsive, and underrepresented groups in Metro's jurisdiction.
- Provide Metro committees with tools to reach a broader audience.
- Bolster membership on Metro committees using Diversity Outreach Strategies.

Terms That Might Describe Some "Un-reached" Diverse Communities

Each of these "groups" might best respond to differing forms of outreach.

- ***Under-served:*** Populations that receive less than adequate services because of factors such as poverty, language barriers, or discrimination.
- ***Underutilized:*** Those not, for whatever reason, having their insights delivered to the listening parties.
- ***Un-responsive:*** Reached by communications but non-responsive with public participation.
- ***Underrepresented:*** Not represented in the organizational structure or public involvement activities.

How "Diversity" May Be Described

Race/Ethnicity	Age	Education Level
National Origin	Income/Socioeconomic Status	Political Affiliation
Cultural Background	Marital Status	English as a Second Language
Gender	Disability	Geographic
Religion	Sexual Orientation	Technical/Professional Expertise

Groups That Metro and its Committees May Target for Diversity Outreach

- Multiracial/multilingual communities
- Communities/groups based on location (e.g., rural, urban, outside the Urban Growth Boundary)
- Professional groups (focusing on diversity in expertise)
- Religious communities
- Senior citizens
- Youth
- Low-income communities
- Disability communities (e.g., mobility/hearing/vision impaired)
- Organizations that may feel alienated from Metro government processes (e.g., alternative transportation groups, nature conservation groups)

How Can Metro Committees Achieve Diversity Outreach Goals?

Diversity outreach should be designed to facilitate broad public participation in Metro committees and initiatives, and ensure that diverse constituents have regular access to Metro information and opportunities. Below are strategies for diversity outreach, that may be utilized by Metro or other regulatory agencies:

Public Involvement Campaign

MCCI believes that the low level of participation in government at any level may be one of the main reasons for lack of diversity on committees. A broad public outreach campaign, in which Metro would be a partner, to raise public awareness of the opportunities to participate and the effectiveness of doing so, should be a priority for Metro if diversity is a goal. The "Drive Less, Save More" campaign is a good model. It will be much easier to achieve diversity when there is a larger pool of engaged citizens to draw from. Counties, cities, and regulatory agencies are some potential partners in this effort.

Staff Education

All Metro staff should be informed about diversity laws and policies (including Metro's Diversity Plan) which pertain to their work.

Public Involvement Plans (PIPs) could include both a strategy for consultation with diverse groups as well as the perceived or expected impact upon underrepresented groups which the initiative under consideration may have.

Committees

Slight changes in the ways committees function could go a long way toward attracting diverse members. Suggestions include:

- Expand mission statements to include a goal of attaining diverse membership in all regards.
- Diversify meeting locations and times (e.g., offer some weekend times or alternative meeting places).
- Offer some meetings with food, beverages, or entertainment to make attendance more attractive.

"Tabling" (Getting Out Into the Community)

Committee volunteers could be sent to events, meetings, and venues to "table" (that is, offer pamphlets, Metro initiatives information, and conversation about Metro committees and the membership opportunities). These volunteers should be knowledgeable about committees and able to describe how they tackle issues of immediate importance to citizens and potential members.

While staffer-volunteers are "tabling," they might record information and input from citizens they meet. Input can be valuable in gauging unresponsive communities' reactions to Metro and its methods of outreach. This may inform Metro on better ways to handle future outreach activities.

Tabling could occur at places like:

- Regional and cultural events (e.g., fairs, plant sales)
- Senior centers
- Neighborhood meetings
- School events (all levels)
- Organization meetings

Outreach to groups such as:

- Oregon Commission on Black Affairs (OCBA)
- Hispanic Metropolitan Chamber
- NAACP
- Portland State University's Diversity Action Council
- Fraternal organizations (e.g. Optimists, Elks, Eagles, American Legion, etc.)

Handouts could include:

- Literature about Metro's different committees and other ways to be involved with Metro
- Literature about the issues for which Metro will soon accept public comment
- Info on Metro's responsibilities by Charter
- Info on scheduled public comment periods and locations, so people can attend
- Anything else that makes Metro "immediately relevant" and gives incentives to participate in policy development

What should Metro outreach materials look like?

One short pamphlet introducing Metro committees and their missions, meeting dates, times, membership requirements, etc.; accompanied by several pamphlets, each describing a different Metro committee.

Advertising as Outreach

Place inexpensive ads announcing openings for Metro committees, participation opportunities, announcements, etc. in newspapers and periodicals such as:

- Greenscene (Metro)
- El Hispanic News
- Portland Observer Newspaper
- The Voice Newspaper
- Blue Lake
- Just Out
- Explorando del Columbia Slough
- Councilor Newsletters
- Public Transportation (ad spaces)

- Invitation to participate in Metro committees tagged onto existing Metro radio and tv spots (KBOO, KOPB, the Oregon Channel).
- Arrange with other governmental websites for them to provide a Metro web-link announcing participation/volunteer/committee opportunities.
- Add committee information/invitations to Metro's McList for distribution to wide array of recipients.

Place handouts inviting participation in Metro committees in community gathering places:

- Libraries
- PSU and PCC community boards and tables (night school bulletin boards)
- Chambers of Commerce
- Educator boards
- Coffee shops
- Grocery stores
- First Thursday (West Portland) and Last Thursday (East Portland) events
- Trade associations

Outreach materials could mention the incentives for participating with Metro (e.g., "Attending public hearings can mean less expensive transportation for you!").

Presentations

Metro staffers or committee members could arrange to speak during first minutes of community college and night school classes, workshops, neighborhood meetings, etc. to inform citizens about the need (and incentives) for participation within Metro and its committees.

Translation

Metro could reach out to diverse groups with multilingual constituents for assistance translating Metro materials into other languages. This could increase Metro's perceived relevance among these communities.

Collaboration

Other organizations encounter similar public involvement issues; sharing strategies with them could prove valuable. Suggestions include:

- City of Portland Groups (e.g. Vision PDX project)
- The Port of Portland
- Vision West
- TriMet
- City and county governments
- Special district offices

This document was prepared as a collaborative effort by MCCI, 2007.

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF CONFIRMING THE APPOINTMENT OF JUDY ANDREEN TO THE METRO COMMITTEE FOR CITIZEN INVOLVEMENT (MCCI)	)))))	RESOLUTION NO. 07-3823 Introduced by Council President David Bragdon

WHEREAS, the Metro Charter calls for the creation of an Office of Citizen Involvement, and the establishment of a citizens committee therein; and

WHEREAS, Section 28 (1) of the Metro Charter states that the Metro Office of Citizen Involvement (MCCI) is created to develop and maintain programs and procedures to aid communication between citizens and the Metro Council; and

WHEREAS, the Metro Council has created MCCI (Metro Code Section 2.19.100); and

WHEREAS, there are several vacancies in MCCI membership with one appointment to be made in an unincorporated Clackamas County position; and

WHEREAS, a recruitment and selection process has been initiated, resulting in the nomination by MCCI of citizen Judy Andreen (Exhibit A) for a two-year term, beginning July 12, 2007, and;

WHEREAS, the Council President has appointed citizen Judy Andreen to serve on MCCI representing unincorporated Clackamas County, subject to Metro Council confirmation; now therefore

BE IT RESOLVED that the Metro Council confirms the appointment of Judy Andreen as a member of MCCI.

ADOPTED by the Metro Council this _____ day of _____ 2007.

_____
David L. Bragdon, Council President

Approved as to Form:

_____
Daniel B. Cooper, Metro Attorney

STAFF REPORT

IN CONSIDERATION OF RESOLUTION NO. 07-3823, FOR THE PURPOSE OF CONFIRMING THE APPOINTMENT OF JUDY ANDREEN TO THE METRO COMMITTEE FOR CITIZEN INVOLVEMENT.

Date: June 5, 2007 Prepared by: Cheryl Grant

BACKGROUND

The Metro Committee for Citizen Involvement (MCCI) has continued to attempt to fill its vacancies. MCCI has actively recruited new members, including soliciting stakeholders and local leaders for nominees, notifying agency staff, and advertising on a weekly basis.

Judy Andreen resides in unincorporated Clackamas County. The MCCI Membership Committee has recommended Ms. Andreen for the unincorporated Clackamas County position on the committee, citing her interest in community issues. Ms. Andreen's application to the committee is attached to Resolution 07-3823 as Exhibit A.

ANALYSIS/INFORMATION

1. **Known Opposition**

None.

2. Legal Antecedents

Section 28(1) of the Metro Charter and Metro Code Section 2.19.100, adopted on November 9, 2000, states that the Metro Office of Citizen Involvement (MCCI) is created to develop and maintain programs and procedures to aid communication between citizens and the Metro Council; and Ordinance No. 00-860A (For the Purpose of Adding a New Chapter 2.19 to the Metro Code Relating to Advisory Committees).

3. Anticipated Effects

That a new member will be appointed to MCCI.

4. **Budget Impacts**

None.

RECOMMENDED ACTION

Staff recommends the adoption of Resolution No. 07-3823.

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF DISSOLVING THE GREENSPACES POLICY ADVISORY COMMITTEE (GPAC) AND REPEALING METRO CODE SECTION 2.19.160	))))	ORDINANCE NO. 07-1157 Introduced by Council President David Bragdon

WHEREAS, Metro's Greenspaces Policy Advisory Committee (GPAC) was formed on January 14, 2004 to provide consultation and advice to the Metro Council on regional park policy regarding Metro Council's Regional Framework Plan, Chapter 3 Nature in Neighborhoods - parks and greenspace issues, goals and funding, and in compliance with Title 13 Nature in Neighborhoods of the Metro Code Section 3.07 Urban Growth Management Functional Plan which concerns the provision of parks and open spaces region-wide;

WHEREAS, GPAC has completed work to define the vision of a region-wide system of parks, natural areas, trail, open spaces and recreation opportunities for the greater Portland-Vancouver region;

WHEREAS, as a result of that work, the GPAC Vision Statement was adopted by the Metro Council by Resolution No. 05-3581, For the Purpose of Council Adoption of Greenspaces Policy Advisory Committee Vision Statement adopted on May 5, 2005;

WHEREAS, this vision recognizes the importance of parks and recreation to the region's economy, tourist trade, air and water quality and the sense of place;

WHEREAS, the work of this committee has laid the groundwork to develop an integrated network of parks, greenspaces and trails that will serve the region, both now and in the future; and

WHEREAS, the Council is appreciative of the committee having fulfilled its purpose; now therefore

THE METRO COUNCIL ORDAINS AS FOLLOWS:

1. That the Metro Council hereby dissolves the Greenspaces Policy Advisory Committee; and

2. Metro Code Section 2.19.160 is hereby repealed:

"~~2.19.160 Greenspaces Policy Advisory Committee (GPAC)~~

~~(a) Purpose. The purpose of the Greenspaces Policy Advisory Committee (GPAC) is to provide consultation and advice to the Metro Council on regional park policy regarding:~~

~~Regional Framework Plan – Parks and Greenspaces Related Issues. In particular, GPAC will participate in development and implementation of policies related to Chapter 3 of the Regional Framework Plan, including but not limited to the recommendations contained in the~~

April 4, 2001, Final Report of the Parks Subcommittee of the Metro Policy Advisory Committee.

The possible inclusion in the Regional Framework Plan of additional or new policies related to the establishment, protection and development of a regional system of parks, natural areas, trails and greenspaces.

The development of goals and funding recommendations for all public properties included in the regional parks system, regardless of ownership.

Compliance with specific portions of Title 12 concerning the provisions of parks and open space regionwide.

Other questions related to parks, natural areas, trails and greenspaces that may be referred to this committee by the Metro Council.

(b) MPAC Advice and Consultation. The purpose of the GPAC is not to detract or interfere with the role of MPAC. Any issue that requires MPAC advice or consultation will be referred to MPAC prior to Metro Council action.

(c) Membership. The GPAC is composed of a total of 15 members, all appointed by the Metro Council President subject to Council confirmation. The Council President shall designate one (1) member to serve as Chair. Seven (7) of the initial GPAC Committee members shall be appointed to serve a one (1) year term and may be reappointed for up to two (2) additional terms as provided in Section 2.19.030.

(1) The GPAC Committee membership shall be as follows:

(A) One (1) member shall represent the largest City in the region;

(B) One (1) member shall represent a park provider located east of the Willamette River;

(C) One (1) member shall represent a park provider located west of the Willamette River;

(D) One (1) member shall represent cities or park districts in the eastern part of the region;

(E) One (1) member shall represent cities or park districts in the central western part of the region;

(F) One (1) member shall represent cities or park districts in the southern part of the region;

~~(G) One (1) member shall represent cities or park districts in the western most part of the region;~~

~~(H) One (1) member shall represent cities or park districts in the southwest part the region;~~

~~(I) One (1) member shall represent non-profit land trust organizations actively protecting land in the Metro Area;~~

~~(J) One (1) member shall represent environmental groups active in parks and greenspaces-related issues in the Metro Area;~~

~~(K) Five (5) members shall be appointed at-large.~~"

ADOPTED by the Metro Council this _____ day of _____ 2007.

David Bragdon, Council President

Attest:

Christina Billington, Recording Secretary

Approved as to Form:

Daniel B. Cooper, Metro Attorney

STAFF REPORT

IN CONSIDERATION OF ORDINANCE NO. 07- 1157, FOR THE PURPOSE OF DISLOVING THE GREENSPACES POLICY ADVISORY COMMITTEE (GPAC) AND REPEALING METRO CODE SECTION 2.19.160.

Date: June 14, 2007 Prepared by: Lydia M. Neill

BACKGROUND

Greenspaces Policy Advisory Committee (GPAC) was formed through the passage of Ordinance No. 04-1030, For the Purpose of Amending Section 2.19.160 of the Metro Code to Establish a Greenspaces Policy Advisory Committee; and Declaring an Emergency adopted on January 4, 2004, which created an advisory committee to provide consultation and advice to the Metro Council on regional park policy. Prior to the passage of Ordinance No. 04-1030 similar work was performed by the Greenspaces Technical Advisory Committee (GTAC) that was established by Resolution No. 90-1344, For the Purpose of Establishing a Technical Advisory Committee to Assist Metro Council in Coordinating the Metropolitan Greenspaces Program adopted on December 27, 1990. The work of GTAC was concluded in October 2002 shortly after GPAC was formed.

The GPAC Vision Statement was adopted by the Metro Council by Resolution No. 05-3581, For the Purpose of Council Adoption of Greenspaces Policy Advisory Committee Vision Statement adopted on May 5, 2005 to clearly articulate the importance of developing a region-wide system of parks, natural areas, trails and open spaces. The vision also described the value of parks, open spaces and trails to the economy, the need to preserve natural areas for wildlife habitat and the value to the region's air and water supplies.

GPAC has been instrumental in laying the groundwork to establish a integrated network of parks, open spaces and trails to serve our growing region. The committee has also provided the necessary work to market this system to the public and begin discussions on both completing construction of the network and maintaining the resources that the region has invested in parks and open spaces. Implementation of this vision will be pursued by inter-agency cooperation and a series of short-term task forces rather than a standing committee.

ANALYSIS/INFORMATION

1. **Known Opposition-** None.

2. **Legal Antecedents-** GPAC was formed on January 4, 2004 by Ordinance No. 04-1030. Ordinance No. 05-1077C, For the Purpose of Amending the Regional Framework Plan Relating to Nature in Neighborhoods adopted on September 29, 2005 and the Regional Framework Plan, Chapter 3 Nature in Neighborhoods.

3. **Anticipated Effects-** By approving Ordinance No. 07- 1157, the Metro Council will shift implementation of the Greenspaces Vision to short-term implementation task forces rather than a standing committee.

4. **Budget Impacts-** This action will allow FTE to be shifted from the extensive requirements of staffing a standing committee (GPAC) to short-term task forces. After completion of the task force work the

FTE will be shifted to implement the recommendations of the task force as approved by the Metro Council.

RECOMMENDED ACTION

Staff recommends that the Council adopt Ordinance No. 07-1157 to dissolve GPAC and repeal Metro Code section 2.19.160.

BEFORE THE METRO COUNCIL

AMENDING METRO CODE CHAPTERS 5.01, 5.02, 5.05, AND 7.01 TO ENSURE THAT ALL OF THE REGION'S NON-PUTRESCIBLE WASTE UNDERGOES MATERIAL RECOVERY PRIOR TO DISPOSAL, TO ELIMINATE THE REGIONAL SYSTEM FEE AND EXCISE TAX CREDIT PROGRAM, AND TO MAKE RELATED CHANGES	))))))))	ORDINANCE NO. 07-1147A Introduced by Michael Jordan, Chief Operating Officer, with the concurrence of David Bragdon, Council President

WHEREAS, Metro is accountable for meeting the state-mandated 2009 waste reduction goal for the tri-county region, and the recovery of additional "dry waste" material generated by the building industry is a key component of reaching the 64% goal; and

WHEREAS, dry waste consists primarily of wood, metal, corrugated cardboard, concrete, drywall and roofing; and

WHEREAS, over 90% of this material is reusable or recoverable with current technology and markets; and

WHEREAS, a minimum of 33,000 additional tons of dry waste per year could be recovered by a regional program to require the processing of all dry waste before disposal; and

WHEREAS, such a program was recommended by a stakeholder group in 2003 as the option most likely to help the region attain its recovery goal for the building industry sector; and

WHEREAS, this recommendation was subsequently incorporated in the region's interim waste reduction plan approved by Council in 2006; and

WHEREAS, by July 1, 2009 it is the intent of the Metro Council that all dry waste originating from the Metro region be subject to processing for material recovery or subject to a landfill surcharge intended to discourage unprocessed dry waste from going directly to a landfill; and

WHEREAS, the Chief Operating Officer recommends approval of this ordinance; now therefore

THE METRO COUNCIL ORDAINS AS FOLLOWS:

SECTION 1. Metro Code section 5.01.010 is amended as follows:

5.01.010 Definitions

For the purposes of this chapter unless the context requires otherwise the following terms shall have the meaning indicated:

(a) “Activity” means a primary operation or function that is performed in a Solid Waste Facility or at a Disposal Site, including but not limited to Resource Recovery, Composting, Energy Recovery, and other types of Processing; Recycling; Transfer; incineration; and disposal of Solid Waste; but excluding operations or functions such as Segregation that serve to support the primary Activity.

(b) “Agronomic application rate” has the meaning provided in OAR 340-093-0030(4).

(c) "Chief Operating Officer" means the Metro Chief Operating Officer or the Chief Operating Officer's designee.

(d) “Cleanup Material Contaminated By Hazardous Substances” means solid waste resulting from the cleanup of releases of hazardous substances into the environment, including petroleum contaminated soils and sandbags from chemical spills. Cleanup Material Contaminated By Hazardous Substances does not mean solid waste generated by manufacturing or industrial processes.

(e) "Closure" means the restoration of a Solid Waste Facility or a Disposal Site to its condition prior to the commencement of licensed or franchised Solid Waste activities at the site. Closure includes, but is not limited to, the removal of all accumulations of Solid Waste and Recyclable Materials from the site.

(f) "Code" means the Metro Code.

(g) "Compost" means the stabilized product of composting.

(h) "Composting" means the controlled biological decomposition of organic material.

(i) “Composting Facility” means a site or facility which utilizes organic material to produce a useful product through the process of composting.

(j) "Council" means the Metro Council.

(k) "DEQ" means the Department of Environmental Quality of the State of Oregon.

(l) “Direct haul” means the delivery of Putrescible Waste from a Solid Waste Facility directly to Metro’s contract operator for disposal of Putrescible Waste. Direct Haul is an Activity under this chapter.

(m) "Disposal site" means the land and facilities used for the disposal of Solid Wastes whether or not open to the public, but does not include transfer stations or processing facilities.

(n) "District" has the same meaning as in Code Section 1.01.040.

(o) “Energy recovery” means a type of Resource Recovery that is limited to methods in which all or a part of Solid Waste materials are processed to use the heat content, or other forms of energy, of or from the material.

(p) "Franchise" means the grant of authority or privilege given by the Council to operate a Disposal Site, Transfer Station, or an Energy Recovery facility, or to conduct any activity specified in Section 5.01.045(b) of this chapter.

(q) "Franchisee" means the person to whom a Franchise is granted by the Council under this chapter.

(r) "Franchise fee" means the fee charged by Metro to the Franchisee for the administration of the Franchise.

(s) "Hazardous waste" has the meaning provided in ORS 466.005.

(t) “Household hazardous waste” means any discarded, useless or unwanted chemical, material, substance or product that is or may be hazardous or toxic to the public or the environment and is commonly used in or around households and is generated by the household. “Household hazardous waste” may include but is not limited to some cleaners, solvents, pesticides, and automotive and paint products.

(u) “Inert” means containing only constituents that are biologically and chemically inactive and that, when exposed to biodegradation and/or leaching, will not adversely impact the waters of the state or public health.

(v) “License” means the permission given by the Council or Chief Operating Officer to operate a Solid Waste Facility not exempted or requiring a Franchise under this chapter that Transfers, and Processes Solid Waste, and may perform other authorized Activities.

(w) "Licensee" means the person to whom a License is granted by the Council or Chief Operating Officer under this chapter.

(x) “Local Transfer Station” means a Transfer Station that serves the demand for disposal of Putrescible Waste that is generated within a single Service Area, and may provide fewer disposal services than are provided by a Regional Transfer Station.

(y) “Material recovery” means a type of Resource Recovery that is limited to mechanical methods of obtaining from Solid Waste materials which still have useful physical or chemical properties and can be reused, recycled, or composted for some purpose. Material Recovery includes obtaining from Solid Waste materials used in the preparation of fuel, but excludes the extraction of heat content or other forms of energy from the material.

(z) “Metro Designated Facility” means a facility in the system of transfer stations, Metro Franchised facilities and landfills authorized under Chapter 5.05 of this Title to accept waste generated in the area within the jurisdiction of Metro.

(aa) "Non-putrescible waste" means any Waste that contains no more than trivial amounts of Putrescible materials or minor amounts of Putrescible materials contained in such a way that they can be easily separated from the remainder of the load without causing contamination of the load. This category includes construction waste~~,~~ and demolition waste~~debris, and land clearing debris~~; but excludes Cleanup Materials Contaminated by Hazardous Substances, ~~and S~~Source-Separated Recyclable Material, ~~whether or not sorted into individual material categories by the generator~~ special waste, land clearing debris and yard debris.

(bb) "Person" has the same meaning as in Code Section 1.01.040.

(cc) "Petroleum contaminated soil" means soil into which hydrocarbons, including gasoline, diesel fuel, bunker oil or other petroleum products have been released. Soil that is contaminated with petroleum products but also contaminated with a hazardous waste as defined in ORS 466.005, or a radioactive waste as defined in ORS 469.300, is not included in the term.

(dd) "Process," "Processing" or "Processed" means a method or system of altering the form, condition or content of Wastes, including but not limited to composting, vermiprocessing and other controlled methods of biological decomposition; classifying; separating; shredding, milling, pulverizing, or hydropulping; but excluding incineration or mechanical volume reduction techniques such as baling and compaction.

(ee) "Processing facility" means a place or piece of equipment where or by which Solid Wastes are processed. This definition does not include commercial and home garbage disposal units, which are used to process food wastes and are part of the sewage system, hospital incinerators, crematoriums, paper shredders in commercial establishments, or equipment used by a recycling drop center.

(ff) “Processing residual” means the Solid Waste destined for disposal which remains after Resource Recovery has taken place.

(gg) “Putrescible” means rapidly decomposable by microorganisms, which may give rise to foul smelling, offensive products during such decomposition or which is capable of attracting or providing food for birds and potential disease vectors such as rodents and flies.

(hh) “Putrescible waste” means Waste containing Putrescible material.

(ii) "Rate" means the amount approved by Metro and charged by the Franchisee, excluding the Regional System Fee as established in Chapter 5.02 of this Title and franchise fee.

(jj) “Recyclable material” means material that still has or retains useful physical, chemical, or biological properties after serving its original purpose(s) or function(s), and that can be reused, recycled, or composted for the same or other purpose(s).

(kk) “Recycle” or “Recycling” means any process by which Waste materials are transformed into new products in such a manner that the original products may lose their identity.

(ll) "Recycling drop center" means a facility that receives and temporarily stores multiple source separated recyclable materials, including but not limited to glass, scrap paper, corrugated paper, newspaper, tin cans, aluminum, plastic and oil, which materials will be transported or sold to third parties for reuse or resale.

(mm) "Regional Solid Waste Management Plan" means the Regional Solid Waste Management Plan adopted as a functional plan by Council and approved by DEQ.

(nn) “Regional Transfer Station” means a Transfer Station that may serve the disposal needs of more than one Service Area and is required to accept solid waste from any person who delivers authorized solid waste to the Regional Transfer Station.

(oo) “Reload” or “Reload facility” means a facility that performs only Transfer and delivers all solid waste received at the facility to ~~by means of a fixed or mobile facilities including but not limited to drop boxes and gondola cars, but excluding solid waste collection vehicles, normally used as an adjunct of a solid waste collection and disposal system, between a collection route and~~ another Solid Waste facility ~~or a disposal site~~ after it receives such solid waste, generally within 24 hours of receipt.

(pp) "Resource recovery " means a process by which useful material or energy resources are obtained from Solid Waste.

(qq) “Reuse” means the return of a commodity into the economic stream for use in the same kind of application as before without change in its identity.

(rr) “Segregation” means the removal of prohibited wastes, unauthorized wastes, bulky material (such as but not limited to white goods and metals) incidental to the Transfer of Solid Waste. Segregation does not include Resource Recovery or other Processing of Solid Waste. The sole intent of segregation is not to separate Useful Material from the Solid Waste but to remove prohibited, unauthorized waste or bulky materials that could be hard to handle by either the facility personnel or operation equipment.

(ss) “Service Area” means the geographic locale around a solid waste facility that is defined by the characteristic that every point within such area is closer in distance to the solid waste facility contained in such area than to any other solid waste facility or disposal site. As used in this definition, “distance” shall be measured over improved roads in public rights-of-way.

(tt) "Solid waste" means all Putrescible and Non-Putrescible Wastes, including without limitation, garbage, rubbish, refuse, ashes, waste paper and cardboard; discarded or abandoned vehicles or parts thereof; sewage sludge, septic tank and cesspool pumpings or other sludge; commercial, industrial, demolition and construction waste; discarded home and industrial appliances; asphalt, broken concrete and bricks; manure, vegetable or animal solid and semi-Solid Wastes, dead animals~~;,~~ infectious waste as defined in ORS 459.386~~;, petroleum contaminated soils~~ and other such wastes, including without limitation, cleanup materials contaminated with hazardous substances, commingled recyclable material, petroleum contaminated soil, special waste, source-separated recyclable material, land clearing debris and yard debris; but the term does not include:

(1) Hazardous wastes as defined in ORS 466.005;

(2) Radioactive wastes as defined in ORS 469.300;

(3) Materials used for fertilizer, soil conditioning, humus restoration, or for other productive purposes or which are salvageable for these purposes and are used on land in agricultural operations and the growing or harvesting of crops and the raising of fowls or animals, provided the materials are used at or below agronomic application rates; or

(4) Explosives.

(uu) "Solid waste facility" means the land and buildings at which Solid Waste is received for Transfer, Resource Recovery, and/or Processing but excludes disposal.

(vv) "Source Separate" or "Source Separated" or "Source Separation" means that the person who last uses recyclable material separates the recyclable material from Solid Waste.

(ww) "Source-separated recyclable material" or "Source-separated recyclables" means ~~material~~ solid waste that has been Source Separated by the waste generator for the purpose of Reuse, Recycling, or Composting. This term includes (1) all homogenous loads of Recyclable Material~~s~~ that ~~are~~ has been Source Separated by material type for the purpose of recycling (i.e., source-sorted) and (2) ~~R~~residential and commercial commingled Recyclable Materials, which includes only those recyclable material types that the local jurisdiction, where the materials were collected, permits to be mixed together in a single container as part of its residential curbside recyclable material collection program. This term does not include any other commingled recyclable materials~~ that are mixed together in one container (i.e., commingled).~~

(xx) "Special waste" means any waste (even though it may be part of a delivered load of waste) which one or more of the following categories describes:

1) Containerized waste (e.g., a drum, barrel, portable tank, box, pail, etc.) of a type listed in 3 through 9 and 11 of this definition below.

(2) Waste transported in a bulk tanker.

(3) Liquid waste including outdated, off spec liquid food waste or liquids of any type when the quantity and the load would fail the paint filter liquid (Method 9095, SW-846) test or includes 25 or more gallons of free liquid per load, whichever is more restrictive.

(4) Containers (or drums) which once held commercial products or chemicals, unless the containers (or drums) are empty. A container is empty when:

(A) All wastes have been removed that can be removed using the practices commonly employed to remove materials from the type of container, e.g., pouring, pumping, crushing, or aspirating.

(B) One end has been removed (for containers in excess of 25 gallons); and

(i) No more than one inch thick (2.54 centimeters) of residue remains on the bottom of the container or inner liner; or

(ii) No more than 1 percent by weight of the total capacity of the container remains in the container (for containers up to 110 gallons); or

(iii) No more than 0.3 percent by weight of the total capacity of the container remains in the container for containers larger than 110 gallons.

(C) Containers that once held acutely hazardous wastes must be triple-rinsed with an appropriate solvent or cleaned by an equivalent alternative method. Containers that once held substances regulated under the Federal Insecticide, Fungicide, and Rodenticide Act must be empty according to label instructions or triple-rinsed with an appropriate solvent or cleaned by an equivalent method. Plastic containers larger than five gallons that hold any regulated waste must be cut in half or punctured, and be dry and free of contamination to be accepted as refuse.

(5) Sludge waste from septic tanks, food service, grease traps, or wastewater from commercial laundries, Laundromats or car washes.

(6) Waste from an industrial process.

(7) Waste from a pollution control process.

(8) Residue or debris from the cleanup of a spill or release of chemical substances, commercial products or wastes listed in 1 through 7 or 9 of this definition.

(9) Soil, water, residue, debris, or articles which are contaminated from the cleanup of a site or facility formerly used for the generation, storage, treatment, recycling, reclamation, or disposal of wastes listed in 1 through 8 of this definition.

(10) Chemical-containing equipment removed from service (for example: filters, oil filters, cathode ray tubes, lab equipment, acetylene tanks, CFC tanks, refrigeration units, or any other chemical containing equipment).

(11) Waste in waste containers that are marked with a National Fire Protection Association identification label that has a hazard rating of 2, 3, or 4, but not empty containers so marked.

(12) Any waste that requires extraordinary management or special handling.

Examples of special wastes are: chemicals, liquids, sludge and dust from commercial and industrial operations; municipal waste water treatment plant grits, screenings and sludge; contaminated soils; tannery wastes, empty pesticide containers, and dead animals or by-products.

(13) Radioactive waste.

(14) Medical waste.

(~~xx~~yy) “Transfer” means the Activity of receiving Solid Waste for purposes of transferring the Solid Waste from one vehicle or container to another vehicle or container for transport. Transfer may include segregation, temporary storage, consolidation of Solid Waste from more than one vehicle, and compaction, but does not include Resource Recovery or other Processing of Solid Waste.

(~~yy~~zz) "Transfer station" means a Solid Waste Facility whose primary Activities include, but are not limited to, the Transfer of Solid Waste.

(~~zz~~aaa) “Useful material” means material that still has or retains useful physical, chemical, or biological properties after serving its original purpose(s) or function(s), and which, when separated from Solid Waste, is suitable for use in the same or other purpose(s). Types of Useful Materials are: material that can be Reused; Recyclable Material; organic material(s) suitable for controlled biological decomposition such as for making Compost; material used in the preparation of fuel; material intended to be used, and which is in fact used, for construction or land reclamation such as Inert material for fill; and material intended to be used, and which is in fact used, productively in the operation of landfills such as roadbeds or alternative daily cover. For purposes of this Code, Cleanup Material Contaminated By Hazardous Substances are not Useful Materials.

(~~aaa~~bbb) “Vermiprocessing” means a controlled method or system of biological Processing that utilizes worms to consume and digest organic materials, and that produces worm castings for productive uses.

(~~bbb~~ccc) "Waste" means any material considered to be useless, unwanted or discarded by the person who last used the material for its intended and original purpose.

(~~ccc~~ddd) “Waste hauler” means any person who is franchised, licensed or permitted by a local government unit pursuant to state law to collect and haul Solid Waste.

(~~ddd~~eee) "Yard debris" means vegetative and woody material generated from residential property or from commercial landscaping activities. "Yard debris" includes landscape waste, grass clippings, leaves, hedge trimmings, stumps and other vegetative waste having similar properties, but does not include demolition debris, painted or treated wood.

(~~eee~~fff) "Yard debris facility" means a yard debris processing facility or a yard debris reload facility.

(~~fff~~ggg) "Yard debris reload facility" means an operation or facility that receives yard debris for temporary storage, awaiting transport to a processing facility.

SECTION 2. Metro Code section 5.01.040 is amended as follows:

5.01.040 Exemptions

(a) In furtherance of the purposes set forth in this chapter, except as provided in Sections 5.01.040(b) through (d) below, the Metro Council declares the provisions of this chapter shall not apply to:

(1) Municipal or industrial sewage treatment plants accepting sewage, sludge, septic tank and cesspool pumpings or other sludge.

(2) Disposal Sites, Transfer Stations, or Solid Waste Facilities owned or operated by Metro.

(3) Facilities that (A) exclusively receive non-Putrescible Source-Separated Recyclable Materials, and (B) reuse or recycle such materials, or transfer, transport or deliver such materials to a person or facility that will reuse or recycle them.

(4) Facilities that exclusively receive, process, transfer or dispose of Inert Wastes.

(5) The following operations, which do not constitute Yard Debris Facilities:

(A) Persons who generate and maintain residential compost piles for residential garden or landscaping purposes.

(B) Residences, parks, community gardens and homeowner associations.

(C) Universities, schools, hospitals, golf courses, industrial parks, and other similar facilities, if the landscape waste or yard debris was generated from the facility's own activities, the product remains on the facility grounds, and the product is not offered for off-site sale or use.

(D) Operations or facilities that chip or grind wood wastes, unless:

(i) such chipped or ground wood wastes are processed for composting; or

(ii) such operations or facilities are otherwise regulated under Metro Code Section 5.01.045.

(6) Temporary transfer stations or processing centers established and operated by a government for 60 days or less to temporarily receive, store or process Solid Waste if Metro finds an emergency situation exists.

(7) Any Reload facility that:

(A) Accepts Solid Waste collected under the authority of a single solid waste collection franchise granted by a local government unit, or from multiple solid waste collection franchises so long as the area encompassed by the franchises is

(B) Is owned or controlled by the same person granted franchise authority ascribed in subsection (A); and

(C) Delivers any Putrescible Waste accepted at the operation or facility to a Transfer Station owned, operated, Licensed or Franchised by Metro; and

(D) Delivers all other Solid Waste accepted at the facility except Inert Wastes to a Metro Designated Facility authorized to accept said Solid Waste, or to another solid waste facility ~~or Disposal Site~~ under authority of a Metro Non-System License issued pursuant to Chapter 5.05.

(8) Persons who own or operate a mobile facility that processes Petroleum Contaminated Soil at the site of origin and retains any treated Petroleum Contaminated Soil on the site of origin.

(b) Notwithstanding Section 5.01.040(a), all persons shall comply with Sections 5.01.030(a), (b), (d) and (f).

(c) Notwithstanding Section 5.01.040(a)(2) of this chapter, Metro shall comply with Section 5.01.150 of this chapter.

(d) Notwithstanding Sections 5.01.040(a)(3) through 5.01.040(a)(8) of this chapter, the provisions of Section 5.01.135 of this chapter shall apply to operations and facilities described in Sections 5.01.040(a)(3) through 5.01.040(a)(8) of this chapter.

SECTION 3. Metro Code section 5.01.125 is amended as follows:

5.01.125 Obligations and Limits for Selected Types of Activities

(a) A holder of a License or Franchise for a Material Recovery facility~~, Reload~~ or ~~Local T~~Transfer Station, ~~or a holder of a Franchise~~ issued after July 1, 2000~~, for a Regional Transfer Station~~ shall perform Material Recovery from Non-Putrescible Waste accepted at the facility as specified in this section or as otherwise specified in its license or franchise, or shall deliver such Non-Putrescible Waste to a Solid Waste facility ~~whose primary purpose is~~ authorized by Metro to recover useful materials from Solid Waste.

(b) ~~A holder of a License or Franchise for a Material Recovery facility or Local Transfer Station, or a holder of a Franchise issued after July 1, 2000 for a Regional Transfer Station,~~A licensee or franchisee subject to subsection (a) of this section shall recover at least 25% by weight of Non-Putrescible waste accepted at the facility and waste delivered by public customers. For the purposes of calculating the amount of recovery required by this subsection, recovered waste shall exclude both waste from industrial processes and ash, inert rock, concrete, concrete block, foundry brick, asphalt, dirt, and sand. Failure to maintain the minimum recovery rate specified in this section shall constitute a violation enforceable under Metro Code Sections 5.01.180 and 5.01.200. After January 1, 2009, the requirements of this subsection will not be applicable to licensees or franchisees unless Metro Council determines that this standard should be reinstated to replace the processing residual standard established in 5.01.125(c).

(c) ~~(c)~~ Effective January 1, 2009, a licensee or franchisee subject to subsection (a) of this section shall:

(1) ~~At a minimum,~~ Process non-putrescible waste accepted at the facility and delivered in drop boxes and self-tipping trucks to recover cardboard, wood, and metals, ~~(~~including aluminum~~)~~. Processing residual from such a facility shall not contain more than 15 percent, by total combined weight, of cardboard or wood pieces of greater than 12 inches in size in any dimension and metal pieces greater than eight inches in size in any dimension

.

(2) Take quarterly samples of processing residual that are statistically valid and representative of the facility's residual (not less than a 300-pound sample) and provide results of such sampling to Metro in the monthly report due the month following the end of that quarter.

(3) Based on observation, audits, inspections and reports, Metro inspectors shall conduct or require additional analysis of waste residual at the facility in accordance with section 5.01.135(c). Failure to maintain the recovery level specified in subsection (c)(1) of this section shall constitute a violation enforceable under Metro Code. The first two violations of this subsection by a single licensee or franchisee shall not result in the imposition of a civil penalty.

(4) Failure to meet the reporting requirements in subsection (c)(2) of this section shall constitute a violation enforceable under Metro Code after July 1, 2009.

(d) ~~In addition to the requirements of (a) and (b) in this section, A~~ holder~~s~~ of a Franchise for a Local Transfer Station:

(1) Shall accept Putrescible Waste originating within the Metro boundary only from persons who are franchised or permitted by a local government unit to collect and haul Putrescible Waste.

(2) Shall not accept hazardous waste.

(3) Shall be limited in accepting Putrescible Waste during any fiscal year to an amount of Putrescible Waste equal to the demand for disposal of Putrescible Waste generated within a Service Area as specified in accordance with this chapter.

(4) Shall accept Solid Waste from any Waste Hauler who operates to serve a substantial portion of the demand for disposal of Solid Waste within the Service Area of the Local Transfer Station.

~~(d)~~(e) ~~In addition to the requirements of (a) and (b) in this section, A~~ holder~~s~~ of a Franchise for a Regional Transfer Station, in accordance with its franchise ~~issued after July 1, 2000~~:

(1) Shall accept authorized Solid Waste originating within the Metro boundary from any person who delivers authorized waste to the facility,

on the days and at the times established by Metro in approving the Franchise application.

(2) Shall provide an area for collecting Household Hazardous Waste from residential generators at the Franchised Solid Waste Facility, or at another location more convenient to the population being served by the franchised Solid Waste Facility, on the days and at the times established by Metro in approving the Franchise application.

(3) Shall provide an area for collecting source separated recyclable materials without charge at the Franchised Solid Waste Facility, or at another location more convenient to the population being served by the franchised Solid Waste Facility, on the days and at the times established by Metro in approving the Franchise application.

(f) A holder of a license for a reload facility shall deliver all non-putrescible waste received at the facility to a solid waste facility authorized by Metro to recover useful materials from solid waste.

(g) A holder of a license or franchise for a solid waste facility shall not crush, grind or otherwise reduce the size of non-putrescible waste except when such size reduction constitutes a specific step in the facility's material recovery operations, reload operations, or processing residual consolidation or loading operations, and such size reduction is described and approved by Metro in an operating plan.

(Ordinance No. 98-762C, Secs. 30-31. Amended by Ordinance No. 00-866, Sec. 5; Ordinance No. 01-916C, Sec. 4; Ordinance No. 02-952A, Sec. 1; Ordinance No. 03-1018A, Sec 16.)

SECTION 4. Metro Code section is amended as follows:

5.01.135 Inspections and Audits of Solid Waste Facilities

(a) The Chief Operating Officer shall be authorized to make such inspection or audit as the Chief Operating Officer deems appropriate, and shall be permitted access to the premises of a licensed or franchised facility, and all other Solid Waste Facilities, at all reasonable times during business hours with or without notice or at such other times with 24 hours notice after the Franchise or License is granted to assure compliance with this chapter, the Code, the Franchise or License, and administrative procedures and performance standards adopted pursuant to Section 5.01.132 of this chapter.

(b) Inspections or audits authorized under subsection (a) of this section shall occur regularly and as determined necessary by the Chief Operating Officer. Results of each inspection shall be reported on a standard form specified by the Chief Operating Officer.

(c) The Chief Operating Officer shall have access to and may examine during such inspections or audits any records pertinent in the opinion of the Chief Operating Officer to the License or Franchise, or to the provisions of this chapter, including but not limited to the books, papers, records, equipment, blueprints, operation and maintenance records and logs and operating rules and procedures of the Licensee, Franchisee or Solid Waste Facility operator. Such inspections or audits may include taking samples and conducting analysis of any waste or other material, including storm water runoff, water treatment or holding facilities, leachate, soil and solid waste. The Chief Operating Officer shall coordinate any sampling or follow-up activities with DEQ or local jurisdictions as necessary to prevent the imposition of redundant requirements on operations.

(d) Any violations discovered by the inspection or audit shall be subject to the penalties provided in Section 5.01.200.

SECTION 5. The definition of "special waste" in Metro Code section 5.02.015(hh) shall be amended as follows:

(hh) "Special waste" ~~means any waste (even though it may be part of a delivered load of waste) which one or more of the following categories describes:~~shall have the meaning assigned thereto in Metro Code section 5.01.010.

~~(1) Containerized waste (e.g., a drum, barrel, portable tank, box, pail, etc.) of a type listed in 3 through 9 and 11 of this definition below.~~

~~(2) Waste transported in a bulk tanker.~~

~~(3) Liquid waste including outdated, off spec liquid food waste or liquids of any type when the quantity and the load would fail the paint filter liquid (Method 9095, SW-846) test or includes 25 or more gallons of free liquid per load, whichever is more restrictive.~~

~~(4) Containers (or drums) which once held commercial products or chemicals, unless the containers (or drums) are empty. A container is empty when:~~

~~(A) All wastes have been removed that can be removed using the practices commonly employed to remove materials from the type of container, e.g., pouring, pumping, crushing, or aspirating.~~

~~(B) One end has been removed (for containers in excess of 25 gallons); and~~

~~(i) No more than one inch thick (2.54 centimeters) of residue remains on the bottom of the container or inner liner; or~~

(ii) No more than 1 percent by weight of the total capacity of the container remains in the container (for containers up to 110 gallons); or

(iii)No more than 0.3 percent by weight of the total capacity of the container remains in the container for containers larger than 110 gallons.

(C) Containers that once held acutely hazardous wastes must be triple-rinsed with an appropriate solvent or cleaned by an equivalent alternative method. Containers that once held substances regulated under the Federal Insecticide, Fungicide, and Rodenticide Act must be empty according to label instructions or triple-rinsed with an appropriate solvent or cleaned by an equivalent method. Plastic containers larger than five gallons that hold any regulated waste must be cut in half or punctured, and be dry and free of contamination to be accepted as refuse.

(5) Sludge waste from septic tanks, food service, grease traps, or wastewater from commercial laundries, Laundromats or car washes.

(6) Waste from an industrial process.

(7) Waste from a pollution control process.

(8) Residue or debris from the cleanup of a spill or release of chemical substances, commercial products or wastes listed in 1 through 7 or 9 of this definition.

(9) Soil, water, residue, debris, or articles which are contaminated from the cleanup of a site or facility formerly used for the generation, storage, treatment, recycling, reclamation, or disposal of wastes listed in 1 through 8 of this definition.

(10) Chemical-containing equipment removed from service (for example: filters, oil filters, cathode ray tubes, lab equipment, acetylene tanks, CFC tanks, refrigeration units, or any other chemical containing equipment).

(11) Waste in waste containers that are marked with a National Fire Protection Association identification label that has a hazard rating of 2, 3, or 4, but not empty containers so marked.

(12) Any waste that requires extraordinary management or special handling.

Examples of special wastes are: chemicals, liquids, sludge and dust from commercial and industrial operations; municipal waste water treatment

~~plant grits, screenings and sludge; contaminated soils; tannery wastes, empty pesticide containers, and dead animals or by-products.~~

~~(13) Radioactive waste.~~

~~(14)Medical waste.~~

SECTION 6. Metro Code Section 5.02.046 is repealed.

SECTION 7. Metro Code Section 5.02.047 as amended by Ordinance No. 07-1146 is amended to read:

5.02.047 Regional System Fee Credits

~~(a) A solid waste facility which is certified, licensed or franchised by Metro pursuant to Metro Code Chapter 5.01 or a Designated Facility regulated by Metro under the terms of an intergovernmental agreement shall be allowed a credit against the Regional System Fee otherwise due each month under Section 5.02.045 for disposal of Processing Residuals from the facility. The Facility Recovery Rate shall be calculated for each twelve-month period before the month in which the credit is claimed. The amount of such credit shall be in accordance with and no greater than as provided on the following table:~~

~~System Fee Credit Schedule~~

~~Facility Recovery Rate~~		
~~From Above~~	~~Up To & Including~~	~~System Fee Credit of no more than~~
~~0%~~	~~30%~~	~~0.00~~
~~30%~~	~~35%~~	~~9.92~~
~~35%~~	~~40%~~	~~11.46~~
~~40%~~	~~45%~~	~~13.28~~
~~45%~~	~~100%~~	~~14.00~~

~~(b) The Chief Operating Officer:~~

~~(1) Shall establish administrative procedures to implement subsections (b) and (c) of Metro Code Section 5.02.046; and~~

~~(2) May establish additional administrative procedures regarding the Regional System Fee Credits, including, but not limited to establishing eligibility requirements for such credits and establishing incremental System Fee Credits associated with Recovery Rates which fall between the ranges set forth in paragraph (a) of this section.~~

~~(c)~~ Any person delivering Cleanup Material Contaminated By Hazardous Substances that is derived from an environmental cleanup of a nonrecurring event, and delivered to any

Solid Waste System Facility authorized to accept such substances shall be allowed a credit in the amount of $11.58 against the Regional System Fee otherwise due under Section 5.02.045(a) of this Chapter.

~~(d) During any Fiscal Year, the total aggregate amount of credits granted under the Regional System Fee credit program shall not exceed the dollar amount budget without the prior review and authorization of the Metro Council.~~

~~(e) The Director of the Solid Waste and Recycling Department shall make a semi-annual report to the Council on the status of the credit program. The report shall include that aggregate amount of all credits paid during the preceding six months and the amount paid to each facility eligible for the credit program. The report shall also project whether the appropriation for the credit program will be sufficient to meet anticipated credit payment requests and maintain existing contingency funding.~~

SECTION 8. The definition of "Special waste" in Metro Code section 5.05.010 shall be amended as follows:

(v) "Special waste" shall have the meaning assigned thereto in Metro Code Section ~~5.02.015~~5.01.010.

SECTION 9. The following definitions of "Material Recovery," "Processing Residual," and Recyclable Material," shall be added to Metro Code section 5.05.010, other Code subsections in that section shall be renumbered accordingly, and other Code references to such subsection shall be amended accordingly:

"Material recovery " shall have the meaning assigned thereto in Metro Code section 5.01.010.

"Processing residual" shall have the meaning assigned thereto in Metro Code section 5.01.010.

"Recyclable material" shall have the meaning assigned thereto in Metro Code section 5.01.010.

SECTION 10. Metro Code section 5.05.030 shall be amended as follows:

5.05.030 Designated Facilities of the System

(a) Designated Facilities. The following described facilities constitute the designated facilities of the system, the Metro Council having found that said facilities meet the criteria set forth in Metro Code Section 5.05.030(b):

(1) Metro South Station. The Metro South Station located at 2001 Washington, Oregon City, Oregon 97045.

(2) Metro Central Station. The Metro Central Station located at 6161 N.W. 61st Avenue, Portland, Oregon 97210.

(3) Facilities Subject to Metro Regulatory Authority. All disposal sites and solid waste facilities within Metro which are subject to Metro regulatory authority under Chapter 5.01 of the Metro Code.

(4) ~~(4)~~ Lakeside Reclamation (limited purpose landfill). The Lakeside Reclamation limited purpose landfill, Route 1, Box 849, Beaverton, Oregon 97005, subject to the terms of an agreement between Metro and the owner of Lakeside Reclamation authorizing receipt of solid waste generated within Metro only as follows:

(A) As specified in an agreement entered into between Metro and the owner of the Lakeside Reclamation Landfill authorizing receipt of such waste; or

(B) Subject to a non-system license issued to a person transporting to the facility solid waste not specified in the agreement.

(5) (5) Hillsboro Landfill (limited purpose landfill). The Hillsboro Landfill, 3205 S.E. Minter Bridge Road, Hillsboro, Oregon 97123, subject to the terms of an agreement between Metro and the owner of Hillsboro Landfill authorizing receipt of solid waste generated within Metro only as follows:\

(C) As specified in an agreement entered into between Metro and the owner of the Hillsboro Landfill authorizing receipt of such waste; or

(D) Subject to a non-system license issued to a person transporting to the facility solid waste not specified in the agreement.~~.~~

(6) Columbia Ridge Landfill. The Columbia Ridge Landfill owned and operated by Waste Management Disposal Services of Oregon, Inc. (dba Oregon Waste Systems, Inc.) subject to the terms of the agreements in existence on November 14, 1989, between Metro and Oregon Waste Systems, Inc. and between Metro and Jack Gray Transport, Inc., including any subsequent amendments thereto. In addition, Columbia Ridge Landfill may accept solid ~~special~~ waste generated within Metro:

(A) As specified in an agreement entered into between Metro and Waste Management Disposal Services of Oregon, Inc. ~~Waste Systems~~ authorizing receipt of such waste; or

(B) Subject to a non-system license issued to a person transporting to the facility solid~~special~~ waste not specified in the agreement.

(7) Roosevelt Regional Landfill. The Roosevelt Regional Landfill, located in Klickitat County, Washington. Roosevelt Regional Landfill may accept ~~special~~ solid waste generated within Metro only as follows:

(A) As specified in an agreement entered into between Metro and Regional Disposal Company authorizing receipt of such waste; or

(B) Subject to a non-system license issued to a person transporting to the facility ~~special~~ solid waste not specified in the agreement.

(8) Finley Buttes Regional Landfill. The Finley Buttes Regional Landfill, located in Morrow County, Oregon. Finley Buttes Regional Landfill may accept ~~special~~ solid waste generated within Metro only as follows:

(A) As specified in an agreement entered into between Metro and Finley Buttes Landfill Company authorizing receipt of such waste; or

(B) Subject to a non-system license issued to a person transporting to the facility ~~special~~ solid waste not specified in the agreement.

(9) Coffin Butte Landfill. The Coffin Butte Landfill, located in Benton County, Oregon, which may accept solid waste generated within ~~the District~~ Metro only as follows:

(A) As specified in an agreement entered into between Metro and the owner of the Coffin Butte Landfill authorizing receipt of such waste; or

(B) Subject to a non-system license issued to a person transporting to the facility solid~~special~~ waste~~s~~ not specified in the agreement.

(10) Wasco County Landfill. The Wasco County Landfill, located in The Dalles, Oregon, which may accept solid waste generated within ~~the District~~ Metro only as follows:

(A) As specified in an agreement entered into between Metro and the owner of the Wasco County Landfill authorizing receipt of such waste; or

(B) Subject to a non-system license issued to a person transporting to the facility solid waste~~s~~ not specified in the agreement.

(11) Cedar Grove Composting, Inc. The Cedar Grove Composting, Inc., facilities located in Maple Valley, Washington, and Everett, Washington. Cedar Grove Composting, Inc., may accept solid waste generated within ~~the District~~Metro only as follows:

(A) As specified in an agreement entered into between Metro and Cedar Grove composting, Inc., authorizing receipt of such waste; or

(B) Subject to a non-system license issued to a person transporting to Cedar Grove Composting, Inc., solid waste~~s~~ not specified in the agreement.

(12) Weyerhaeuser Regional Landfill. The Weyerhaeuser Regional Landfill, located in Castle Rock, Washington, and the Weyerhaeuser Material Recovery Facility, located in Longview, Washington. The Weyerhaeuser Material Recovery Facility is hereby designated only for the purpose of accepting solid waste for transfer to the Weyerhaeuser Regional Landfill. The Weyerhaeuser Regional Landfill and the Weyerhaeuser Material Recovery Facility may accept solid waste generated within ~~the District~~Metro only as follows:

(A) As specified in an agreement entered into between Metro and Weyerhaeuser, Inc., authorizing receipt of such waste; or

(B) Subject to a non-system license issued to a person transporting to the Weyerhaeuser Regional Landfill or the Weyerhaeuser Material Recovery Facility solid waste~~s~~ not specified in the agreement.

(b) Changes to Designated Facilities to be Made by Council. From time to time, the Council, acting pursuant to a duly enacted ordinance, may remove from the list of designated facilities any one or more of the facilities described in Metro Code Section 5.05.030(a). In addition, from time to time, the Council, acting pursuant to a duly enacted ordinance, may add to or delete a facility from the list of designated facilities. In deciding whether to designate an additional facility, or amend or delete an existing designation, the Council shall consider:

(1) The degree to which prior users of the facility and waste types accepted at the facility are known and the degree to which such wastes pose a future risk of environmental contamination;

(2) The record of regulatory compliance of the facility's owner and operator with federal, state and local requirements including but not limited to public health, safety and environmental rules and regulations;

(3) The adequacy of operational practices and management controls at the facility;

(4) The expected impact on the region's recycling and waste reduction efforts;

(5) The consistency of the designation with Metro's existing contractual arrangements;

(6) The record of the facility regarding compliance with Metro ordinances and agreements or assistance to Metro in Metro ordinance enforcement; and

(7) Other benefits or detriments accruing to residents of the region from Council action in designating a facility, or amending or deleting an existing designation.

(c) The Chief Operating Officer is authorized to execute an agreement, or an amendment to an agreement, between Metro and a designated facility for non-putrescible waste. Effective July 1, 2008, an existing designated facility authorized to receive non-putrescible waste shall notify Metro of ~~their~~ its intent to seek an agreement to recover non-putrescible waste from the Metro region in accordance with subsection (g) or to only take processed non-putrescible waste from authorized facilities included in subsection (f) or to take unprocessed dry waste from the Metro region subject to the fee or surcharge as determined by Metro Council in accordance with Section 11 of the Ordinance. No later than December 31, 2008, the Chief Operating Officer shall modify existing agreements to ensure substantial compliance with either subsection (f) or (g) of this section or Section 11 of this Ordinance as appropriate. If the Chief Operating Officer and a designated facility are not able to establish an agreement by November 1, 2008, then the Chief Operating Officer shall terminate the existing agreement following termination procedures described in the existing agreement, but no later than December 31, 2008.

(d) An agreement, or amendment to an agreement between Metro and a designated facility for Putrescible waste shall be subject to approval by the Metro Council prior to execution by the Chief Operating Officer.

~~(d)~~(e) An agreement between Metro and a designated facility shall specify the types of wastes from within Metro boundaries that may be delivered to, or accepted at, the facility.

(f) ~~(e)~~ An agreement between Metro and a designated facility ~~that authorizes the facility to accept non-putrescible waste that has not yet undergone material recovery, is not processing residual, and originated or was generated within Metro boundaries shall demonstrate substantial compliance with facility performance standards, design requirements and operating requirements adopted pursuant to Metro Code Chapter 5.01.132 for non-putrescible waste material recovery facilities.~~shall not authorize the facility to accept non-putrescible waste originating or generated within Metro boundaries after December 31, 2008, unless:

(1) Such non-putrescible waste is received from a facility that has been issued a license or franchise pursuant to Chapter 5.01 authorizing such facility to perform material recovery on non-putrescible waste;

(2) Such non-putrescible waste is received from a designated facility that has entered into an agreement with Metro, in accordance with subsection (f) of this section, authorizing such designated facility to perform material recovery on non-putrescible waste; or

(3) The facility has entered into an agreement with Metro, in accordance with subsection (f) of this section, authorizing the facility to perform material recovery on non-putrescible waste that has not yet undergone material recovery.

(g) An agreement between Metro and a designated facility that, after December 31, 2008, authorizes the facility to accept non-putrescible waste that has not yet undergone material recovery, is not comprised of processing residual, and originated or was generated within Metro boundaries shall:

(1) Require such designated facility to perform material recovery on such waste; and

(2) Demonstrate, in a manner that can be verified and audited, that such processing achieves material recovery substantially comparable to that required of in-region material recovery facilities by Metro Code subsections 5.01.125(a) and (b) by either:

(A) Meeting such material recovery requirements for all non-putrescible waste received at the facility, whether or not from within Metro boundaries; or

(B) Keeping all non-putrescible waste received from within Metro boundaries segregated from other waste throughout processing, keeping processing residual from such processing segregated from other solid waste after processing, and meeting such material recovery requirements for all such non-putrescible waste.

(3) Demonstrate, in a manner that can be verified and audited, that such facility substantially complies with (A) the performance goals described in Metro Code sections 5.01.067(i) (as amended by Section 1 of Metro Ordinance No. 07-1138) and 5.01.075(c) (as amended by Section 2 of Metro Ordinance No.

07-1138), and (B) the performance standards, design requirements, and operating requirements applicable to licensed and franchised material recovery facilities operating within the Metro region and adopted by Metro as administrative procedures pursuant to Metro Code section 5.01.132 (as amended by Section 3 of Metro Ordinance No. 07-1138).

SECTION 11. Not later than March 1, 2008, the Chief Operating Officer shall provide the Metro Council with a recommendation for a form of additional solid waste fee or surcharge to be imposed on designated facilities seeking to dispose of unprocessed, non-putrescible waste from within the Metro region. The recommended fee or surcharge shall be applied as to provide substantially equivalent disposal rates among material recovery facilities and designated facilities for disposal of unprocessed non-putrescible wastes. The recommendation of the Chief Operating Officer shall also include an amount for the proposed additional solid waste fee or surcharge, a proposal for the administrative procedures required to implement the imposition and collection of such fee or surcharge, the effective dates, and a recommendation on the uses to which the revenues generated by such fee or surcharge may be put.

SECTION 12. Metro Code section 5.05.035(a) as amended by Ordinance No. 07-1138 shall be further amended as follows:

5.05.035 License to Use Non-System Facility

A waste hauler or other person may transport solid waste generated within Metro to, or to utilize or cause to be utilized for the disposal or other processing of any solid waste generated within Metro, any non-system facility only by obtaining a non-system license in the manner provided for in this Section 5.05.035. Applications for non-system licenses for Non-putrescible waste, Special waste and Cleanup Material Contaminated By Hazardous Substances shall be subject to approval or denial by the Chief Operating Officer. Applications for non-system licenses for Putrescible waste shall be reviewed by the Chief Operating Officer and are subject to approval or denial by the Metro Council.

(a) Application for License. Any waste hauler or other person desiring to obtain a non-system license shall make application to the Chief Operating Officer, which application shall be filed on forms or in the format provided by the Chief Operating Officer. Applicants may apply for a limited-duration non-system license which has a term of not more than 120 days and is not renewable. An application for any non-system license shall set forth the following information:

(1) The name and address of the waste hauler or person making such application;

(2) The location of the site or sites at which the solid waste proposed to be covered by the non-system license is to be generated;

(3) The nature of the solid waste proposed to be covered by the non-system license;

(4) The expected tonnage of the solid waste proposed to be covered by the non-system license:

(A) The total tonnage if the application is for a limited duration non-system license; or

(B) The annual tonnage if the application is for any other non-system license;

(5) A statement of the facts and circumstances which, in the opinion of the applicant, warrant the issuance of the proposed non-system license;

(6) The non-system facility at which the solid waste proposed to be covered by the non-system license is proposed to be transported, disposed of or otherwise processed; and

(7) The date the non-system license is to commence; and, for limited duration non-system licenses, the period of time the license is to remain valid not to exceed 120 days.

In addition, the Chief Operating Officer may require the applicant to provide, in writing, such additional information concerning the proposed non-system license as the Chief Operating Officer deems necessary or appropriate in order to determine whether or not to issue the proposed non-system license.

An applicant for a non-system license that authorizes the licensee to transport non-putrescible waste that has not yet undergone material recovery, is not processing residual, and originated or was generated within Metro boundaries shall provide documentation that the non-system facility is in substantial compliance with the facility performance standards, design requirements and operating requirements adopted pursuant to Metro Code Chapter 5.01.132 for non-putrescible waste material recovery facilities. ~~.~~ Any applicant or licensee that is authorized or seeks to deliver non-putrescible waste to a non-system facility after January 1, 2009, must demonstrate that the non-system facility will be in substantial compliance with the material recovery requirements in Metro Code section 5.01.125.

SECTION 13. Metro Code section 7.01.020 shall be amended as follows:

7.01.020 Tax Imposed

(a) For the privilege of the use of the facilities, equipment, systems, functions, services, or improvements owned, operated, certified, licensed, franchised, or provided by Metro,

each user except users of solid waste system facilities shall pay a tax of 7.5 percent of the payment charged by the operator or Metro for such use unless a lower rate has been established as provided in subsection 7.01.020(b). The tax constitutes a debt owed by the user to Metro which is extinguished only by payment of the tax directly to Metro or by the operator to Metro. The user shall pay the tax to Metro or to an operator at the time payment for the use is made. The operator shall enter the tax on his/her records when payment is collected if the operator keeps his/her records on the cash basis of accounting and when earned if the operator keeps his/her records on the accrual basis of accounting. If installment payments are paid to an operator, a proportionate share of the tax shall be paid by the user to the operator with each installment.

(b) The Council may for any period commencing no sooner than July 1 of any year and ending on June 30 of the following year establish a tax rate lower than the rate of tax provided for in subsection 7.01.020(a) or in subsections 7.01.020(c)-(e) by so providing in an ordinance adopted by Metro. If the Council so establishes a lower rate of tax, the Chief Operating Officer shall immediately notify all operators of the new tax rate. Upon the end of the fiscal year the rate of tax shall revert to the maximum rate established in subsection 7.01.020(a) unchanged for the next year unless further action to establish a lower rate is adopted by the Council as provided for herein.

(c) For the privilege of the use of the solid waste system facilities, equipment, systems, functions, services, or improvements, owned, operated, licensed, franchised, or provided by Metro, each user of solid waste system facilities and each solid waste facility licensed or franchised under Chapter 5.01 of this Code to deliver putrescible waste directly to Metro's contractor for disposal of putrescible waste shall pay a tax in the amount calculated under subsection (e)(1) for each ton of solid waste exclusive of compostable organic waste accepted at Metro Central or Metro South stations and source separated recyclable materials accepted at the solid waste system facilities. In addition, each user of solid waste system facilities and each solid waste facility licensed or franchised under Chapter 5.01 of this Code to deliver putrescible waste directly to Metro's contractor for disposal of putrescible waste shall also pay the additional tax in the amount set forth under Section 7.01.023 for each ton of solid waste exclusive of compostable organic waste accepted at Metro Central or Metro South stations and source separated recyclable materials accepted at the solid waste system facilities. The tax constitutes a debt owed by the user to Metro which is extinguished only by payment of the tax directly to Metro or by the operator to Metro. The user shall pay the tax to Metro or to an operator at the time payment for the use is made. The operator shall enter the tax on his/her records when payment is collected if the operator keeps his/her records on the cash basis of accounting and when earned if the operator keeps his/her records on the accrual basis of accounting. If installment payments are paid to an operator, a proportionate share of the tax shall be paid by the user to the operator with each installment.

(d) For the Metro fiscal year beginning July 1, 2002, the tax rate imposed and calculated under this section shall be sufficient to generate net excise tax revenue of $6,050,000 after allowing for any tax credit or tax rebate for which provision is made in this chapter. For each Metro fiscal year thereafter the tax rate imposed and calculated under this section shall be

sufficient to generate net excise tax revenue equal to the net excise tax revenue authorization in the previous fiscal year as adjusted in accordance with Section 7.01.022.

(e) (1) The excise tax rate for each ton of solid waste, exclusive of (i) source separate recyclable materials accepted at the solid waste system facilities, (ii) inert materials, (iii) Cleanup Materials Contaminated by Hazardous Substances, and (iv) compostable organic waste delivered to Metro Central or Metro South stations, shall be the amount that results from dividing the net excise tax revenue amount set forth in subsection (d) by the amount of solid waste tonnage which the Chief Operating Officer reports to the Council under subsection (f)(2). Subject to the provisions of subsection 7.01.020(b), the rate so determined shall be Metro's excise tax rate on solid waste during the subsequent Metro fiscal year. Commencing with Metro fiscal year 2006-07, and each fiscal year thereafter, the rate determined by this subsection shall be effective as of September 1st unless another effective date is adopted by the Metro Council.

(2) The excise tax rate for each ton of solid waste constituting Cleanup Materials Contaminated by Hazardous Substances shall be $1.00.

(f) By March 1st of each year, the Chief Operating Officer shall provide a written report to the Metro Council stating the following:

(1) For the twelve (12) month period ending the previous December 31; the amount of solid wastes, exclusive of inert materials, delivered for disposal to any Solid Waste System Facility that is not exempt pursuant to Section 7.01.050(a) of this chapter, and

(2) The amount of such solid wastes that would have been delivered for disposal to any such non-exempt Solid Waste System Facility if the Regional Recovery Rates corresponding to each calendar year set forth on the following schedule had been achieved:

Year	Regional Recovery Rate
2005	56%
2006	56.5%
2007	57%
2008	57.5%
2009	58%

The result of such calculation by the Chief Operating Officer shall be used to determine the excise tax rate under sub-section (e)(1).

~~(g) (1) A solid waste facility which is licensed or franchised by Metro pursuant to Metro Code Chapter 5.01 shall be allowed a credit against the Excise Tax~~

otherwise due under Section 7.01.020(e)(1) for disposal of Processing Residuals from such facility. The Facility Recovery Rate shall be calculated for each twelve (12) month period before the month in which the credit is claimed. Such credit shall be dependent upon the Facility Recovery Rate achieved by such facility and shall be no greater than as provided on the following table:

Excise Tax Credit Schedule		
Facility Recovery Rate From Above	Up To & Including	Excise Tax Credit of no more than
0%	30%	0.00
30%	35%	1.92
35%	40%	2.75
40%	100%	3.51

(2) During any Fiscal Year, the total aggregate amount of excise tax credits granted under the provisions of this subsection shall not exceed the dollar amount budgeted for such purpose without the prior review and authorization of the Metro Council.

(3) The Chief Operating Officer may establish procedures for administering the Excise Tax Credits set forth in subsection (g)(1), including, but not limited to, establishing eligibility requirements for such credits and establishing incremental Excise Tax Credits associated with Recovery Rates which fall between the ranges set forth in paragraph (g)(1).

SECTION 14. Metro Code section 7.01.028 shall be amended as follows:

7.01.028 Budgeting of Excess Revenue

Commencing with the Metro fiscal year beginning July 1, 2000, and each year thereafter, if the tax revenues collected under the tax rate imposed by Section 7.01.020(e) exceed the net excise tax revenue amount set forth in Section 7.01.020(d) as adjusted by Section 7.01.022, such additional revenue shall be apportioned as follows:

(a) Such excess net excise tax revenue shall first be placed in a Recovery Rate Stabilization Reserve established in the Metro General fund. The amount of excess net excise tax revenues in such account shall not exceed an amount equal to 10 percent of the total amount of excise tax collected under Metro Code Chapter 7.01 during the period of the two (2) most recent Metro fiscal years. The budgeting or expenditure of all such funds within this account shall be subject to review and approval by the Metro Council.

(b) If at the end of any fiscal year the maximum permitted balance for the Recovery Rate Stabilization Account has been reached, during the following fiscal year any additional excess net excise tax revenues shall be used to increase the tax credit provided under Metro

~~Code Section 7.01.020(g) for any solid waste facility that has achieved a Facility Recovery Rate greater than 45%. Such excess revenue shall be used on a dollar-for-dollar basis to reduce the tax liability of all such qualifying facilities. The amount of the additional tax credit shall not exceed the total excise tax otherwise due from the facility under this chapter.~~

~~(c) Any remaining excess revenue over the amounts apportioned in subsections (a) and (b) of this section shall be placed in the account established in subsection(a).~~

SECTION 15. Metro Code sections 7.01.160 and 7.01.170, and Section 4 of Metro Ordinance No. 07-1138 (Metro Code section 5.05.030(e)) are repealed.

SECTION 16. Metro Code sections 7.01.180 and 7.01.190 are repealed.

SECTION 17. Sections 1, 2, 3, 4, 5, 8, 9, 10, 11, 12 and 15 of this ordinance shall be effective 90 days after the adoption of this ordinance. Sections 6, 7, 13, 14, and 16 of this ordinance shall be effective on January 1, 2009.

ADOPTED by the Metro Council this _____ day of _____, 2007.

_____
David Bragdon, Council President

Attest:

_____
Council Clerk Recording Secretary

Approved as to Form:

_____
Daniel B. Cooper, Metro Attorney

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STAFF REPORT

IN CONSIDERATION OF ORDINANCE NO. 07-1147, FOR THE PURPOSE OF ADOPTING LEGISLATION TO ENSURE THAT ALL OF THE REGION'S NON-PUTRESCIBLE WASTE UNDERGOES MATERIAL RECOVERY PRIOR TO DISPOSAL, TO ELIMINATE THE REGIONAL SYSTEM FEE AND EXCISE TAX CREDIT PROGRAM, AND TO MAKE RELATED CHANGES

Date: April 26, 2007 Prepared by: Bryce Jacobson

BACKGROUND

Higher levels of material recovery from commercial sources are essential to achieving the region's 64% state-mandated waste reduction goal. Greater recovery of building industry waste is a key component of the region's efforts.

In 2003, a stakeholder study group examining options for increasing recovery from this sector recommended that Metro should require processing of all construction and demolition debris loads before landfilling. Metro Council then directed staff to develop a program that would require all dry waste to be processed prior to landfill disposal.

C&D (also referred to as dry waste) consists primarily of six types of material: wood, metal, corrugated cardboard, concrete, drywall and roofing. On a typical construction or demolition project, over 90% of the waste materials are reusable or recoverable with current technology and markets.

The region's building industry has a well-developed system of over 90 source-separated recyclers and salvagers, seven facilities that recover recyclable material from mixed dry waste, and two dry waste landfills.

- **Building material reuse facilities** accept and resell used building materials (salvage) taken out of buildings during demolition or remodeling. *Salvaged materials have a positive value, with most salvage retailers paying for materials or providing a tax-deductible receipt.*
- **Source-separated recyclers** accept loads of already sorted materials, which are essentially 100% recyclable. *These facilities pay for materials like cardboard and metal or charge between $5/ton - $25/ton for materials that have well-developed local markets (wood, land clearing debris and rubble).*
- **Dry waste facilities** accept mixed loads of debris that are free of food waste and that meet their particular standards for minimum recovery content. *Tip fees at dry waste recovery facilities vary, but are usually $65-70/ton. These facilities typically achieve a 25-50% material recovery rate.*
- **Transfer stations** process mixed dry loads for recovery and achieve an 18–35% recovery rate. *The Metro tip fee for all waste is $70/ton; private transfer stations generally charge a slightly lower rate to attract dry waste flow.*

- **Dry waste landfills** accept loads of mixed dry waste and dispose of the debris without doing any type of post collection recovery/sorting. *Landfilling of dry waste costs $50 to $61/ton.*

For many generators of mixed dry waste, particularly on the west side, two dry waste landfills, Hillsboro and Lakeside, are the facilities of choice because they are the lowest cost options. Landfilling waste material is simply less costly than processing it for recovery.

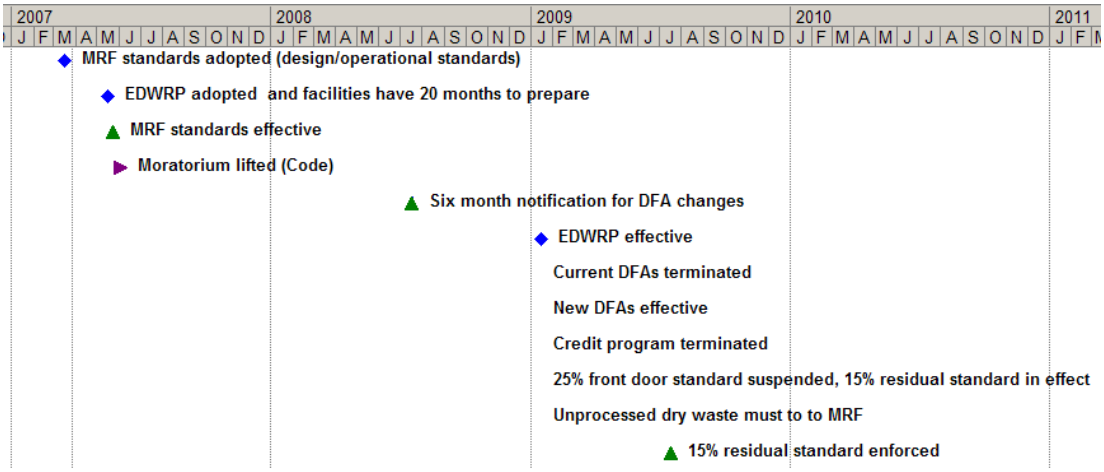
Hillsboro and Lakeside landfills collectively dispose of 125,000 tons of dry waste each year. The intent of this ordinance before Council is to spur at least 33,000 tons per year of new recovery by requiring the processing of dry waste for material recovery before landfilling.

The ordinance would affect all private facilities accepting Metro region mixed dry waste. Major provisions are as follows:

- All mixed dry waste generated in the Metro region would be required to be processed for material recovery prior to landfill disposal by January 1, 2009.
- Materials specified for recovery are those with steady markets: wood, metal and corrugated cardboard.
- The current "front door" 25% recovery requirement for dry waste facilities would be replaced by a new "back door residual" standard that would measure a how effective a facility is at recovering wood, corrugated cardboard and metal. This standard would require that no more than 15% (by weight) of wood, cardboard and metal pieces (size specified) be present in the processing residual.
- The controversial Regional System Fee Credit program would end when this program takes full effect in January 2009.
- Facilities will have approximately 18 months before the required processing provision takes effect, but will have 25 months to meet the new performance requirement of this ordinance (15% "back door" residual standard) before it is enforced, beginning July 1, 2009.
- By March 1st, 2008, the Chief Operating Officer of Metro will recommend to Metro Council an additional per ton solid waste fee or surcharge that could be imposed on any designated facility (i.e., area landfill) still seeking to dispose of mixed dry waste after the program becomes effective. The recommended fee or surcharge would provide substantially equivalent disposal rates among material recovery facilities and designated facilities, eliminating current economic uncertainties for recovery and disposal facilities in Washington County.

The following timeline displays key dates in the program's implementation and enforcement.

Figure 1
Key Dates for Dry Waste Recovery and MRF Standards



ANALYSIS/INFORMATION

1. **Known Opposition:** Lakeside landfill owner Howard Grabhorn, Washington county officials, and SWAC (most of the 9-6 majority opposing cited implementation uncertainties relative to Lakeside as the basis for their opposition).

2. **Legal Antecedents:** ORS 268.317, Metro Code Chapters 5.01, 5.05, and the Metro Charter

3. **Anticipated Effects**:

   Economic Effects
   EDWRP is likely to increase posted tip fees for mixed dry waste at private facilities throughout the region. The policy is to allow more operating costs to be covered by gate revenue (especially the cost of processing more material with potentially lower recovery content), and to replace revenue lost to the planned elimination of the Metro fee and tax credit programs.

   The increase in recovery facility gate rate will incent additional source separated recycling as generators seek to avoid the now higher gate rate for dry waste. This increase in source separated recycling is estimated to be in the range of 5,000-10,000 additional tons per year.

   Metro staff studied six types of "typical" construction projects to estimate the likely disposal cost increases for generators as a result of EDWRP:
   - Residential kitchen remodel with small addition
   - New single-family house
   - Complete demolition of a single-family house
   - Residential re-roofing job
   - Commercial remodeling project

- New “big-box” commercial retail space

Cost increases in the residential sector construction projects should be well under $100 per project; as a function of total project cost they were well under ½ of one percent increase. Residential single-family demolition costs increased more than any other project type. Total disposal costs there should increase from $100 to over $700 or less than 1% to almost 5% of the total job cost.

Commercial construction project costs for an office remodel should increase from $20 to over $200. A large “big-box” retail store should increase between $200 and $1,800. Because of the higher overall costs for these commercial projects, the cost increases as a percent of total project cost were small, mostly under .05%.

Environmental Effects

Enhanced Dry Waste Recovery will increase recovery in the region by a minimum of 33,000 tons of new dry waste recovery each year. This newly recovered material will serve as manufacturing feedstock in some instances, alternative fuel sources in others. In each case, the material recovered reduces the need to extract raw materials, eliminating attendant energy use and pollution associated with virgin material extraction.

As shown in Figure 2, the dry waste diverted from landfill disposal and recovered in some fashion will result in a reduction in greenhouse gases, energy consumption and airborne wastes.

Figure 2

Environmental Effects of EDWRP*

Action	Quantity	Equivalent to…
Reduce greenhouse gases by	25,931 MTCE (Metric tons of carbon equivalent)	keeping 19,567 cars off the road for a year
Reduce energy consumption by	733,971 Million BTU (British thermal units)	the energy used by 6,977 average households during a year
Reduce airborne wastes by	35,000 tons	21.8 million miles of heavy truck travel

*These benefits are projected by the National Recycling Coalition Environmental Benefits Calculator.

4. Budget impacts: Effect on the General Fund is in two parts: the base excise tax and the additional tax. The contribution to the Recovery Rate Stabilization Reserve would be reduced by about $20,000 per year. Revenue from the additional tax (for Parks, MERC and the Zoo) would be reduced by about $115,000 per year. Effect on the Solid Waste Fund is essentially fiscally neutral.

RECOMMENDED ACTION

The Chief Operating Officer recommends Metro Council approve Ordinance 07-1147.

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BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF AMENDING THE EMPLOYMENT AND INDUSTRIAL AREAS MAP OF TITLE 4 (INDUSTRIAL AND OTHER EMPLOYMENT AREAS) OF THE URBAN GROWTH MANAGEMENT FUNCTIONAL PLAN TO CHANGE THE DESIGNATION OF A PORTION OF THE BRICKWORKS PROPERTY FROM INDUSTRIAL TO INNER NEIGHBORHOOD	))))))))	Ordinance No. 07-1148 Introduced by Councilor Rod Park

WHEREAS, the Employment and Industrial Areas Map, part of Title 4 (Industrial and Other Employment Areas) of the Urban Growth Management Functional Plan, determines which land in the Urban Growth Boundary ("UGB") is subject to the provisions of Title 4; and

WHEREAS, the Metro Council designated the property in the city of Gresham known as the Brickworks as Industrial Area on the Employment and Industrial Areas Map by Ordinance No. 96-647C, November 21, 1996 (For the Purpose of Adopting a Functional Plan for Early Implementation of the 2040 Growth Concept), thereby making the Brickworks property subject to section 3.07.430 of Title 4 of the Metro Code; and

WHEREAS, the city of Gresham requested in 2002 that Metro amend the Employment and Industrial Areas Map to authorize a mix of uses on the Brickworks property, some of which were not allowed by Title 4 in an Industrial Area; and

WHEREAS, the Metro Council declined to make the change at that time because the Council added nearby land (Springwater Area) to the UGB for industrial use during Metro's periodic review and charged the city to coordinate planning for the added territory with proposed amendments involving the Brickworks property; and

WHEREAS, having completed planning for the Springwater Area, the city of Gresham renewed its request in December, 2006, that Metro amend the Employment and Industrial Areas Map as it applies to a portion of the Brickworks property in order to allow uses not allowed by Title 4; and

WHEREAS, section 3.07.450H of the Metro Code establishes criteria for amendment of the map by the Council upon application by a local government; and

WHEREAS, the Council held a public hearing on the proposed amendment to the map on July 12, 2007; and

WHEREAS, the Council considered the record made prior to and at the hearing and concludes that the application satisfies the criteria at section 3.07.450H and complies with the Regional Framework Plan and statewide planning laws; now, therefore

THE METRO COUNCIL HEREBY ORDAINS AS FOLLOWS:

1. The Title 4 Employment and Industrial Areas Map is hereby amended as shown on Exhibit A, attached and incorporated into this ordinance.

2. The amendment to the Title 4 Employment and Industrial Areas Map meets the criteria for such map amendments in section 3.07.450H of the Metro Code, as explained in Exhibit B, the Staff Report dated June 14, 2007, attached and incorporated into this ordinance.

3. The Findings of Fact and Conclusions of Law in Exhibit C, attached and incorporated into this ordinance, explain how the amendment complies with statewide planning laws.

ADOPTED by the Metro Council this 12th day of July, 2007.

_____
David Bragdon, Council President

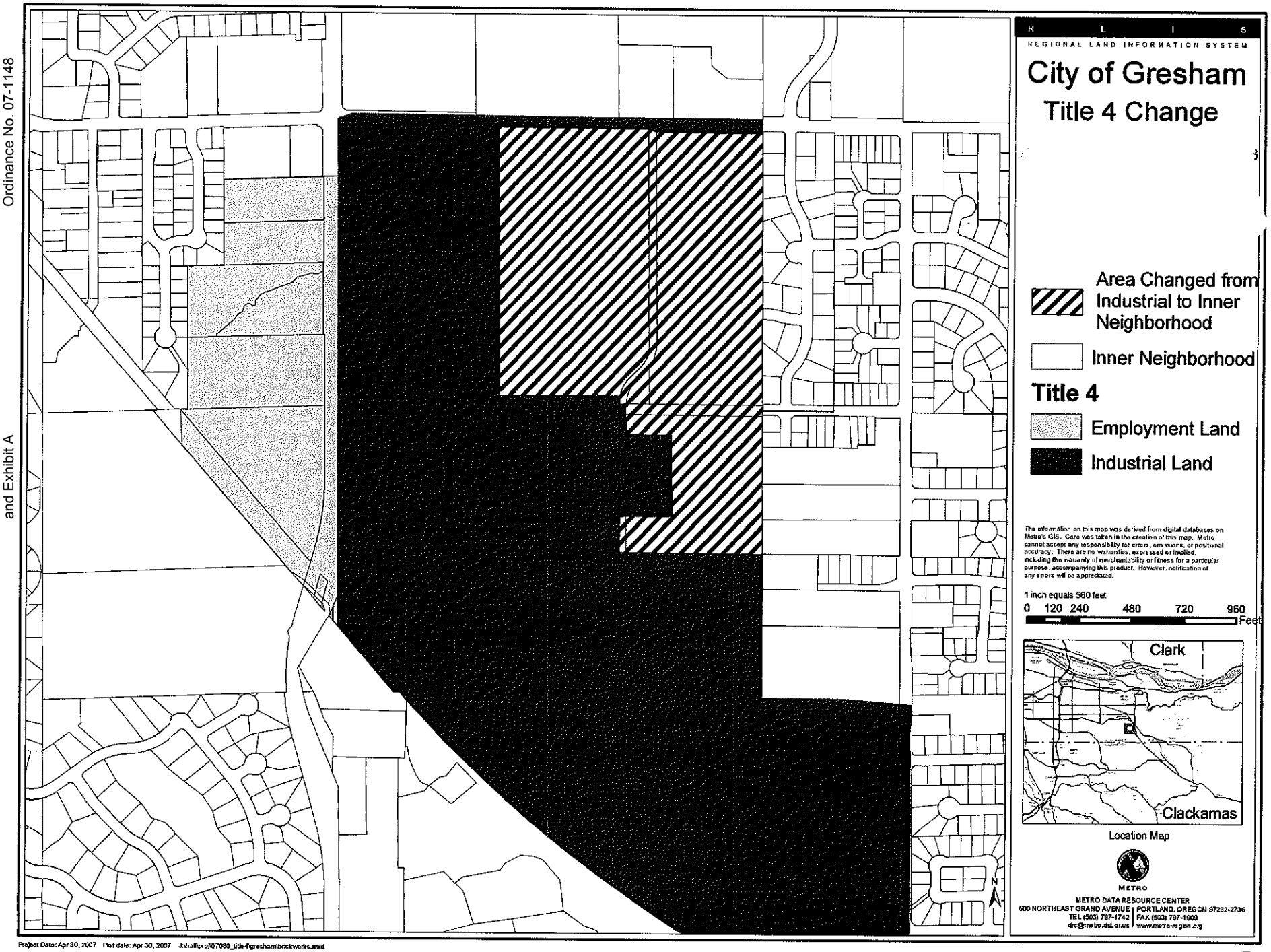
Attest:

_____
Christina Billington, Recording Secretary

Approved as to form:

_____
Daniel B. Cooper, Metro Attorney

ATTACHMENT 1
Ordinance No. 07-1148
and Exhibit A



R L I S
REGIONAL LAND INFORMATION SYSTEM

City of Gresham
Title 4 Change

Area Changed from Industrial to Inner Neighborhood

Inner Neighborhood

Title 4

Employment Land

Industrial Land

The information on this map was derived from digital databases on Metro's GIS. Care was taken in the creation of this map. Metro cannot accept any responsibility for errors, omissions, or positional accuracy. There are no warranties, expressed or implied, including the warranty of merchantability or fitness for a particular purpose, accompanying this product. However, notification of any errors will be appreciated.

1 inch equals 560 feet

0 120 240 480 720 960 Feet

Location Map

METRO
METRO DATA RESOURCE CENTER
600 NORTHEAST GRAND AVENUE | PORTLAND, OREGON 97232-2736
TEL (503) 797-1742 | FAX (503) 797-1909
drc@metro.dst.or.us | www.metro-region.org

Project Date: Apr 30, 2007 Plot date: Apr 30, 2007 J:\hall\proj\07080_title4\greshambrickworks.mxd

Please recycle with mixed paper

Ordinance No. 07-1148
Exhibit B

Date: June 14, 2007

STAFF REPORT TO THE METRO COUNCIL

SECTION I: APPLICATION SUMMARY

FILE NAME:	Brickworks - Title 4 Map Amendment
RESOLUTION NO.	07-1148
PETITIONER:	City of Gresham
PROPOSAL:	The petitioner requests that Metro amend the Employment and Industrial Areas Map to authorize a mix of uses on the Brickworks property not allowed by Title 4 ("Industrial and Other Employment Areas") of the Urban Growth Management Functional Plan.
LOCATION:	The property is located at the intersection of SE Hogan Drive and SE Palmquist Road in Gresham.
APPLICABLE REVIEW CRITERIA:	Metro Code section 3.07.450 H

SECTION II: STAFF RECOMMENDATION

Staff recommends that the Council approve the proposed Employment and Industrial Areas Map amendment.

SECTION III: BACKGROUND INFORMATION

Site Information: The City of Gresham originally submitted a request to the Metro Council to change the Employment and Industrial Areas map in early 2002. The request was, in part, the result of an economic development report commissioned by the City in 2001 as part of its state Periodic Review process. The report concluded that the Brickworks heavy industrial site did not appear suitable for heavy industrial use, but could be a high amenity corporate/business park site. The Metro Council requested and the City agreed to include the Brickworks site in the planning effort of the Springwater area, which was included in the UGB in December 2002. The City concluded planning for the Springwater and Brickworks areas in 2005. The City Council adopted the Springwater Community Plan, including sub-districts to implement it, in December 2005. The City rezoned the Brickworks area in December 2006, and the ordinance includes a provision that approval of a portion of the site to residential is contingent upon the approval of the Metro Council.

Through its planning process, the City of Gresham divided the Brickworks area into two phases. Phase 1, considered herein, consists of 77 acres lying to the southeast of the intersection of Hogan and Palmquist ("Brickworks Site"). The Brickworks site has been zoned as Heavy Industry land since 1980. No

development has occurred under the Heavy Industry designation. There is a brick and concrete paver manufacturer with associated clay extraction to the south, on land designated for Phase 2.

The site and the proposed amendment to the Title 4 map are shown in Attachment 1, attached hereto. A map showing the general location of the site is attached hereto as Attachment 2.

Proposal Description: The petitioner requests that Metro's Employment and Industrial Areas Map be amended so that 42.8 gross acres of the total 77 gross acres would be changed from Industrial to Inner Neighborhood. The Inner Neighborhood designation would allow a variety of residential and commercial uses that are currently prohibited under Title 4 ("Industrial and Other Employment Areas") of the Urban Growth Management Functional Plan. Conditioned on Metro's amendment of the Title 4 map, the City of Gresham has approved an ordinance that re-designates lands from Heavy Industrial to Low Density Residential-Springwater (LDR-SW) and Townhouse Residential-Springwater (THR-SW). Sixteen acres of the LDR-SW area is being used as school sites. The City has also re-designated portions of the property as Research/Technology Industrial (RTI-SW), Industrial (IND-SW) and Environmentally Sensitive Resource Areas (ESRA-SW). These latter designations comply with Title 4 and do not require the amendment of the Title 4 map.

The petitioner's responses to the criteria listed herein quote City of Gresham staff reports of several dates with various acreages. These inconsistencies are, in part, due to changes in the proposed amendment. These varying acreages have implications for a variety of pertinent calculations, including job capacity. In conducting its analysis, Metro has relied on the acreages in the Geographical Information System (GIS) data provided by the petitioner.

Local Government Statement: This Title 4 map amendment is being considered at the request of the City of Gresham. On December 5, 2006, the City of Gresham's Council approved an ordinance amending the Gresham Community Development Plan as it relates to the Springwater Plan District. The ordinance re-designates the zoning of the property as described above. The City's ordinance was not appealed to the Land Use Board of Appeals and has been acknowledged as being in compliance with Statewide Planning Goals pursuant to ORS 197.625(1). However, the ordinance appropriately contains a condition making the re-designation contingent upon an amendment by the Metro Council to the Title 4 map.

SECTION IV: APPLICABLE REVIEW CRITERIA

The criteria for an amendment of the Employment and Industrial Areas Map are contained in Metro Code 3.07.450 H. The criteria (**in bold**), petitioner responses to the criteria *(in italics*), and staff analysis follow.

A. Would not reduce the jobs capacity of the city or county below the number shown on Table 3.07-1 of Title 1 of the Urban Growth Management Functional Plan;

Petitioner Response
The City specifically concluded in its November 17, 2006 Staff Report, p. 3, (Attachment.3), that the proposal "does not negatively impact the City's ability to achieve the capacity targets for jobs or dwellings specified for Gresham in Table 3.07-1 of Title 1." The basis of this finding is as follows:

The job capacity included in that table includes 780 jobs from the vacant land in the entire Brickworks site (Phase I and Phase II) if developed under the current Heavy Industrial designation. The capacity estimated for the proposed RTI-SW at the Brickworks site is 1,348 jobs. This means an increase of 568 industrial related jobs. Additionally, the capacity for the proposed NC-SW (Neighborhood Center) is 55

jobs for a total increase of 623 jobs.[1] This figure does not include the increase in job capacity that will be associated with Phase II. The dwelling unit capacity estimated for the vacant LDR-SW and THR-SW land is 310 dwelling units. This additional capacity could potentially be used to off-set capacity decrease in other parts of the City.

As described at page 9 of the October 13, 2006 Gresham Staff Report, (Attachment 4), these aggregate job projections derive from projected job densities. The Gresham staff stated:

The RTI-SW would also have greater jobs/acre density than the existing HI district and would therefore better fulfill the economic development goals of the City. According to the E.D. Hovee industrial lands report (p.12, "Gresham Industrial Employment & Economic Study"), the historical jobs/acre density within the City's HI district has been 8 jobs/acre. As shown on page 40 of the Brickworks staff report, the proposed RTI-SW designation of 24.1 acres could yield as much as 896 jobs or 37 jobs/acre. This is because the HI district has typically been dominated by low jobs intensity industrial uses such as storage yards and warehousing, whereas the RTI-SW district is intended for more intense uses, i.e., business park, office buildings and light manufacturing. Page 40 of the Brickworks staff report also shows that the proposed 2.5 acres of NC-SW would create 22 jobs/acre (55 jobs divided by 2.5 acres). In total, the 24.1 acres of RTI-SW and the 2.5 acres of NC-SW would create up to 951 jobs, compared to the 213 jobs (26.6 acres times 8 jobs per acre) that could be created if the same area remained HI, heavy industrial.

Metro Staff Analysis

The above acreages and job capacity reflect a previous proposal wherein 2.5 acres of the site would have been designated NC-SW (Neighborhood Commercial – Springwater). That proposal has been revised. The current proposal has no lands designated as NC-SW. Those 2.5 acres are now part of the 27.2 acres of RTI-SW.

Metro staff has determined that the job capacity ratios used by the Petitioner are reasonable. Though the current proposal would create a loss in jobs in those areas designated as residential, there would be a net gain in jobs with the concurrent designation of 27.2 acres as RTI-SW. The anticipated effect of the proposal on job capacity is shown below.

Current designations			
55.06 acres	Heavy Industry	8 jobs/acre	440 jobs
14.84 acres	School site	unknown	unknown
7.1 acres	Environmentally sensitive	0	0
		Subtotal:	440 jobs
Proposed Uses			
27.2 acres	RTI-SW	37 jobs/acre	1006 jobs
14.84 acres	School site	unknown	unknown
19.1 acres	THR-SW	0	0
8.76 acres	LDR-SW	0	0
7.1 acres	Environmentally sensitive	0	0
		Subtotal:	1006 jobs
		Change in jobs with proposal:	**566 more jobs**

[1] *In converting the previously-proposed NC zoning to RTI, the City Council raised the net job increase attributable to Brickworks Phase I to 1,574.*

Conclusion: The proposed change to the Title 4 map would not have the effect of reducing the jobs capacity of the City of Gresham below the number shown on Table 3.07-1 of Title 1 of the Urban Growth Management Functional Plan.

B. Would not allow uses that would reduce off-peak performance on Major Roadway Routes and Roadway Connectors shown on Metro's 2004 Regional Freight System Map below standards in the Regional Transportation Plan ("RTP"), or exceed volume-to-capacity ratios on Table 7 of the 1999 Oregon Highway Plan ("OHP") for state highways, unless mitigating action is taken that will restore performance to RTP and OHP standards within two years after approval of uses;

Petitioner Response
The nearest and most relevant major roadway route and roadway connector is S.E. Hogan Road, which is shown on the regional transportation system map as a roadway connector. The requested map amendment changing the zone from HI to RTI-SW, THR, and LDR, is not a use that will reduce the off peak performance.

The Springwater Transportation Goal and Policies (which includes the Brickworks site) established the City's intent that a well planned transportation system is critical to attracting economic development to Springwater and to achieving the area's goals for livability and sustainable development. The Springwater community planning process established that the Brickworks/HI site was part of the Springwater Transportation System Plan.

The Springwater Transportation System Plan[2] (TSP) is attached. The Brickworks/HI site is integrated into the already adopted Springwater Transportation System Plan (Attachment 5). The June 2, 2006 Staff Report, p. 3, (Attachment 6), summarized the TSP as follows:

> *This is a long-range plan for developing a Springwater transportation system. It describes how the Springwater TSP was created and how it relates to the City TSP that it will amend and with the Regional Transportation Plan that will be amended based on the Springwater TSP. It includes transportation goals, policies and action measures. It describes street functional and design classifications and plans for connectivity, transit service and bicycle and pedestrian systems. It also includes a description of significant transportation projects that are needed to support future Springwater land uses. It includes rough costs estimates of the projects and funding strategies.*

Key features of the transportation system plan, as they apply to the Brickworks/HI site, are:

1. *A new north/south community street and east/west collector street connecting the site, Hogan Road and Palmquist, to the planned Springwater Arterial and Collector System.*

2. *Upgrades to Palmquist Road, 252nd/Palmblad Avenue, and to Hogan Road to accommodate biking and walking, and to deal with existing safety issues.*

[2] *The City adopted the STSP in November 2005. It was not appealed and is now acknowledged as part of the City's comprehensive plan. As such, it complies with the RTP and Oregon Highway Plan.*

3. *To connect the site to the planned regional and community transit service to Springwater. Hogan Road is planned as a primary transit route, which provides 10 to 15 minute service at peak hours, and at least 30-minute service during off peak hours.*

4. *Hogan Road is planned as an arterial road that will connect to a new Rugg Road arterial system that connects to the planned U.S. 26 interchange. The 252nd/Palmblad/Telford collector system also connects to the Rugg Road arterial near the interchange. These connect the Brickworks/HI site to the Village Center and to the Springwater industrial districts.*

5. *Green streets are required and are an integral part of the stormwater management system and provide walkable, tree-lined streets.*

The June 2, 2007, Staff Report continues (p. 22).

> *In the vicinity of the Springwater study area, 242nd Avenue, just to the south of Palmquist Road, and Orient Drive are classified as road connectors, and Highway 26 is classified as a main roadway route. There is also a proposed roadway connector linking 242nd Avenue to Highway 26, just north of the existing Gresham city limits. However, the plan which addresses the issue of freight, recommends that the proposed roadway connector be deleted. (Springwater Transportation System Plan, November 1, 2005, p. 9).*

The freight master plan component of the transportation system plan recommends as follows:

> *"To accommodate planned vehicle movement through Springwater, the Gresham's TSP and the Regional Transportation Plan should be amended to delete the planned connection between Hogan Drive and U.S. 26 that was originally envisioned as part of the Mt. Hood Parkway Project. In addition, the plan designation of this route as a freight route should be amended to terminate at Powell Blvd. This segment represented the most southern portion of the planned 242nd Avenue freight route from U.S. 26 and I-84 in conjunction with the County's 242nd Avenue extension project to I-84 to provide an alternative freight route between U.S. 26 and I-84. That project has been suspended, and the roadway connection within this study area is not included in the Springwater Concept Plan. The remaining segments of the 242nd freight route, from Burnside Road to Glisan Street, will continue to provide service to the I-84 interchange at 207th Avenue. On-going studies in Clackamas County may recommend amending the freight route designation for 242nd Avenue south of the City limits to Highway 212."*

The Brickworks amendment is a small portion of the Springwater Community Plan. In response to specific questions about Brickworks and the adequacy of traffic capacity, the October 13, 2006 Supplemental Staff Report, pp. 21-24, (Attachment 4), addressed traffic impacts anticipated from Brickworks Phase I. The following represents City staff's first calculation of the number of trips expected from development of the Phase I area.

> *Using yield estimates from the Staff Report and Institute of Transportation Engineers (ITE) Trip General Manual, 7th Edition, 2003:*

- *NC-SW (ITE Code 814-Specialty Retail Center 44.32 trips/1,000 sf/day) = 1,352*
- *RTI-SW (ITE Code 760-Research & Dev. Center 2.77 trips/emp/day) = 3,565*
- *(ITE Code 770-Business Park 4.04 trips/emp/day) = 5,199*

- *IND-SW (ITE Code 110-General Light Industrial 3.02 trips/emp/day) = 737*
- *LDR-SW (ITE Code 210-Single Family Detached 9.57 trips/DU/day) = 488*
- *THR-SW (ITE Code 230-Res. Condo/Townhome 5.86 trips/DU/day) = 1,518*

Total Estimated Weekday Trips = 7,660 to 9,294

The report then noted that "[t]he transportation impacts of the Springwater Plan District were evaluated in the Springwater Transportation System Plan and reflect this proposal." (October 13, 2006 Staff Report, p.22).

Even if Hogan Road continues to be a roadway connector, the rezone of the 19 acres from Industrial to Townhome Residential will not reduce off peak performance of Hogan Road. As part of its land use application, Willamette Builders Group (the townhome developer) retained Kittelson & Associates to prepare a transportation impact analysis. That analysis, prepared in March 2007, is attached as Attachment 7. Also attached is a memorandum dated May 17, 2007, from Chris Brehmer of Kittelson & Associates (Attachment 8). In that memorandum, he states that the intersections, including the intersections along S.E. Hogan Avenue, operate at an acceptable level and meet the 1999 Oregon Highway Plan Operating Standards. Brehmer states in his memorandum:

"Given that weekday a.m. and p.m. operating standards were met at the study intersections, we believe it can be reasonably concluded that the study intersections will operate acceptably during off peak periods."

Metro Staff Analysis
The petitioner makes reference to the trips generated by the NC-SW portion of the Brickworks site. As previously noted, no portion of the site will be designated NC-SW. Those 2.5 acres will be included in the 27.2 acres of RTI-SW. Petitioner has provided additional traffic analysis, which is attached hereto as Attachment 11. Metro's transportation division analyzed the petitioner's response to criterion B. That analysis is attached hereto as Attachment 9.

Conclusion: Based on the above information, staff concludes that approval of this proposal will not reduce the off-peak performance on Major Roadway Routes and Roadway Connectors shown on Metro's 2004 Regional Freight System.

C. Would not diminish the intended function of the Central City or Regional or Town Centers as the principal locations of retail, cultural and civic services in their market areas;

Petitioner Response
The requested Brickworks zone change from Heavy Industrial to Research Technology Industrial, Townhouse Residential and Low Density Residential, will not diminish the intended function of downtown Gresham as the principal location of retail, cultural and civic services. This 77-acre site will not have any retail, cultural or civic uses, and only limited retail uses. The 77-acre site has essentially two components; High Tech Industrial, and Residential. The RTI-SW component is intended for uses such as a business park, office buildings and light manufacturing. The Research and Technology Industrial – SW (RTI-SW) zoning will apply Title 4 for industrial lands. The RTI-SW will limit square footage of single retail and professional service uses to 5,000 sq. ft., and to multiple outlets to 20,000 sq. ft. (as provided for in Title 4 for industrial). (See September 20, 2005 Springwater Community Plan, Title 11 Compliance Report, p. 23).

The housing element of the proposal will provide a variety of housing types consisting of both attached and detached single-family dwellings within a wide density range. The proposal will change 28.2 acres of HI designated land to 9.1 acres of LDR-SW, and 19.1 acres of THR-SW. This housing element will be only one-half mile from downtown Gresham, which is part of the City's regional center. With its adoption of the 2040 Growth Concept in 1996, Metro designated the Gresham Regional Center. There is an existing neighborhood shopping center located directly west at the southwest corner of Palmquist/Roberts and Hogan Road. This will serve the new housing units. A major recreational facility, a City sports park, which is on the north side of Palmquist, will serve the residents. Also, an elementary school and high school (Gresham/Barlow School District), are located directly to the east, well within walking distance of the site. (October 13, 2006 Staff Report, p. 6). (Attachment 3).

None of the above uses will diminish the intended functions of downtown Gresham.

The City's significant investment in the Civic Neighborhood is well known. Building on the existing significant infrastructure that is Eastside LRT, the City built its city hall, including main police station, at the Civic Center MAX station. It then assisted key developers to install the local infrastructure necessary to support the dense mix of retail, residential and offices that is now Gresham Station. Gresham Station is a well-known regional success story of "centers" development.

Brickworks is part of the Springwater Community Plan. This plan proposes a Village Center south of the Brickworks site. The Village Center serves the Springwater neighborhood and is intended to complement Gresham's downtown, not diminish it. The Village Center is intended to be gathering place for employees and residents of Springwater. It will contain a mix of retail, office, civic uses, and housing opportunities in a pedestrian oriented area. It will serve the daily needs of the local neighborhood and the adjacent employment areas. It shall be served by a multi-modal transportation system with good access by vehicular, pedestrian, bicycle, and when appropriate, transit traffic. (Springwater Community Plan, September 2005, p. 10).

The City Council has demonstrated its sensitivity to this issue. The City staff proposal included designation of 2.5 acres at the Hogan/Palmquist intersection for "neighborhood commercial" use. Finding that "there are adequate commercial opportunities in the vicinity; that additional commercial lands would not support the Gresham Regional Center or the future Springwater Village Center; and that RTI-SW designation provides additional and needed industrial opportunities," the Council converted this area to RTI-SW. This finding by the City Council supports a conclusion that the proposal meets that this criterion.

Metro Staff Analysis

As stated in the criterion, the purpose is to avoid diminishing the intended function of the Central City or Regional or Town Centers as the principal locations of retail, cultural and civic services. The proposal is to create new residential areas adjacent to the existing school sites. Retail uses are not permitted in the LDR-SW and THR-SW zones. While the RTI-SW area may indeed have some retail, cultural or civic services, they are limited in square footage by the RTI code, which has already been determined by the Metro Council as consistent with the Title 4 limitations.

Conclusion: Based upon the limited amount of residential uses (27.86 net acres without the school sites) combined with the remainder of the Brickworks site (phase 1 and phase 2) remaining compliant with Title 4 Industrial Areas, staff concludes that the proposed change to the Title 4 map would not have the effect of diminishing the intended function of the Gresham Regional Center as the principal location of retail, cultural and civic services in this market area.

D. Would not reduce the integrity or viability of a traded sector cluster of industries;

Petitioner Response
The 2006 Regional Business Plan (Attachment 10) identified seven traded sector clusters: (1) high-tech, (2) metals, machinery, and transportation equipment, (3) forest products, (4) food processing, (5) creative services, (6) nursery products, and (7) sporting goods and apparel.

As noted above, the Phase I area is vacant except for an elementary school and alternative high school. The Brickworks/HI site has been zoned as heavy industrial (HI) since at least 1980. During the past 35 years, the HI designation has not resulted in any consequential industrial development. (Mini storage and a school bus storage site). In August 2001, a report (Gresham Industrial Employment and Economic Study, August 2001, E.D. Hovee) was completed for the City that was intended to update its industrial lands inventory and its economic goals, policies and strategies. A key recommendation of the study was to consider rezoning portions of or all of the Brickworks industrial areas from HI to BP (Business Park). The report noted:

> *"The brick yard area on the southeast side of Gresham does not appear suitable for heavy industrial reuse, but could eventually become a high amenity corporate/business park location – offering rolling topography in direct proximity to new upscale neighborhoods . . . sub-area – master planning is recommended to establish framework for this long term transition." (June 2, 2006 Staff Report, pp. 14-15). (Attachment 6).*

The requested zone change from HI (heavy industrial) to RTI-SW (Research Technology Industrial-SW) is intended to provide industrial and related employment opportunities and office buildings. Primary uses include knowledge based industries (graphic communications, creative services), research and development facilities, professional services primarily serving industrial businesses and workers, and medical facilities. RTI-SW design is intended to create pedestrian-friendly areas, and utilize green development practices. (June 2, 2006 Staff Report, p. 13). (Attachment 6).

The Brickworks site is not surrounded by any traded sector cluster of industries. The Brickworks site is bounded to the east by existing low density residential development. A community sports complex is planned to the north of the site, directly across S.E. Palmquist Road. A mobile home park is located at the northeast corner of S.E. Palmquist Road and S.E. Hogan Road, directly north. An existing apartment complex is located at the northwest corner of S.E. Palmquist Road and S.E. Hogan Road. There is a high school and an elementary school located on the site. (October 13, 2006 Staff Report, pp. 10-11). (Attachment 4).

The only operating business within the Brickworks area (Phases I and II combined) is Mutual Materials, which manufactures bricks. It neither manufactures nor sells a listed traded sector good, nor does it support any of these sectors.

As noted above, Metro has designated Hogan Road as a freight route (which presumably carries some forest and nursery products). Also, City and Metro plans call for location of substantial industrial development in the Springwater area. It seems reasonable to assume that some of this development will house traded sector industry.

Nonetheless, as described elsewhere, the proposal will not substantially affect operation of that arterial for that purpose. In responding to criteria No. 2, the proposed zone change will not substantially affect the operation of N.E. Hogan to the extent it is used as a freight route for some traded sector cluster of industries.

The Brickworks site is, of course, part of the Springwater plan. The Springwater plan identified short term target industries that included such industries as specialized software applications, corporate headquarters, and professional services. The RTI-SW subdistrict focuses on providing space for industrial users and related enterprises serving industrial clients, and on research and technology employment in office type buildings. The RTI-SW zone was developed to provide for the needs of the targeted industries. (June 2, 2006 Staff Report, p. 15). (Attachment 6).

Metro Staff Analysis
There are currently no traded sector industries located in the subject area. Therefore, the residential use of portions of the Brickworks site will not displace a traded sector industry. The Springwater Community Plan designates 106.8 acres (not adjacent to the Brickworks site) as RTI-SW. The proposed designation of 27.2 acres of the Brickworks site as RTI-SW would help to create a viable high-tech traded sector in the Springwater plan area. This addition of 27.2 acres of RTI-SW provides more land for the creation of a high-tech agglomeration economy, wherein firms may achieve external economies of scale (through the creation of external firms that provide specialized supplies and services to the technology industry). The designation of this area as RTI-SW would likely support the goal of the Springwater Community Plan to encourage the development of the high-tech sector in the Springwater area.

Conclusion: Metro staff concludes that the proposal does not reduce the integrity or viability of a traded sector cluster of industries.

E. Would not create or worsen a significant imbalance between jobs and housing in a regional market area; and

Petitioner Response
Correction of a long-term imbalance in Gresham (too few jobs; too many dwellings) is the primary driver for this plan amendment. The City addressed this in terms of its own plan policies. The City has a demonstrated sensitivity to its jobs/housing balance. E.g. Economic Development Policy 12 of its Comp Plan is to "work to correct the imbalance of jobs to housing within Gresham and the East Metro region." The City determined conformance with this policy. (June 2, 2006 Staff Report, pp. 16-18). (Attachment 6).

The requested Title 4 map change involves 77 acres. Compared to the regional market area of which Gresham is a part, the Brickworks area is insignificant. The proposed zone change would add approximately 800 more jobs and 300 more households. Neither number will create a significant imbalance between jobs and housing in Gresham's regional area. For example, within the three mile radius from this site, there are almost 27,000 households. (New Home Trends Report dated June 28, 2006, p. 4 of 6, Tapestry Segmentation Area Profile Radius 3 Miles).

Having just adopted the Springwater Plan, the City also addressed the subregional jobs/housing imbalance.

> *The Economic Development goals and policies establish the City's intent that the primary reason for bringing the Springwater area into the UGB and its subsequent planning was bringing industrial development and family-wage jobs to east Multnomah County. The Brickworks/HI site was part of the subsequent planning and created Concept Plan establishing it as a component in meeting economic development goals and policies of the Springwater Plan.*
>
> * * *

Average job capacity in the current Springwater Plan District area is an estimated 15,330 (NC-SW 151; VC-SW 339; RTI-SW 5,702; and IND-SW 9,138). The housing average capacity is an estimated 1,609 units (VLDR-SW 175; LDR-SW 563; THR-SW 591; and VC-SW 180 [mixed-use only]). This is a job-to-housing ratio of 9.5:1. As development occurs over time this will greatly reduce the current Gresham jobs-to-housing ratio and resulting in ratios consistent with regional ratios.

The Brickworks/HI site was not included in these numbers as it was not included in the Springwater Plan District adoption. In 2000, the City completed a report that demonstrated that the City met the Metro Title 1 job and housing target capacity. Based on the methodology of that report and on current vacant land, the job capacity for the vacant current HI designation is 780 jobs. The tables below use the same methodology that was used in the Springwater Community Plan and show job and housing average capacity if the proposed Springwater Plan District designations are applied. Using this methodology the average capacity in the Brickworks/HI site is 1,610 jobs and 310 households. These numbers include only developable land and exclude, for example, the existing brick manufacturing and clay resource area.

When these numbers are added to the average capacity for the current Springwater Plan District area the jobs-to-housing ratio is 8.8:1. Thus, this proposed amendment does not create any imbalance, significant or otherwise. The proposed housing will provide housing for potential Springwater employees. (June 2, 2006 Staff Report, p. 20). (Attachment 6).

The Springwater Community Plan industrial recruitment and marketing plan noted that a modest amount of housing in the Plan area was needed both meet Springwater vision as a community in which people could "live, work, and play" and to accommodate Springwater's employment goals. The townhouse sub-district along with the LDR-SW sub-district housing should attract single, couple and young family buyers that will likely make up much of the white and blue collar Springwater workers. Opportunities for large lot estate housing and other housing were planned in the current Springwater Plan District area.

District	*Gross Acres*	*Net Acres*	*Average FAR*	*Sq Footage*	*Sq Ft per job*	*Jobs*
NC-SW	*2.5*	*2.0*	*.35:*	*30,492*	*550*	*55*
RTI-SW	*24.1*	*18.8*	*.55:*	*450,410*	*350*	*1,287*
IND-SW	*10.3*	*8.0*	*.35:*	*121,988*	*500*	*244*
					Total	***1,586***

As described above, the City Council converted the proposed NC-SW area to RTI-SW. In so doing, it effectively revised the staff report figures:

District	*Gross Acres*	*Net Acres*	*Average FAR*	*Sq Footage*	*Sq Feet per job*	*Jobs*
RTI-SW	*26.6*	*23.0*	*.55:1*	*551,034*	*350*	*1,574*
IND-SW	*10.3*	*8.0*	*.35:1*	*121,988*	*500*	*244*
					Total	***1,663***

Metro Staff Analysis

Metro's Regional Framework Plan makes reference to four subregional market areas that are served by seven regional centers. For the purposes of the proposal considered herein, Gresham and surrounding areas constitute the regional market area of concern. This regional market area currently has an imbalance between jobs and housing with too few jobs relative to the amount of housing. In order to

address the regional jobs and housing imbalance, the Metro Council added approximately 4,700 acres of employment lands to the urban growth boundary in 2002, 2004, and 2005. Though the proposal contemplated herein is to change the Metro designation of approximately 26 net acres of Industrial areas to Inner Neighborhood (residential), there would be a concurrent re-zoning of other portions of the Brickworks site from Heavy Industry to Research Technology Industry. It is anticipated that this rezoning will result in a net gain in jobs on the Brickworks site and, to a small degree, an improvement in the jobs/housing ratio in the subregional market area.

Conclusion: The proposed change to the Title 4 map would not create or worsen a significant imbalance between jobs and housing in the Gresham area sub-regional market.

F. If the subject property is designated Regionally Significant Industrial Area, would not remove from that designation land that is especially suitable for industrial use due to the availability of specialized services, such as redundant electrical power or industrial gases, or due to proximity to freight transport facilities, such as trans-shipment facilities.

Petitioner Response
Because the Site is not designated RSIA, this criterion does not apply.

Metro Staff Analysis
Metro staff concurs with the petitioner. The Brickworks site is not designated as a Regionally Significant Industrial Area (RSIA).

Conclusion: No portion of the Brickworks site is designated as RSIA. This criterion does not apply to the proposed Title 4 Map amendment.

SECTION V: SUMMARY AND RECOMMENDATION

This petitioner seeks to amend the Title 4 Employment and Industrial Areas Map. The petitioner has provided sufficient evidence to demonstrate that the criteria will be satisfied.

Staff recommends, therefore, that the Metro Council approve this petition.

ATTACHMENTS

1. Map of City of Gresham Title 4 Change
2. Location Map for Brickworks site
3. November 17, 2006 City of Gresham Staff Report Addendum
4. October 13, 2006 City of Gresham Staff Report Addendum
5. Springwater Transportation System Plan
6. June 2, 2006 City of Gresham Staff Report
7. March 2007 Brickworks Village Transportation Impact Analysis
8. May 17, 2007 Memo from Kittelson & Associates, Inc. to Ty Wyman
9. June 14, 2007 memo from Josh Naramore (Metro) to Ray Valone (Metro) and Ted Reid (Metro)
10. 2006 Regional Business Plan
11. June 12, 2007 Memo from Kittelson & Associates to Anthony Butzek

Exhibit C to Ordinance No. 07-1148
Findings of Fact and Conclusions of Law

I. Statewide Planning Goals

The Land Conservation and Development Commission (LCDC) has determined that Metro's Regional Framework Plan (RFP) and its component Urban Growth Management Functional Plan (UGMFP), including Title 4 (Industrial and Other Employment Areas), are consistent with the statewide planning goals. If Ordinance No. 07-1148 is consistent with Title 4, therefore, it is consistent with the statewide planning goals.

II. Regional Framework Plan

Fundamental 1 in Chapter 1 (Land Use) of the RFP calls upon Metro to:

> "Encourage a strong local economy by providing an orderly and efficient use of land, balancing economic growth around the region and supporting high quality education."

RFP Policies 1.2.1c (Built Environment), 1.4.2 and 1.4.3 (Economic Opportunity) and 1.5 (Economic Vitality) speak more specifically about equitable distribution of job opportunities throughout the region and location of jobs near housing and housing near jobs. The purpose of Title 4 (Industrial and Other Employment Areas) is to help accomplish these policies. The Metro Council and LCDC have previously concluded that Title 4 is consistent with the RFP and does help accomplish the policies of the RFP. If Ordinance No. 07-1148 is consistent with Title 4, therefore, it is consistent with the RFP.

III. Title 4 (Industrial and Other Employment Areas) of the Urban Growth Management Functional Plan

Title 4 seeks to accomplish the policies of the RFP by protecting a land base for industrial and other employment uses. It seeks to limit non-industrial uses in areas designated for industrial uses. It seeks to provide the benefits of clustering for traded-sector businesses. And it seeks to protect the capacity and function of the region's transportation system for the movement of goods and services. The Metro Council designates employment lands as Regionally Significant Industrial Area, Industrial Area or Employment Area and displays the designations on Title 4's Employment and Industrial Areas Map.

Section 3.07.450 of Title 4 provides a process and criteria for revisions to the Employment and Industrial Areas Map. Subsection H of that section provides for application by a city or county to the Metro Council for a change to the map. The Council must find that an application satisfies each of six criteria in the subsection.

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1. **[The map revision] Would not reduce the jobs capacity of the city below the number shown on Table 3.07-1 of Title 1 of the UGMFP**

The June 14, 2007, "Staff Report to the Metro Council" compared the number of jobs likely to be generated by employment uses on the subject property both before and after the proposed re-designations. The report finds that the new designations are likely to generate 566 more jobs than the current designations. From this analysis the Council concludes that the proposed change to the map will not have the effect of reducing the jobs capacity of the city of Gresham below the number shown on Table 3.07-1 of the UGMFP.

2. **[The map revision] Would not allow uses that would reduce off-peak performance on Major Roadway Routes and Roadway Connectors shown on Metro's 2040 Regional Freight System Map below standards in the Regional Transportation Plan (RTP), or reduce volume-to-capacity ratios on Table 7 of the 1999 Oregon Highway Plan (OHP) for state highways, unless mitigating action is taken that will restore performance to RTP and OHP standards within two years after approval of uses**

The June 14, 2007, "Staff Report to the Metro Council" states that Metro's Regional Transportation Planning division reviewed the city of Gresham's initial analysis of the impact of uses that would be allowed by the proposed map amendment and the subsequent analysis by the city's consultant, following questions from Metro staff. Based upon this review by Metro's Regional Transportation Planning division, the Council concludes that the proposed amendment will not reduce off-peak performance of major roadway routes or roadway connectors shown on Metro's 2004 Regional Freight System map or volume-to-capacity ratios of the OHP.

3. **[The map revision] Would not diminish the intended function of the Central City or Regional or Town Centers as the principal locations of retail, cultural and civic services in their market areas.**

The June 14, 2007, "Staff Report to the Metro Council" notes that the proposed amendments to the city's plan and zoning ordinances allow very limited retail, cultural or civic uses on the subject properties. Retail uses are not permitted in the new residential zones. The new employment designation limits non-industrial uses (including retail and offices) to the scale permitted by Title 4 in Industrial Areas. From this analysis the Council concludes that the proposed change will not diminish the intended function of the Gresham Regional Center.

4. **[The map revision] Would not reduce the integrity or viability of a traded sector cluster of industries**

The June 14, 2007, "Staff Report to the Metro Council" reviews the city's analysis of existing and planned industrial uses within and around the subject property and within the entire Springwater Community Plan (SCP) area. There are no traded sector industries in the area today. The SCP is intended to encourage and facilitate the development of traded sector industries. The Research-Technology Industrial (RTI-SW) zone, which would be applied to 27.2 acres of the subject property, was established to implement this goal of the SCP. From this

analysis the Council concludes that the proposed change will not reduce the integrity or viability of a traded section cluster of industries.

5. **[The map revision] Would not create or worsen a significant imbalance between jobs and housing in a regional market area**

The June 14, 2007, "Staff Report to the Metro Council" reviews the city's analysis of the existing ratio between jobs and housing in the market area east of the city of Portland both before and after the proposed map amendment. The staff report also places the proposed amendment in the context of additions by the Metro Council of employment land to the UGB to the jobs side of the ratio. Although the amendment will add approximately 300 dwelling units over the current designation, the amendment will add 566 jobs over the current designation. From this analysis the Council concludes that the proposed change will not create or worsen a significant imbalance between jobs and housing in a regional market area.

6. **If the Subject property is designated Regionally Significant Industrial Area, [the map revision] would not remove from that designation land that is especially suitable for industrial use due to the availability of specialized services, such as redundant electrical power or industrial gases, or due to proximity to freight transport facilities, such as trans-shipment facilities**

Because the subject property is not currently designated Regionally Significant Industrial Area, this criterion does not apply.

Date: June 14, 2007

STAFF REPORT TO THE METRO COUNCIL

SECTION I: APPLICATION SUMMARY

FILE NAME:	Brickworks - Title 4 Map Amendment
RESOLUTION NO.	07-1148
PETITIONER:	City of Gresham
PROPOSAL:	The petitioner requests that Metro amend the Employment and Industrial Areas Map to authorize a mix of uses on the Brickworks property not allowed by Title 4 ("Industrial and Other Employment Areas") of the Urban Growth Management Functional Plan.
LOCATION:	The property is located at the intersection of SE Hogan Drive and SE Palmquist Road in Gresham.
APPLICABLE REVIEW CRITERIA:	Metro Code section 3.07.450 H

SECTION II: STAFF RECOMMENDATION

Staff recommends that the Council approve the proposed Employment and Industrial Areas Map amendment.

SECTION III: BACKGROUND INFORMATION

Site Information: The City of Gresham originally submitted a request to the Metro Council to change the Employment and Industrial Areas map in early 2002. The request was, in part, the result of an economic development report commissioned by the City in 2001 as part of its state Periodic Review process. The report concluded that the Brickworks heavy industrial site did not appear suitable for heavy industrial use, but could be a high amenity corporate/business park site. The Metro Council requested and the City agreed to include the Brickworks site in the planning effort of the Springwater area, which was included in the UGB in December 2002. The City concluded planning for the Springwater and Brickworks areas in 2005. The City Council adopted the Springwater Community Plan, including sub-districts to implement it, in December 2005. The City rezoned the Brickworks area in December 2006, and the ordinance includes a provision that approval of a portion of the site to residential is contingent upon the approval of the Metro Council.

Through its planning process, the City of Gresham divided the Brickworks area into two phases. Phase 1, considered herein, consists of 77 acres lying to the southeast of the intersection of Hogan and Palmquist ("Brickworks Site"). The Brickworks site has been zoned as Heavy Industry land since 1980. No

development has occurred under the Heavy Industry designation. There is a brick and concrete paver manufacturer with associated clay extraction to the south, on land designated for Phase 2.

The site and the proposed amendment to the Title 4 map are shown in Attachment 1, attached hereto. A map showing the general location of the site is attached hereto as Attachment 2.

Proposal Description: The petitioner requests that Metro's Employment and Industrial Areas Map be amended so that 42.8 gross acres of the total 77 gross acres would be changed from Industrial to Inner Neighborhood. The Inner Neighborhood designation would allow a variety of residential and commercial uses that are currently prohibited under Title 4 ("Industrial and Other Employment Areas") of the Urban Growth Management Functional Plan. Conditioned on Metro's amendment of the Title 4 map, the City of Gresham has approved an ordinance that re-designates lands from Heavy Industrial to Low Density Residential-Springwater (LDR-SW) and Townhouse Residential-Springwater (THR-SW). Sixteen acres of the LDR-SW area is being used as school sites. The City has also re-designated portions of the property as Research/Technology Industrial (RTI-SW), Industrial (IND-SW) and Environmentally Sensitive Resource Areas (ESRA-SW). These latter designations comply with Title 4 and do not require the amendment of the Title 4 map.

The petitioner's responses to the criteria listed herein quote City of Gresham staff reports of several dates with various acreages. These inconsistencies are, in part, due to changes in the proposed amendment. These varying acreages have implications for a variety of pertinent calculations, including job capacity. In conducting its analysis, Metro has relied on the acreages in the Geographical Information System (GIS) data provided by the petitioner.

Local Government Statement: This Title 4 map amendment is being considered at the request of the City of Gresham. On December 5, 2006, the City of Gresham's Council approved an ordinance amending the Gresham Community Development Plan as it relates to the Springwater Plan District. The ordinance re-designates the zoning of the property as described above. The City's ordinance was not appealed to the Land Use Board of Appeals and has been acknowledged as being in compliance with Statewide Planning Goals pursuant to ORS 197.625(1). However, the ordinance appropriately contains a condition making the re-designation contingent upon an amendment by the Metro Council to the Title 4 map.

SECTION IV: APPLICABLE REVIEW CRITERIA

The criteria for an amendment of the Employment and Industrial Areas Map are contained in Metro Code 3.07.450 H. The criteria (**in bold**), petitioner responses to the criteria *(in italics*), and staff analysis follow.

A. Would not reduce the jobs capacity of the city or county below the number shown on Table 3.07-1 of Title 1 of the Urban Growth Management Functional Plan;

Petitioner Response
The City specifically concluded in its November 17, 2006 Staff Report, p. 3, (Attachment.3), that the proposal "does not negatively impact the City's ability to achieve the capacity targets for jobs or dwellings specified for Gresham in Table 3.07-1 of Title 1." The basis of this finding is as follows:

The job capacity included in that table includes 780 jobs from the vacant land in the entire Brickworks site (Phase I and Phase II) if developed under the current Heavy Industrial designation. The capacity estimated for the proposed RTI-SW at the Brickworks site is 1,348 jobs. This means an increase of 568 industrial related jobs. Additionally, the capacity for the proposed NC-SW (Neighborhood Center) is 55

jobs for a total increase of 623 jobs.[1] This figure does not include the increase in job capacity that will be associated with Phase II. The dwelling unit capacity estimated for the vacant LDR-SW and THR-SW land is 310 dwelling units. This additional capacity could potentially be used to off-set capacity decrease in other parts of the City.

As described at page 9 of the October 13, 2006 Gresham Staff Report, (Attachment 4), these aggregate job projections derive from projected job densities. The Gresham staff stated:

The RTI-SW would also have greater jobs/acre density than the existing HI district and would therefore better fulfill the economic development goals of the City. According to the E.D. Hovee industrial lands report (p.12, "Gresham Industrial Employment & Economic Study"), the historical jobs/acre density within the City's HI district has been 8 jobs/acre. As shown on page 40 of the Brickworks staff report, the proposed RTI-SW designation of 24.1 acres could yield as much as 896 jobs or 37 jobs/acre. This is because the HI district has typically been dominated by low jobs intensity industrial uses such as storage yards and warehousing, whereas the RTI-SW district is intended for more intense uses, i.e., business park, office buildings and light manufacturing. Page 40 of the Brickworks staff report also shows that the proposed 2.5 acres of NC-SW would create 22 jobs/acre (55 jobs divided by 2.5 acres). In total, the 24.1 acres of RTI-SW and the 2.5 acres of NC-SW would create up to 951 jobs, compared to the 213 jobs (26.6 acres times 8 jobs per acre) that could be created if the same area remained HI, heavy industrial.

Metro Staff Analysis

The above acreages and job capacity reflect a previous proposal wherein 2.5 acres of the site would have been designated NC-SW (Neighborhood Commercial – Springwater). That proposal has been revised. The current proposal has no lands designated as NC-SW. Those 2.5 acres are now part of the 27.2 acres of RTI-SW.

Metro staff has determined that the job capacity ratios used by the Petitioner are reasonable. Though the current proposal would create a loss in jobs in those areas designated as residential, there would be a net gain in jobs with the concurrent designation of 27.2 acres as RTI-SW. The anticipated effect of the proposal on job capacity is shown below.

Current designations			
55.06 acres	Heavy Industry	8 jobs/acre	440 jobs
14.84 acres	School site	unknown	unknown
7.1 acres	Environmentally sensitive	0	0
		Subtotal:	440 jobs
Proposed Uses			
27.2 acres	RTI-SW	37 jobs/acre	1006 jobs
14.84 acres	School site	unknown	unknown
19.1 acres	THR-SW	0	0
8.76 acres	LDR-SW	0	0
7.1 acres	Environmentally sensitive	0	0
		Subtotal:	1006 jobs
		Change in jobs with proposal:	**566 more jobs**

[1] *In converting the previously-proposed NC zoning to RTI, the City Council raised the net job increase attributable to Brickworks Phase I to 1,574.*

Conclusion: The proposed change to the Title 4 map would not have the effect of reducing the jobs capacity of the City of Gresham below the number shown on Table 3.07-1 of Title 1 of the Urban Growth Management Functional Plan.

B. Would not allow uses that would reduce off-peak performance on Major Roadway Routes and Roadway Connectors shown on Metro's 2004 Regional Freight System Map below standards in the Regional Transportation Plan ("RTP"), or exceed volume-to-capacity ratios on Table 7 of the 1999 Oregon Highway Plan ("OHP") for state highways, unless mitigating action is taken that will restore performance to RTP and OHP standards within two years after approval of uses;

Petitioner Response

The nearest and most relevant major roadway route and roadway connector is S.E. Hogan Road, which is shown on the regional transportation system map as a roadway connector. The requested map amendment changing the zone from HI to RTI-SW, THR, and LDR, is not a use that will reduce the off peak performance.

The Springwater Transportation Goal and Policies (which includes the Brickworks site) established the City's intent that a well planned transportation system is critical to attracting economic development to Springwater and to achieving the area's goals for livability and sustainable development. The Springwater community planning process established that the Brickworks/HI site was part of the Springwater Transportation System Plan.

The Springwater Transportation System Plan[2] (TSP) is attached. The Brickworks/HI site is integrated into the already adopted Springwater Transportation System Plan (Attachment 5). The June 2, 2006 Staff Report, p. 3, (Attachment 6), summarized the TSP as follows:

> *This is a long-range plan for developing a Springwater transportation system. It describes how the Springwater TSP was created and how it relates to the City TSP that it will amend and with the Regional Transportation Plan that will be amended based on the Springwater TSP. It includes transportation goals, policies and action measures. It describes street functional and design classifications and plans for connectivity, transit service and bicycle and pedestrian systems. It also includes a description of significant transportation projects that are needed to support future Springwater land uses. It includes rough costs estimates of the projects and funding strategies.*

Key features of the transportation system plan, as they apply to the Brickworks/HI site, are:

1. *A new north/south community street and east/west collector street connecting the site, Hogan Road and Palmquist, to the planned Springwater Arterial and Collector System.*

2. *Upgrades to Palmquist Road, 252nd/Palmblad Avenue, and to Hogan Road to accommodate biking and walking, and to deal with existing safety issues.*

[2] *The City adopted the STSP in November 2005. It was not appealed and is now acknowledged as part of the City's comprehensive plan. As such, it complies with the RTP and Oregon Highway Plan.*

3. *To connect the site to the planned regional and community transit service to Springwater. Hogan Road is planned as a primary transit route, which provides 10 to 15 minute service at peak hours, and at least 30-minute service during off peak hours.*

4. *Hogan Road is planned as an arterial road that will connect to a new Rugg Road arterial system that connects to the planned U.S. 26 interchange. The 252nd/Palmblad/Telford collector system also connects to the Rugg Road arterial near the interchange. These connect the Brickworks/HI site to the Village Center and to the Springwater industrial districts.*

5. *Green streets are required and are an integral part of the stormwater management system and provide walkable, tree-lined streets.*

The June 2, 2007, Staff Report continues (p. 22).

> *In the vicinity of the Springwater study area, 242nd Avenue, just to the south of Palmquist Road, and Orient Drive are classified as road connectors, and Highway 26 is classified as a main roadway route. There is also a proposed roadway connector linking 242nd Avenue to Highway 26, just north of the existing Gresham city limits. However, the plan which addresses the issue of freight, recommends that the proposed roadway connector be deleted. (Springwater Transportation System Plan, November 1, 2005, p. 9).*

The freight master plan component of the transportation system plan recommends as follows:

> *"To accommodate planned vehicle movement through Springwater, the Gresham's TSP and the Regional Transportation Plan should be amended to delete the planned connection between Hogan Drive and U.S. 26 that was originally envisioned as part of the Mt. Hood Parkway Project. In addition, the plan designation of this route as a freight route should be amended to terminate at Powell Blvd. This segment represented the most southern portion of the planned 242nd Avenue freight route from U.S. 26 and I-84 in conjunction with the County's 242nd Avenue extension project to I-84 to provide an alternative freight route between U.S. 26 and I-84. That project has been suspended, and the roadway connection within this study area is not included in the Springwater Concept Plan. The remaining segments of the 242nd freight route, from Burnside Road to Glisan Street, will continue to provide service to the I-84 interchange at 207th Avenue. On-going studies in Clackamas County may recommend amending the freight route designation for 242nd Avenue south of the City limits to Highway 212."*

The Brickworks amendment is a small portion of the Springwater Community Plan. In response to specific questions about Brickworks and the adequacy of traffic capacity, the October 13, 2006 Supplemental Staff Report, pp. 21-24, (Attachment 4), addressed traffic impacts anticipated from Brickworks Phase I. The following represents City staff's first calculation of the number of trips expected from development of the Phase I area.

> *Using yield estimates from the Staff Report and Institute of Transportation Engineers (ITE) Trip General Manual, 7th Edition, 2003:*

- *NC-SW (ITE Code 814-Specialty Retail Center 44.32 trips/1,000 sf/day) = 1,352*
- *RTI-SW (ITE Code 760-Research & Dev. Center 2.77 trips/emp/day) = 3,565*
- *(ITE Code 770-Business Park 4.04 trips/emp/day) = 5,199*

- *IND-SW (ITE Code 110-General Light Industrial 3.02 trips/emp/day) = 737*
- *LDR-SW (ITE Code 210-Single Family Detached 9.57 trips/DU/day) = 488*
- *THR-SW (ITE Code 230-Res. Condo/Townhome 5.86 trips/DU/day) = 1,518*

Total Estimated Weekday Trips = 7,660 to 9,294

The report then noted that "[t]he transportation impacts of the Springwater Plan District were evaluated in the Springwater Transportation System Plan and reflect this proposal." (October 13, 2006 Staff Report, p.22).

Even if Hogan Road continues to be a roadway connector, the rezone of the 19 acres from Industrial to Townhome Residential will not reduce off peak performance of Hogan Road. As part of its land use application, Willamette Builders Group (the townhome developer) retained Kittelson & Associates to prepare a transportation impact analysis. That analysis, prepared in March 2007, is attached as Attachment 7. Also attached is a memorandum dated May 17, 2007, from Chris Brehmer of Kittelson & Associates (Attachment 8). In that memorandum, he states that the intersections, including the intersections along S.E. Hogan Avenue, operate at an acceptable level and meet the 1999 Oregon Highway Plan Operating Standards. Brehmer states in his memorandum:

"Given that weekday a.m. and p.m. operating standards were met at the study intersections, we believe it can be reasonably concluded that the study intersections will operate acceptably during off peak periods."

Metro Staff Analysis
The petitioner makes reference to the trips generated by the NC-SW portion of the Brickworks site. As previously noted, no portion of the site will be designated NC-SW. Those 2.5 acres will be included in the 27.2 acres of RTI-SW. Petitioner has provided additional traffic analysis, which is attached hereto as Attachment 11. Metro's transportation division analyzed the petitioner's response to criterion B. That analysis is attached hereto as Attachment 9.

Conclusion: Based on the above information, staff concludes that approval of this proposal will not reduce the off-peak performance on Major Roadway Routes and Roadway Connectors shown on Metro's 2004 Regional Freight System.

C. Would not diminish the intended function of the Central City or Regional or Town Centers as the principal locations of retail, cultural and civic services in their market areas;

Petitioner Response
The requested Brickworks zone change from Heavy Industrial to Research Technology Industrial, Townhouse Residential and Low Density Residential, will not diminish the intended function of downtown Gresham as the principal location of retail, cultural and civic services. This 77-acre site will not have any retail, cultural or civic uses, and only limited retail uses. The 77-acre site has essentially two components; High Tech Industrial, and Residential. The RTI-SW component is intended for uses such as a business park, office buildings and light manufacturing. The Research and Technology Industrial – SW (RTI-SW) zoning will apply Title 4 for industrial lands. The RTI-SW will limit square footage of single retail and professional service uses to 5,000 sq. ft., and to multiple outlets to 20,000 sq. ft. (as provided for in Title 4 for industrial). (See September 20, 2005 Springwater Community Plan, Title 11 Compliance Report, p. 23).

The housing element of the proposal will provide a variety of housing types consisting of both attached and detached single-family dwellings within a wide density range. The proposal will change 28.2 acres of HI designated land to 9.1 acres of LDR-SW, and 19.1 acres of THR-SW. This housing element will be only one-half mile from downtown Gresham, which is part of the City's regional center. With its adoption of the 2040 Growth Concept in 1996, Metro designated the Gresham Regional Center. There is an existing neighborhood shopping center located directly west at the southwest corner of Palmquist/Roberts and Hogan Road. This will serve the new housing units. A major recreational facility, a City sports park, which is on the north side of Palmquist, will serve the residents. Also, an elementary school and high school (Gresham/Barlow School District), are located directly to the east, well within walking distance of the site. (October 13, 2006 Staff Report, p. 6). (Attachment 3).

None of the above uses will diminish the intended functions of downtown Gresham.

The City's significant investment in the Civic Neighborhood is well known. Building on the existing significant infrastructure that is Eastside LRT, the City built its city hall, including main police station, at the Civic Center MAX station. It then assisted key developers to install the local infrastructure necessary to support the dense mix of retail, residential and offices that is now Gresham Station. Gresham Station is a well-known regional success story of "centers" development.

Brickworks is part of the Springwater Community Plan. This plan proposes a Village Center south of the Brickworks site. The Village Center serves the Springwater neighborhood and is intended to complement Gresham's downtown, not diminish it. The Village Center is intended to be gathering place for employees and residents of Springwater. It will contain a mix of retail, office, civic uses, and housing opportunities in a pedestrian oriented area. It will serve the daily needs of the local neighborhood and the adjacent employment areas. It shall be served by a multi-modal transportation system with good access by vehicular, pedestrian, bicycle, and when appropriate, transit traffic. (Springwater Community Plan, September 2005, p. 10).

The City Council has demonstrated its sensitivity to this issue. The City staff proposal included designation of 2.5 acres at the Hogan/Palmquist intersection for "neighborhood commercial" use. Finding that "there are adequate commercial opportunities in the vicinity; that additional commercial lands would not support the Gresham Regional Center or the future Springwater Village Center; and that RTI-SW designation provides additional and needed industrial opportunities," the Council converted this area to RTI-SW. This finding by the City Council supports a conclusion that the proposal meets that this criterion.

Metro Staff Analysis

As stated in the criterion, the purpose is to avoid diminishing the intended function of the Central City or Regional or Town Centers as the principal locations of retail, cultural and civic services. The proposal is to create new residential areas adjacent to the existing school sites. Retail uses are not permitted in the LDR-SW and THR-SW zones. While the RTI-SW area may indeed have some retail, cultural or civic services, they are limited in square footage by the RTI code, which has already been determined by the Metro Council as consistent with the Title 4 limitations.

Conclusion: Based upon the limited amount of residential uses (27.86 net acres without the school sites) combined with the remainder of the Brickworks site (phase 1 and phase 2) remaining compliant with Title 4 Industrial Areas, staff concludes that the proposed change to the Title 4 map would not have the effect of diminishing the intended function of the Gresham Regional Center as the principal location of retail, cultural and civic services in this market area.

D. Would not reduce the integrity or viability of a traded sector cluster of industries;

Petitioner Response
The 2006 Regional Business Plan (Attachment 10) identified seven traded sector clusters: (1) high-tech, (2) metals, machinery, and transportation equipment, (3) forest products, (4) food processing, (5) creative services, (6) nursery products, and (7) sporting goods and apparel.

As noted above, the Phase I area is vacant except for an elementary school and alternative high school. The Brickworks/HI site has been zoned as heavy industrial (HI) since at least 1980. During the past 35 years, the HI designation has not resulted in any consequential industrial development. (Mini storage and a school bus storage site). In August 2001, a report (Gresham Industrial Employment and Economic Study, August 2001, E.D. Hovee) was completed for the City that was intended to update its industrial lands inventory and its economic goals, policies and strategies. A key recommendation of the study was to consider rezoning portions of or all of the Brickworks industrial areas from HI to BP (Business Park). The report noted:

> *"The brick yard area on the southeast side of Gresham does not appear suitable for heavy industrial reuse, but could eventually become a high amenity corporate/business park location – offering rolling topography in direct proximity to new upscale neighborhoods . . . sub-area – master planning is recommended to establish framework for this long term transition." (June 2, 2006 Staff Report, pp. 14-15). (Attachment 6).*

The requested zone change from HI (heavy industrial) to RTI-SW (Research Technology Industrial-SW) is intended to provide industrial and related employment opportunities and office buildings. Primary uses include knowledge based industries (graphic communications, creative services), research and development facilities, professional services primarily serving industrial businesses and workers, and medical facilities. RTI-SW design is intended to create pedestrian-friendly areas, and utilize green development practices. (June 2, 2006 Staff Report, p. 13). (Attachment 6).

The Brickworks site is not surrounded by any traded sector cluster of industries. The Brickworks site is bounded to the east by existing low density residential development. A community sports complex is planned to the north of the site, directly across S.E. Palmquist Road. A mobile home park is located at the northeast corner of S.E. Palmquist Road and S.E. Hogan Road, directly north. An existing apartment complex is located at the northwest corner of S.E. Palmquist Road and S.E. Hogan Road. There is a high school and an elementary school located on the site. (October 13, 2006 Staff Report, pp. 10-11). (Attachment 4).

The only operating business within the Brickworks area (Phases I and II combined) is Mutual Materials, which manufactures bricks. It neither manufactures nor sells a listed traded sector good, nor does it support any of these sectors.

As noted above, Metro has designated Hogan Road as a freight route (which presumably carries some forest and nursery products). Also, City and Metro plans call for location of substantial industrial development in the Springwater area. It seems reasonable to assume that some of this development will house traded sector industry.

Nonetheless, as described elsewhere, the proposal will not substantially affect operation of that arterial for that purpose. In responding to criteria No. 2, the proposed zone change will not substantially affect the operation of N.E. Hogan to the extent it is used as a freight route for some traded sector cluster of industries.

The Brickworks site is, of course, part of the Springwater plan. The Springwater plan identified short term target industries that included such industries as specialized software applications, corporate headquarters, and professional services. The RTI-SW subdistrict focuses on providing space for industrial users and related enterprises serving industrial clients, and on research and technology employment in office type buildings. The RTI-SW zone was developed to provide for the needs of the targeted industries. (June 2, 2006 Staff Report, p. 15). (Attachment 6).

Metro Staff Analysis

There are currently no traded sector industries located in the subject area. Therefore, the residential use of portions of the Brickworks site will not displace a traded sector industry. The Springwater Community Plan designates 106.8 acres (not adjacent to the Brickworks site) as RTI-SW. The proposed designation of 27.2 acres of the Brickworks site as RTI-SW would help to create a viable high-tech traded sector in the Springwater plan area. This addition of 27.2 acres of RTI-SW provides more land for the creation of a high-tech agglomeration economy, wherein firms may achieve external economies of scale (through the creation of external firms that provide specialized supplies and services to the technology industry). The designation of this area as RTI-SW would likely support the goal of the Springwater Community Plan to encourage the development of the high-tech sector in the Springwater area.

Conclusion: Metro staff concludes that the proposal does not reduce the integrity or viability of a traded sector cluster of industries.

E. Would not create or worsen a significant imbalance between jobs and housing in a regional market area; and

Petitioner Response

Correction of a long-term imbalance in Gresham (too few jobs; too many dwellings) is the primary driver for this plan amendment. The City addressed this in terms of its own plan policies. The City has a demonstrated sensitivity to its jobs/housing balance. E.g. Economic Development Policy 12 of its Comp Plan is to "work to correct the imbalance of jobs to housing within Gresham and the East Metro region." The City determined conformance with this policy. (June 2, 2006 Staff Report, pp. 16-18). (Attachment 6).

The requested Title 4 map change involves 77 acres. Compared to the regional market area of which Gresham is a part, the Brickworks area is insignificant. The proposed zone change would add approximately 800 more jobs and 300 more households. Neither number will create a significant imbalance between jobs and housing in Gresham's regional area. For example, within the three mile radius from this site, there are almost 27,000 households. (New Home Trends Report dated June 28, 2006, p. 4 of 6, Tapestry Segmentation Area Profile Radius 3 Miles).

Having just adopted the Springwater Plan, the City also addressed the subregional jobs/housing imbalance.

> *The Economic Development goals and policies establish the City's intent that the primary reason for bringing the Springwater area into the UGB and its subsequent planning was bringing industrial development and family-wage jobs to east Multnomah County. The Brickworks/HI site was part of the subsequent planning and created Concept Plan establishing it as a component in meeting economic development goals and policies of the Springwater Plan.*
>
> * * *

Average job capacity in the current Springwater Plan District area is an estimated 15,330 (NC-SW 151; VC-SW 339; RTI-SW 5,702; and IND-SW 9,138). The housing average capacity is an estimated 1,609 units (VLDR-SW 175; LDR-SW 563; THR-SW 591; and VC-SW 180 [mixed-use only]). This is a job-to-housing ratio of 9.5:1. As development occurs over time this will greatly reduce the current Gresham jobs-to-housing ratio and resulting in ratios consistent with regional ratios.

The Brickworks/HI site was not included in these numbers as it was not included in the Springwater Plan District adoption. In 2000, the City completed a report that demonstrated that the City met the Metro Title 1 job and housing target capacity. Based on the methodology of that report and on current vacant land, the job capacity for the vacant current HI designation is 780 jobs. The tables below use the same methodology that was used in the Springwater Community Plan and show job and housing average capacity if the proposed Springwater Plan District designations are applied. Using this methodology the average capacity in the Brickworks/HI site is 1,610 jobs and 310 households. These numbers include only developable land and exclude, for example, the existing brick manufacturing and clay resource area.

When these numbers are added to the average capacity for the current Springwater Plan District area the jobs-to-housing ratio is 8.8:1. Thus, this proposed amendment does not create any imbalance, significant or otherwise. The proposed housing will provide housing for potential Springwater employees. (June 2, 2006 Staff Report, p. 20). (Attachment 6).

The Springwater Community Plan industrial recruitment and marketing plan noted that a modest amount of housing in the Plan area was needed both meet Springwater vision as a community in which people could "live, work, and play" and to accommodate Springwater's employment goals. The townhouse sub-district along with the LDR-SW sub-district housing should attract single, couple and young family buyers that will likely make up much of the white and blue collar Springwater workers. Opportunities for large lot estate housing and other housing were planned in the current Springwater Plan District area.

District	*Gross Acres*	*Net Acres*	*Average FAR*	*Sq Footage*	*Sq Ft per job*	*Jobs*
NC-SW	*2.5*	*2.0*	*.35:*	*30,492*	*550*	*55*
RTI-SW	*24.1*	*18.8*	*.55:*	*450,410*	*350*	*1,287*
IND-SW	*10.3*	*8.0*	*.35:*	*121,988*	*500*	*244*
					Total	***1,586***

As described above, the City Council converted the proposed NC-SW area to RTI-SW. In so doing, it effectively revised the staff report figures:

District	*Gross Acres*	*Net Acres*	*Average FAR*	*Sq Footage*	*Sq Feet per job*	*Jobs*
RTI-SW	*26.6*	*23.0*	*.55:1*	*551,034*	*350*	*1,574*
IND-SW	*10.3*	*8.0*	*.35:1*	*121,988*	*500*	*244*
					Total	***1,663***

Metro Staff Analysis

Metro's Regional Framework Plan makes reference to four subregional market areas that are served by seven regional centers. For the purposes of the proposal considered herein, Gresham and surrounding areas constitute the regional market area of concern. This regional market area currently has an imbalance between jobs and housing with too few jobs relative to the amount of housing. In order to

address the regional jobs and housing imbalance, the Metro Council added approximately 4,700 acres of employment lands to the urban growth boundary in 2002, 2004, and 2005. Though the proposal contemplated herein is to change the Metro designation of approximately 26 net acres of Industrial areas to Inner Neighborhood (residential), there would be a concurrent re-zoning of other portions of the Brickworks site from Heavy Industry to Research Technology Industry. It is anticipated that this rezoning will result in a net gain in jobs on the Brickworks site and, to a small degree, an improvement in the jobs/housing ratio in the subregional market area.

Conclusion: The proposed change to the Title 4 map would not create or worsen a significant imbalance between jobs and housing in the Gresham area sub-regional market.

F. If the subject property is designated Regionally Significant Industrial Area, would not remove from that designation land that is especially suitable for industrial use due to the availability of specialized services, such as redundant electrical power or industrial gases, or due to proximity to freight transport facilities, such as trans-shipment facilities.

Petitioner Response
Because the Site is not designated RSIA, this criterion does not apply.

Metro Staff Analysis
Metro staff concurs with the petitioner. The Brickworks site is not designated as a Regionally Significant Industrial Area (RSIA).

Conclusion: No portion of the Brickworks site is designated as RSIA. This criterion does not apply to the proposed Title 4 Map amendment.

SECTION V: SUMMARY AND RECOMMENDATION

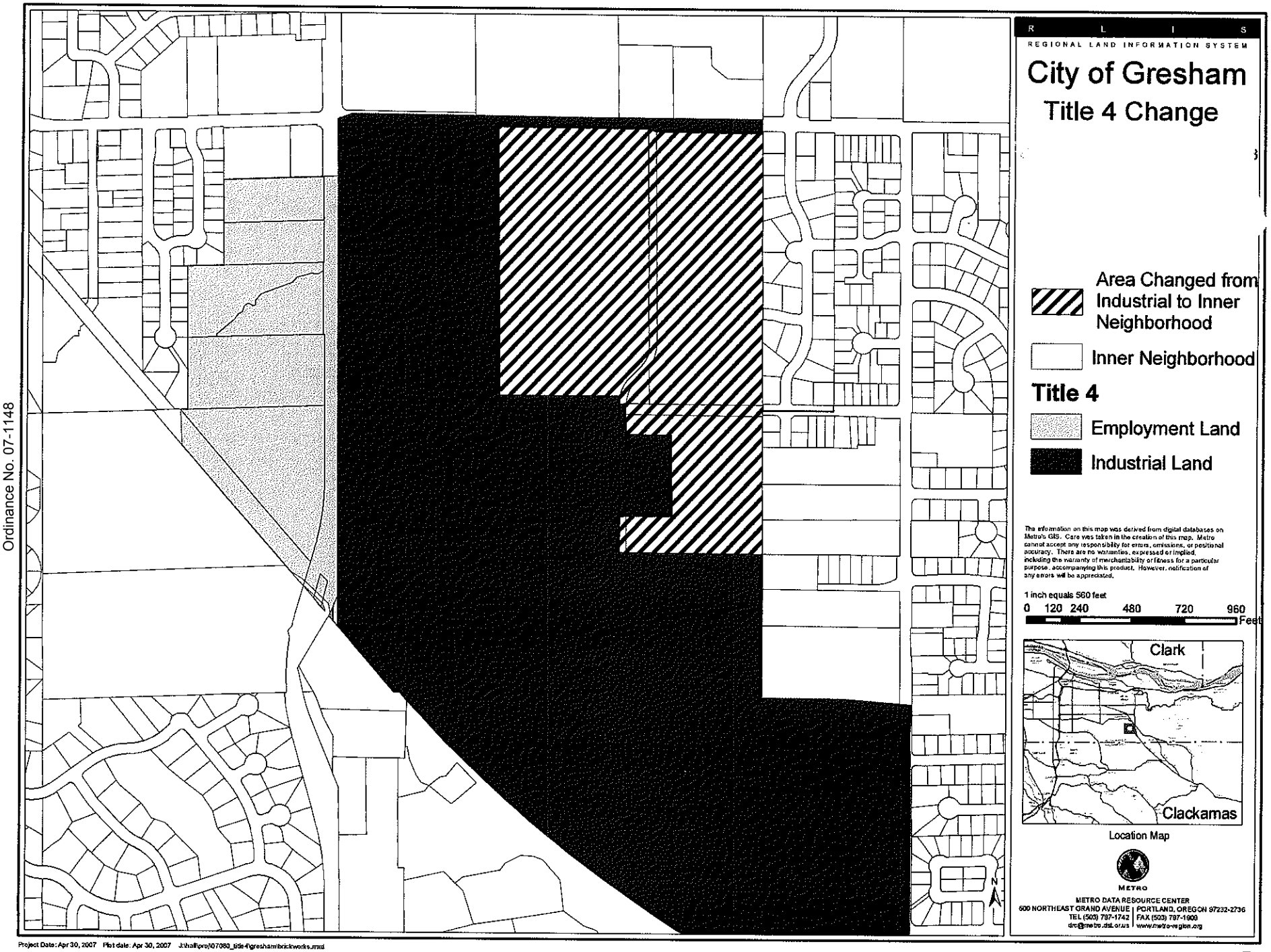
This petitioner seeks to amend the Title 4 Employment and Industrial Areas Map. The petitioner has provided sufficient evidence to demonstrate that the criteria will be satisfied.

Staff recommends, therefore, that the Metro Council approve this petition.

ATTACHMENTS

1. Map of City of Gresham Title 4 Change
2. Location Map for Brickworks site
3. November 17, 2006 City of Gresham Staff Report Addendum
4. October 13, 2006 City of Gresham Staff Report Addendum
5. Springwater Transportation System Plan
6. June 2, 2006 City of Gresham Staff Report
7. March 2007 Brickworks Village Transportation Impact Analysis
8. May 17, 2007 Memo from Kittelson & Associates, Inc. to Ty Wyman
9. June 14, 2007 memo from Josh Naramore (Metro) to Ray Valone (Metro) and Ted Reid (Metro)
10. 2006 Regional Business Plan
11. June 12, 2007 Memo from Kittelson & Associates to Anthony Butzek

ATTACHMENT 1
Ordinance No. 07-1148



R L I S
REGIONAL LAND INFORMATION SYSTEM

City of Gresham
Title 4 Change

Area Changed from Industrial to Inner Neighborhood

Inner Neighborhood

Title 4

Employment Land

Industrial Land

The information on this map was derived from digital databases on Metro's GIS. Care was taken in the creation of this map. Metro cannot accept any responsibility for errors, omissions, or positional accuracy. There are no warranties, expressed or implied, including the warranty of merchantability or fitness for a particular purpose, accompanying this product. However, notification of any errors will be appreciated.

1 inch equals 560 feet

0 120 240 480 720 960 Feet

Location Map

METRO
METRO DATA RESOURCE CENTER
600 NORTHEAST GRAND AVENUE | PORTLAND, OREGON 97232-2736
TEL (503) 797-1742 | FAX (503) 797-1909
drc@metro.dst.or.us | www.metro-region.org

Project Date: Apr 30, 2007 Plot date: Apr 30, 2007 J:\hall\proj\07080_title4\greshambrickworks.mxd

Please recycle with mixed paper

Attachment 2 - Brickworks Phase I Location Map

Ordinance No. 07-1148

MEMORANDUM
Community & Economic Development Department

ADDENDUM
STAFF REPORT
TYPE IV HEARING – COMPREHENSIVE PLAN AMENDMENT
BRICKWORKS/HEAVY INDUSTRIAL PLAN DISTRICT AMENDMENT (PHASE I)

To:	Mayor Charles J. Becker and Members of the City Council
From:	Ed Gallagher, Director
File:	Brickworks (CPA 05-6208): Comprehensive Plan Amendment
Hearing Date:	December 5, 2006
Report Date:	November 17, 2006

Introduction
The Brickworks proposal was initiated by City Council as a follow-up to the broader Springwater Plan adoption. Properties in the Brickworks proposal are in the existing city limits, and were added to the Springwater Plan deliberation to discuss and resolve land use issues in the area in conjunction with the Springwater area. The Brickworks proposed Comprehensive Plan amendments evolved from that process. The proposal to designate the current Heavy Industrial lands as various Springwater Plan District sub-districts was anticipated by the adoption of the Springwater Community Plan.

The Planning Commission held a public hearing on this proposal on June 12, 2006 and raised a number of issues and questions. The Commission continued the hearing to August 14, 2006. On August 14 the Commission reviewed a draft list of Planning Commission questions that staff had prepared from the June 12 hearing. The Commission suggested edits to the list and then continued the hearing to September 25, 2006. That hearing was re-scheduled and re-noticed for October 23, 2006.

At the October 23 hearing staff proposed to bring forward the proposal in two phases. Phase one includes the lands proposed for Springwater Plan District residential (LDR-SW and THR-SW), commercial (NC-SW) and Research/Technology Industrial (RTI-SW) Phase II of deliberations will be done at a later date and will include the Springwater Industrial designation which is the Mutual Materials property.

The addendum staff report (October 13, 2006) for the October 23, 2006 Planning Commission hearing was to make sure all policy issues are addressed and to provide information for a complete Planning Commission discussion of the issues relating to the proposal. The October 23 deliberations focused on the list of Planning Commission questions and staff response to the questions. The questions were categorized in one of five categories that included citizen involvement, housing, economic development/land use policies, transportation, and natural resources. The addendum staff report provided additional findings for City-wide goals and polices; a list of the questions and a report of the City's housing mix and capacity status in response to the housing questions. All "interested parties" were invited to provide information to supplement the analysis by city staff and where they provided information it was identified as such.

Following the Commission's deliberations the hearing was closed and a Planning Commission recommendation was made. Their recommendation to the Council was to adopt the staff recommendations except that the lands proposed for LDR-SW and THR-SW would instead be designated as RTI-SW. The October 23, 2006 draft minutes; August 14, 2006 approved minutes and June 12, 2006 draft minutes are included in the Council agenda packet.

Planning Commission Order
The Planning Commission Order was to recommend that the Council adopt the staff proposal except that the lands proposed for LDR-SW and THR-SW to be RTI-SW instead.

The motion was: **Based on the review of findings Title 1, Goal 2, Goal 12 and Land Use Policy 10.014, the Planning Commission recommends approval of City Application No. CPA 05-6208 to the City Council, except that the THR-SW (19.1 acres) and the LDR-SW (23.6 acres) be redesignated as RTI-SW.**

Title 1 refers to Title 1: Requirements for Housing and Employment Accommodation of Metro Urban Growth Management Functional Plan. Title 1 describes the land use design districts of the Metro 2040 Growth Concept Plan and set out the capacity goals for housing and employment for Metro jurisdictions including the City of Gresham.

Goal 2 refers to Statewide Planning Goal 2: Land Use Planning. Goal 2 is "To establish a land use planning process and policy framework as a basis for all decisions and actions related to the use of land and to assure an adequate factual basis for such decisions and actions".

Policy 10.014 refers City Goal Section 10.014: Land Use Policies and Regulations. Section 10.014 is "To maintain an up-to-date Comprehensive Plan and implementing regulations as the legislative foundation of Gresham's land us program. Statewide Goal 2 and City Goal 10.014 are linked.

Goal 12 refers to Statewide Planning Goal 12: Transportation. Goal 12 is "To provide and encourage a safe, convenient, and economic transportation system".

Recommended staff findings for these elements were made in the original June 2, 2006 Staff Report (for the June 12, 2006 Planning Commission hearing). Additional findings for the elements were made in the Addendum October 13, 2006 Staff Report (for the October 23, 2006 Planning Commission hearing).

The Planning Commission's deliberations suggest that their findings were made because they felt they did not have the information needed to recommend changing land that is currently zoned for industrial uses to a residential designation. They explicitly mentioned the ***Housing Capacity Analysis*** that the Long Range Planning section is currently preparing as information they needed. This is a technical document that the City will use to report to Metro in April 2007 on our Title 1 Housing Capacity and that will be the basis for discussions with the Planning Commission and Council and ultimately Metro on housing targets and housing strategies.

Discussion
Staff believes that there is adequate information to support the findings and conclusions for the LDR-SW and THR-SW proposal and regarding the Goals stated in the Planning Commission order can be summarized as follows.

Metro Title 1
The proposal does not negatively impact the City's ability to achieve the capacity targets for jobs or dwellings specified for Gresham in Table 3.07-1 of Title 1.

- The job capacity included in that table includes 780 jobs from the vacant land in the entire Brickworks site (Phase 1 and Phase 2) if developed under the current Heavy Industrial designation. The capacity estimated for the proposed RTI-SW at the Brickworks site is 1,348 jobs. This means an increase of 568 industrial related jobs. Additionally the capacity for the proposed NC-SW is 55 jobs for a total increase of 623 jobs. This figure does not include the increase in job capacity that will be associated with Phase 2.
- The dwelling unit capacity estimated for the vacant LDR-SW and THR-SW land is 310 dwelling units. This additional capacity could potentially be used to off-set capacity decrease in other parts of the City.

Statewide Goal 2 and City Goal 10.014
As was described in the original June 2, 2006 staff report the Brickwork's site was developed as part of the Springwater planning efforts which included the adopted of Springwater goals, policies and action measures. These Springwater goals provided the policy framework for the Brickworks proposal. The proposed mix of industrial, residential and commercial land uses for the Brickworks site was determined as part of and complementary to the large Springwater UGB expansion area. The Springwater Plan along with additional materials provided for the Planning Commission hearings establish that this proposal is consistent with the State and City land use goal.

- During the June 12, 2006 hearing the Planning Commission asked a number of questions requesting additional information and policy findings. The October 12, 2006 staff report addendum listed (included as Exhibit A to the addendum) and responded to the questions.
- The addendum identified and made findings and conclusion of consistency with a number of additional City-wide goals and policies.

- It addressed goals and policies related to Plan Map amendments and provided findings and conclusions that the proposal for LDR-SW and THR-SW is consistent with polices regarding their compatibility, that there is an inadequate amount of developable designated land for the proposed land uses, and that the new land use designations fulfill a proven community need.
- The addendum included additional housing market information both within the addendum staff report and attached as Exhibit C.
- Staff also provided a housing report addressing (Exhibit B) that answered the housing data questions posed by the Planning Commission on Gresham housing mix and how it compares to other jurisdictions, provided an explanation on how Gresham's housing capacity is arrived at, and on future Gresham housing capacity. This report provides much of the details that will be provided in the forthcoming Gresham Housing Capacity report.

Goal 12 Transportation
As was described in the original June 2, 2006 staff report the Brickworks site was included the Springwater Transportation System Plan (TSP) that was adopted as part of the Springwater Plan adoption. The Springwater TSP was developed as chapter on the City-wide TSP. It identifies that transportation system needs for the proposed Springwater land uses including the Brickworks site. Additionally the October 13, 2006 addendum staff report included answers to the specific transportation related questions asked by the Planning Commission. The questions included how many trips are generated by the proposed use, what are the impact, transit potential, and needed CIP improvement on Powell. The questions were answered by Ron Papsdorf who is the Transportation Planning Manager in DES. The Springwater TSP adequately addresses Goal 12.

Metro Letter
Metro submitted a letter (dated June 12, 2006) in response to the receiving copy of the proposal. As is required by Metro Title 8 Compliance Procedures, a copy of the proposal was sent to Metro at least 45 days prior to the first Planning Commission hearing. The letter, June 12 hearing exhibit #3, requests "that the City place a condition on its approval of the plan amendment for the Brickworks site to make in contingent upon obtaining approval of a Title 4 map amendment by the [Metro] Council". Title 4 of the Urban Growth Management Functional Plan UGMFP) regards employment and industrial lands. The condition would affect the proposed NC-SW, LDR-SW and THR-SW amendments because they would change the 2040 Growth Concept Plan design type designation from the current industrial design type to employment design type (NC-SW) or inner neighborhood design type (LDR-SW, THR-SW).

The letter does note Metro did review the proposal for compliance with The UGMFP; that Metro and City staff have met to discuss the proposal, its history and Functional plan issues; and that City staff has made a presentation to the Metro Council regarding the proposal, its history and the rationale for the change.

The request to the Metro Council to initiate their Title 4 map change action is typically in the form of a letter from City's mayor to Metro's Council President, the Gresham District Metro Councilor and the Metro Chief Operating Officer. The letter would be accompanied by the

Council Bill and staff reports. This letter could be sent following Council approval of the first reading of the Council Bill.

Recommendation

Staff recommends **adoption** of the proposed comprehensive plan amendments as contained in Council Bill 16-06. The staff recommendation differs from the Planning Commission recommendation by recommending that the proposal include LDR-SW and THR-SW designations instead of RTI-SW on those lands as recommended by the Planning Commission. Staff also recommends a condition of approval of the NC-SW, LDR-SW and THR-SW map changes to be continent upon obtaining approval of a Metro UGMFP Title 4 map amendment by the Metro Council and that the manager is directed to seek Metro approval of the Title 4 map amendment.

End of Addendum Staff Report

MEMORANDUM
Community & Economic Development Department

ADDENDUM
STAFF REPORT
TYPE IV HEARING – COMPREHENSIVE PLAN AMENDMENT
BRICKWORKS/HEAVY INDUSTRIAL PLAN DISTRICT AMENDMENT

To: Chair Wes Bell and Members of the Planning Commission

From: Ed Gallagher, Director

File: Brickworks (CPA 05-6208): Comprehensive Plan Amendment

Hearing Date: October 23, 2006

Report Date: October 13, 2006

Addendum Exhibits:
A. Planning Commission Questions from June 12, 2006 Hearing
B. Responses to Planning Commission Housing Questions
C. WRG Design Submittal of Brickworks Site History & Associated Exhibits
D. New Home Trends Submittal of Updated Demographic & Market Trends Information

Introduction/Background

The Brickworks proposal was initiated by City Council as a follow-up to the broader Springwater Plan adoption. As you will recall, properties in the Brickworks proposal are in the existing city limits, and were added to the Springwater Plan deliberation to discuss and resolve land use issues in the area in conjunction with the Springwater area. The Brickworks proposed Comprehensive Plan amendments evolved from that process. The proposal to designate the current Heavy Industrial lands as various Springwater Plan District sub-districts was anticipated by the adoption of the Springwater Community Plan.

This proposal is somewhat unique in that a number of the property owners are involved in property sales for specific developments. Staff will refer to them as "Interested Parties"—they are not the applicants, but they have participated actively in the review process.

The Planning Commission held a public hearing on this proposal on June 12, 2006 and raised a number of issues and questions. The Commission continued the hearing. What follows is a description of the approach and continuing review of the proposal in this addendum report.

Approach to Reviewing Proposal

As you know, several city staff members have worked on the Brickworks proposal over the last year—Terry Vanderkooy, Jonathan Harker and Ron Bunch. With Terry Vanderkooy's retirement and Ron Bunch moving to work for another community, it has been difficult to maintain reasonable progress in resolving the Brickworks proposal. Staff is modifying the approach taken to date to provide the Planning Commission with information to develop findings and resolve their recommendation to Council, whether it is to support, modify or reject the proposal. Here's how the approach will work:

- The Brickworks proposal is brought forward in two phases—Phase 1 consists of the Springwater Plan District residential, commercial and RTI zoned areas (and where this area includes ESRA). Phase II of deliberations will include the Springwater Industrial designation and related ESRA issues that apply to the Mutual Materials property. Phase II of the proposal will be heard at a later time.

- The staff report addendum, per your memorandum of August 4, is organized around the appropriate five community-wide policy categories. These categories relate to the questions and issues raised by Planning Commission as organized in attached Addendum Exhibit 'A'. Within each of the five categories, there will be a discussion of how the Brickworks proposal relates to City policy. It is intended that the discussion also address the Planning Commission questions.

- All "interested parties" were invited to provide information to supplement the analysis by City staff. For ease of review, we will organize input from the interested parties within each of the five policy areas. We will identify where each submittal originated.

- This staff report addendum will reference the original June 2, 2006 staff report where applicable.

Discussion

This addendum is a redoubling of our earlier effort to make sure all policy issues are addressed and provide information for a complete Planning Commission discussion of the issues relating to the proposal. As Planning Commission will recall, the deliberation and recommendation to Council relates to amending the Springwater Plan District to include the Brickworks site (see Section 4.1000). The criteria for amending a Plan District through a Type IV procedure that must be satisfied are as follows:

1) *The area proposed for the Plan District designation is generally affected by special characteristics or problems of a land use, economic, transportation, public facilities, historic, natural, or transitional use or development nature which are not common to other areas of the City.*

2). *Existing development districts and standards applying in the area are inadequate to achieve goals and implementation strategies of the Community Development Code, or to address an identified problem in the area.*

3) *The proposed Plan District designation is the result of a study or plan which documents the special characteristics of the study area and includes measures to address relevant issues.*

4) *Any proposed policies, procedures, development standards, or other measures to be implemented are in conformance with the purposes, findings and recommendations of the study or plan which serves as the basis for the Plan District.*

5) *The Plan District designation, and related policies, procedures, standards, and other measures are consistent with the applicable policies and implementation strategies of the Community Development Code, and with any applicable locational criteria identified in the Community Development Code.*

Findings and conclusions were made on these legislative criteria for the proposal in the June 2, 2006 staff report (beginning on page 25 of 36) that was provided to the Planning Commission for the June 12th hearing. In brief the findings and conclusion of staff is that the Brickworks site was included in the all stages of the Springwater Community plan process, that the Brickworks site shared many of the unique circumstances of the expansion Springwater area, and that the Springwater Community Plan anticipated applying the Springwater Plan District replacing the current Heavy Industrial designation. For example, the adopted Springwater public facility and transportation system plans all anticipated new land uses for the Brickworks site and detailed new projects at the Brickworks site to serve the anticipated new land uses as well as urban development of the expansion Springwater area

.Adoption of the Springwater Plan involved making extensive findings on City-wide goals and policies. These included conclusions that the new Springwater goals and policies, plans and codes were consistent with current City goals and policies as well as State and Metro administrative rules and regulations. The approach of the June 2nd staff report was generally to demonstrate how adoption of the proposal is consistent with the goals and policies of the adopted Springwater Plan.

In the Planning Commission's June 12th deliberations, it was suggested that the proposal findings and conclusions could address additional City-wide goals and policies. Within the structure of the following five community-wide policy categories, information is presented to supplement findings and conclusions for the Plan District (4.1000) legislative criteria including additional City-wide goals and policies.

Category 1 – Citizen Involvement

Relevant Comprehensive Plan Policies:

Section 10.100, Citizen Involvement

Goal: *The City shall provide opportunities for citizens to participate in all phases of the planning process by coordinating citizen involvement functions, effectively communicating information; and facilitating opportunities for input.*

Policy 1: *The City shall ensure the opportunity for citizen participation and input when preparing and revising policies and implementing regulations.*

Policy 2: *The City shall consider the interests of the entire community, and the goals and policies of the Comprehensive Plan when making decisions.*

Policy 6: *The City shall ensure that technical information necessary to make policy decisions is readily available.*

Policy 7: *The City shall facilitate involvement of citizens in the planning process, including data collection, plan preparation, adoption, implementation, evaluation and revision.*

Policy 10: *The City shall ensure the opportunity for the public to be involved in all phases of planning projects and issues.*

Policy 11: *The City shall ensure that the public has complete and timely access to all public information concerning land use projects and issues. This includes private development proposals once they are in the formal application process.*

Findings:

For reference purposes it can be noted that the June 2nd staff report addresses citizen involvement under the City-wide Citizen Involvement Goal (10.100) that "The City shall provide opportunities for citizens to participate in all phases of the planning process by coordinating citizen involvement functions; effectively community information; and facilitating opportunities for input" (starting on page 9 of 36). In that same section findings and conclusions are also made for Citizen Involvement Policies addressing such issues as opportunity for citizen participation when revising policies and implementing regulations; ensuring technical information needed to make policy decision is readily available; involving citizens in all phases of the planning process; establishing advisory groups to advise staff, Planning Commission and Council.

The Springwater Plan was created and adopted through an extensive citizen involvement process. A Public Participation Plan was development at the beginning of the process and reviewed and endorsed by the Council Citizen Advisory Committee. The Brickworks site was included in the planning materials throughout the public process and citizen involvement.

One key public involvement was the Community Working Group (CWG). The CWG was a 23-member advisory committee made up of property owners, citizen representatives, service providers and other interested parties. They met monthly through-out the process and participated in the public workshops and open house. Their role was to advise staff and act as a liaison with the group they represented. The CWG endorsed and recommended a Springwater Concept Map. The Concept Map was based on an evaluation of four alternative plans developed in a scenario workshop as to how well they did against Goals that the CWG had adopted for Springwater. The final Concept Map endorsed by the CWG included the Brickworks site. The Brickworks site components included commercial (which became the NC-SW); detached residential (which became the LDR-SW); attached residential (which became the THR-SW);

office (which became the RTI-SW) and small and large lot industrial (which became the RTI-SW and IND-SW). It also included some natural resources (ESRA-SW) areas. The Concept Map was reviewed and accepted by the Council.

Minutes from the CWG meetings generally reflect discussion on the overall Springwater study area which included the Brickworks site rather than on the Brickworks specifically. Jamie Damon, the public involvement consultant for the Springwater project provided the following comments regarding the last CWG meeting which were to further address the Brickworks site. "Basically meeting #12 - the April meeting-was held but only attended by four CWG members and so the proposed agenda was not implemented but postponed to the May meeting, meeting #13. There are no minutes from meeting #12 because the entire time was used to give the Carl Street neighbors a chance to talk with the city and no CWG business was conducted. The brickworks information was shared at meeting #13 as a part of the presentation of the concept plan map. There were no issues brought up by the CWG with regard to the brickworks site as proposed. However, the presentation did not include the level of detail now being presented (19 acres of townhomes) but included discussion about the addition of some multifamily housing on the site to be more compatible with the surrounding uses and that the jobs land lost was made up in other areas. Loss of jobs land was the CWG's biggest concern."

Following adoption of the Springwater Plan additional public involvement opportunities were provided for the Brickworks proposal. These included mailings; updated website; an open house and a measure 56 mailing. The Measure 56 mailing was sent to each property owner. The mailing describes the specific proposed land use district for each site along with the legislative schedule and staff contact information.

Category 2 – Housing

For reference purposes it is noted that the June 2nd staff report address housing under the Create a Community (10.801) goal 3 that "Industrial and employment lands will be complemented with a village center and housing, and will be carefully integrated with the Johnson Creek system" (beginning on page 12 of 36) and under the Economic Development (10.802) policy 9 to "Create a high-quality village center as well as high-quality neighborhoods with a mix of housing options to help foster industrial opportunities" (beginning on page 14 of 36). Housing was also discussed under Metro Title 1 Requirements for Housing and Employment Accommodation (beginning on page 30 or 36).

Additional Applicable Housing Goal and Policies:

Section 10.600 Housing

Goal: *Ensure adequate quality housing for existing and future Gresham residents.*

Policy 1: *The City shall designate adequate lands, and make available land use processes to provide opportunities to develop a variety of housing types at locations and densities consistent with its goals.*

Findings: This housing element of this proposal would provide a variety of housing types consisting of both attached and detached single family dwellings within a wide density range. It would change 28.2 acres of HI designated land to 9.1 acres of LDR-SW and 19.1 acres of THR-SW. The LDR-SW would allow detached single family residences at a maximum net density of 7.2 units/acre for a total of 51 units, with a minimum average lot size of 6,000 sq. ft. The THR-SW would allow single family attached units (min. 1,800 sq. ft. lot size) and small lot detached units (min. 3,000 sq. ft. lot size) at a maximum net density of 17.4 units/acre for a total of 259 units. These proposed housing designations are appropriately located in terms of proximity to existing and planned services as described below. Also, they would be directly south of existing medium density (MDR-12, MDR-24) designated land that is located on the north side of S.E. Palmquist/Roberts.

Policy 5: *The City shall provide for high and medium density housing in areas such as centers and corridor's, where public and private services and economic activity necessary to support higher population densities are either present or planned for in the future. Public and private services and activities include but are not limited to transportation, employment, commercial services, and recreation.*

Findings: A full range of public and private services are existing or planned for the area. The housing element would be only a half mile from Downtown Gresham, part of the City's regional center. Other nearby major shopping and services are located east of Downtown and Hogan Rd., along Burnside Rd., etc. An existing neighborhood shopping center is located directly west, at the southwest corner of Palmquist/Roberts and Hogan Rd. In addition, the commercial element of this proposal would add 2.5 acres of neighborhood commercial services near this intersection. As discussed in the Springwater Plan and staff report, nearby Springwater will be a major employment center that will ultimately provide up to 15,000 new industrial sector jobs. A major recreation facility, a City sports park, can serve the residents of the new housing and is under construction directly to the north, on the north side of Palmquist. Also, an elementary school and high school (Gresham/Barlow School district) are located directly to the east, well within walking distance of the site. In regard to transportation services, pg. 27 of the Brickworks staff report lists the various transportation improvements that are planned as part of the Springwater TSP for Hogan and Palmquist roads. These include widening both roads and providing transit service along Hogan Rd. south to Springwater (10-15 minute peak hour service).

Policy 8: *The City shall ensure that residential densities are appropriately related to locational characteristics and site conditions, including existing land use patterns, topography, transportation and public facilities, natural hazards, and natural resources.*

Findings: The following findings are provided by WRG Design:

The proposal includes 23.6 acres of LDR-SW (Low Density Residential – Springwater), on the eastern portion of the Brickworks site. Only 7 acres of the LDR-SW subdistrict are vacant and available for development. The remainder of this district is built out with a public high-school and a public elementary school. The land adjacent to the proposed LDR-SW district to the east is entirely LDR (Low Density Residential). The western boundary of this subdistrict is formed by SE Fleming Avenue. Section 4.1505 of the Springwater Development Code states that the

LDR-SW subdistrict *"consists of detached and attached dwellings, and at an average density of 5.8 to 7.3 dwelling units per net acre. It is intended to provide for standard lot (6,000 – 7,500) housing developments."* The commentary in the Staff Report explains that this zone is very similar to the standard LDR zone. The seven developable acres would yield approximately 33 to 40 single family homes.

The proposal also includes 19.1 acres of THR-SW (Townhouse Residential – Springwater), generally located at the southwest corner of SE Palmquist Road and SE Fleming Avenue. The eastern boundary for this district is SE Fleming Street. This district is located between the proposed LDR-SW subdistrict and the proposed RTI-SW subdistrict. Section 4.1506 of the Springwater Development Code states that the THR-SW subdistrict *"consists of detached and attached dwellings at an average density of 12.0 to 15.6 dwelling units per net acre, designed for separate units on separate lots. In addition to attached single family homes, it is intended to allow for detached single family homes on small lots, also called patio, cottage or green court homes."* The commentary in the Staff Report explains: *"This is intended to encourage home ownership. It allows both traditional townhouse and small lot single family homes, similar to Peacock Lane (1920's) and Orenco Village (recent). These will have alley access to the garages, and may be situated on a common green, instead of a public street."*

Conclusions: The majority of the proposed LDR-SW district is already developed with two existing schools. This designation is not proscriptive in this area; it is only an acknowledgement of the existing development. The remaining 7 acres of proposed LDR-SW is an isolated area south of the existing schools and east of SW Fleming Avenue. It is the most compatible use for the existing LDR lands to the west of the Brickworks site. It will be compatible with the existing neighborhood and provide a seamless transition between old and new.

The proposed THR-SW district serves as a transition between the proposed Brickworks Village core of neighborhood retail and office/employment, and the single-family district to the east. This district provides critical residential density required for the success of the Brickworks village, while ensuring the opportunity for affordable, low-maintenance home-ownership. **(End of WRG Design findings)**

In addition to the above responses to the applicable housing policies, we are submitting information regarding the main housing questions that the Planning Commission asked at the previous hearing. These included questions about the current housing mix in Gresham, recent attached/detached housing trends, core assumptions about the Title 1 Housing Capacity Analysis Report, future housing capacity and current/potential housing densities. These are attached as **"Appendix B".**

Category 3 – Economic Development/Land Use Policies

For reference purposes it is noted that the June 2nd staff report addressed economic development issues under the Springwater Economic Development Goal (10.802) that "The Springwater Community will provide industrial land that will generate a variety of family-wage job opportunities" and "The Plan will actively encourage businesses with an interest in sustainability

and protecting the community's rich natural resources" (starting on page 14 of 36). In that same section findings and conclusions are made for Springwater Economic Development Policies addressing such economic development issues as land area and accessibility for industrial and industrial related industries; providing a range of job opportunities; providing for a high quality of the built environment; providing a high-quality village center and neighborhoods with mix of housing options to foster the industrial opportunities; recruiting businesses with sustainable philosophy; diverse opportunities for family-wage jobs; and working to correct the imbalance of jobs to housing.

Additional Applicable Land Use Goal and Policies:

Section 10.014 Land Use Planning

Goal: *Maintain an up-to date Comprehensive Plan and implementing regulations as the legislative foundation of Gresham's land use program.*

Policy 1: *The City's land use program will be consistent with state and regional requirements but shall also serve the best interests of Gresham.*

Policy 2: *The City's land use regulations, actions and related plans shall be consistent with and implement the Comprehensive Plan.*

Findings:

For reference purposes it is also noted that the June 2nd staff report addressed land use policy issues under the City-wide Land Use Goal (10.014) to "Maintain an up-to-date Comprehensive Plan and implementing regulations as the legislative foundation of Gresham's land use program" (starting on page 6 of 36). In that same section findings and conclusions address Land Use Policies issues such as consistency with State and regional requirements in the best interests of Gresham; promoting a development pattern of land uses to advance quality of life and social and fiscal stability; identify and protect natural resources; that the Council can initiate a legislative process to amend the Comprehensive Plan text, Map and Code; to coordinate with other jurisdiction and districts; and to develop and adopt district plans when necessary to enhance economic development and quality of life aspects in specific areas.

This proposal to make the Brickworks area subject to the Springwater Community Plan by changing its land use designation from a City-wide Heavy Industrial designation to Springwater Plan Districts designations follows the City Council's past actions of accepting the Springwater Concept Plan which included the Brickworks site; adopting the Springwater Community Plan which was developed with the Brickworks site as part of the analysis and plan; and its initiation of this legislative process.

The Brickworks proposal is, however, different than the adoption of the Springwater Plan for the UGB expansion areas as the Springwater Plan District only apply to those lands upon annexation. For that reason findings and conclusions for an additional Land Use Policy (16) are made below.

16. *In addition to applicable Comprehensive Plan goals and policies, amendments to Gresham's Comprehensive Plan Map shall be subject to the following other criteria:*

    a. *Public facilities and services shall be available and of sufficient capacity to serve land uses allowed by the proposed land use designation;*

    b. *Land uses allowed in the proposed designation, shall not negatively impact existing or planned public facilities and services;*

    c. *Land uses permitted in the proposed designation shall be compatible or capable of being compatible with environmental conditions and surrounding existing land uses;*

    d. *Land uses allowed in the proposed designation shall be developed in compliance with all applicable regulations and standards and the purposes of any applicable overlay district shall be fulfilled;* (This policy is not applicable at this time since site development is not being proposed. When site development plan review does occur, development will be required to meet all applicable standards including those for site design review, land division and public facilities.)

    e. *Demonstration that there is an inadequate amount of developable designated land for land uses that would be allowed by the new designation;*

    f. *The new land use designation shall fulfill a proven community need such as goods and services, employment, housing, public and community services, etc., at the particular location, versus other appropriately designated and developable properties.*

Findings:

In regard to policies 16a and 16b, the public facilities related issues raised by these policies have already been addressed by the original Brickworks staff report. In respect to the proposed RTI-SW and policies 16c, 16e, and 16f, demonstration of need, land use compatibility and other factors covered by these policies was also discussed in the original Brickworks and Springwater staff reports.

The RTI-SW is an industrial land use district as is the HI, Heavy Industrial district that it would be replacing. However, since the RTI-SW is primarily a business park office district, it would be more compatible with the surrounding residential neighborhood than the HI district. The HI district allows "heavy industrial" uses which can have negative environmental impacts such as dust, noise, air pollution and visual impacts. For example, the list of allowed HI uses (pgs. 4.03-2, 4.03-3 of development code) include rock crushing and the manufacture of concrete, bricks, paper products, acids, fertilizers and other chemicals. These kinds of uses would not be allowed in the RTI-SW.

The RTI-SW would also have greater jobs per acre density than the existing HI district and would therefore better fulfill the economic development goals of the City. According to the E.D. Hovee industrial lands report (Pg. 12, "*Gresham Industrial Employment & Economic Study*"), the historical jobs/acre density within the City's HI district has been 8 jobs/acre. As shown on pg. 40 of the Brickworks staff, the proposed RTI-SW designation of 24.1 acres could yield as much as 896 jobs or 37 jobs/acre. This is because the HI district has typically been dominated

by low jobs intensity industrial uses such as storage yards and warehousing, whereas the RTI-SW district is intended for more intensive uses, i.e. business park office buildings and light manufacturing. Page 40 of the Brickworks staff report also shows that the proposed 2.5 acres of NC-SW would create 22 jobs/acre (55 jobs ÷ 2.5 acres). In total, the 24.1 acres of RTI-SW and the 2.5 acres of NC-SW could create up to 951 jobs, compared to the 213 jobs (26.6 acres x 8 jobs/acre) that could be created if the same area remained HI, Heavy Industrial.

In regard to the proposed THR-SW and NC-SW designations, WRG Design has submitted the following findings relative to policies 16c, 16e, and 16f:

Policy 16c ***Land uses permitted in the proposed designation shall be compatible or capable of being compatible with environmental conditions and surrounding existing land uses.***

Findings:

The Brickworks site was included in the Springwater Community Plan development process. The Springwater Community Plan was adopted by City Council effective December 1, 2005. The adopted Springwater Community Plan contained appendices which included various technical memoranda and reports. As part of the Springwater Community Plan, a Technical Memorandum was prepared by consultant TIP Strategies, Inc. The Memorandum concluded that the Brickworks site is not suitable for industrial development due to the limited access for the property.

The site has been designated heavy industrial (HI) since 1980 and has remained primarily underdeveloped. The City has concluded on several occasions that the Brickworks site did not appear suitable for heavy industrial reuse and would be more suitable as a mixed use employment site.

The Brickworks site is bounded to the east by existing Low Density Residential development. A community sports complex is planned to the north of the site directly across SE Palmquist Road. A mobile home park is located at the northeast corner of SE Palmquist Road and SE Hogan Road, directly north of the proposed Neighborhood Commercial district. An existing apartment complex is located at the northwest corner of SE Palmquist Road and SE Hogan Road.

The north half of the Brickworks site has a general slope of 5 to 10 percent, but the topography is interrupted by two tributaries that cross the north end of the Brickworks site, flowing to the west. The two stream corridors with the northern corridor consist of 3.6 acres, and the southern corridor which consists of 4.1 acres. These corridors are within the proposed RTI-SW (research technical industrial) zoning. The Springwater ESEE Analysis Decision Report has designated these tributaries as ESRA districts, subject to addition environmental protections.

Conclusions:

As shown in the Springwater Plan, while the ESRA districts can serve as a barrier to industrial development, they can be an asset to office employment (RTI-SW) uses, as well as residential

(THR-SW) uses. The two ESRA corridors provide the opportunity for east-west trail facilities for pedestrian connectivity. They will provide the ribbons of green that could be incorporated into the design of any proposed project in the THR-SW zone directly to the east.

This is where the high school and elementary school are located. Schools are preferably located in residential zones, not industrial zones (which is the present situation).

Development under the Springwater Plan District is subject to Green Storm Water Management Practices, including building green streets. These practices will manage storm water quality and quantity in a manner which will limit the impact to and will enhance natural resource repairing areas. Additionally, Xeriscape Landscaping will be required for industrial sites to promote water conservation, and the use of natural planting will also enhance natural resource areas.

Due to the existing residential uses to the east, the more appropriate land use along the eastern side of the Brickworks site is Low Density Residential. SE Fleming provides a natural edge to the single family residential district.

A townhouse residential district is a subdistrict intended to allow for single family homes on small lots, as small as 3,000 sq. ft. for detached homes, and 2,200 sq. ft. for attached homes. Like the LDR-SW subdistrict, each home must be on its own lot and duplexes are not allowed.

The intersection of SE Palmquist Road and SE Hogan Road provides the ideal location for neighborhood commercial due to the high level of visibility and access. Uses are able to radiate out from the neighborhood commercial node toward the existing single family neighborhood to the east, with a ring of RTI-SW, followed by the Townhouse Residential district (THR-SW). The retail uses on the NC-SW zone, the residents located in the THR-SW zone, the residents in the mobile park to the north, and the users of Planned Community Sports complex north of the Brickworks site.

Policy 16e ***Demonstration that there is an inadequate amount of developable designated land for land uses that would be allowed by the new designation;***

RESIDENTIAL

Findings:

The proposed THR-SW and LDR-SW subdistricts on the northern portion of the site provide for a range of single family townhouses and detached lots that are part of the larger range of housing options in the Springwater Plan District that will meet a variety of needs. The planned housing in the Brickworks site will provide housing for potential Springwater employees.

A Technical Memorandum that was prepared by TIP Strategies, Inc. as part of the overall Master Urbanization Plan for the Springwater Tract, included the Brickworks site, and is included as an appendix to the Springwater Community Plan. This Memorandum includes Task 3.1 (f): Economic & Employment Industrial Site Study, Task 3.1 (g): Village Center Study and Task 3.1 (h): Housing Study. The three tasks were merged into a single document. This document

analyzed the regional need or demand for employment, retail, and housing uses. In regards to demand for residential growth, the report summarizes the market forces as follows:

> "In the 1990's, Gresham's population leaped by more than 20,000 to reach 90,205 by the time of the 2000 census. Gresham's median household income, according to the census was $43,442, or about 8% below the metro-wide average. Gresham's household composition is roughly 61% owner occupied. This is slightly under the 4-county metro area average of 63%, but well about the Multnomah County average of 57%. Residential building permit trends have shifted radically toward single family housing in Gresham in recent years. As recently as 1998, single family units accounted for less than 50% of total new residential units approved. By 2002, census data indicate that the single family share had shot above 90%." (Technical Memorandum, p.40)

> "Housing. The tenure and characteristics of housing in Gresham, as is typical of most suburbs, tilt more toward single-family, owner occupied housing than the central city and county. Recent residential permitting patterns would imply that this trend has strengthened rather than eased." (Technical Memorandum, p.40)

> "As previously noted, median household incomes trail the metro wide average by about 8 percent, and median home prices trail by about 4 percent. When calculating housing affordability (i.e., median household income divided by median housing price) the Portland PMSA pencils to a 3.6. The City of Gresham's, by contrast, is 3.7, indicating the median household in Gresham may be slightly more stretched to pay the mortgage than the metropolitan area overall. The city's affordability ratio is better than the 3.8 figure for Multnomah & Clackamas Counties. Both Clark (3.2) and Washington (3.5) Counties have better-than-average affordability ratios." (Technical Memorandum, p.41)

> "East Multnomah County's share of households in the county and the metropolitan area continues to grow incrementally. According to Metro's forecast, this growth should level off sometime around 2020 as available land is consumed and the bulk of housing construction moves to other areas of the metropolitan area. In 2000, East Multnomah County had over 45,000 households, with more than 23,000 additional households forecast for the area by 2025." (Technical Memorandum, p.41)

Figure 3.6 projects the new households for East Multnomah County: (Technical Memorandum p.33)

FIGURE 3.6: CHARACTERISTICS OF OWNER-AND RENTER-OCCUPIED HOUSEHOLDS						
		Projections				
	2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025
Owner-Occupied Units						
East Multnomah Co.	---	+4,308	+5,173	+3,714	+2,731	+300
Multnomah	---	+17,759	+16,601	+10,595	+11,575	+2,491
4-County Metro Area	---	+50,724	+53,917	+52,793	+49,959	+52,114
Renter-Occupied Units						
East Multnomah Co.	---	+2,160	+1,616	+1,071	+1,442	+758
Multnomah	---	+31,967	+4,119	-848	+8,063	+4,239
4-County Metro Area	---	+33,943	+15,146	+14,562	+20,724	+12,456

The Technical Memorandum also reports as follows:

"The 2000 census showed that the number of owner occupied units in Gresham (18,282) was nearly identical to the number of single family units (18,247)."

A second Market Analysis was completed specifically for the Brickworks subdistrict by New Home Trends, dated June 28, 2006. It is Exhibit C to Terry Vanderkooy's Staff Report dated June 2, 2006. The key findings include:

"D. Current Housing Trends:

- As we are seeing in many metropolitan areas, the high price of housing in major metropolitan cities is driving people further and further out, especially first time buyers. This trend continues to happen in the Portland area. As home prices continue to escalate, more and more households are moving further out to find a home that is more affordable. In the real estate industry, some use the phrase, drive until you qualify. Today, within Multnomah County, the average price for a single family home in Portland is $419,900 compared to Gresham, where a single family home is $337,200.
- As of May 2006 in Gresham there is a shortage of small lot (4,000 sq. ft) and attached housing, with less than a 3-month supply.
- Most of the inventory that was available in May will be sold out by the time sales begin at Brickworks.
- As of May 2006 in the cities of Gresham, Troutdale and Fairview, there are 15 developments with 58 available listed homes that are attached product or homes on lots under 4,000 sq. ft. Another 176 homes have not yet been released.
- The average price in May for a new attached or single-family home on a lot under 4,000 sq. ft. is $229,440, while the average sq. ft. price is $141.
- The majority of the new homes sold in the cities of Gresham, Troutdale, and Fairview in the past two years that are either attached or on a lot under 4,000 sq. ft., were priced between $200,000 and $250,000. This verifies that the recommended price point is on target.
- The table below summarizes resale sales activity in RWMLS area 144 between September 2005 and March 2006.

Unit Type	Average List Price 3/22/06	Average Sold Price 9/05 – 3/06	Total Units	Months of Inventory
Single Family All	$344,161	$242,693	384 1,465	1.57 months
Single Family Lot size under 4,000 sq. ft.	$219,829	$203,768	85 346	1.46 months
Attached/Condo	$224,822	$160,060	60 257	1.39 months

- Today in RMLS area 144 there was less than 1.5 months of available inventory. This is not enough inventory to keep up with demand." (Market Analysis, p.14).

"E. Future Market Conditions:

- As of July, 2006 in the city of Gresham there are 52 developments with 1,400 proposed units in the pipeline. Of those, 32 developments with 772 units are detached units and 20 developments with 628 units are attached.
- Using the absorption rate of 48.19 for attached and detached housing, in the three cities, there is only 2.43 years of future inventory. Knowing not all of the current applications will be granted approval, coupled with the household growth and immigration projections; it is clear this will not be enough housing to support future growth."

Conclusions:

There is no other THR-SW near the proposed Research Technology, Industrial Brickworks subdistrict. The THR-SW zoning adjacent to the RTI-SW zoning is unique in Gresham. The fact that the townhouse district is adjacent to the industrial office district will promote livability by requiring pedestrian-friendly design in that townhouse district. The proposed THR-SW subdistrict provides for a range of single family townhomes that will provide housing for potential Springwater employees. In addition to the THR-SW subdistrict, it is also adjacent to the proposed community sports center, which is to be located just north of the Brickworks site.

The Springwater Housing Analysis in Appendix 2B (TIP Strategies Technical Memorandum) provided general growth projections for the housing market in East Multnomah County. These projections drop off at the 20-year horizon due to a lack of available land. The report states that in that time frame, residential development will simply move to other areas in the Portland Metro region where land is available. The implications are that if land is available for residential development, demand will absorb it.

The New Home Trends analysis provides a site specific review. This report finds that Gresham is a very attractive market for first time home-buyers. Home ownership is more affordable in Gresham than the inner Portland market, especially for families. Similar to the Springwater analysis, New Home Trends finds that the Gresham residential market is limited by the supply of new housing, with a 2.43 year supply of residential land. This demand is balanced between single family detached housing and for-sale townhouse/attached housing, which is what is being proposed with the THR-SW zone and the LDR-SW zone.

COMMERCIAL

Findings:

The Brickworks Plan proposes a 2.5 acre neighborhood commercial site to be located at the corner of Hogan Road and Palmquist. It will provide retail and services for the adjacent residential neighborhoods and the future industrial development. 2.5 gross billable acres will

provide approximately 2.0 net buildable acres. These two net acres will provide approximately 55 jobs.

For retail demand, the TIP Strategies Technical Memorandum in Appendix 2B of the Springwater Plan provided an analysis which is primarily focused on the need for the primary Springwater Village and determining the appropriate size for that district, but information is also applicable to the Brickworks subdistrict. The report emphasizes that retail will be small scale, neighborhood retail:

> "Village Center. National data on the characteristics of small-scale shopping centers—known as neighborhood centers and community centers—provide some insight as to the types of tenants that are appropriate for neighborhood-serving retail. However, the goals of the city (to have a walkable, mixed-use center that serves Springwater and the immediate area) and the guidance provided by Metro Code 3.07.1230, dictate a much smaller scale for the Springwater Community."

The Technical Memorandum characterized a neighborhood shopping center as "Designed to meet day-to-day needs of immediate neighborhood, typically anchored by supermarket. Usually does not contain an enclosed walkway or mall area, although a canopy may connect the storefronts." These centers are 3 to 5 acres in size, with 30,000-150,000 square feet of retail. The Village retail summary states:

> "Retail is increasingly seen as a key amenity in the recruitment of both companies and workers. While traditional theory sees retail purely as a spin-off effect from other sectors, many successful communities now recognize that a thriving retail sector helps attract large employers to a region. The increasing emphasis on what Richard Florida calls 'the creative class' has forced a reconsideration of the amenities and benefits of a community quite apart from the immediate availability of employment. People want and expect retail, and they have become increasingly refined in their specific interests. The Springwater Village Center could play a key role in both supporting the needs of the community and serving as part of the overall amenity package for the area."

Johnson Gardner completed a second need analysis specifically for the Brickworks site dated April 6, 2006. It is Exhibit D to Terry Vanderkooy's Staff Report dated June 2, 2006. Some of the key findings of this analysis are:

- "The subject development could potentially add 21,000 to 130,000 square feet of locally serving retail space. The primary trade area for this study was roughly delineated by SE Division Street to the north, SE 282nd Avenue to the east, Highway 212 to the south, and SE 222nd Drive to the west. A geographic representation is presented in [EXHIBIT 1].
- There are currently 35 active retail developments in the Primary Trade Area comprising over 1,000,000 square feet of space. Over the previous four quarters, the market has exhibited stabilized vacancy ranging from 8% to 10% [EXHIBIT 2].

- The majority of existing speculative space in the trade area is located proximate to downtown Gresham in the northern part of the trade area. SE Division Street and W Powell Boulevard are the primary retail corridors in the trade area.
- There is approximately 43 acres of vacant developable land within and proximate to the primary trade area. Taken alone, this land can reasonably be translated into potential future development of approximate 374,616 square feet of future competitive space within the primary trade area. When this land is partitioned by its position within the trade area, roughly 33.1 acres and 288,367 square feet of potential space is applicable [EXHIBIT 3].
- With respect to the adequacy of vacant retail land in the primary trade area, our underlying conclusion is that individual zoning restrictions coupled with few large vacant parcels will limit the potential for retail development from existing supply in the foreseeable future.
- According to estimates conducted for 2005, the primary trade area has an estimated population of 34,579 individuals with an average household income of over $69,226. Over the past five years, household income and per capita income grew at a swift pace averaging annual growth of 2.9% and 3.0%, respectively. There are currently 12,723 households in the trade area with an average size of 2.69 persons per household [EXHIBIT 6].
- The trade area could support approximately 1,877,812 square feet of retail space in 2005. By 2025 the supportable space grows to approximately 2,451,799 square feet, an addition of 573,987 square feet or 30% [EXHIBIT 11].
- Even under current market conditions, the designated primary trade area demonstrates a significant need for retail space. The area currently lacks approximately 872,500 square feet of retail space.

"II. SUBJECT SITE

The subject development of this analysis is a component of a 45.7 acre parcels currently zoned as Heavy Industrial (HI). A component of the master plan for the site includes two to twelve acres designated Moderate Commercial for neighborhood commercial development. The site is located on the south east quadrant of the intersection of SE Palmquist Road and SE Hogan Drive. Utilizing an F.A.R of 0.25, a two to six acre site could conceptually provide the capacity for approximately 21,000 to 130,000 square feet of retail space. The proposed commercial development would likely take the form of a locally serving neighborhood commercial center. This format is described in greater detail in Section III."

Conclusions:

The Johnson Gardner report identifies the market demand for a small retail node in the Brickworks subdistrict, in the range of 2 to 6 acres in size. This would be a locally serving neighborhood commercial center, consistent with the vision of the Springwater Plan Polices. The TIP Strategies Technical Memorandum explained that neighborhood retail is a key draw for

the "creative class" of employers. Retail is viewed by this demographic as an amenity that will help attain the employment goals of the Springwater Plan. It will also meet the Springwater goal for a walkable mixed-use center. This node will help the Brickworks subdistrict to be a place to live, work, shop, recreate, and educate. It will help make it a complete neighborhood.

Policy 16f. ***The new land use designation shall fulfill a proven community need such as goods and services, employment, housing, public and community services, etc., at the particular location, versus other appropriately designated and developable properties.***

RESIDENTIAL AND COMMERCIAL

Findings:

In the September 20, 2005 "Springwater Goals, Policies and Action Measures" document, the Springwater goals and objectives created by the Springwater Citizens Working Group (CWG) are summarized.

> **"The Springwater Community shall be an economically and environmentally sustainable community.** The primary focus of the plan will be on providing a high number of industrial and industry-related jobs that enhance the economic viability of Gresham, the greater East County region and its citizens. Industrial and employment lands will be complemented with a village center and housing and will be carefully integrated with the upper Johnson Creek system. Sustainable green building and development practices will enhance the community's unique character, while supporting the protection and restoration of the area's natural resources. In the scenario evaluation process, this goal was used as a way to provide a comprehensive evaluation of the number and type of jobs provided by each scenario, the amount of land used for various employment types, the number of households provided, the impact of Springwater's development on the local and city-wide jobs to housing balance, the ability to logically and cost effectively provide public services to the community, and the ability to integrate sustainable development features such as low impact development practices.
>
> **Summary of Major Issues.**
> The following are some of the major issues that were considered in creating a balanced community for Springwater:
>
> **Creating a Village Center in an accessible, aesthetically-pleasing location.** The Village Center is located at one of the premier view points in Springwater. The Village Center will have a commercial and mixed-use core, with two sets of park blocks intersecting in a public plaza area. The Village Center will be accessible to nearby residential neighborhoods and to the industrial and employment areas through both improved transportation corridors and new pedestrian/bicycle trail loops."

The TIP Strategies Technical Memorandum specifically identified the corner of SE Palmquist Road and SE Hogan Road for a neighborhood center:

> "Location. Based on our analysis, a visit to the area, and the results of the FCA staff workshop, there are several logical placements for the Village Center:
>
> - Palmquist & Hogan presents another option for siting a Village Center. A center in this location could serve the existing housing and related development and could provide a buffer to the brick works site."

One primary land use goal of the Springwater Plan was to improve the regional jobs-housing balance for the region. Prior to the Springwater Plan, Gresham had a jobs-housing balance of 1.1 jobs per household. The Industrial and Office lands in Springwater increased the City ratio to 1.5 jobs per household. The region ratio is 1.5 jobs per household. The Brickworks proposal has and average capacity estimate of 1,586 new jobs and 310 new dwellings. This results in a jobs-housing ratio of 5.1 jobs per household for the Brickworks site.

The September 20, 2005 Springwater Plan Summary provides details on the community goals for a mixed use community that is designed to attract high quality employers to the district:

> "The housing element provides workforce housing close to the major employment district. People could work, live, and play in a neighborhood designed around the area's natural amenities – Johnson Creek and it tributaries. The extensive trail and park system provide for recreation, and also make walking to work in the employment areas not only feasible but very pleasant. This adds an amenity to employers and employees that increases the livability of the area, and will help with the marketing of the employment areas.
> To comply with Metro UGMFP Title 11, Gresham's planning for Springwater must address "provisions for residential densities", "measures that will provide a diversity of housing stock that will fulfill needed housing, and "demonstration of affordable housing". The CWG adopted a series of goals that were used in evaluating the scenarios and creating the Concept Plan and the Springwater Plan District. The goal for residential lands was:
>
> ***Livability***
>
> *The Springwater Community shall have a high quality of life. This will be accomplished through compact and sustainable development; a range of housing choices; walkable neighborhoods; access to natural resource areas and open spaces for employees in the community; preservation of natural resources; and, a variety of transportation choices. The community will encompass a village center, or series of village centers that provide needed services for employees and residents in an attractive and human-scale environment. A range of housing choices will be provided within close proximity to services and/or employment areas. Overall, the community shall be a unique environment that creates a sense of place both for residences and businesses, and acts as economic attractor.*
>
> The following are some of the major issues that were considered in the urban plan for industrial and employment lands in Springwater:

4.2.4.2 Summary of the Major Issues

The following are the major issues that were addressed in developing the residential component of the plan:

Develop a variety of housing types that take advantage of the varied landscape in this area. Several kinds of homes are anticipated for this area. They are placed in an area that provides opportunities that are well suited to their characteristics.

Townhouse/Small Lot:

Small lot single-family home – either attached as a townhouse or detached on a small lot can be located near the Village Center and along the Hogan corridor. The Hogan corridor is planned for regional transit service to support these additional housing options. Density ranges from 12.0 to 15.6 units per net. Design elements can include incorporating common open spaces or greens.

Provide opportunities for affordable housing and a variety of housing types, particularly new housing types designed for ownership.

The mixed density and size of units, especially the smaller lots coming from the Townhouse and Mixed-use Village, provide attractive affordable options. These designations will enable housing to be developed for a price that the median income can afford.

Ensure quality design, especially in the smaller lot homes and in the mixed-use housing, ensuring that they contribute to a quality neighborhood.

The higher density homes have some basic design standards applied in the zoning. Homes on less than 75 feet of width require that alley access to garages be provided. Safe Neighborhood Design Performance Standards also apply. Attached housing and housing on small lots in the Townhome Residential subdistrict also have special design standards to ensure that these homes have the requisite open and private space for a successful neighborhood.

Residential Variety

As described previously, residential uses were directed primarily to lands less suitable for industrial or employment use, and in sufficient quantity to serve a successful Village Center. Accordingly residential designations have been limited to the northwestern portion of the site. The higher density home sites are located in close proximity to the walkable village, while the larger lots have been targeted for the sloping hillsides and other areas where development impacts should be minimized."

The Springwater Plan Summary continues:

"*Residential*
Springwater was envisioned as a community in which people could live, work, and play. Accomplishing this vision requires some level of housing. As part of the planning process

the characteristics of housing needed for the Springwater community and crafting an overall strategy for housing within the area were assessed.

Based on the average number of jobs per household in the region, it would take more than 10,000 households to provide the targeted 15,000 employees in Springwater. While some of these jobs could be filled by current residents of Gresham and Springwater or residents of nearby communities such as Pleasant Valley, it is unlikely that all of them would be. Furthermore, one of the key planning requirements was that the commercial and retail services in Springwater would not compete with adjacent centers. For Springwater's commercial and retail services to be self-supporting, a minimum population of approximately 3,000 people is required. While some of the support for the Village Center may come from outside Springwater, it is difficult to estimate the extent to which existing residents would help support the Village Center. Both of these issues point to the need, and capability, of Springwater to support a certain level of housing."

Conclusions:

The Springwater Plan had a primary goal of increasing employment opportunities for Gresham, but that was not the only goal. The Community Working Group strove to create a balanced community with a Village Center at the heart of Springwater. The Brickworks site is a subdistrict to Springwater, and shares the same goals. The Springwater Plan economic analysis goes to great lengths to determine what it will take to attract employers to this region. Employers will not locate to Springwater just because land is rezoned to allow it. Employers must be enticed to Springwater through partnering, strategic infrastructure improvements, economic incentives, and community design. The Brickworks subdistrict has the unique opportunity to create a micro-village which is integrated with jobs, housing, retail, schools, and recreation. As previously quoted, a neighborhood retail center is viewed as an amenity in attracting the "creative class" employers. Similarly, they are attracted to high-quality, low-maintenance housing within close proximity of employment.

The Hogan corridor provides an epicenter for the Brickworks village. The intersection of SE Hogan Road and SE Palmquist Road provides a node that is ideal for a village core. It was identified as a Village center in the Technical Memorandum. (Springwater Plan, Appendix 2B). The intensity of existing uses transitions out from this corner, with medium density residential to the north of this intersection. The Brickworks plan surrounds this neighborhood commercial node with RTI-SW office/employment uses. The Townhouse THR-SW district, which is a medium density zone, provides a transition between the village core of commercial and office uses and the LDR, a low density zone, and school subdistricts. The townhouse subdistrict will provide sufficient residential densities to support a viable neighborhood commercial while maintaining a home-ownership opportunity. (End of WRG Design findings)

Other additional applicable policies in this category are the commercial land use policies of Section 10.312, Commercial Land Use of the Comprehensive Plan. These policies are the following:

Policy II ***It is the city's policy to encourage commercial development, which increases employment opportunities; reduces dependency on outside of city goods and services; promotes energy efficient travel patterns; is compatible with neighboring land uses; and promotes good community design.***

Policy III ***It is the city's policy to ensure that the supply of commercially designated land meets the market demand.***

In response to the above policies, WRG Design has submitted the following findings:
THE RELATIONSHIP BETWEEN HOUSING AND SUCCESSFUL RTI ZONING ON SITE AND IN SPRINGWATER

Findings:

As previously noted, two market analyses were completed for this region to analyze the demand for retail services, and to determine the appropriate scale for future retail development. The Technical Memorandum (Springwater Plan Appendix 2B) outlined the overall retail environment for the entire Springwater Plan district, including the Brickworks site. That report supported the need for neighborhood retail in conjunction with an urban mixed-use Village. The Johnson Gardner report specifically reviewed the Brickworks site for retail need. That report concluded that 2 to 6 acres of neighborhood retail would be supported within the Brickworks site.

Conclusions:

The two market analyses support the proposed 2.5 acres of Neighborhood Commercial (NC-SW) at the southeast corner of SE Hogan Road and SE Palmquist Road. This district will serve as the center of the Brickworks Village. The concept of a village requires more than retail to be successful. The RTI-SW and THR-SW subdistricts will provide the community life and cross dynamic to help support a viable neighborhood commercial node.

As previously noted, the Springwater Plan outlined the combination of uses that will make the Village concept successful. A true Village requires a mixture of uses that will allow participants to live, work, shop, and recreate in a single location. The Brickworks village provides this combination of uses, with a neighborhood commercial district surrounded by the RTI-SW office uses. The addition of medium density residential townhomes, designed around pedestrian corridors and courtyards, results in a fine tapestry of a small scale urban village. **(end of WRG Design findings)**

Category 4 – Transportation

For reference purposes it is noted that the June 2 staff report addressed transportation issues under the Springwater Transportation Goal (10.806) that "The Springwater Community will encompass a well-planned transportation system that supports the Springwater Community Plan, while promoting transit, walking and bicycling. The road and trail network will provide good connectivity within Springwater, with existing neighborhoods, and with the regional trail

network" (beginning on page 20 of 36). In that same section findings and conclusion are made for Springwater Transportation Policies to address issues such as the North/South Corridor Study; green streets; encouraging alternative modes of transportation; connectivity and access; transit options; traffic impacts on existing City of Gresham neighborhoods; and existing transportation safety issues.

The adoption of the Springwater Community Plan included adoption of a Springwater Transportation System Plan (TSP) as an amendment to the City's Transportation System Plan (Volume 4 of the Community Development Plan). The Springwater TSP covers the Brickwork site. As an example Figure 1 of the Springwater TSP shows the Transportation Analysis Zones (TAZ) used for travel forecasts – five TAZs covering the Brickworks site are shown; Figure 3 shows the proposed transit routes including a Primary Route on Hogan Road abutting the Brickworks site; and Figure 6 shows functional classes and road projects including projects at the Brickworks site. Projects shown at the Brickworks site include improvements to Hogan Road (242nd Avenue); Palmblad Road (252nd); and Palmquist Road; and new collector and community streets internal in the Brickworks site. The Springwater TSP provides that streets will be green streets that manage stormwater utilizing vegetated swales.

In adopting the Springwater TSP it was necessary to show that it was consistent with the City-wide Transportation goals and policies.

Listed below are some specific responses by Ron Papsdorf, Senior Transportation Planner to questions raised in earlier hearings:

a. *How many trips per day are generated from the various proposed districts?*

Using yield estimates from the Staff Report and Institute of Transportation Engineers (ITE) Trip General Manual, 7th Edition, 2003:

NC-SW (ITE Code 814-Specialty Retail Center 44.32 trips/1,000 sf/day) = 1,352
RTI-SW (ITE Code 760-Research & Development Center 2.77 trips/emp/day) = 3,565
(ITE Code 770-Business Park 4.04 trips/emp/day) = 5,199
IND-SW (ITE Code 110-General Light Industrial 3.02 trips/emp/day) = 737
LDR-SW (ITE Code 210-Single Family Detached 9.57 trips/DU/day) = 488
THR-SW (ITE Code 230-Residential Condo/Townhome 5.86 trips/DU/day) = 1,518

Total Estimated Weekday Trips = 7,660 to 9,294

b. *What are the impacts of this proposal and the comparison for other districts on the failing intersections to the north?*

The transportation impacts of the Springwater Plan District were evaluated in the Springwater Transportation System Plan and reflect this proposal. The Gresham Transportation System Plan (2002) also accounted for development of the Springwater and Damascus areas in the transportation analysis and the City has identified and planned for system improvements to accommodate that growth, including intersection improvements included in the Transportation Impact Fee Program.

We are unable to assess a comparison for other possible land use comparisons without significant analysis and transportation system modeling.

c. *Is Community Transit a feasible option for the future? If community transit is a feasible option, why isn't purchase of these vehicles included in the city manager's long term capital needs as presented to the budget committee? What is the source of the capital and operating funds?*

The Springwater Transportation System identifies some future transit routes for "Neighborhood Circulation." This designation does not anticipate City-run transit service, but reflects the nomenclature used in the Gresham TSP and simply identifies a type of transit service that is appropriate to serve lower-density residential areas through more flexible and cost-effective means (may include shuttle buses or vans and may include paratransit).

This service is feasible and would be anticipated to be provided by TriMet within the 20 year planning horizon.

d. *What are the priorities for improvements to the Powell/Burnside and the Powell/Hogan intersections which are identified to be failing? Will Powell/Hogan be added back to the CIP? Status of any projected improvements?*

These two projects are included in the Transportation Impact Fee Program and are prioritized against other projects during the annual Capital Improvement Plan process. Currently the Powell/Burnside project is programmed in the CIP in 2011. As development occurs and priorities change, the Powell/Hogan project will be brought into the five year funded portion of the CIP.

e. *Is there any existing or planned upgrade to Tri-Met service along the Hogan corridor? What is the process with Tri-Met?*

The Gresham TSP identifies Hogan as a "Primary Transit" route with preferred service of 10 to 15 minute frequencies during weekday peak hours and no less than 30 minute headways at other times seven days a week.

TriMet adopts a Five Year Transit Investment Plan each year (similar to the City's CIP). It identifies near term service enhancements and other transit investments throughout TriMet's service territory. TriMet evaluates the extension and improvement of transit services based on where ridership demand or potential is highest. In other words, transit service usually follows development.

f. *What are the transportation factors to consider regarding additional (more than 2.5 acres) of commercial designation within the Brickworks site? Will future Sportspark uses be able to cross Palmquist safely? Wouldn't additional commercial cut down on auto trips out of the neighborhood to retail destinations?*

Neighborhood commercial is important to help serve the local area and reduce the number and length of trips to other commercial areas located further away. However,

too large a neighborhood commercial center may attract significant traffic from outside the neighborhood and create additional transportation problems. It's also important to note that the RTI-SW and IND-SW districts allow limited amounts of commercial uses that will supplement the NC-SW district.

g. *What are the plans for the intersection of Palmquist and Hogan? Will three lanes be adequate when the Sports Park develops?*

The Springwater TSP and the Springwater Transportation Systems Development Charge Program identifies the need to add a signal to the intersection of Palmquist and Hogan in the future to accommodate build-out of the Springwater Plan District. The projected 2020 traffic volume on Palmquist is 16,000 trips per day and is an appropriate volume for a collector street.

Category 5 Natural Resources

For references purposes it is noted that the June 2 staff report make findings and conclusions for the Springwater Natural Resources Goal (10.806) "The plan will preserve, protect and enhance natural resources" (starting on page 22 of 36). In that same section findings and conclusions are made for Springwater Natural Resources Policies addressing issues such as the importance of the Johnson Creek system; green infrastructure; opportunities for a "natural park" as sense of place and attraction; attention to the watershed protection and watershed and sensitive species restoration and focusing on habitat, groundwater, improved hydrology and flood management; and the use of low impact development practices. The Springwater natural resource protection process followed the state required Goal 5 process that requires an inventory of natural resources, a determination of resource significance, an ESEE analysis and recommended protection measures.

Resource significance was evaluated using a 1 (low) to 6 (high) rating system. Resources, such as small tree groves unconnected to streams or "isolated", and that have few resource functions were rated low (1) and found not to be significant. Riparian areas located along the main stem of Johnson Creek and that have multiple resource features/ functions, such as significant wetlands, unique fish/wildlife habitat and tree groves were given the highest rating (6). Therefore those resources that were given a rating between 2 and 6 were found significant and were eligible for ESRA protection.

In regard to the Brickworks site, Bus and Ops creeks (Phase 1 area) and their associated riparian areas were found to be significant and given a rating of 3, whereas several isolated tree groves to the east were found not to be significant and were given a rating of 1. Within the Phase 2 area, the large wooded area on the Mutual Materials site, near Johnson Creek and the Springwater Trail, was found to be significant and given a given a 5 rating.

Also as part of the Springwater planning process and following the resource inventory and determination of significance, a state required ESEE (Economic, Social, Energy, Environmental)

analysis was conducted. This process attempts to balance environmental protection and restoration issues with economic, social and energy considerations. This provided a basis for the ESRA-SW designations adopted in the Springwater Plan and proposed for the Brickworks site, including recommending different development setbacks based on the location of a resource and its significance class rating. Compliance with Metro Goal 5 (Title 13) natural resource protection standards was also taken into account when defining the ESRA area.

In regard to the Brickworks site, Bus and Ops creeks (Phase 1) were recommended to have a 175 ft. setback from the top of bank along each streamside, for a total ESRA width of 350 ft. In the case of the Mutual Materials wooded area (Phase 2), the ESRA boundary or protection area was recommended to include the entire area by following the outer edge of the woods.

Additional Applicable Policies

Section 10.232 Water Resources Quality

Water Quality Goal: Prevent surface and ground water pollution and improve water quality.

Policy 4: The City shall protect the water quality, conveyance, storage functions and associated environmental values of streams, wetlands, and 100 yr. floodplains and other natural drainage ways and water bodies.

Policy 11: The City shall implement measures to protect water quality necessary to sustain viable habitat for fish species, particularly those listed by the national Marine Fisheries Service as threatened or endangered.

Findings:
The ESRA subdistrict has been sized to protect the water quality of streams and wetlands as well as other resource functions. Table 5 of the Springwater Natural Resources Report (pg. 5, Appendix 45, Volume 1 of Comprehensive Plan) lists the various functions to be protected by the ESRA and the corresponding setback or "primary factor" needed to protect each function. These setbacks represent the consensus of the various scientific literature sources. For protecting water quality, a minimum 100 ft. setback from a stream bank is recommended when the area within that setback is vegetated. The vegetation is necessary in order to filter surface runoff before it reaches a stream. As indicated above, the ESRA setback along Bus and Ops creeks is 175 ft.

Outstanding ESRA Issues: At the previous hearing, much of the ESRA related discussion related to the appropriateness of an ESRA designation for the Mutual Materials wooded area. This concerned Mutual Material's "grandfather right" to mine the wooded area under the current DOGAMI mining permit and by the City's previously issued 2002 permit decision (MIS-02-6175) that recognized the mining activity as a legal nonconforming situation. This particular ESRA issue will be take up again when the Phase 2 area of the Brickworks site is submitted to the Planning Commission for review.

In addition, there was an ESRA issue regarding the Bentley property along Ops Creek. The portion of the property within the proposed ESRA is developed with an industrial/storage use and lacks any resources such as trees or wetlands. Nancy Olmstead of NRPS, the City's environmental consultant, has indicated that this was a mapping error and the applicable GIS shapefile will be corrected to remove the ESRA designation. The Bentley property will then be an existing allowed industrial use and designated RTI-SW, as are the other property within the area.

Summary and Conclusions

The proposed comprehensive plan amendment is somewhat unique for the following reasons:

- The Comprehensive Plan amendment involves land within the current city limits, but was analyzed as part of a much larger review of the Springwater area outside the current city limits.
- City Council directed staff to apply for this Comprehensive Plan amendment to complete a final phase of work in the Springwater planning area.
- A number of "interested parties," including land owners, sellers, and buyers/developers have emerged that have actively participated in the process advocating for this Plan Map amendment.

As indicated in the original staff report of June 2, 2006 and in this addendum, the criteria for making the Planning Commission recommendation are included in Section 4.1000 of the Gresham Development Code. These criteria require the study of a wide range of city policies and implementation strategies included in existing city code.

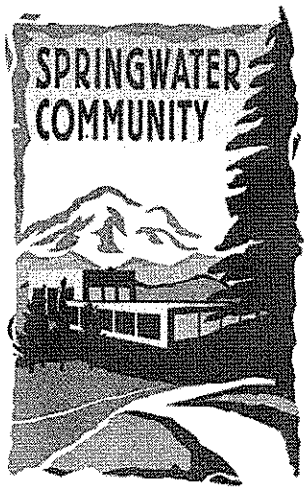
Staff believes that findings included in the original Springwater Plan, the staff report of June 2, 2006 and in this addendum provides findings to support a Comprehensive Plan amendment from Heavy Industrial to the proposed Springwater Plan District zones. Staff also believes that further analysis of housing and employment needs of Gresham could incrementally change the data used in this analysis. However because these Comprehensive Plan changes would be of such a small magnitude, when comparing the scale of housing and employment numbers in Gresham to the much smaller numbers that would result from the proposed changes, that a supportable decision to approve this Comprehensive Plan amendment can be made at this time.

A key concern of staff in evaluating this proposal was the impact on employment lands. This issue will also be reviewed by Metro as part of their Title 4 analysis that will occur if this amendment is approved by City Council. Based on two analyses of the employment impact (number of jobs) of the proposed change, both show a substantial increase in employment opportunities by changing from HI, Heavy Industrial, which has a relatively low employment potential, to RTI-SW. This change to RTI-SW would result in a four-fold increase in employment projections, even with fewer overall acres committed to employment uses. While this isn't the only issue of concern in this change, it is an important determinate in promoting a positive shift in Gresham's jobs/housing balance.

Recommendation

Staff recommends approving the proposed Comprehensive Plan amendment.

Springwater Community Plan



Springwater Transportation System Plan

November 1, 2005
City of Gresham
Community & Economic Development Department
– New Communities and Annexation
Department of Environmental Services

Transportation System Plan

INTRODUCTION

The purpose of the Springwater Transportation System Plan (TSP) is to address the transportation needs for new urban community development within the Springwater Plan District. This TSP will be amended to Volume 4 – Transportation System Plan in the Gresham Community Development Plan. Consequently, it is important that this plan works within the framework established by other related state, regional, and local plans. The TSP includes the following sections:

- Planning Framework
- Policies and Action Measures
- System Inventory and Assessment
- Transportation System Alternatives Analysis
- Recommended Transportation System Plan
    - Motor Vehicle Plan
    - Transit Plan
    - Bicycle and Pedestrian Plan
    - Freight Master Plan
    - Other Travel Modes
- Implementation Plan
    - Functional Class changes
    - Street cross-sections
    - Amendments to Street Project List
    - Local Street Connectivity Map
    - Funding needs

Plans for new urban areas must follow the requirements and guidelines of Title 11 of Metro's Urban Growth Management Functional Plan. Title 11 requires the following concerning transportation:

> *A conceptual transportation plan consistent with the applicable provisions of the Regional Transportation Plan, Title 6.4 of the Regional Transportation Plan [replaced Title 6 of the Urban Growth Management Functional Plan], and that is also consistent with the protection of natural resources either identified in acknowledged comprehensive plan inventories or as required by Title 3 of the Urban Growth Management Functional Plan. The plan shall, consistent with OAR Chapter 660 Division 11, include preliminary cost estimates and funding strategies, with likely financing approaches.*
>
> The TSP shall also include *an urban growth diagram...showing...general locations of arterial, collector, and essential streets.*

A conceptual facilities and services plan for transportation was developed as part of the *Concept Plan* effort. This effort identified the needed transportation facilities for the new urban district, and developed rough cost estimates and likely funding strategies. The plan also included a map depicting the general location of arterial, collector, and connecting streets and identified functional classifications for streets, a connectivity plan, and a transit plan. A bicycle and trail plan was developed in conjunction with Parks planners, and is presented in the Parks and Open Space component of the Springwater Public Facilities Plan.

PLANNING FRAMEWORK

Background

The Metro Council brought Springwater into the Urban Growth Boundary (UGB) in December 2002. When land is brought into the UGB, Title 11 of the Metro *Urban Growth Management Functional Plan* requires that the added territory be brought into a city's comprehensive plan prior to urbanization with the intent to promote the integration of the new land into existing communities.

Title 11 requires a series of comprehensive plan amendments including maps that address provisions for annexation; housing, commercial, and industrial development; transportation; natural resource protection and enhancement; public facilities and services including parks and open spaces; and schools. The intent of the current planning effort is to prepare Springwater for urbanization and annexation to the City of Gresham.

Planning Context for Transportation

The transportation plan for the Springwater Community Plan was developed in compliance with transportation plans adopted by the State of Oregon, Metro, Multnomah County and the City of Gresham. Specifically, the 2004 Metro Regional Transportation Plan (RTP) established guidelines for spacing between streets, stream crossings, pathways and minimum mobility standards for regional transportation. These guidelines were used as a primary resource to develop the policy framework for the mobility standards and street spacing set forth in the Springwater TSP. For most regions the RTP also provided information about existing and planned transit services, but the RTP did not address transit services in the Springwater region.

In addition to compliance with the RTP, any street connections to US 26 (Mt. Hood Highway) needed to follow the regulations and standards within the 1999 Oregon Department of Transportation (ODOT) Oregon Highway Plan (OHP). The OHP provided performance criteria for any roadways, intersections or grade-separated connections to US 26, and it established the appropriate separation from highway intersection to the nearest local street intersections. Furthermore, review of the Gresham and Multnomah County Transportation System Plans revealed the current street functional class designations for existing streets and highways, any planned pathways or trails, and any planned transportation improvements within or close to the Springwater area that should be included in the basic framework of the new planning area.

Finally, the Plan was guided by citizen input provided through public meetings and open houses held during the planning process, and by the goals and policies developed jointly by the project team and the Springwater Community Working Group (CWG). These goals and policies were adopted by the CWG early in the planning process. The transportation goal is given below. Policies and action measures associated with the transportation element of the Springwater plan are described in the following section.

> ***The Springwater Community will encompass a well-planned transportation system that supports the Springwater Community Plan, while promoting transit, walking and bicycling.*** *Good design can also avoid the effects of heavy traffic on neighborhood safety and the natural environment. A well-connected transportation system using trails, bicycle routes, sidewalks and a variety of street types reinforces a sense of community and provides adequate routes for travel. The site should provide good connections to and from the employment areas and the surrounding community, as well as regional freight and transportation centers.*

Other goals that guided the Springwater planning process included the following:

Create a Community. *The Springwater Community shall be an economically and environmentally sustainable community.* The primary focus of the plan will be on providing a high number of industrial and industrial related jobs that enhance the economic viability of Gresham, the greater East County region and its citizens. Industrial and employment lands will be complemented with a village center and housing support and will be carefully integrated with the upper Johnson Creek system. Sustainable "green" building and development practices will enhance the community's unique character, while supporting the protection and restoration of the area's natural resources.

Sustainability. *The Springwater Community shall foster sustainability through encouraging businesses, industries and homes that are built with and practice good environmental stewardship.* This shall be accomplished through "green" practices that provide for energy-efficiency, water conservation, reduced pollution, and avoid environmentally harmful materials and processes. The Springwater Community shall strive to be a model for successful sustainable industrial development. Development shall also preserve, restore and enhance natural resources by meeting or exceeding local and regional standards. Land uses, transportation systems and natural resources shall be carefully integrated and balanced.

Economic Development. *The Springwater Community shall provide industrial land that will generate a variety of family wage job opportunities.* Job creation will focus on correcting the imbalance between the number of households and the number of jobs in the East Metro region and increasing the City's economic strength. The plan will actively encourage businesses with an interest in sustainability and protecting the community's rich natural resources. Springwater will include a village center that can serve residents, employees and businesses.

Livability. *The Springwater Community shall have a high quality of life.* This will be accomplished through compact and sustainable development; a range of housing choices; walkable neighborhoods; access to natural resource areas and open spaces for employees in the community; preservation of natural resources; and a variety of transportation choices. The community will encompass a village center, or series of village centers that provide needed services for employees and residents in an attractive and human-scale environment. A range of housing choices will be provided within close proximity to services and/or employment areas. Overall, the community will be a unique environment that creates a sense of place both for residences and businesses, and acts as economic attractor.

Natural Resources. *The plan will preserve, protect and enhance natural resources.* It will define, protect, restore and enhance significant natural resources, including stream corridors, wetlands, and forested areas. Resource areas will provide the basis for identifying development constraints as well as serving as open space amenities for the Springwater Community. Resource protection and enhancement will be a shared responsibility of property owners, developers and governments.

Rural Route Impacts. *The plan will support and maintain transportation system primarily served by urban or regional facilities that seeks to minimize potential impacts on rural roads east of 282nd Avenue.* As directed by a joint resolution with Multnomah County, the city's new plan for the Springwater Community will identify appropriate land use and transportation elements that seek to keep the new travel demands generated within Springwater from intruding onto county maintained rural highways and roads east of 282nd Avenue. Specifically, this principle applies primarily to commute traffic and other types of trips that do not have origins or destinations within the rural areas. The plan will strive to serve regional trips via regional routes, including US Highway 26.

POLICIES AND ACTION MEASURES

The goal for the Springwater transportation system was developed through a collaborative process involving the project team members, community working group, and other project stakeholders. The overall goal of providing "**....a well-planned transportation system that supports the Springwater community while promoting transit, walking, and bicycling**" was described in the previous section. Along with this goal, several policy statements and action measures were developed.

Policies

1. Identify improvements to Highway 26 that enhance access and mobility to and through the Springwater Community plan area to support industrial and employment development. Design elements are to be compatible and supportive of the Springwater Community Plan.

2. Incorporate the North/South Transportation Study recommendations to identify better connections between Springwater and I-84 and I-205.

3. Incorporate Green Street designs as described in Metro's handbook entitled *Green Streets: Innovative Solutions for Stormwater and Stream Crossings* and as designed in the Pleasant Valley Plan District area.

4. Develop transportation corridors and associated right-of-way widths for Green Street swales.

5. Create streets for people as well as cars.

6. Encourage alternative modes of transportation within the Springwater community.

7. Provide good connectivity and access to practical destinations.

8. Provide safe and convenient access to and from employment areas, including freight access.

9. Incorporate adequate public safety access.

10. Provide public transit options, such as bus, van, streetcar and/or light rail within the Springwater community and for east/west and north/south connections to the greater region.

11. Consider traffic impacts on surrounding rural areas and existing City of Gresham neighborhoods.

12. Provide pedestrian and bicycle connections within the Springwater community and to the greater region.

13. Plan roads to accommodate the movement of goods and services (truck traffic).

14. Consider environmental barriers and constraints.

15. Address existing transportation safety issues.

16. Identify and promote the quality and level of telecommunication services needed to serve the industrial and other uses in the Springwater Community.

17. Create a transportation system that enhances mobility, reliability, and convenient connections to regional destinations.

Action Measures

1. Continue to work with other regional stakeholders to identify and implement improved North/South connections which would provide access from Springwater to I-84 and I-205.

2. Implement recommended changes to the City's Transportation System Plan, and plan for funding requirements associated with transportation improvements.

3. Coordinate Springwater development with recommendations from the US 26 Access Study, and provide an implementation strategy that maximizes industrial development opportunities in Springwater.

4. Adopt a future street plan and street connectivity standards that meet regional and local connectivity requirements.

5. Work with TriMet to develop a plan for Springwater that provides connection to local regional centers, with service through the industrial areas and Village Center.

6. Complete a future CIP Joint Study with Multnomah County to evaluate Access Management Control along 282nd to lessen the impacts on this facility and retain its rural character.

7. Identify all arterial and collector projects that are not currently in the RTP and submit a project list for inclusion in a RTP amendment.

SYSTEM INVENTORY AND ASSESSMENT

Transportation Facility Identification and Classification

The study area for the Springwater transportation system extends beyond the boundary of the plan area by approximately one-half mile to include key arterial and collector streets within the current City of Gresham. This allows for consideration of changes to local street performance, and a more appropriate design of the interface between the new urban area and the existing city neighborhoods. The Reference Documents for the Springwater Community Plan include a detailed inventory of the Springwater transportation system.

The existing roadway network within the study area has mostly rural characteristics. The arterials are generally fast moving with most intersections either having no traffic control or two-way stop sign control. Based on current development patterns, the majority of trips from the study area will travel to the north and to the west. Highway 26 is the only major facility that traverses the study area. This highway connects Gresham with both Portland (to the west) and Sandy (to the southeast). The nearest major freeway facility in the area is Interstate 84, which travels east-west about 5 miles north of the study area.

The City's street functional classifications coordinate with classifications adopted by Multnomah County, Metro, and ODOT. Table 1 lists the functional classification definitions for the City. The Gresham Transportation System Plan contains additional detail regarding the functional street classifications. Based on this classification system, a number of facilities within or near the study area qualify as either arterials or principal arterials.

Table 1 – Street Functional Parameter Classification Definitions

Street Classification	*Volume*	*Design Speed*	*Travel Lanes*
Principal Arterial	35,000 to 60,000	45 to 55	4 to 6
Arterial	15,000 to 40,000	35 to 45	4
Boulevard	15,000 to 40,000	25 to 35	4
Collector	10,000 to 20,000	25 to 35	2
Community Street	3,500 to 10,000	25 to 35	2

Source: City of Gresham Transportation System Plan, 2002

Within the study area, Highway 26 carries high volumes of traffic at high speeds with two travel lanes in either direction. ODOT classifies the roadway as a Principal Arterial and Expressway with minimal side street access. To the north of the study area, Highway 26 slows as it enters the urban portion of Gresham, where it changes to a principal arterial facility through Gresham and into Portland with more frequent direct land access. At the north end of the study area, Highway 26 changes names and continues westward as Powell Boulevard. This facility (Powell Boulevard) has been transferred to the city. Metro classifies Highway 26 as a Rural Arterial south of Gresham City limits and as a Major Arterial within the City limits.

Table 2 presents ODOT historical traffic volume data on Highway 26 southeast of Powell Valley Road. This table shows a steady increase in traffic volumes along Highway 26 in the past ten years. Overall, a twenty percent increase exists in traffic volumes between 1993 and 2003, or about two percent per year on average.

Table 2 – Historical Traffic Volumes on Hwy 26, Southeast of Powell Valley Road

Year	Average Daily Traffic	Percent of ADT			Percent Annual Growth
		Max Day	Max Hour	30th Hour	
1993	32,408	124%	10.5%	9.7%	N/A
1994	33,641	122%	10.6%	9.7%	3.8
1995	34,413	123%	10.2%	9.6%	2.3
1996	35,755	121%	10.1%	9.5%	3.8
1997	36,258	124%	10.3%	9.6%	1.4
1998	36,275	124%	10.2%	9.5%	0.5
1999	36,677	125%	10.1%	9.5%	1.1
2000	37,168	124%	9.9%	9.4%	1.3
2001	37,504	125%	10.1%	9.3%	1.0
2002	38,790	125%	9.8%	9.2%	3.4

In addition to average daily traffic by year, ODOT has also provided average weekday traffic by month. Table 3 presents this information and illustrates that the summer months of June, July and August experience the highest average weekday traffic volumes. During the winter, only the month of December has slightly higher than average traffic volumes. The Springwater Transportation study uses traffic counts taken in November 2003, which is very close to the average month for the year.

Table 3 –Traffic Volumes (2002) by Month on Hwy 26, Southeast of Powell Valley Road

Month	Average Weekday Traffic	Percent of ADT
January	36,043	93
February	38,260	99
March	37,949	98
April	38,533	99
May	39,463	102
June	41,265	106
July	41,398	107
August	41,625	107
September	40,388	104
October	39,344	101
November	38,314	99
December	39,786	103

While Highway 26 is the only state facility within the study area, there are other important facilities that run either through or near the study area. The roles that each of these facilities play in providing access to and from the study area is described below.

Burnside Road runs generally from the northwest to the southeast within the City of Gresham. To the west of Gresham, Burnside Road continues all the way to Portland. At Powell Boulevard near the north end of the study area, Burnside Road changes names to Highway 26. Gresham classifies Burnside as a Principal Arterial and Metro classifies it as a Major Arterial. Daily volumes range from 27,000 west of Hogan Road to 38,000 within the study area (2000 data). Burnside Road is designated as a National Highway System (NHS) freight route between US 26 and I-84.

Hogan Drive/242nd Avenue is a two to five lane roadway through the study area. To the north, Hogan Drive provides access to I-84 through Wood Village. Within the study area, it is classified as a Rural Arterial by Multnomah County. It is classified by Gresham as an Arterial in the study area and by Metro as a Minor Arterial (south of Palmquist Road). North of Palmquist Road Metro classifies it as a Principal Arterial and south of the study area it is classified as a Rural Arterial. Daily traffic volumes range from 28,000 north of Division Street to 12,000 south of Powell Boulevard (2000 data).

Orient Drive generally runs parallel to Highway 26 through the study area. It is classified by Multnomah County as a Major Arterial west of Elsa Street and as a Rural Arterial to the east. Gresham classifies it as an Arterial just north of the study area and Metro classifies it as a Rural Arterial in the study area. Daily volumes near US 26 observed at 11,000 vehicles in 2000. It also can service over-sized freight vehicles that cannot travel on US 26.

257th Drive/Kane Road runs north-south. The south end of the roadway begins near the study area and continues north through Troutdale to Interstate 84. Gresham classifies it as an Arterial and Metro classifies it as a Major Arterial. There is also a disconnected section of Kane Road in the study area classified as a Rural Collector by Multnomah County (described below).

282nd Avenue runs north-south in the study area as a Rural Collector. This roadway connects to the north to Troutdale. It is classified as a Community Street by Gresham and is not classified by Metro.

Palmblad Road/252nd runs north-south through the study area as a Rural Collector. It is classified as a Community Street by Gresham and is not classified by Metro.

Palmquist Road runs east-west along the very north edge of the study area, but is not classified by Multnomah County west of US 26. East of US 26, the newly constructed segment up to Orient Drive is designated by the county as a major arterial. It provides access between Powell Boulevard to the northwest and US 26 to the east. It is classified by Gresham as a Collector west of US 26 and as a Community Street east of US 26. Metro classifies it as a Collector of Regional Significance (between Regner Road and US 26).

Butler Road runs east-west in the west end of the study area as a Neighborhood Collector. The roadway provides access between Hogan Drive and 190th Avenue to the west into Pleasant Valley. It is classified by Gresham as a Collector and by Metro as a Collector of Regional Significance.

McNutt Road is a Rural Collector connecting 252nd Avenue with Kane Road. It is not classified by Gresham or Metro.

Kane Road is a Rural Collector that starts at McNutt Road and ends at the county line. It is not classified by Gresham or Metro.

Telford Road is a Rural Collector that runs from northwest to southeast through the study area. It is not classified by either Gresham or Metro, but will likely serve as a key route in the development of the Springwater area.

262nd Avenue is disconnected in the study area. The north portion (north of Highway 26) is a Rural Collector and becomes a Collector in Gresham (Barnes Road) and the south portion is a Rural Local. Within the study area, neither portion is classified by either Gresham or Metro.

267th Avenue is also disconnected in the study area, however, both portions are Rural Collectors. The north portion (north of Highway 26) becomes a Collector in Gresham, but neither portion is classified by either Gresham or Metro within the study area.

In understanding the classification and assessment of traffic facilities in the study area, it is important to note that the State of Oregon has different performance standards for the arterial networks than the City of Gresham. The State bases their standards on the volume-to-capacity ratio for the facility, while the City bases their standard on an intersection analysis, with LOS D being identified as the minimum preferred condition. For example, the intersection of Powell Boulevard/Burnside is approaching the city's minimum Level of Service (LOS) standard. The maximum volume-to-capacity ratio on Highway 26 for the study area ranges from 0.90 to 0.99.

Traffic Safety

Information on the crash history at intersections near the study area was provided by the City of Gresham. When taken as a whole, the total crashes at the study intersections increased from 171 in 2000 to 222 in 2002, while the number of injuries remained at approximately 125. Although there were no fatalities in either 2000 or 2002, the year 2001 saw two fatalities.

The collision rate analysis within the study area identified one intersection as a potential safety concern. The Orient Drive/257th Avenue/Palmquist Road intersection historically had higher than average crash rates. The recently completed street improvements for these intersections should reduce the propensity for crashes in the future. The only other location with a notable crash rate was at 242nd Avenue and Rugg

Road with 0.5 crashes per million entering vehicles. The crashes at this unsignalized, three-leg intersection are presumed to occur as vehicles make a left from a slow moving Rugg Road onto the fast moving 242nd Avenue.

Intersection Analysis

The intersection performance was evaluated at study area intersections that had known operational issues, or were expected to be key gateways for the community. The analysis followed the 2000 Highway Capacity Manual (HCM) methods for determining the Level of Service thresholds, and the volume-to-capacity ratios for each location. The LOS thresholds as defined in the 2000 HCM are listed in Table 4.

Table 4 – 2000 Highway Capacity Manual Thresholds

Level of Service	Control Delay per Vehicle (seconds)	
	Unsignalized	Signalized
A	<10	<10
B	>10 and <15	>10 and <20
C	>15 and <25	>20 and <35
D	>25 and <35	>35 and <55
E	>35 and <50	>55 and <80
F	>50	>80

Currently, all of the signalized intersections in the study area operate at an acceptable level of service (LOS D or better). This threshold is consistent with the City of Gresham and Multnomah County's minimum accepted conditions during peak hours. The afternoon/evening peak hour condition at the Burnside Road intersection at Powell Boulevard is approaching the minimum acceptable threshold. Further growth within the study area or the general East Multnomah County region is likely to exceed the planned capacity at this location in the near future.

Three locations controlled by two-way stop signs operate at poor levels of service (LOS E or LOS F) for the minor street approaches. These locations are: Highway 26 at Stone Road, Highway 26 at 267th Avenue, and Orient Drive at 14th Street.

Freight Routes

In the vicinity of the study area, 242nd Avenue (to just south of Palmquist Road) and Orient Drive are classified by Metro as Road Connectors and Highway 26 is classified as a Main Roadway Route. There is also a proposed Road Connector linking 242nd Avenue to Highway 26 just north of the existing Gresham City limits. ODOT classifies only Highway 26 as a Statewide Highway in the study area. The current NHS freight route includes Highway 26, Burnside Road, and 181st Avenue to I-84. A secondary freight route is shown on 242nd Avenue between Burnside Road and Glisan Street, then heading west to 207th Avenue and then north to I-84.

ODOT has an automatic traffic recorder (ATR) station on Highway 26 just south of Powell Valley Road. Trucks account for 4.5 percent of the total average daily vehicle volume at that location, where trucks are defined as any vehicle greater than two axles or four wheels.

Bicycle and Pedestrian Network

Within the study area, there is one regional multi-use path (Springwater Trail) and one major roadway with a dedicated bicycle lane (on Highway 26) for both directions of travel. The Springwater Trail is paved and open to both bicyclists and pedestrians. Within the study area, the trail generally parallels Telford Road and provides a north-south connection between the county line and the City of Gresham. The dedicated bicycle lane runs through the study area along Highway 26 from the City of Sandy to the City of Gresham.

The combination of the multi-use bicycle and pedestrian path and dedicated bicycle lanes provides north-south access to and from the study area. However, the study area is lacking sufficient east-west connections. Two roads, Rugg Road and Stone Road, travel the length of the study area in the east-west direction. While Stone Road provides acceptable conditions for an experienced bicyclist, Rugg road is narrow with no striping, and therefore, it does not provide adequate safety for most bicyclists. Very few, if any of the roadways within the study area provide continuous sidewalks.

Transit Network

In the study area, there are few existing transit facilities. The Gresham Central transit center (located north of the study area) serves as the main transit center for the study area, at present. Only one TriMet route (Route 84) operates within the Springwater study area. It only briefly enters the northeast corner of the study area near the intersection of SE 282nd Avenue and Orient Drive. Route 84 operates between the Gresham Transit Center and the communities of Boring and Kelso.

The Gresham Central transit station has several additional fixed-route bus services and a light rail station. The bus routes that are most relevant to the study area include:

- Route 9, approximately 15-minute peak-hour headways between the Gresham Transit Center and Portland City Center
- Route 80, approximately 40-minute peak-hour headways between the Gresham Transit Center and Troutdale
- Route 81, approximately 40-minute peak-hour headways between the Gresham Transit Center and Troutdale
- Route 82, approximately 60-minute peak-hour headways between the Gresham Transit Center and the Rockwood Transit Center.

In addition, Sandy Area Metro (SAM) runs a bus with a 30-minute peak-hour headway and a 60-minute off-peak headway along Highway 26 between Sandy and the Gresham Transit Center. However, this service does not currently stop in the Springwater study area.

TRANSPORTATION SYSTEM ALTERNATIVES ANALYSIS

Transportation networks were developed for the three land use alternatives developed during the concept planning process[1]. The peak hour trips generated with full development of the Springwater area were estimated to range from 9,200 for Alternative A up to 10,800 vehicle trips for Alternative C. These estimates assumed nominal transit services for this area, and could be further reduced with improved transit services or travel demand management programs.

[1] The Concept Planning process and the three Concept Plan scenarios are described in more detail in the Springwater Community Plan Report Summary (Springwater Community Plan Volume I)

The general features of the initial circulation networks for the three scenarios included:

- Alternative A: A central grade-separated interchange on US 26, with two parallel highway overcrossings roughly collinear with Orient Drive-Butler Road and Rugg Road-Stone Road. The local street patterns maintained the north-south grid layout commonly observed in built neighborhoods to the north.
- Alternative B: Two at-grade connections on US 26, with one grade-separated overcrossing near Stone Road. The local street grid rotated 45 degrees to mirror the orientation of US 26.
- Alternative C: A northern grade-separated interchange on US 26, roughly collinear with Orient Drive, with a new connection along Telford Road to Hogan Drive. Two parallel highway overcrossings to US 26 were located further southeast.

These networks formed the basis for the model networks with the year 2025 travel forecasts. The nature of traffic controls for the at-grade intersection and ramp terminals was not specifically evaluated for each of the scenarios.

Future Traffic Forecasts

Metro's regional 2025 travel demand forecast model (recently used for the RTP update) was determined to be the most appropriate model for this project. The Financially Constrained model scenario was adjusted to reflect the mid-level land use alternative for Springwater (Alternative B), and then Metro modeling staff re-ran the trip distribution model to update new travel patterns in the Springwater area. In addition, the model was refined to provide a greater level of street network detail in the Springwater area for a future base condition as well as the three conceptual street networks (with their associated land use patterns). The land use assumptions applied in the travel demand forecasts for Springwater are summarized for households (HH), retail employment (RET) and other employment (OTH), as shown in Table 5.

Table 5: Springwater Land Use Assumptions for Travel Forecasts

Transportation Analysis Zone	Households	Retail Employment	Other Employment
542	81	0	9
662	19	0	0
663	19	0	144
690	0	0	1,870
691	0	0	608
1300	70	0	0
1301	175	0	0
1302	334	0	0
1303	386	128	1,669
1304	510	109	415
1305	144	0	681
1306	0	0	2,544
1307	0	0	324
1308	0	0	1,431
1309	0	0	376
1310	0	0	751
1311	0	0	233
1312	0	89	1,602
1313	0	0	1,385
1314	0	0	1,121
1315	5	0	374
1316	61	0	8
1317	272	69	897
1318	41	0	0
Totals	2,115	395	16,443

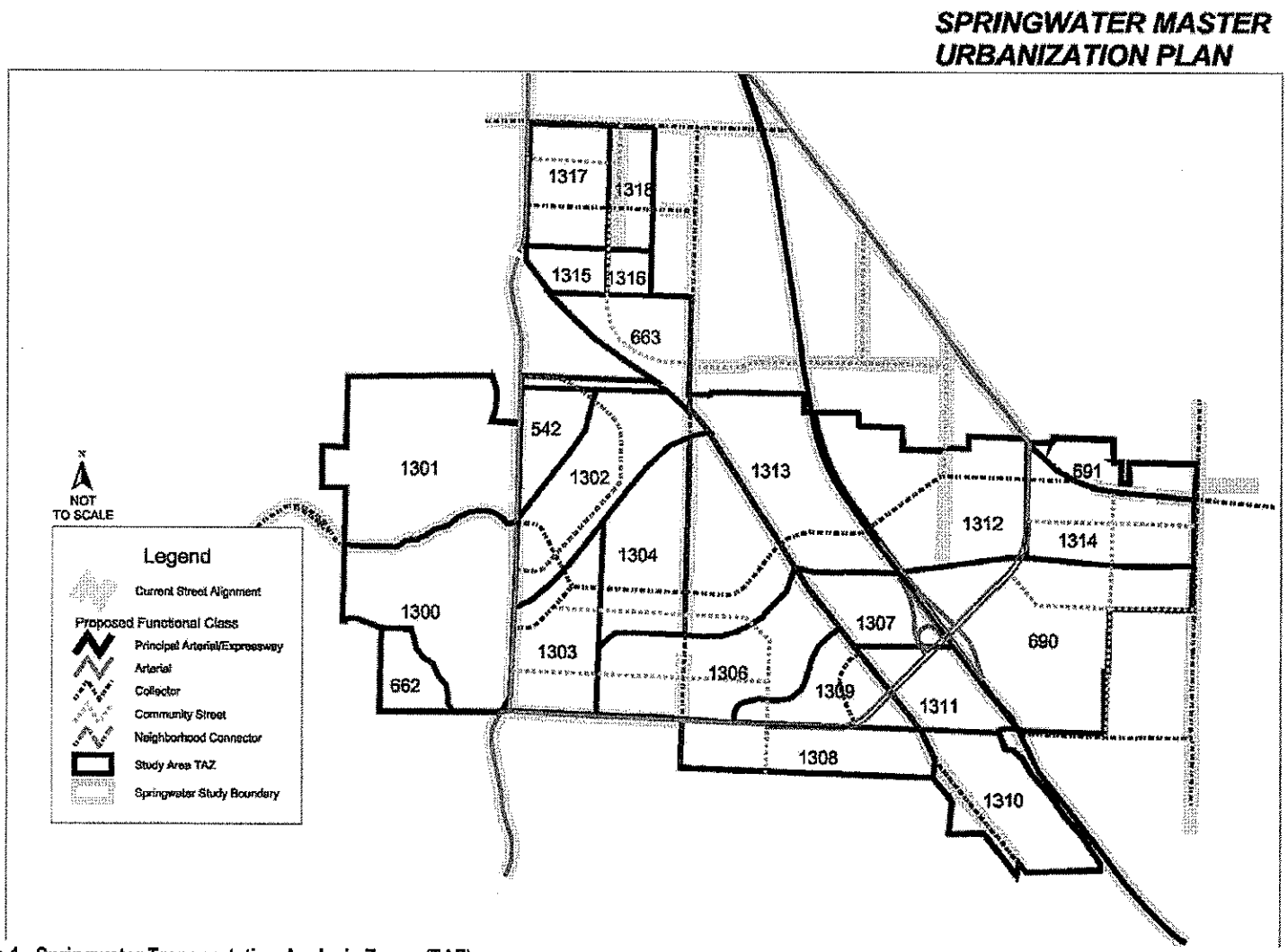


Figure 1. Springwater Transportation Analysis Zones (TAZ)

The 2025 travel forecasts showed significantly different travel patterns than is currently typical for this area of Gresham, primarily because of future employment centers in Springwater and in Damascus to the south in Clackamas County. The model analysis found a significant proportion (about two-thirds) of Springwater traffic traveling to and from areas south of the county line (including southeast and southwest) versus about one-third to and from the north. Model volumes were "post-processed" to develop intersection turn movement volumes for each of the alternatives.

Alternative Comparison

The three land use and circulation alternatives were compared based on expected vehicle trip generation, system capacity analysis, preliminary cost estimates for street improvements and general observations.

A further refinement was made in the estimation of trip generation to account for the effects of truck traffic within Springwater. Truck trips were determined using data obtained from studies conducted by Caltrans in the 1980's. Truck trips were calculated as a percentage of total trips by ITE land use category. Truck activity ranged from a low of 1 percent for office uses up to 13 percent for warehousing and distribution centers. Table 6 summarizes the number of truck trips estimated for each scenario. While truck trips vary by up to 65 percent between scenarios, this represents a difference of less than 200 evening peak hour trips.

Table 6: Relative Peak Hour Vehicle Trip Comparison Between Scenarios

Scenario	Base Trips	Truck Trips	Length Adjusted Trips
A	9,254	466	9,496
B	9,950	399	10,180
C	10,723	279	10,954

Length adjusted trips are intended to account for the fact that trip length varies by land use type. For example, work related trips are typically longer than school and shopping trips. Trip length factors derived from the *National Personal Transportation Survey* were applied to estimated trip generation by land use category. Residential trips formed the baseline trip length, with work, shopping and other trips assigned factors relative to those trips. Length adjusted trips do not vary significantly, in relative proportion, to base trips. Therefore, this adjustment does little to clarify the differences between scenarios.

Intersection level of service was calculated at study intersections using Highway Capacity Manual methodology[2]. In addition, the general system performance of the major arterials and highways were reviewed for each road segment within the study area. The cumulative effects of planned growth through East Multnomah and Clackamas County (including Springwater, Damascus, Boring, and Pleasant Valley) are reflected in the system impacts described below. Key highlights of the level of service analysis and system review include the following:

- The off-site intersections along Hogan Drive and Burnside Road between Division and Palmquist fail for all three alternatives. Major system improvements are needed in this area (corridor and/or intersection level) regardless of the alternative selected for Springwater.
- Several intersections fail along Hogan Drive between Division Street and the Springwater study area in each alternative. The intersection of Butler/Hogan is better (LOS E) in Alternative A than in the other alternatives.

[2] *Highway Capacity Manual*, 2000, Operations Method.

- Several intersections fail along US 26 (outside of the Springwater area) regardless of the alternative.
- Alternative B does not include an interchange with US 26 in the Springwater study area, but does include two at-grade intersections. Preliminary analysis indicates that these intersections would theoretically work acceptably, either as at-grade signalized intersections or as roundabouts, but only with three through travel lanes on US 26. Three-lane roundabouts are very rare (some can be found on the east coast and in Europe) and are not practical or feasible for this location. Additional turns lanes would also be required at both intersections, even with additional travel lanes on US 26.
- Hogan (as three lanes) operates over capacity within the study area for each of the alternatives. A five-lane section will be needed on Hogan Drive within the study area, possibly extending as far south as ORE 212. This type of improvement is already in the long-range plans adopted by the Gresham and Multnomah County. Further south, Clackamas County has programmed improvements three lanes for Hogan Drive, but, as part of the Damascus Community Plan development, is re-evaluating those needs, and they are expected to show need for a five-lane street section.
- US 26 operates the best under Alternative A within the study area. Under Alternative A US 26 does not exceed capacity for any link to the study area. Under Alternatives B and C, US 26 does exceed capacity on some links.
- All north-south routes, with the exception of 257th Avenue are approaching or exceeding their capacity between I-84 and Powell Boulevard for most or all of their southbound links.
- East-west routes generally operate within planned capacity throughout the Gresham/East County area.

Preliminary, planning level cost estimates were developed for each alternative for arterial and collector roadways within the study area. All arterials and collectors were assumed to be three-lanes wide with a 74 foot right-of-way, with the exception of Hogan Drive, which was assumed to be five-lanes wide with a 100 foot right-of-way. Subsequent to the alternatives analysis, the appropriate street cross-sections were determined to best service the plan area, and this included several arterial sections with more than three lanes. These right of way widths and associated roadway costs include Green Street swales where appropriate. Roadways within and along the periphery of the Springwater Study Area were included in the cost estimates. Table 7 summarizes the costs for each alternative.

Table 7: Preliminary Arterial/Collector Roadway Costs by Alternative (in Millions)

Functional Classification	Alternative A	Alternative B	Alternative C
Arterial	$46.3	$43.8	$40.6
Collector	$49.4	$50.0	$48.0
Interchange/Overcrossing/Roundabout	$20.0	$4.5	$20.0
Total	$115.7	$98.3	$108.6

Alternative B appeared to be the least expensive, but the cost differences were within the margin of error for typical planning-level costs. Alternative B is less expensive, primarily because no interchanges are included in that alternative and the costs of widening US 26 to three lanes are not included in these cost estimates. Also, additional considerations will need to be addressed including the need and/or desire to limit access to US 26 since Alternative B requires at-grade access.

Based on the previous analysis of the alternatives, it was determined that none of the alternatives was clearly superior in terms of the relative impacts to the regional transportation system, or the extents and

functionality of the on-site circulation system. Therefore, it was recommended that a hybrid circulation system be developed to support the preferred land use plan that incorporates the best parts of the circulation alternatives. Some general observations that were considered in formulating the preferred alternative circulation system include:

- Alternative A provides only one east-west arterial, while Alternatives B and C each provide two. Typically arterials are spaced at approximately one-mile intervals. The core portion of the Springwater study area is about one-mile in the north-south direction and about 2 ½ miles in the east-west direction. Either one or two east-west arterials could function adequately, given the density and location of development within Springwater.
- Alternative C locates the interchange with US 26 toward to the north end of Springwater, providing highway access closer to the urban area where demand is anticipated. Alternative A provides US 26 interchange access centrally located to Springwater, but does not functionally serve urban development further north.
- Alternative B does not include interchange access with US 26, thereby slowing traffic (e.g., roundabouts) or stopping traffic (e.g., traffic signals) on US 26 as it heads south out of the study area.
- Regardless of the alternative, additional capacity is needed for north-south travel through Gresham and East County, either in the form of widening existing facilities (i.e., US 26) or by providing additional capacity through access control and/or new routes.
- Since so much traffic is traveling to and from the south, additional inter-regional capacity is needed between Springwater and areas south (i.e. Damascus-Boring).

RECOMMENDED TRANSPORTATION SYSTEM PLAN

Motor Vehicle Plan

The motor vehicle plan for Springwater connects employment and residential neighborhoods to the regional arterial and highway facilities to provide safe and convenient access for future residents and workers. The existing arterial facilities such as Palmquist Road, Orient Drive, and 242nd Avenue form the framework for travel around and through this area. A new arterial is recommended to provide east-west circulation within the community, and to provide access to US 26.

The new arterial route begins along existing Orient Drive, then bends south to form a new four-way intersection within Springwater. This functional change will help to reduce travel speeds on Orient Drive to be more compatible with existing residential uses. A new arterial would continue south then southwesterly across US 26 to connect to Rugg Road and 242nd Avenue. This new arterial route is expected to be the primary link for employment circulation within Springwater, and it is also expected to serve regional traffic for connections to and from US 26. The other new arterial crosses US 26 to the north, and connects to Telford Road and the middle of the Village Center area west of 252nd Avenue.

The new residential neighborhoods east of 242nd Avenue include the Village Center area opposite to Butler Road. This area will be served by a series of collector streets and one neighborhood connector, as shown in Figure 1. The looping neighborhood connector alignment reduces the number of stream crossings, and still provides convenient connections from the residential neighborhoods to 242nd Avenue and the Village Center. The proposed functional classifications are consistent with the adopted Gresham Transportation System Plan. The exception is the designated Neighborhood Connector route, which has the same design profile as a Community Street, but allows for future traffic calming measures to be deployed, as the need arises.

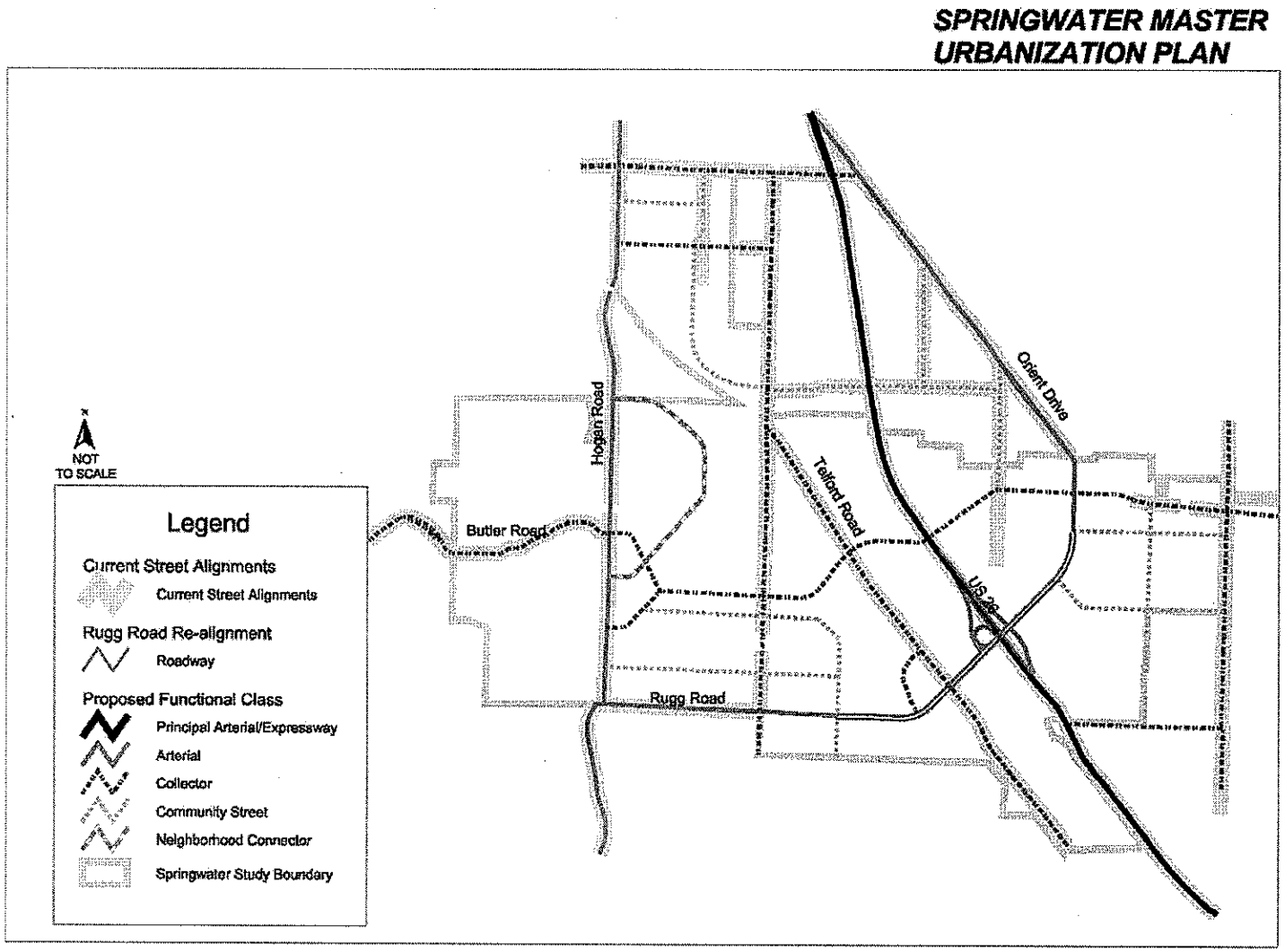


Figure 2 – Proposed Functional Classifications

Transit Plan

Current transit plans do not extend to the Springwater community, and any new service will require an amendment to the existing TriMet and Metro transit plans for this area. In order to provide convenient access to most of the employment and residential areas internal and external to the Springwater expansion area, three transit routes have been identified. Each of these routes will offer a different level of service to transit riders based on the City of Gresham's transit typology.

Primary routes serve as regional trunk lines and provide high quality transit service between community and employment centers and the rest of the region. A priority within this corridor is to ensure adequate and convenient pedestrian and bicycle access to stops and transit preferential treatments such as signal preemption, bus shelters and curb extensions. This route should provide 10-15 minute service between transit vehicles during peak traffic hours and no less than 30 minutes between transit vehicles during non-peak times. The primary route proposed with the Springwater plan travels north/south via Hogan Road/242nd Avenue and will connect the Springwater study area with the MAX light rail line, Mt. Hood Community College and other transit opportunities in Gresham to the north, and the Damascus-Boring area to the south. Depending on ridership levels and transit funding in the region, this corridor is a likely candidate for future high capacity transit services.

Higher capacity transit services could increase the attractiveness of using public transit for Springwater residents and employees. This type of service would be provided by combinations of larger vehicles, less time between vehicles, and higher travel speeds that could make the transit trip more competitive with the conventional automobile trip. The higher capacity transit services could include bus rapid transit, a separated bus way, or street car facilities. Each of these types of services would have specific needs for expanded stations and platforms compared to fixed-route bus service. They also have higher priority for right-of-way at arterial intersections to reduce travel delays and maintain schedule reliability.

Secondary routes connect higher-density neighborhoods to light rail, primary transit routes, and centers. These routes are typically shorter in length than primary routes and are designed to serve mainly Gresham and the rest of east Multnomah County. Peak hour traffic service should be 10-15 minutes between transit vehicles and off-peak service should be between 30-60 minutes between transit vehicles. The proposed Springwater secondary route will provide a loop pattern around the study area, traveling on Kane Road, Orient Drive, Rugg Road and terminating in the Village Center.

The third layer of service, neighborhood circulation, provides local service connections between lower-density neighborhoods, employment centers and higher-frequency transit routes. These routes may be serviced by shuttle buses or vans and may include paratransit. Paratransit service enhances access to the regular fixed bus routes by serving residences and businesses within 3/4 – mile from the existing designated route. Peak hour traffic service should be 15-30 minutes between transit vehicles and off-peak 30-60 minutes between transit vehicles. The neighborhood circulation route proposed for Springwater will bisect the study area by traveling along Butler Road to Pleasant Valley and other points west of the study area including Foster Road. Extending this service across US 26 into the rural eastern section of the study area will provide more coverage within Springwater with a minimum service investment. Existing fixed route bus service in this area is provided by Route 84, which also provides services in the rural lands east of 282nd Avenue. TriMet may modify the services provided by this existing route as new routes are provided within the Springwater area. Any route modifications will be subject to further study be TriMet.

Proposed transit routes are shown in Figure 3. In addition to the proposed routes described above, Sandy Transit currently offers and express bus service along US 26 with 30-60 minute frequency during the weekday. This service does not currently have any local stops, but could possibly be amended to allow for local stops and circulation in Springwater in the future.

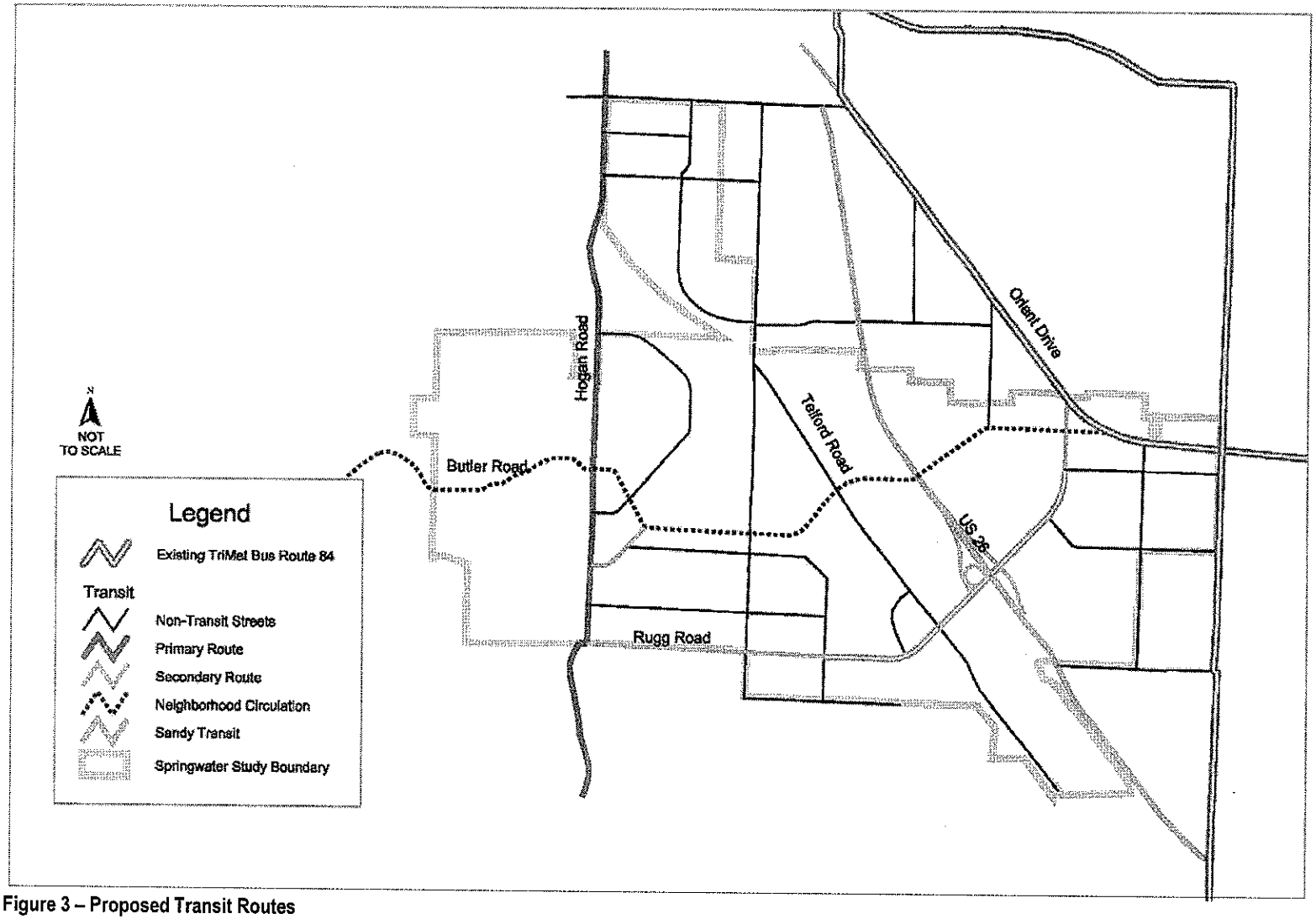


Figure 3 – Proposed Transit Routes

Bicycle and Pedestrian Plan

The design for non-motor vehicle travel shares all the Springwater roadways, and uses specific off-street facilities for exclusive connections to the many greenways, open spaces and a regional trail system. The proposed Bicycle and Pedestrian Plan, illustrated in Figure 4, shows the arterial and collector system within Springwater, and one alternative for the trail system. The final trail alignment east of US 26 has not been selected. Two trail options – one adjacent to streets and one adjacent to streams – are show in more detail in the Public Facilities Plan and will undergo further evaluation by the City. The costs for off-street trails adjacent to streets have been included within the Parks Master Plan for Springwater, and they are not specifically identified within this TSP. If the recommended trail alignment includes trails along multiple stream corridors east of US 26, the cost of the trail improvements may change from the costs identified in the Public Facilities Plan.

Figures 5a and 5b show typical cross sections for different street types in Springwater. All of the community streets, collector streets and arterials within the plan have provisions for either on-street bicycle lane facilities, or parallel off-street trails that provide bicycle riders a convenient route to various destinations. As in Pleasant Valley, all streets also have provisions for Green Street swales, with the exception of the streets that are anticipated for use in commercial office areas with high turnover of on-street parking. Figure 5b shows swale medians on regional facilities, however swales could also be located adjacent to sidewalks depending on the specific needs of the adjacent properties. Additional details regarding the bicycle and pedestrian trail system are provided in the Public Facility Plan and Master Plan for Parks, Trails, and Open Space. Similarly, all of the streets within Springwater include sidewalks, either curb tight (for local streets) or separated from the roadway by planter strips The design of street spacing within the residential areas corresponds with the regional spacing requirements in the RTP under Title 6.

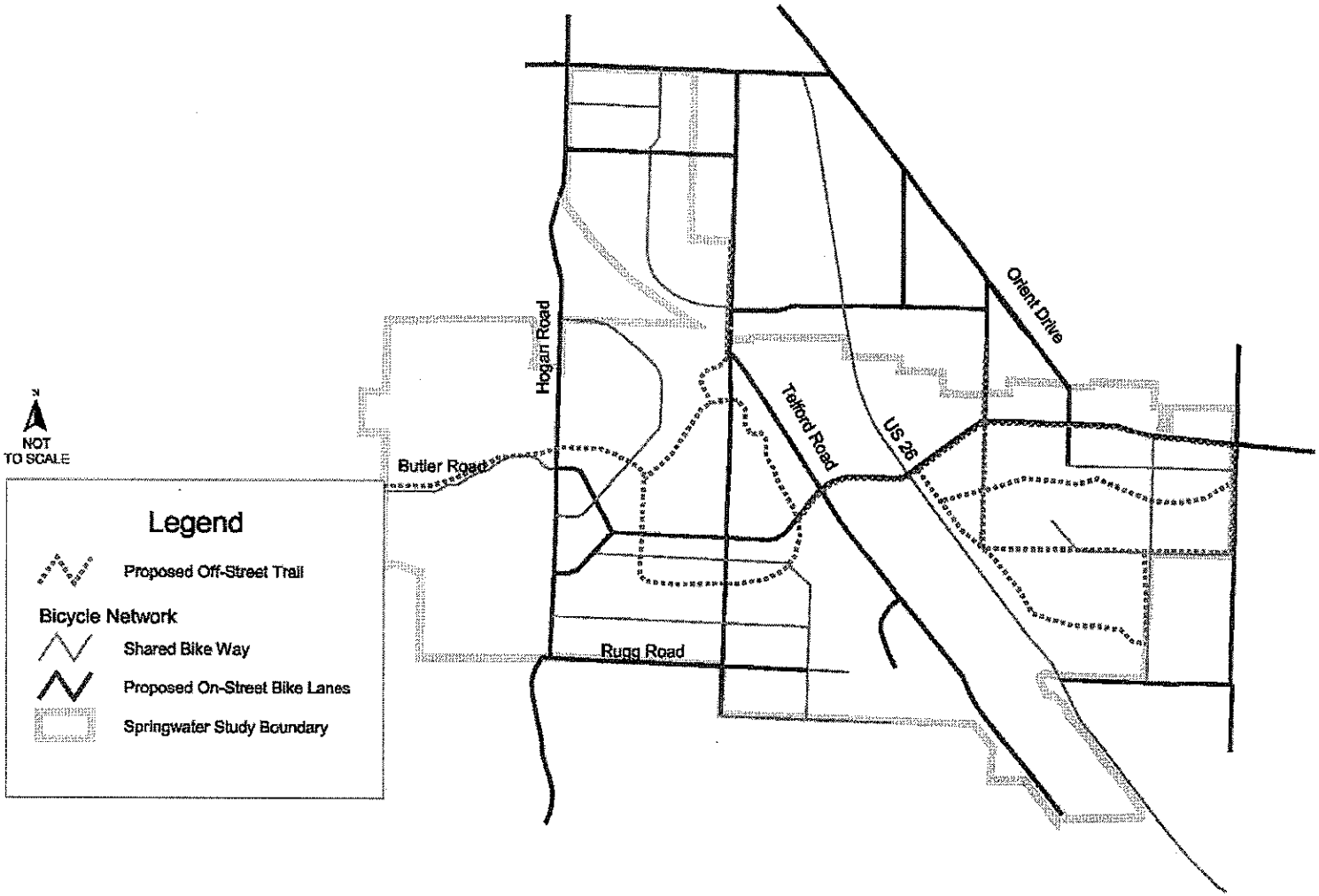
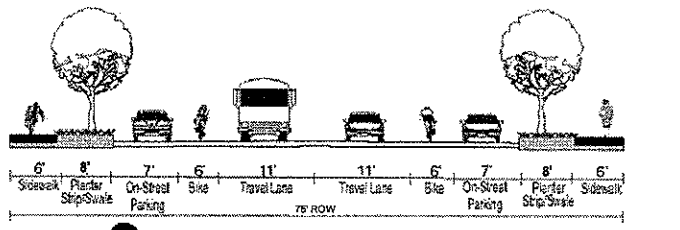
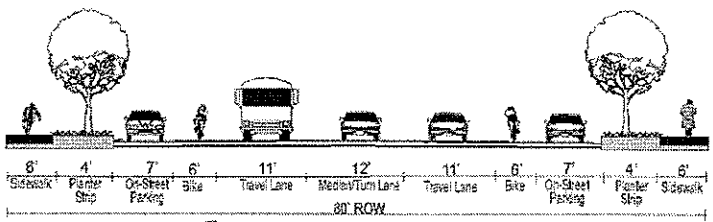


Figure 4 – Proposed Bicycle and Pedestrian Plan



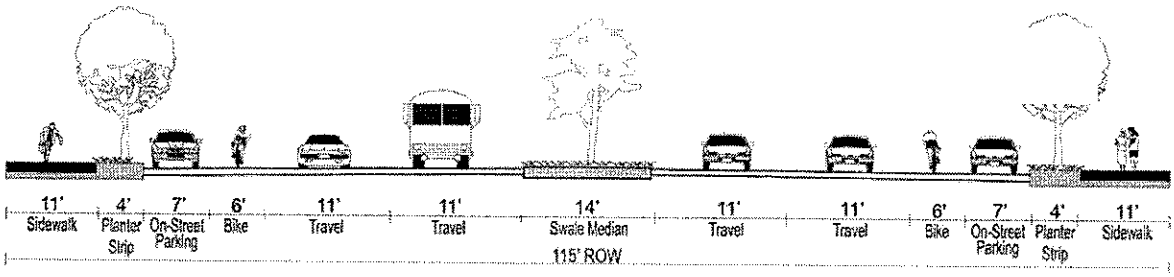
1 Community Street/ Neighborhood Connector



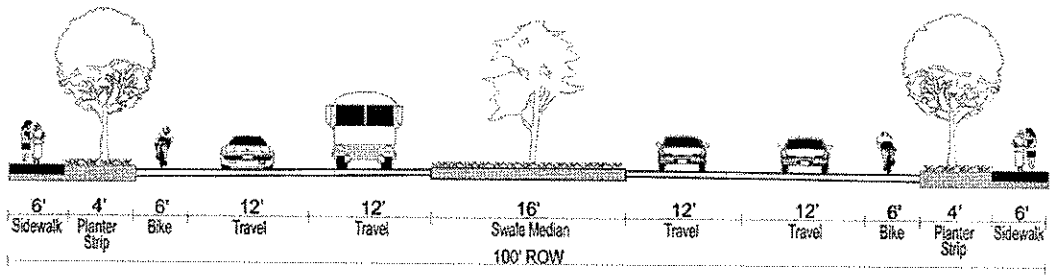
2 Collector

	R/W	Bike	Sidewalk	On-Street Parking	Swale Included	Travel Lanes	Median
1	70'	✓	✓	✓	✓	2	
2	80'	✓	✓	✓		2	✓

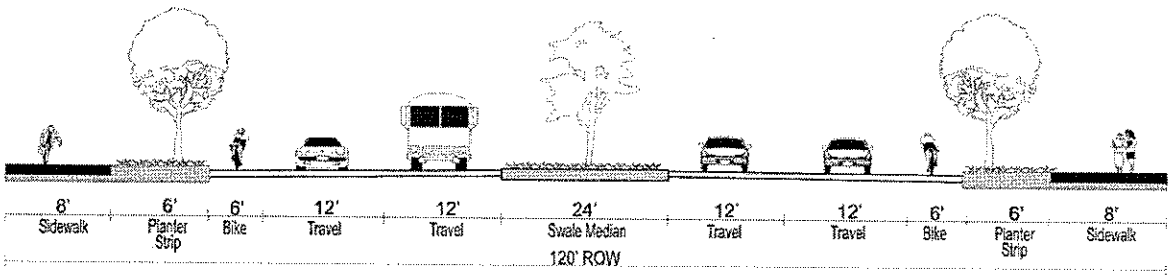
Figure 5a. Springwater Street Cross Sections



3 Boulevard



4 Arterial



5 Principal Arterial/Expressway *

	R/W	Bike	Sidewalk	On-Street Parking	Swale Included	Travel Lanes	Median
3	115'	✓	✓	✓	✓	4	✓
4	100'	✓	✓		✓	4	✓
5	120'	✓	✓		✓	4	✓

* Expressway cross section will be based on the Oregon Department of Transportation's Highway Design Manual.

Figure 5b. Springwater Street Cross Sections

Freight Master Plan

To accommodate planned vehicle movement through Springwater, the Gresham's TSP and the Regional Transportation Plan should be amended to delete the planned connection between Hogan Drive and US 26 that was originally envisioned as part of the Mt. Hood Parkway project. In addition, the planned designation of this route as a freight route should be amended to terminate at Powell Boulevard. This segment represented the most southern portion of the planned 242nd Avenue freight route from US 26 and I-84 in conjunction with the County's 242nd Avenue extension project to I-84 to provide an alternative freight route between US 26 and I-84. That project has been suspended, and the roadway connection within this study area is not included in the Springwater Concept Plan. The remaining segments of the 242nd freight route, from Burnside Road to Glisan Street, will continue to provide service to the I-84 interchange at 207th Avenue. On-going studies in Clackamas County may recommend amending the freight route designation for 242nd Avenue south of the city limits to Highway 212.

In addition to the regional freight route services, the street system within Springwater has been developed to provide convenient freight vehicle movements to local destinations. Local freight travel is best facilitated by adhering to appropriate functional class street cross-sections, appropriate curb radii at intersections and driveways, public street and access spacing standards, efficient traffic control plans, and by maintaining adequate service levels during peak travel hours of the day. The primary freight routes for local service will be provided to and from US 26 at the planned interchange near 252nd Avenue, then distributed to local destinations via arterials and collector streets. These elements have been incorporated into the Springwater Community plan.

Other Travel Modes

Airport
There is no airport or airfield within the study area. The closest airport activity is the Troutdale Airport, which provides general aviation services, but no commercial airline carrier services.

Rail
There is no freight or passenger rail facilities within the planning area. The Springwater Trail is located on a former freight line right-of-way, but there is no active freight services within this corridor.

Pipeline
There is one high-pressure gas line within the study area along Hogan Drive – 242nd Avenue corridor. Appropriate setbacks from the gas line and construction activity around it should be maintained. Refer to the Gresham TSP for details on the high-pressure gas line, and the planned water service line from the Bull Run reservoir.

IMPLEMENTATION PLAN

The Springwater area has several key implementation issues associated with incorporating the Springwater Plan into the City of Gresham plans and ordinances, staging infrastructure improvements to US 26, and linking to existing County and State roadway facilities. To resolve these issues, as part of the adoption phase of the Springwater Community Plan efforts, the City's transportation system plan will need to be amended to include:

- Recommended changes to the street functional class map
- Recommended street cross-sections for the Springwater area
- Recommended amendments to the transportation plans for each travel mode (motor vehicle, transit, bicycle, pedestrian)

- Funding program needs for the City of Gresham and the addition of transportation improvements to the project list..

These elements are described in more detail later in this TSP.

New or modified street connections to County facilities (e.g., 242nd Avenue, 282nd Avenue) will require compliance with appropriate spacing and design standards. One specific consideration for streets on the Urban Growth Boundary edge, especially 282nd Avenue, is that urban improvements will be built on the Springwater site only. The rural edge of these street facilities will be left intact on the side fronting the rural protect lands.

US26 Improvements

This section summarizes findings from the Springwater US 26 Concept Design and Access Study prepared under a separate planning document (included in the Reference Documents). The study focused on alternative access concepts to US 26 to support Springwater as it develops over the next twenty years. The development assumptions and travel forecasting process was coordinated with the Master Plan development process so that the same assumptions and methods were applied for both studies. The 2025 travel forecasts were made using the same Metro model that was applied for Springwater. More detail was provided to describe the various network alternatives used in this study, but, overall, the same base model was applied. A wide range of alternative highway connections were investigated for Springwater, including at-grade intersections controlled by traffic signals, and several variations of grade separated interchanges. The alternatives were developed with consideration of applicable mobility, safety and design standards that are adopted by ODOT and the City of Gresham. One of the critical elements of this concept design process considered the minimum spacing between adjacent traffic signals or interchanges and the proximity to major environmental constraints , so that the proposed alternatives were consistent with standards, and generally considered feasible to construct. The concept design alternatives were evaluated using 2025 traffic conditions to assess how successful they performed relative to the applicable automobile and freight mobility standards. A comparative matrix evaluation showed the relative merits and impacts for each alternative, in terms of compliance with standards, performance and potential impacts to the environment.

The recommended plan alternative for Springwater was a new US 26 interchange at the southern arterial, which connects to Rugg Road on the west and Orient Drive on the east. Prior to the construction of the interchange, the necessary environmental reviews, facilities design and approval and project funding need to be completed. The initial concept design will be further refined to address any identified impacts or issues identified through these further studies. Interim steps for access and circulation to and from US 26 in the Springwater area were identified in the following phases. Where appropriate, potential thresholds for development triggers in Springwater have been identified, however, a specific evaluation will be required at the time of development application to confirm the need and timing of interim improvements.

POTENTIAL US 26 CORRIDOR CONSTRUCTION PHASING

The potential construction phasing of improvements to the US 26 corridor and Springwater roadway network must support the transportation demand as the Springwater community develops. In general the US 26 corridor will be developed from north to south and will tentatively utilize Proposed Collector A as a temporary connection to US 26 until the transportation demand supports building the Proposed Arterial B interchange as the permanent connection to US 26. Figure 5-6 illustrates the following potential construction phasing for the recommended US 26 corridor concept that is described in more detail in this section:

- Phase 1A: Stop Control at Proposed Collector A

- Phase 1B: Traffic Signal at Proposed Collector A
- Phase 2A: Build Proposed Arterial B Interchange
- Phase 2B: Build Proposed Collector A Overcrossing

The phasing of access improvements to US 26 will need to be addressed at a higher level of detail in the NEPA process and preliminary engineering. This additional analysis may lead to changes in the phasing shown in this report.

Phase 1A: Stop Control at Proposed Collector A
Phase 1A includes the following potential construction elements:

- Construct Proposed Collector A, including a bridge over Johnson Creek, as an at-grade intersection with US 26 just south of the wide median on US 26. This also includes an at grade intersection with Telford Road and the Springwater Trail.
- Install stop signs on the Proposed Collector A approaches to the US 26/Proposed Collector A intersection. Use the lane configuration illustrated in Figure 5-6, which includes one dedicated left and right turn lane and two through lanes on both US 26 approaches as well as one dedicated left turn lane and one shared through/right lane on both Proposed Collector A approaches. An additional dedicated left turn lane and through lane should be added to both Proposed Collector A approaches for the installation of a traffic signal (see Phase 1B) since this geometry will maximize the life span of the intersection.
- Install underground electrical conduit to accommodate the installation of a traffic signal at the US 26/Proposed Collector A intersection (see Phase 1B).
- Close the US 26/267th Avenue intersection upon the completion of the US 26/Proposed Collector A intersection.
- Keep the US 26/Hillyard Road and US 26/Stone Road intersections open.

Phase 1B: Traffic Signal at Proposed Collector A
Phase 1B includes the following potential construction elements:

- Construct a traffic signal at the US 26/Proposed Collector A intersection. Maintain the lane geometry constructed during Phase 1A and open the additional dedicated left turn lane and through lane on both Proposed Collector A approaches.
- Construct visual indicators on US 26 to cue motorists to the presence of a traffic signal. Specific design elements will be determined by ODOT during the design of the traffic signal and may include vertical elements such as raised curbs and roadway illumination that provide a more urban feel.
- Keep the US 26/Hillyard Road and US 26/Stone Road intersections open.

Phase 2A: Build Proposed Arterial B Interchange
Phase 2A includes the following potential construction elements:

- Construct Proposed Arterial B and the interchange at US 26. This also includes grade-separation at Telford Road and the Springwater Trail and a bridge at Johnson Creek. Install traffic signals at the ramp terminals if they are warranted within three years of the interchange completion. Install stop signs at the ramp terminals if traffic signals are not warranted.
- Keep the US 26/Stone Road intersection open during construction of the interchange for as long as feasible.
- Keep the US 26/Hillyard Road intersection open during this phase.
- Maintain the traffic signal at the US 26/Proposed Collector A intersection.

Phase 2B: Build Proposed Collector A Overpass

Phase 2B includes the following potential construction elements:

- Close the US 26/Proposed Collector A, US 26/Hillyard Road, and US 26/Stone Road intersections at the completion of Phase 2A. These intersections will no longer meet access spacing standards once the interchange is operational.
- Remove the traffic signal at US 26/Proposed Collector A.
- Realign southbound US 26 at the north end of Springwater to reduce the median separation between southbound and northbound US 26 to 16 feet, which is the current ODOT standard for US 26. By saving this realignment until the last phase it provides more flexibility for detours, lane closures, or construction staging during the earlier phases.
- Construct the Proposed Collector A overcrossing at US 26.

It will be important for development to recognize the shift in access over time within Springwater. During the early years, primary access will be to and from the northern Collector; however, eventually, this connection to US 26 will be close (Phase 3), and these circulation replaced by the new interchange located at the southern Arterial.

Amendment to Street Functional Class Map and Plan Designations

The city street designations in the Gresham Transportation System Plan were applied to the Springwater Master Plan area. The street design type designations and cross-section elements were taken from the Pleasant Valley Plan area, since it is the most recent new development that incorporates Green Street components into new street designs. The proposed Street Functional Class Plan for the Springwater Master Plan area was illustrated in Figure 1.

The key arterial connections for Springwater include US 26, 242nd Avenue, Orient Drive, Kane Road and Rugg Road. The existing alignment of Orient Drive changes to create a new four-way intersection just east of 267th Avenue. This change is intended to separate urban travel to and from the US 26 connections versus rural travel between destinations in rural East County areas. Other aspects of the proposed functional class plan include:

- Orient Drive changes designations from arterial to collector at the new four-way junction.
- Two crossings to US 26 are shown; one is a collector facility and the other is an arterial facility. The north collector changes to a collector after crossing Telford Road, and then continues westerly through the proposed Village Center to its terminus at 242nd Avenue. The southerly crossing to US 26 connects Rugg Road to new Orient Drive junction.
- A neighborhood connector route is shown as a loop road east of 242nd Avenue north of Butler Road through the residential neighborhood.
- Hillyard Road is upgraded to a Community Street between 262nd Avenue and Anderson Road (267th Avenue). This change is recommended because SE 262nd Street is not extended as a full street into the Springwater Master Plan area, because it is too close to the northerly US 26 crossing for a standard intersection. Therefore, the designation of 262nd Street south of Hillyard Road would be changed to local street within the city limits.

Street Cross-sections

Figures 5a and 5b illustrated the street cross-sections for these facilities The illustration shows the right-of-way requirements, and the composition of street elements included within each profile. The cross-sections essentially are the same as shown in the city Transportation System Plan with two amendments. The section have been modified to explicitly allow drainage swales in addition to conventional storm water drainage. Also, a new designation has been added for Neighborhood Connector, which is the same size as a standard Community Street, but it allows for traffic calming measures, as appropriate. All of the streets are expected to provide on-street bicycle facilities and adjoining sidewalks, however, others may also include on-street parking, center medians, or green street swale areas. Outside of the Village Center area, where on-street parking activity is high, it is appropriate and possible to have swales alongside the street curbs. For cases where off-street trails are indicated on the Local Street Connectivity Plan (see Figure 7), the need for on-street bicycle facilities is optional.

Amendment to Street Project List

The Gresham TSP identifies long-range improvement projects that are expected to be built and operational within the plan year period to serve planned growth. New or modified streets within the Springwater area are identified for additions to this list. The street projects are labeled by segment number on Figure 6, and summarized in Table 8 below. The functional class identifies the type of street cross-section that is to be constructed for each of the roadways. The street cross-sections are adapted from the Pleasant Valley plan area, since they incorporate Green Street elements that help to reduce the stormwater runoff.

The total estimated cost for all arterial, collector, and community street improvements is $165.5 million. A portion of this total cost would be built as development occurs through exactions of property and frontage road improvement requirements. The community streets needs represent approximately $50 million of the above total. New or upgraded bridges represent approximately $29 million of the total. All of these projects would be funded and constructed by either the City of Gresham or local development as growth occurs.

Table 8: Springwater Street Projects

New Roads									
Num	***Street***	***From***	***To***	***Functional Class***	***Lanes***	***Length***	***Cost***	***Bridge***	***Bridge Cost***
1	Rugg Road Ext.	Orient Drive	US 26	Arterial	4	3,100'	$9,116,000	1	$3,040,000
2	Rugg Road Ext.	US 26	252nd Avenue	Arterial	4	4,500'	$20,385,000	3	$10,080,000
3	Rugg Road	252nd Avenue	242nd Avenue	Arterial	4	2,700'	$6,183,000		$0
4	4	242nd Avenue	252nd Avenue	Collector	2	2,600'	$4,108,000		$0
5	252nd Avenue	Palmquist Road	10	Collector	2	7,200'	$11,376,000		$0
6	252nd Avenue	10	Rugg Road	Collector	2	1,900'	$3,002,000		$0
7	7	242nd Avenue	9	Collector	2	1,400'	$4,532,000	1	$2,320,000
8	8	242nd Avenue	9	Collector	2	1,100'	$1,892,000		$0
9	9	7	252nd Avenue	Collector	2	1,800'	$3,096,000		$0
10	10	252nd Avenue	Telford Road	Collector	2	1,600'	$4,848,000	1	$2,320,000
11	11	Telford Road	Orient Drive	Collector	4	4,300'	$6,794,000		$0
12	12	Palmquist Road	4	Community Street	2	1,300'	$1,794,000		$0
13	13	4	252nd Avenue	Community Street	2	3,200'	$4,416,000		$0
14	14	242nd Avenue	242nd Avenue	Neighborhood Connector	2	4,400'	$7,992,000	1	$1,920,000
15	267th Avenue	Springwater boundary	16	Community Street	2	1,700'	$2,346,000		$0
16	16	15	Rugg Road	Community Street	2	1,300'	$3,714,000	1	$1,920,000
17	17	Rugg Road	282nd Avenue	Community Street	2	2,500'	$3,450,000		$0
18	18	Orient Drive	17	Community Street	2	1,200'	$3,576,000	1	$1,920,000
19	19	20	Stone Road	Community Street	2	2,600'	$5,508,000	1	$1,920,000
20	20	Rugg Road	9	Community Street	2	1,900'	$2,622,000		$0
21	21	8	252nd Avenue	Community Street	2	1,500'	$2,070,000		$0
22	22	252nd Avenue	26	Community Street	2	2,000'	$4,680,000	1	$1,920,000
23	23	26	Rugg Road	Community Street	2	650'	$2,817,000	1	$1,920,000
25	25	20	252nd Avenue	Community Street	2	1,400'	$1,932,000		$0
26	26	252nd Avenue	20	Community Street	2	2,600'	$3,588,000		$0
		Community Street Subtotal (May be built by development)				28,250'	**$50,505,000**		
				Other Road Subtotal			**$75,332,000**		
New Roads Total						60,450'	**$125,837,000**	**12**	**$29,280,000**
Existing Roads									
27	242nd Avenue	Palmquist Road	Rugg Road	Arterial	4	9,300'	$18,228,000		
28	Telford Road	Springwater boundary	252nd Avenue	Collector	2	8,800'	$13,904,000		
29	Palmquist Road	242nd Avenue	252nd Avenue	Collector	2	2,600'	$4,108,000		
30	282nd Avenue	Springwater boundary	20	Collector	2	2,200'	$3,476,000		
31	US Hwy. 26	267th Avenue	--	Interchange			$24,500,000		
Existing Roads Total						22,900'	**$64,216,000**		
TOTAL						83,350'	**$190,053,000**		
							All bridges assumed 200' long @ $200 per s.f.		

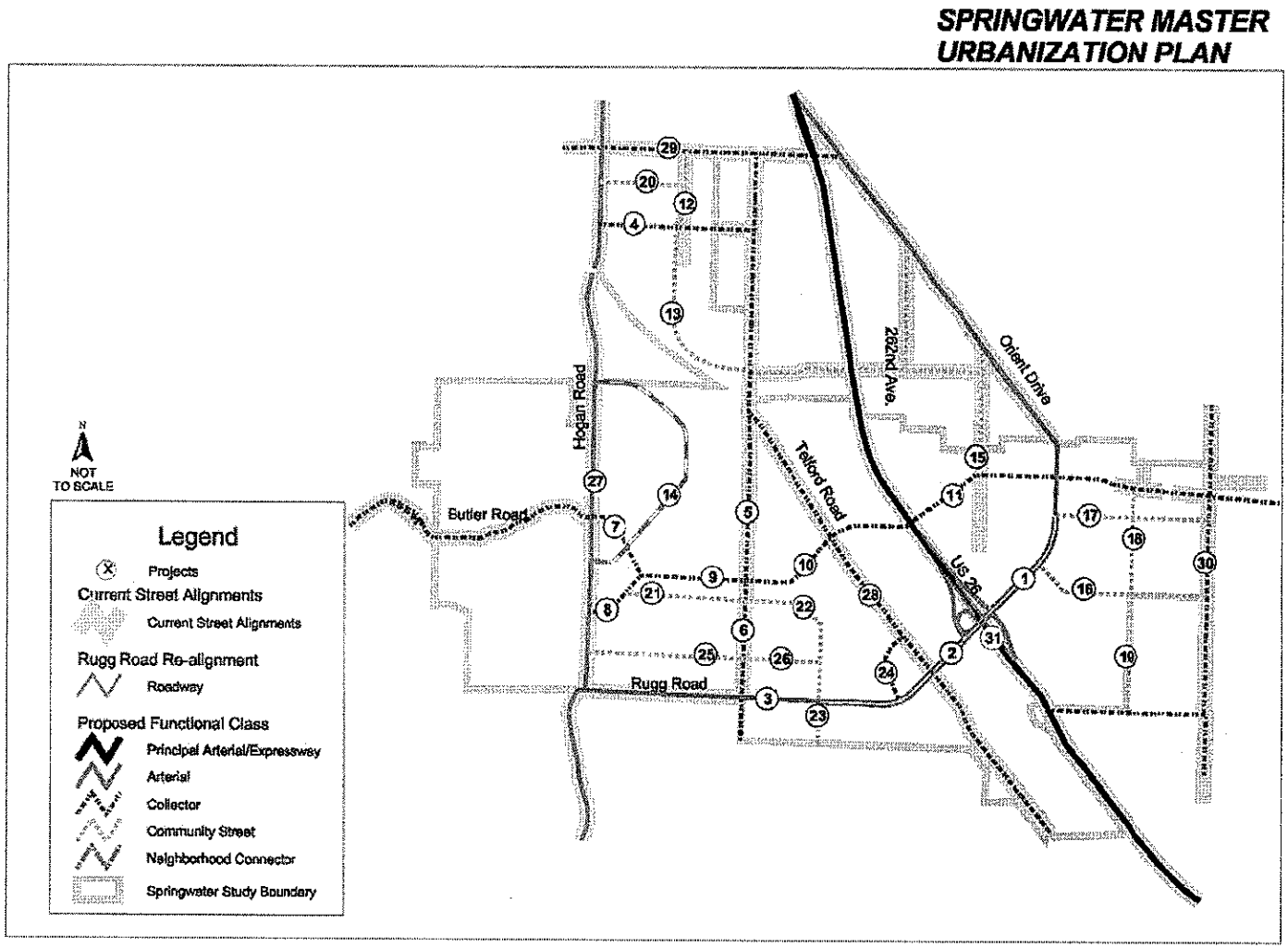


Figure 6. Proposed Functional Classes and Road Projects

For all phases, estimated construction cost for the ultimate US 26 connection improvements totals $24.5 million. Once the preferred US 26 improvement project has been adopted, the specific nature and expected construction costs should be incorporated into the, Gresham TSP, and the Metro RTP as appropriate.

Several existing streets bordering Springwater require improvements in the long-term to support planned growth. These include the projects numbered 27 through 30 shown in Table 8 Of these, Telford Road is the only street that traverses the planning area; the other streets border the site. The total estimated cost for improvements on these facilities is $38 million. Most of these projects will be constructed in a 6-20 year timeframe; however some would be required to support likely initial development in the northern part of the study area adjacent to US 26 and Telford Road. These are shown as occurring in a 1-5 year timeframe. All of the recommended improvements for Springwater are eligible for funding using system development charges (SDCs), however the City should investigate opportunities to obtain federal, state, or private funding to augment local funding of transportation improvements.

Outstanding Issues

The improvements identified above do not address the off-site system improvements required to service long-term travel demands, particularly in the north-south arterial corridors. The North/South Transportation Study (also known as the East Metro Area Telecommunications and Transportation Assessment) is evaluating the need for enhanced services or new facilities, and subsequent regional studies are to address recommended capacity improvements through Gresham (including additional needs associated with Springwater and Damascus development). Preliminary findings from that study show the need for substantially more north-south carrying capacity, which could include upgrade existing arterials to higher quality of service, and implementing a high capacity transit solution between Damascus and Interstate 84. The implications for Springwater potentially include a much higher level of traffic for the connector between 242nd Avenue and US 26 (Projects 2 and 3), and potentially a wider right-of-way requirement on 242nd Avenue (or other parallel north-south route) for a high capacity transit service. Based on this study, the City's Transportation System Plan update and Metro's Regional Transportation Plan update provide forums to continue to address off-site improvements beyond the Springwater Plan.

Local Street Connectivity Map

Overall, local street planning for Springwater incorporates the on-site circulation requirements to support the intended land use development schemes, and is designed to provide key connections for low volume circulation between neighborhoods for automobiles, bicycles and pedestrians alike. A better connected street and trail system helps to reduce out-of-direction travel for all modes of transportation, and it also complies with requirements as described in Title 6 of the Regional Transportation Plan.

The local street network in Gresham bordering the Springwater area is developed along the northern face, on either side of US 26, and portions of the western face along 242nd Avenue, north of Butler Road. The southern and eastern faces of the Springwater planning area border the Urban Growth Boundary and local street extensions are not expected with the current designations. Development of local streets within Springwater will be consistent with standards adopted by the City of Gresham for spacing, sight distance and other design elements. The specific alignments of local streets within Springwater have not been defined explicitly to allow for greater flexibility in land use development.

By providing connectivity between neighborhoods, out-of-direction travel and vehicle miles traveled (VMT) can be reduced, accessibility between various modes can be enhanced and traffic levels can be balanced out between various streets. Additionally, public safety response time is reduced. In south

Gresham, some of these local connections can contribute with other street improvements to mitigate capacity deficiencies by better dispersing local traffic, rather than relying solely on the arterials street system. Several roadway connections are recommended between the residential neighborhood areas to reduce out of direction travel for vehicles, pedestrians and bicyclists.

Figure 7 shows the proposed Local Street and Trail Connectivity Plan for Springwater. The primary purpose of this map is to illustrate how the new Springwater roads and trails will connect to neighborhoods bordering it. In most cases, the connector alignments are not specific and are aimed at reducing potential neighborhood traffic impacts by better balancing traffic flows on neighborhood routes. The double-headed arrows shown in the figures represent potential connections and the general direction for the placement of the connection. In each case, the specific alignments and design will be better determined upon development review. The criteria used for providing connections are as follows:

- Every 300 feet, a grid for pedestrians and bicycles (shown as dotted lines)
- Every 530 feet, a grid for automobiles (shown as solid lines)

Most of the street or multi-use (trail) extensions are shown along the northern edge of Springwater into existing residential neighborhoods. Most of these connections are shown restricted to pedestrian and bicycle travel only (trail), which allows more direct connections to the trails and proposed community parks within Springwater. The full street connections are limited since the land use in this part of Springwater is designated as industrial use, and mixing travel between the two should be discouraged.

To protect neighborhoods from the potential traffic impacts of extending stub end streets, connector roadways should incorporate neighborhood traffic management into their design and construction. All stub streets should have signs indicating the potential for future connectivity. Additionally, new development that constructs new streets, or street extensions, must provide a proposed street map that:

- Provides full street connections with spacing of no more than 530 feet between connections except where prevented by barriers.
- Provides bicycle and pedestrian access ways in lieu of streets with spacing of no more than 330 feet except where prevented by barriers.
- Limits use of cul-de-sacs and other closed-end street systems to situations where barriers prevent full street connections.
- Includes no close-end street longer than 200 feet or having more than 25 dwelling units.
- Includes street cross-sections demonstrating dimensions of right-of-way (ROW) improvements, with streets designed for posted or expected speed limits.

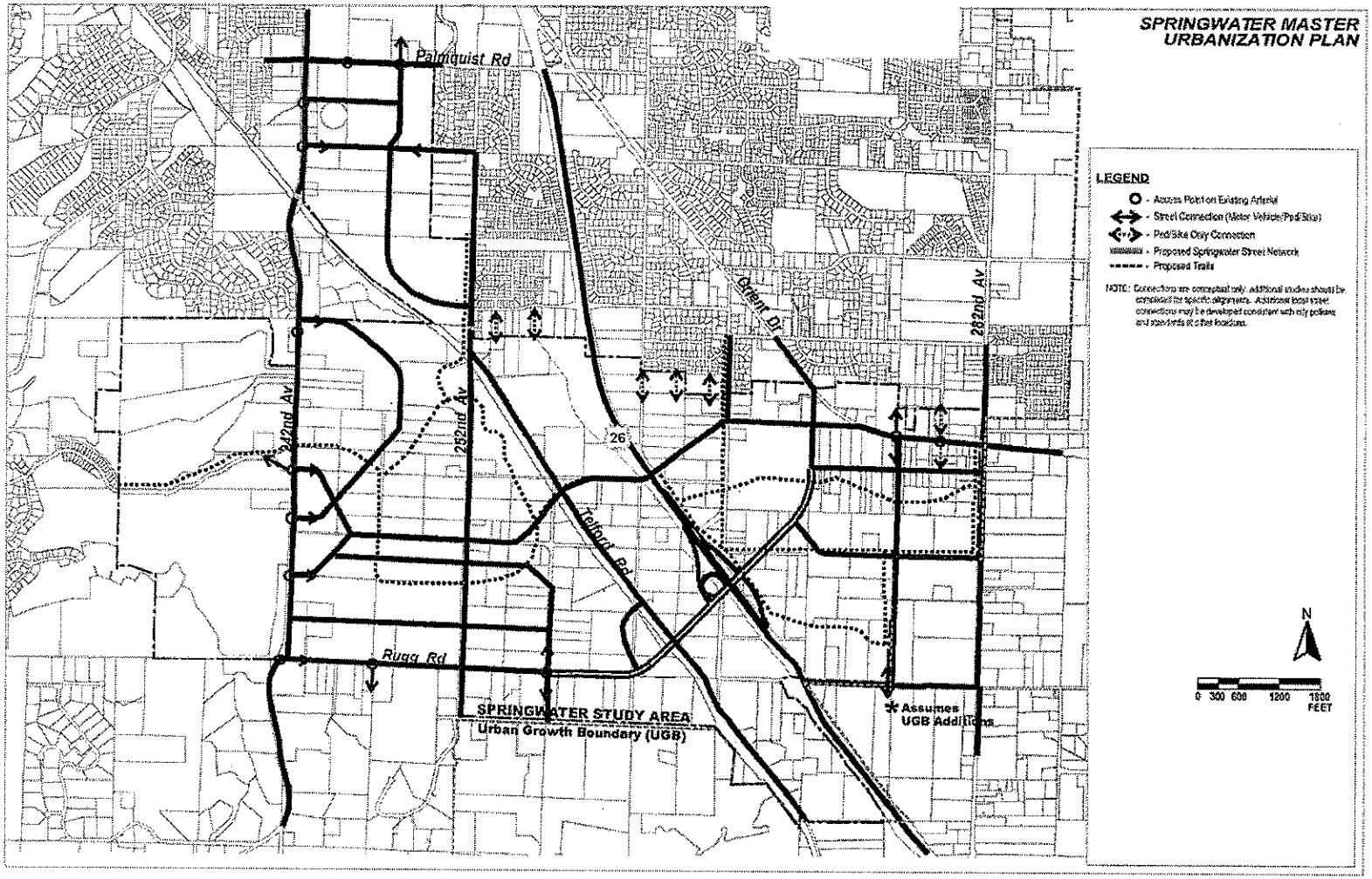


Figure 7. Local Street and Trail Connectivity Map

The other element of the Local Street Connectivity map is the locations on existing arterials that are expected to have new or modified intersections with Springwater streets. This is most significant along 242nd Avenue where seven locations are identified as new or modified intersections for connections to Springwater. The number of connections and distance between adjoining intersections is regulated by access spacing standards, and adopted by the responsible agency, either the City of Gresham or Multnomah County.

PREFERRED PLAN COST ESTIMATE AND FUNDING OPTIONS

The primary funding sources for the development of the transportation system in Springwater will include regional, state, and federal grants for large regionally-significant improvements and existing deficiencies; development exactions for frontage improvements and local street improvements; and transportation improvement fees (TIFs) for development-related system improvements.

The Springwater Plan District will include special Green Street designs for local, collector, and arterial streets. The Pleasant Valley Stormwater Master Plan[3] suggests a possible design for local street drainage, but additional effort may be required to prepare a model Green Street standard. This could be connected with an early development proposal or as a separate staff-level effort. Given the importance of Green Streets to the overall plan for Springwater, the preparation and adoption of model Green Street designs is identified as an early-action item in the list of projects for implementing the TSP.

The tables below outline costs associated with the street improvements in Tables 10, as well as additional studies required to implement the Springwater TSP.

[3] CH2M Hill, July 2004.

Table 9: Springwater TSP Projects

Project	Street	Cost	Timing (Years)	Responsible Jurisdiction	Funding Source
		Projects Within Springwater			
1	Rugg Road Ext.	$9,116,000	6-20	Gresham	SDC/Local
2	Rugg Road Ext.	$20,385,000	6-20	Gresham	SDC/Local
3	Rugg Road	$6,183,000	6-20	Gresham	SDC/Local
4	4	$4,108,000	6-20	Gresham	SDC/Local
5	252nd Avenue	$11,376,000	6-20	Gresham	SDC/Local
6	252nd Avenue	$3,002,000	6-20	Gresham	SDC/Local
7	7	$4,532,000	1-5	Gresham	SDC/Local
8	8	$1,892,000	6-20	Gresham	SDC/Local
9	9	$3,096,000	1-5	Gresham	SDC/Local
10	10	$4,848,000	1-5	Gresham	SDC/Local
11	11	$6,794,000	1-5	Gresham	SDC/Local
12	12	$1,794,000	6-20	Gresham	SDC/Local
13	13	$4,416,000	6-20	Gresham	SDC/Local
14	14	$7,992,000	1-5	Gresham	SDC/Local
15	267th Avenue	$2,346,000	1-5	Gresham	SDC/Local
16	16	$3,714,000	1-5	Gresham	SDC/Local
17	17	$3,450,000	6-20	Gresham	SDC/Local
18	18	$3,576,000	6-20	Gresham	SDC/Local
19	19	$5,508,000	6-20	Gresham	SDC/Local
20	20	$2,622,000	6-20	Gresham	SDC/Local
21	21	$2,070,000	6-20	Gresham	SDC/Local
22	22	$4,680,000	6-20	Gresham	SDC/Local
23	23	$2,817,000	6-20	Gresham	SDC/Local
24	24	$1,824,000	6-20	Gresham	SDC/Local
25	25	$1,932,000	6-20	Gresham	SDC/Local
26	26	$3,588,000	6-20	Gresham	SDC/Local
Subtotal		**$125,837,000**			
		Projects Bordering or Near Springwater			
27	242nd Avenue	$18,228,000	6-20	Gresham	SDC/Local
28	Telford Road	$13,904,000	6-20	Gresham	SDC/Local
29	Palmquist Road	$4,108,000	6-20	Gresham	SDC/Local
30	282nd Avenue	$3,476,000	6-20	Gresham	SDC/Local
31	US 26 Interchange	$24,500,000	6-20	State	State/Fed./Local
Subtotal		**$64,216,000**			

Table 9 (Continued): Springwater TSP Projects

Project	Street	Cost	Timing (Years)	Responsible Jurisdiction	Funding Source
		Additional Projects			
32	Refine Green Street Design Standards	$50,000	1-5	Gresham	Local
33	TIF Update Study	$100,000	1-5	Gresham	SDC
34	282nd Access Study	$100,000	1-5	Gresham/Multnomah County	SDC/Local
Subtotal		**$250,000**			
Total Transportation Projects		***$190,303,000***			

Grant Funding

Grant funding could be used to offset the cost of transportation improvements. Over the past 10 years, the City of Gresham has averaged approximately $1 million per year in transportation capital grants from various sources. A specific estimate has not been made as to how much grant funding will be available to offset the cost of transportation improvements.

Developer Exactions

Developer exactions are applied to transportation improvements (usually frontage improvements) that developers are required to construct in order to develop their land. These most often apply to internal local streets.

TSP IMPLEMENTATION ACTIONS

The following actions are required to implement the Springwater TSP:

1. Continue to participate with other regional service providers to advance concepts from the North/South Transportation Plan to fully develop alternatives, develop a recommended plan, and identify and execute implementation measures to improve access between Springwater and major transportation routes such as I-205 and I-84.
2. Refine the Green Street concepts from this TSP and the Stormwater Master Plan as required to fully implement Green Street development in Springwater.
3. Implement a Transportation Impact Fee to adequately fund growth-related improvements in Springwater.
4. Continue to work with the Oregon Department of Transportation to develop plans for improved access to US 26 through Springwater.
5. Consider including conduit with future roadway improvements in Springwater to serve telecommunication needs in the area.

MEMORANDUM

COMMUNITY & ECONOMIC DEVELOPMENT DEPARTMENT
New Communities & Annexations

STAFF REPORT
TYPE IV HEARING—COMPREHENSIVE PLAN AMENDMENT
BRICKWORKS/HEAVY INDUSTRIAL SPRINGWATER PLAN DISTRICT AMENDMENT

To: Gresham Planning Commission

From: Terry Vanderkooy, Manager, New Communities & Annexations
Jonathan Harker, AICP, Senior Planner

Hearing Date: June 12, 2006
Report Date: June 2, 2006

File: CPA 05-6208

Proposal: To adopt comprehensive plan amendments to Volumes 1, 2, and 3 of the Community Development Plan to 1) amend the Springwater Plan District by applying it to the approximately 160 acre Brickworks/Heavy Industrial site and 2) make minor amendments to the Gresham Community Development Code regarding Springwater development. The Brickworks/Heavy Industrial site is bounded by Palmquist Road on the north, Hogan Road on the west, the Springwater Corridor Trail on the south, and by Palmblad Road and Low Density Residential lands on the east. The site is currently designated as Heavy Industrial and the proposal would re-designate the site using the Springwater Plan District sub-district designations based on the previously adopted Springwater Community Plan.

Exhibits:
'A' Draft Council Bill 16-06, Amendments to Volumes 1, 2 & 3 of the Gresham Community Development Plan and the Community Development Plan Map:
--- Volume 1, Findings, Appendix 44
--- Volume 2, Policies, Appendix C, Community Development Plan Map
--- Volume 2, Policies, Appendix G, Springwater Plan District Map
--- Volume 3, Development Code amendments
'B' Gresham-Barlow School District Letter, 4/26/06
'C' Housing Needs Report from NewHomeTrends Consulting, 4/28/06
'D' Commercial Needs Analysis Report from Johnson Gardner, 3/22/06
'E' Memorandum from Mark Childs regarding Industrial History, 5/9/06

Recommendation: Staff recommends **adoption** of the proposed comprehensive plan amendments.

SECTION I
BACKGROUND INFORMATION

Background
The site has been designated as Heavy Industrial (HI) since 1980 and has remained primarily underdeveloped. Two public schools (elementary and alternative high school) were built on the northeast part of the site in recent years based on prior City code which allowed schools on industrially designated land (Gresham's codes no longer allow this). A brick and concrete paver manufacturer and associated surface mining (clay pit operating since 1906) is located on the southern portion of the site. A mini-storage warehouse and a school bus parking lot are also within the overall site area.

In 2001, the City commissioned an economic development report regarding industrial development as part of the State Periodic Review process. The report concluded that the Brickworks/HI site "did not appear suitable" for heavy industrial reuse, but could be a high amenity corporate/business park site. It suggested master planning of the site to address suitability for industrial versus residential/commercial mixed use. The City was also approached by property owners identifying the need to change the HI designation.

The City, in March 2002, identified to Metro that the site may be more suited as a mixed use employment site. The Metro Council considered the change at the time of the expansion of the Urban Growth Boundary (UGB) in December 2002 that included the Springwater industrial areas. The decision, with City concurrence, was to include the Brickworks site in the Springwater study area to address the issues of what industrial uses might be appropriate for the site and if there should be other residential or commercial uses on the site particularly in conjunction with the new lands that would be available for industrial development in Springwater. The Springwater study area included the 1,152 acres of expansion in Multnomah County and about 120 acres of adjacent unincorporated Multnomah County land already in the UGB but for which an urbanization plan has never been developed.

The Brickworks site was therefore included in the Springwater Community Plan development process. In January 2003, the Council initiated a work program to create an urbanization plan for Springwater. In fall 2003, formal project planning began with the formation of an advisory group, the Springwater Community Working Group (CWG). In October 2004, the CWG endorsed a Springwater Draft Concept Plan Map including the Brickworks site. In November 2004, the Council accepted the Draft Concept Plan Map and initiated the legislative process to develop and adopt comprehensive plan amendments to establish the Springwater Plan District. The Springwater Community Plan was adopted by City Council, effective December 1, 2005.

The adoption Springwater Community Plan included:

- *Plan Summary.* This document summarized the planning process, the extensive public involvement process and the major elements of the plan. It summarizes the factual information that is the basis for the Springwater Goals and Policies and for the Springwater Plan District development code.
- *Natural Resources Report.* This documents the State Goal 5 process for Springwater and provides the foundation for protecting natural resources, and conserving scenic areas and open spaces. Major elements of the report include the natural resources inventory; significance determination; a summary of the Economic, Social, Environmental and Energy (ESEE) analysis and recommendations. Recommendations covered management plan objectives, development code for regulated lands, opportunities for protection and enhancement and funding strategies. The Report is the basis for establishing the Environmentally Sensitive Resource Area (ESRA) sub-district, which is intended to promote compatibility between development and conservation of stream corridors, wetlands, floodplains and forests.

- *ESEE Analysis Decision Report.* This documents the State Goal 5 natural resources determination process as it was applied to Springwater. It describes the different types of land uses that impact the streamside areas, wetlands, and upland forest. Specifically, it analyzes the economic, social, environmental and energy (ESEE) consequences that could result from a decision to allow, limit, or prohibit certain uses in the significant resource area (the Environmentally Sensitive Resource Areas – ESRA).
- *Annexation and Development Strategies Report.* This provides the basis for a recommended phased approach to annexation in Springwater. It is also the basis for a program of marketing and recruitment of targeted industries and development opportunities in Springwater.
- *Goals, Policies and Action Measures.* Goals, Policies and Action Measures are a comprehensive set of land use statements. They provide the policy basis for the Springwater Plan District *Community Development Plan* map and *Development Code.* Each is accompanied by a background and summary of key issues that describe the process and reasons for each of the goals. There are goals for urbanization and land uses, economic development, sustainability, livability, transportation and natural resources.
- *Public Facilities Plan.* The Public Facilities plan establishes a framework for how public facilities for the water system, the wastewater system, the stormwater management system and the parks, trails and open space system will be developed and maintained. For each of the facilities there is a general description of existing facilities and a needs assessment to support the future land uses; goals, policies and action measures for each facility; a list and map of significant parks, water, wastewater and stormwater projects; rough costs estimates for each project; and a general estimate of when projects are needed along with a general discussion of funding strategies. The Public Facilities Plan establishes the basis for a Capital Improvements Program (CIP) for each of the facilities.
- *Springwater Plan District Plan Map.* The Springwater Plan District Plan Map establishes the land use district designations that will be applied to territory upon annexation. Two additional maps will also be adopted. One is a map showing flood plain that will be added to the Flood Plain Overlay District. Second is a map showing all slopes 15% or greater that will be added to the City's Hillside Physical Constraint Overlay District. These two Overlay Districts will be applied to lands as annexation occurs.
- *Springwater Plan District Land Use Development Code.* The Springwater Plan District Land Use Development Code establishes the Springwater Plan District. A Plan District approach uses unique planning and regulatory tools to achieve the Springwater Community Plan goals and is based on the Springwater Community Plan. It describes the land use patterns that will be applied to the Springwater Community Plan area and the allowed uses and densities. It also provides the development standards that will be required for future development in Springwater.
- *Transportation System Plan (TSP).* This is a long-range plan for developing a Springwater transportation system. It describes how the Springwater TSP was created and how it relates to the City TSP that it will amend and with the Regional Transportation Plan that will be amended based on the Springwater TSP. It includes transportation goals, policies and action measures. It describes street functional and design classifications and plans for connectivity, transit service and bicycle and pedestrian systems. It also includes a description of significant transportation projects that are needed to support future Springwater land uses. It includes rough costs estimates of the projects and funding strategies.
- *Appendices.* Development of the Springwater Community Plan involved both technical analyses and public process. These technical analyses and public processes have been documented in various technical memorandums and reports. These documents will not be adopted as part of the plan but rather referenced.

The major elements of the plan included all Metro Title 11 provisions including; comprehensive plan goals and policies; future land use map and code; water, wastewater and stormwater public facility plans; a transportation system plan; park, trail, and open space plan; urban services plan; and natural resources plan. These plan elements addressed the Brickwork site. The adopted Springwater Plan District map did not include the Brickworks properties. The Advisory Group and staff recommendations for applying the Springwater Plan District sub-district designations were delayed at property owners' requests since there was renewed interest from both existing development on the site (the Mutual Materials facility and the School District) and from potential developers of portions of the overall area. In concurrence with property

owners the City initiated this proposal to complete the Springwater planning efforts and to subsequently include the Brickworks Site.

Proposed Comprehensive Plan Amendments Overview

Volume 1 – Findings
Appendix 44, the Springwater Community Plan Summary, is amended by adding a section that describes inclusion of the Brickworks/HI site into the Springwater Community Plan. The Summary documents the planning process in developing the Springwater Plan District and the inclusion of the Brickworks/HI site. It also summarizes the key elements of the Plan.

Volume 2 – Policies
The Community Development Plan Map & the Springwater Plan District Map are amended by replacing the current Heavy Industrial district with Springwater Plan District sub-districts. The proposed sub-districts are 53.4 acres of Industrial-Springwater (IND-SW), 24.1 acres of Research/Technology – Springwater (RTI-SW), 23.6 acres (with existing schools) of Low Density Residential – Springwater (LDR-SW), 19.1 acres of Townhouse Residential – Springwater (THR-SW), 2.5 acres of Neighborhood Commercial – Springwater (NC-SW) and 35.9 acres of Environmentally Sensitive Resource Area – Springwater (ESRA-SW).

Volume 3 – Code
Minor text changes to the adopted Springwater Plan District code language are proposed. This includes clarifying the definition of green space when development is proposed on small lots in the THR-SW sub-district, and the community service uses allowed in the IND-SW and RTI-SW sub-districts. Exhibit A is in a two-column format showing proposed text in one column and an explanation in the corresponding column.

Staff Report Organization

- Sections II and III identify those current Community Development Plan procedures and policies that apply to the proposal.
- Section IV identifies the applicable development codes that apply to the proposal.
- Section V identifies the applicable Metro Urban Growth Functional Plan (UGMFP) titles that apply to the proposal.
- Section VI identifies the applicable Oregon Statewide Goals that apply to the proposal.
- Section VIII contains specific findings of fact that detail how the proposal is consistent with Sections II through VII:
  - Subsection A is findings of fact for the Community Development Plan procedures.
  - Subsection B is findings of fact for the Community Development Plan policies.
  - Subsection C is findings of fact for the Community Development Plan code.
  - Subsection D is findings of fact for the UGMFP Titles.
  - Subsection E is findings of fact for the State Goals.
- Sections IX and X summarize staff conclusions and recommendations.
- Exhibit 'A' includes the following:
  The proposed amendments to Volume 1, Findings, amending Appendix 44, and Springwater Community Plan Report Summary;

  The proposed amendments to Volume 2, Policies, amending Appendices C and G, the Community Development Plan Map & the Springwater Plan District Map;

  The proposed amendments to Volume 3, Development Code.

SECTION II
APPLICABLE COMMUNITY DEVELOPMENT CODE PROCEDURES

Section 11.0400	Legislative Actions
Section 11.0205	Type IV Procedure – Legislative
Section 11.0300	Public Deliberations and Hearings

SECTION III
APPLICABLE COMMUNITY DEVELOPMENT PLAN GOALS & POLICIES

Section 10.014	Land Use Policies and Regulations
Section 10.100	Citizen Involvement
Section 10.801	Springwater Create a Community
Section 10.802	Springwater Economic Development
Section 10.803	Springwater Sustainability
Section 10.804	Springwater Livability
Section 10.805	Springwater Transportation
Section 10.806	Springwater Natural Resources

SECTION IV
APPLICABLE METRO URBAN GROWTH FUNCTIONAL PLAN TITLES

Title 1	Requirements for Housing and Employment Accommodation
Title 3	Water Quality, Flood Management and Fish and Wildlife Conservation
Title 4	Industrial and Other Employment Areas

SECTION V
APPLICABLE COMMUNITY DEVELOPMENT CODE

Section 4.1000	Plan Districts -- Enabling Legislation

SECTION VI
APPLICABLE OREGON STATEWIDE PLANNING GOALS

Goal 2	Land Use Planning
Goal 5	Natural Resources
Goal 12	Transportation
Goal 14	Urbanization

SECTION VIII
FINDINGS OF FACT

The proposed Community Development Plan amendments attached as Exhibit 'A' are consistent with all applicable procedures, policies and criteria of the Community Development Plan; applicable titles of the Metro Urban Growth Management Functional Plan; and applicable Statewide planning goals as indicated in the following findings. The factual basis and detailed findings for the proposed amendments that will implement the Springwater Community Plan are found in the Volume 1 amendments as contained in Exhibit A.

A. Community Development Code Procedures

1. ***Section 11.0400 - Legislative Actions.*** This section requires that an amendment to the Community Development Code and the Community Development Plan be a legislative action under the Type IV Procedure pursuant to this section. This section applies to this proposal, as it is an amendment to the Community Development Code and the Community Development Plan.

2. ***Section 11.0205 - Type IV Procedure - Legislative.*** This section requires that the Planning Commission shall hold a public hearing and make a recommendation to the Council. The Council shall hold another public hearing and make a final decision. Interested persons may present evidence and

testimony relevant to the proposal. The Planning Commission and Council will make findings for each of the applicable criteria. The section also provides for a hearing process consistent with Section 11.0300. Both the Planning Commission and the City Council, at public hearings in conformance with provisions of this section, will consider this proposal. Findings are made for the applicable criteria in this report or as revised in the record.

3. ***Section 11.0300 – Public Deliberations and Hearings.*** For a Type IV Comprehensive Plan Amendment this section requires that hearings be scheduled, a notice published in a newspaper of general circulation in the City and a copy of the decision be mailed to those required to receive such notice. As the proposed action effects properties' permissive uses a State Measure 56 notice to property owners is required between 40 and 20 days of the first scheduled hearing. Required notice of public hearing for these proposed text amendments has been published in the *Gresham Outlook*, as required by this section and a Measure 56 notice has been mailed to property owners as required by State statutes. The Planning Commission will make a recommendation and the Council will make a decision that will be based on findings of fact contained in this report and in the hearings record and a decision will be sent to those who participated in the hearings. A decision shall be made accompanied by findings and an order.

B. Community Development Plan Goals and Policies (Volume II)

This section identifies the Community Development Plan goals and policies applicable to Springwater Community Plan comprehensive plan amendments. The text (*italicized*) of the policy is followed by corresponding findings and conclusions. The applicable policies are grouped by general categories.

1. General Goals & Policies

Section 10.014 Land Use Policies and Regulations

Goal: Maintain an up-to-date Comprehensive Plan and implementing regulations as the legislative foundation of Gresham's land use program."

Policy 1: The City's land use program will be consistent with state and regional requirements but also shall serve the best interests of Gresham.

Policy 4: The City shall promote a development pattern of land uses in the amounts, types and of sufficient economic values to advance the community's quality of life and its social and fiscal stability.

Policy 11: The City's land use regulations shall identify and protect designated significant natural resources. These regulations shall have sufficient flexibility to allow development to adapt to unique and difficult conditions.

Policy 21: Council may, upon finding it is the overall public interest, initiate legislative processes to change the Comprehensive Plan text and Community Development Plan Map(s) and Development Code.

Policy 23: Gresham shall coordinate the development, adoption and amendment of its land use related goals, policies and implementing measures with other affected jurisdictions, agencies and special districts.

Action Measure 14: Develop and adopt district plans when necessary to enhance opportunities for economic development, social vitality and other quality of life aspects of specific areas.

Findings

These general goals and policies establish the City's intent to use its comprehensive plan (Gresham Community Development Plan [GCDP]) as the basis for appropriate planning processes and resulting land use plans.

The Springwater Community Plan was established by the adoption of CPA 07-8178, effective December 1, 2005. It amended Volumes 1 through 4 of the GCDP: Volume 1 – Findings Document; Volume 2 – Policy Document; Volume 3 – Development Code; and Volume 4 – Transportation System Plan. The Council's adoption was based on comprehensive findings regarding Gresham Development Plan Goal

and Policies. Findings were made for the following goals: General Plan Requirements and Features (10.012), Citizen Involvement (10.100), Natural Resource, Fish and Wildlife Habitat, Water Resources and Ecologically and Scientifically Significant Areas (10.221), Air Quality (10.231),Water Resources Quality (10.232),Thermal Pollution (10.235), Land Use (10.310), Residential Land Use (10.311), Commercial Land Use (10.312, Historic and Cultural Resources (10.316), Transportation System (10.320), Street System (10.320.1), Transit System (10.320.2), Bicycle System (10.320.3), Pedestrian System (10.320.4), Transportation Demand Management (10.320.5), Public Facilities and Services (10.330), Water Service (10.331), Wastewater Systems (10.332), Stormwater Management System (10.333), School Service (10.411), Parks, Recreation, Open Space and Trails (10.412), Community Design (10.413), Intergovernmental Coordination (10.510), Housing General Policy (10.610), Home Ownership (10.630) and Geographic Mix of Housing Choices (10.660).

The findings for these existing Goals (and accompanying policies) established a new set of Goals and Policies specific to the Springwater Plan District. Findings for the applicable new Springwater Goals and Policies are made later in the section.

The Brickworks/HI site was included in the planning efforts made for the Springwater Community Plan. In 2001 the City commissioned an economic development report regarding industrial development as part of State required periodic review of its comprehensive plan. The report[1] specifically addressed the Brickworks/HI site. It noted that "The brickyard area on the southeast side of Gresham does not appear suitable for heavy industrial reuse, but could eventually become a high amenity corporate/business park location – offering rolling topography and direct proximity to new upscale neighborhoods." It also noted that "Part of the master planning for the site should address suitability for industrial versus residential/commercial [mixed use] reuse." And it suggested that "Before transitioning portions of the area out of an industrial designation, it would be appropriate to secure replacement property that could be designated and more readily developed for industrial use elsewhere in the Gresham area."

The City, in March 2002, identified to Metro that the site may be more suited as a mixed use employment site rather than a totally industrial site. The Metro Council considered the change at the time of the expansion of the Urban Growth Boundary (UGB) in December 2002 that included the Springwater industrial areas. The decision, with the City concurrence, was to include the Brickworks/HI site in the study area to address these issues of what industrial use is appropriate for the site and should there be other residential or commercial uses on the site in relationship to the new lands that would be available for industrial development in Springwater.

In brief, the major steps taken to create the Springwater Community Plan including the Brickworks/HI site were:

- An inventory of base conditions and analysis of land use, economic development, transportation, natural resources and infrastructure needs that establishes infrastructure needs and current conditions impacting economic development and housing needs.
- Project work teams of city, other agency and consultant staff are formed for each of the topical elements (natural resources, transportation, economic development, public facilities, land use, public involvement).
- A public involvement plan is established and carried out. It included developing a comprehensive mailing list and periodic newsletter mailings; establishing a 23 including a comprehensive mailing list and periodic mailings(six newsletter and three postcards; establishing a 23-member Community Working Group (CWG) as the stakeholder advisory committee; and holding a series of workshops and open houses..
- Project goals and implementing policies are established. The CWG develops a series of goals and policies that guides development of the plan. The titles of the established goals are: Create a Community; Economic Development; Sustainability; Livability; Transportation; and Natural Resources.
- Four scenarios are developed. Scenario planning involves considering many possible urbanization concepts for Springwater. The scenario planning participants develop scenarios by modifying transportation elements and location and number of industrial, office, retail, and

[1] GRESHAM INDUSTRIAL EMPLOYMENT & ECONOMIC STUDY, August 2001, E. D. Hovee

housing uses along with open spaces and trails. The project team, the Gresham Planning Commission, and members of the public (at a public workshop) developed the scenarios. These scenarios are compared and common elements are used to formulate three scenarios. A fourth scenario is developed by members of the Community Working Group (CWG).

- The four scenarios are evaluated to determine how well certain elements of the scenarios meet the goals and policies for the project. Evaluation measures include the number of new jobs created, average anticipated annual wage, number of employees or residents within walking distance of parks or public open space, acres of natural resource or open space acres preserved, number of transportation trips generated, and cost of public infrastructure. Through this comparison, certain elements of each scenario are shown to support the Plan goals better than those of other scenarios. A final concept plan map is developed as a blend of these elements.
- A draft concept plan map is endorsed by CWG in October 2004.
- The Council endorses the draft concept plan map and initiates the Springwater Plan District legislative process in November 2004.
- The Springwater Community Plan is developed based on the Draft Concept Plan Map. Implementing elements include a natural resource plan pursuant to the State Goal 5 ESEE process; an annexation and development strategies Plan, Springwater Goals, Policies and Actions Measures; water, wastewater; stormwater and parks public facility plans consistent with State Goal 8; a Springwater Plan District map and development code; hillside and floodplain constraint maps, and a transportation system plan.
- The Council initiates the Brickworks/HI site comprehensive plan amendment legislative process at a December 6, 2005 Council meeting.
- Additional review by the CWG along with property owner and developer meetings and a public open house occur.

A summary of the major elements of the Brickworks/HI site are:

- An average capacity estimate of 1,586 new jobs and 310 new dwellings.
- 77.5 acres of industrial designation with two sub-districts. There are 53.4 acres of IND-SW located on the south part of the site with frontage along Hogan Road and the Springwater Corridor Trail. The IND-SW sub-district area includes existing manufacturing facilities for a manufacture of brick and concrete blocks with a resource extraction pit that occupies about 43.1 acres of the I-SW land. That leaves about 10.3 acres of vacant I-SW land. There is also 24.1 acres of RTI-SW designated land located north of the IND-SW sub-district with frontage on Hogan Road and Palmquist Road. This designation is primarily to provide for industrial uses including research and technology employment in office like buildings. The RTI-SW is mostly vacant or re-developable except for a mini-storage facility (1.8 acres) and school district service buildings (2 acres). Emphasis for both sub-districts is businesses that are sustainable in nature and utilize green practices.
- A 2.5-acre neighborhood commercial site located at the corner of Hogan Road and Palmquist Road. It provides retail and services for the adjacent residential neighborhoods and the future industrial development.
- Two residential districts. One is 19.1 acres of Townhouse Residential-Springwater (THR-SW) located between the RTI-SW and the existing school district site with frontage on Palmquist Road. And the second is 23.6 acres of Low Density Residential-SW (LDR-SW). The LDR-SW includes a public high school and public elementary school plus seven acres of vacant land just to the south of the school buildings. The LDR-SW sub-district site is located in the northeast corner of the site. The school buildings have frontage on Palmquist Road.
- The adopted Springwater Transportation System Plan identifies a new collector and community street system to serve the Brickworks/HI site. New streets are planned to be green streets utilizing a swale system for stormwater management.
- About 35.9 acres of Environmentally Sensitive Resource Areas-SW (ESRA-SW) land. The ESRA–SW implements the Springwater natural resources plan which is a framework for the protection and enhancement of Springwater's streams, flood plains, wetlands, riparian area and significant tree groves. The natural resources system is focused on integration of Johnson Creek and its tributaries. The ESRA-SW designation is proposed for two Johnson Creek tributaries (Bus and Oops Creek) located in a forest canopy and that large mixed grove

including Hogan Cedars located adjacent to the Springwater Corridor Trail and Johnson Creek. The Hogan Cedars grove has been identified as a Springwater Stormwater Master Plan CIP project to enhance the natural resources value for water quality and stormwater management purposes.

- Planned water, wastewater, and stormwater infrastructure to serve the needs of the new community. Green Streets and green development practices will be an important component of the stormwater system.

Conclusion

Policy 1 is addressed as the Brickworks/HI site was identified as a key component of the Springwater Plan District during the Springwater Community Planning effort. The Springwater Community Plan identified an appropriate level of a more flexible and sustainable industrial development with application of the RTI-SW and IND-SW sub-districts while providing some housing and commercial use which will support the future employment both on site and in Springwater. The proposed plan also addresses current uses of the site and lack of site suitability as a Heavy Industrial site.

Policy 4 is addressed by designation of 77.5 acres of Industrial and RTI sub-district Districts along with a 2.5 acre neighborhood commercial area that will provide employment opportunities, economic development and fiscal stability for the City along with the residential areas that provide a transition from the schools and housing support for the new employment areas.

Policy 11 is addressed by the adoption of the Environmentally Sensitive Resource Areas (ESRA) land use sub-district that identifies and provides protection and improvement opportunities for the Springwater natural resources including Johnson Creek and its tributaries while providing for sustainable urban development on Brickworks/HI site.

Policy 21 was addressed by the Council including the Brickworks/HI site in accepted Springwater Concept Plan and by it initiation of the legislative process to add the site to the Springwater Plan District on December 6, 2005.

Policy 23 was addressed through the inclusion of jurisdictions, agencies and districts on the CWG, Springwater work teams and the mailing list as well as by project staff presentations. The coordination continued after the Springwater Plan District was developed during the Brickworks/HI site legislative process.

Action Measure 14 is addressed by adding the Brickworks/HI site to the Springwater Plan District map as it was included in the Springwater Community planning effort.

Goal 10.014 is addressed by amending the Springwater Plan District to include the Brickworks/HI site including new industrial sub-district, housing types and natural resource areas. This action maintains an up-to-date Comprehensive Plan and implementing regulations as the adopted Springwater Community Plan anticipated this action.

The proposal is consistent with the applicable general goals, policies and action measures listed in this section.

2. *Citizen Involvement Goals & Policies*

Section 10.100 - Citizen Involvement

Goal: The City shall provide opportunities for citizens to participate in all phases of the planning process by coordinating citizen involvement functions; effectively communicating information; and facilitating opportunities for input.

Policy 1: The City shall ensure the opportunity for citizen participation and input when preparing and revising policies, plans and implementing regulations.

Policy 6: The City shall ensure that technical information necessary to make policy decisions is readily available.

Policy 7: The City shall facilitate involvement of citizens in the planning process, including data collection, plan preparation, adoption, implementation, evaluation and revision.

Policy 10: The City shall ensure the opportunity for the public to be involved in all phases of planning projects and issues.

Action Measure 1.c: Establish council advisory groups and ad-hoc committees to advise staff, the Planning Commission, and City Council regarding land use issues by: ... forming specific advisory committees to provide input into land use topics.

Findings

The public involvement goals and policies establish the City's intent that its citizens have meaningful opportunities throughout a planning project to be informed and to affect proposals. When the Springwater Plan District was adopted findings and conclusions for an extensive public involvement program were made. Planning for the Brickworks/HI site was part of this public involvement process.

Public involvement was used early in the planning process to help identify community values and incorporate goals and opportunities identified by members of the public into initial planning efforts. The public involvement process continued through development of the Plan to gain public input, help evaluate issues and alternatives, and guide the process to maximize the interests of all community stakeholders. A public involvement plan (PIP) was drafted and taken to the Citizen Involvement Committee who endorsed the PIP at their November 6, 2003 meeting.

The goals of the public involvement and information program for the Plan were to:

- Maximize the community's voice, provide information about the plan and the process, and to gain community consensus
- Include City and regional stakeholders in the planning process
- Consider the existing diversity of the communities
- Provide specific and relevant information and answers to the public
- Coordinate with Damascus and other regional governments
- Provide community education
- Consider other issues and initiatives

To achieve these goals, the project team developed a public involvement and outreach plan that included the following key methods:

- An extensive multi-media public outreach effort including a project website, six newsletters (including four, full-color newspaper inserts), press releases, and four postcards
- The project website (www.ci.gresham.or.us/springwater/) includes staff contact names and numbers, an e-mail address dedicated to Springwater, a schedule of events, and postings of draft materials
- Stakeholder interviews with 42 area property owners; neighborhood groups; neighboring jurisdictions; and business, natural resource, and other interest groups
- A 23-member Community Working Group which met monthly throughout the project and participated in open houses and workshops
- Development of a Springwater mailing list that included all property owners, residents and business owners in Springwater, interested persons, local jurisdictions (Sandy, Portland, Fairview, Troutdale, Wood Village, Happy Valley, Clackamas County, Multnomah County), Metro, State agencies (ODOT, DLCD, OCED), neighborhood associations, Planning Commission and Council and other affected parties
- Four community open houses and one community workshop used to gain input regarding preferred development patterns, issues to address, and ideas to consider that were held at a local area public school

- Informational displays at the open houses and workshops, and for viewing at Gresham City Hall and the Gresham-Barlow School District
- A brokers panel to answer questions related to property values, annexation and plan adoption and timing
- Two web-based surveys, implemented in conjunction with two open houses, and used to gather community input on the scenarios
- Focus groups used to gather professional experts to discuss issues related to sustainability, industry, residential development, industrial development, natural resources, and the Brickworks site
- Community/Agency briefings with City of Gresham elected officials, appointed commissions, business and neighborhood groups, and interest groups. A comprehensive list of these briefings is included in the Summary document (Exhibit A1) and includes the Transportation, Parks, Historic Resources and Finance Council Advisory Committees; the Neighborhood Coalition; the Planning Commission; the Damascus/Boring Advisory Committee; Metro Council, Multnomah County Commissioners; the Oregon Economic and Community Development Department and Oregon Department of Transportation; and the Johnson Creek Watershed Council
- There were eleven Council and five Planning Commission work sessions on Springwater beginning in 2003
- A postcard was mailed to the Springwater mailing list in June 2005 providing information on the legislative schedule of Public Hearings and how to view and comment on the proposal
- Efforts continued after the Springwater Plan District adoption for the Brickworks/HI site including an updated website, review by the CWG, an open house, a 300 foot vicinity notice of public hearing mailing, and the Measure 56 notice mailing.

Conclusion

Policy 1 is addressed by providing multiple and diverse opportunities for citizen participation. The CWG provided policy advice throughout the project. All CWG meetings were open to the public and an opportunity for public comment at the beginning and end of each meeting. The open houses and workshops provided opportunities to ask questions and give input in group and individual settings. Surveys provided opportunity for input. Newsletters mailings (and as inserts in the *Outlook* newspaper) and web postings provided opportunities to review materials and invited contact by calling or meeting in person with city staff. These occurred throughout all phases on the planning project.

Policy 6 is addressed by posting of materials on website and by making materials available through City staff in the Community and Economic Development Department (CEDD). Technical information was documented throughout the process through a series of technical memorandums and made available to the public.

Policy 7 is addressed by mailings and website postings that informed citizens of opportunities to be involved in open houses, surveys and workshops at the key decision points throughout all phases on the planning process including inventory, goals setting, alternative development and evaluation, implementation and adoption.

Policy 10 is addressed by scheduling CWG meetings and open houses and workshops at key milestones. This meant that citizens would be involved in various phases of planning including inventory, goals setting, plan alternatives and evaluation, implementation and adoption. The Springwater public involvement plan was reviewed and endorsed by the Citizen Involvement Committee to ensure that citizens would be involved throughout the project. It was also addressed by maintaining an up-to-date website and by timely mailings that provide specific information on the project as well as how to obtain detail plans and contact city staff for questions and information.

Action Measure 1.c was addressed by the formation of the CWG that was an advisory group to staff throughout all phases on the plan development.

The *Citizen Involvement Goal (10.100)* is addressed by a comprehensive public involvement plan reviewed and endorsed by the Citizen Involvement Committee, utilized during all phases of the plan

development and adoption and which provided varied and multiple opportunities for citizen involvement that was done throughout the Springwater planning effort and continued through the Brickworks/HI legislative process.

The proposal is consistent with the applicable citizen involvement goals, policies and action measures.

2. *Springwater Goals & Policies*

10.801 Create a Community

Goals

1. The Springwater Community shall be an economically and environmentally sustainable community.

2. Springwater will provide a high number of family-wage jobs that enhance the economic viability of Gresham, the greater East County region and its citizens.

3. Industrial and employment lands will be complemented with a village center and housing, and will be carefully integrated with the Johnson Creek system.

Policies

1. The Springwater Community Plan will serve as the basis for the City's comprehensive plan amendments and implementing measures that will guide future urbanization.

5. Sustainable development will be promoted through a combination of incentives, regulations, and recruitment.

Action Measures:

5. Establish a Plan District. A Plan District designation provides a means to create unique zoning districts and development regulations that address the specific opportunities and problems identified in the Springwater Community Plan.

Findings
The Create a Community goals and policies establish the City's intent that that a primary focus of the Springwater planning would be to focus on a high number of industrial and industrial related jobs in a way that promoted Gresham economic vitality. It also established intent that industrial/employment lands would be complemented by providing a variety of housing options; offering flexibility in development opportunities; using sustainable and green building and development practices, and by supporting the protection and enhancement of natural resources.

The Brickworks/HI site was included in the Springwater Community Plan effort primarily to assess it viability as a Heavy Industrial site and its role in realizing the Springwater Community goals and policies. The Brickworks/HI site was included in all scenario development and evaluation and in the recommended Concept Plan.

The proposal would designate 53.4 acres of the site as IND-SW. This sub-district provides a wide range of uses, including all of the Springwater target industries such as advance materials, specialized software applications, recreational equipment and technology and corporate headquarter and well as traditional industrial uses. The existing brick manufacture use would continue to be a conforming use as allowed under the NAICS 327 Nonmetallic Mineral Product Manufacturing classification. There is also a mineral extraction (clay) long time operation which has been determined by the City (MIS 02-6175) to be recognized as a Nonconforming Situation and has such could continue to operate under the terms of its State Permit.

The proposal would designate 24.1 acres of the site as RTI-SW. This sub-district is intended to provide industrial and related employment opportunities in office buildings. Primary uses include knowledge-based industries (graphic communications, creative services), research and development facilities, professional services primarily serving industrial businesses and workers, and medical facilities. RTI-SW design is intended to create pedestrian friendly area and utilize green development practices.

The proposal would designate 2.5 acres of NC-SW. This sub-district is intended to provide small to medium sized shopping and service facilities. It would meet the currently deficient local shopping and service needs of the surrounding residential neighborhoods plus help serve future industrial development on site.

The proposal would designate 23.6 acres of LDR-SW. This sub-district is intended to provide primarily single-family detached lots at an average lot size of 6,000 square feet. The two existing schools would continue to be conforming as community service uses.

The proposal would designate 19.1 acres of THR-SW. This sub-district is intended to provide for single-family, attached and detached, on small lots. These units will provide affordable home ownership opportunities supporting the attractiveness of the Springwater Plan District area to future industrial developments.

The proposal would designate about 35.9 acres of ESRA-SW. This sub-district is intended to provide a framework for the protection and enhancement of the streams, riparian areas and significant tree groves in the area. The designation in the Brickworks/HI site provide for two Johnson Creek tributaries located in forest canopy and a large mixed grove including Hogan Cedars located adjacent to the Springwater Corridor Trail and Johnson Creek. The Hogan Cedar Tree grove is located within the area that could be used for the clay extraction use as provided for in the "Determination of Non-Conforming Situation) City file MIS-02-6175. The Springwater Stormwater Master Plan identified the acquisition of the Grove as a CIP project to "enhance value of significant forested area adjacent to Johnson Creek mainstream for flood protection and water quality enhancement."

Development in the IND-SW and the RTI-SW will address green building and sustainable site development practices. All development will address green stormwater management practices and be served by green streets.

Conclusion

Goal 1 is addressed by implementing the Springwater Plan District and applying sub-districts for industrial and industrial office uses and for Johnson Creek and the associated wetlands and tributary system.

Goal 2 is addressed by an emphasis on industrial and research/technology industrial development and on the targeted industries identified in the economic development analysis.

Goal 3 is addressed by the implementation of the Springwater Plan District that includes sub-districts for townhouse and standard lot single family homes and small neighborhood commercial. The ESRA sub-district established a green infrastructure background for Springwater and incorporated into the brickwork/HI site.

Policy 1 is addressed as the Springwater Community Plan was developed with the Brickworks/HI site and is the basis for the Springwater Plan District, Public Facility Plan, Transportation System Plan, and other implementing measures that will apply to the Brickworks/HI site.

Policy 5 is addressed by the applying the development standards in the Springwater Plan District that include green practices for stormwater management, green building standards, and Xeriscape landscaping standards to the Brickworks/HI site. Targeted industries include "eco-park" development and could occur in the Brickworks/HI site.

AM 5 is addressed by including the Brickworks/HI site in the Springwater Plan District. The Springwater Plan District was based on study the identified specific issues and opportunities associated with the Springwater area and that study included an analysis of the Brickworks/HI and a determination that it was in the City's interest to include the Brickworks/HI site in the Concept Plan.

The proposal is consistent with applicable Springwater Create a Community goals, policies and action measures.

10.802 Economic Development

Goals

1. The Springwater Community will provide industrial land that will generate a variety of family-wage job opportunities.

2. The Plan will actively encourage businesses with an interest in sustainability and protecting the community's rich natural resources.

Policies

1. Maximize the land area and accessibility for industrial and industry-related jobs.

4. Provide for a range of job opportunities, catering to various skill sets and building on the skills of workers in the East Metro region.

8. Foster industrial opportunities by enhancing the quality of the built environment.

9. Create a high-quality village center as well as high-quality neighborhoods with a mix of housing options to help foster industrial opportunities.

10. Recruit businesses with a sustainable ("green") philosophy.

11. Provide many diverse opportunities for family-wage jobs.

12. Work to correct the imbalance of jobs to housing within Gresham and the East Metro region.

Findings
The Economic Development goals and policies establish the City's intent that the primary reason for bringing the Springwater area into the UGB and its subsequent planning was bringing industrial development and family-wage jobs to east Multnomah County. The Brickworks/HI site was part of the subsequent planning and created Concept Plan establishing it as a component in meeting economic development goals and policies of the Springwater Plan.

The Brickworks/HI site has been zoned as Heavy Industrial (HI) since at least 1980. During the past 35 years the HI designation has not resulted in any consequential industrial development (mini-storage and a school bus storage site). In August 2001 a report[1] was completed for the City that was intended to update its industrial lands inventory and its economic development goals, policies and strategies. A key recommendation of the study was consider rezoning portions or all of the Brickwork industrial areas from HI to BP (Business Park). It noted that "The brickyard area on the southeast side of Gresham does not appear suitable for heavy industrial reuse, but could eventually become a high amenity corporate/business park location – offering rolling topography and direct proximity to new upscale neighborhoods ... sub-area/master planning is recommended to establish framework for this long-term transition."

Subsequent to this report City planning and economic development staff and site property owners engaged in conversations about the future zoning for this site. This ultimately led to joint Metro and Gresham decision to include the Brickworks/HI site in the Springwater Community planning effort with intent to best understand what role the site could have in achieving economic development goals.

The Springwater Plan identified short term target industries that included such industries as specialized software applications, corporate headquarters, and professional services. The RTI-SW sub-district focuses on providing space for industrial users and related enterprises serving industrial clients and on

research and technology employment in office-type buildings. The RTI-SW and the IND-SW were developed to provide for the needs of the targeted industries.

The proposed application of the Springwater Plan District would result in 24.1 acres of RTI-SW and about 10.3 acres of vacant, adjacent IND-SW land [the bulk of the IND-SW is the existing brick and tile manufacturing facility and clay extraction pit]. The Brickworks/HI site has a strong physical and visual connection to Springwater. The Palmblad/Telford collector street system connects the Brickworks/HI site to a planned east/west collector street that connects the IND-SW lands east of Telford to the Village Center and RTI-SW lands west of Telford. The Springwater Corridor Trail and Johnson Creek are important landscape features that tie the areas together.

Average job capacity in the current Springwater Plan District area is an estimated 15,330 (NC-SW 151; VC-SW 339; RTI-SW 5,702; and IND-SW 9,138). The housing average capacity is an estimated 1,609 units (VLDR-SW 175; LDR-SW 563; THR-SW 591; and VC-SW 180 [mixed-use only]). This is a job-to-housing ratio of 9.5:1. As development occurs over time this will greatly reduce the current Gresham jobs-to-housing ratio and resulting in ratios consistent with regional ratios.

The Brickworks/HI site was not included in these numbers as it was not included in the Springwater Plan District adoption. In 2000, the City completed a report[2] that demonstrated that the City met the Metro Title 1 job and housing target capacity. Based on the methodology of that report and on current vacant land, the job capacity for the vacant current HI designation is 780 jobs. The tables below use the same methodology that was used in the Springwater Community Plan and show job and housing average capacity if the proposed Springwater Plan District designations are applied. Using this methodology the average capacity in the Brickworks/HI site is 1,610 jobs and 310 households. These numbers include only developable land and exclude, for example, the existing brick manufacturing and clay resource area.

When these numbers are added to the average capacity for the current Springwater Plan District area the jobs-to-housing ratio is 8.8:1.

The Springwater Community Plan industrial recruitment and marketing plan noted that a modest amount of housing in the Plan area was needed both meet Springwater vision as a community in which people could "live, work, and play" and to accommodate Springwater's employment goals. The townhouse sub-district along with the LDR-SW sub-district housing should attract single, couple and young family buyers that will likely make up much of the white and blue collar Springwater workers. Opportunities for large lot estate housing and other housing were planned in the current Springwater Plan District area.

Jobs Average Capacity

District	Gross Acres	Net Acres[8]	Average FAR[3]	Sq Footage	Sq Feet per job[4]	Jobs
NC-SW	2.5	2.0	.35:1	30,492	550	55
RTI-SW	24.1	18.8	.55:1	450,410	350	1,287
IND-SW	10.3[5]	8.0	.35:1	121,968	500	244
					Total	**1,586**

[2] Capacity Analysis Report, November 13, 2000, CEDD
[3] Average floor area figures come from the Springwater Title 11 compliance report.
[4] The square foot per job figures come from the Springwater Title 11 compliance report.
[5] The land improved with the existing brick manufacturing plant and used or available for the surface clay mining are not included in the gross acres.

Dwelling Unit Average Capacity				
District	Gross Acres	Net Acres[8]	Average Capacity DU per net acre	Dwelling Units
LDR-SW	9.1	7.1	7.2	51
THR-SW	19.1	14.9	17.4	259
			Total	**310**

Conclusion

Goal 1 is addressed by replacing the current Heavy Industrial District with the Springwater Plan District map sub-district designations of IND-SW and RTI-SW that together have an estimated capacity of 1,610 jobs that focus on flexible and sustainable industrial users.

Goal 2 is addressed by applying the Springwater Plan District which includes businesses with an interest in sustainability in the targeted industries and considering the recruitment of industries to include the marketing of Springwater as an economic, environmental, and socially sustainable place.

Policy 1 is addressed by identifying those lands in the Brickworks/HI suitable for industrial and industry-related jobs by taking into account current uses, such as the public schools; the natural resources areas, demographic and economic development needs for housing; and demographic needs for a small neighborhood commercial area.

Policy 4 is addressed by applying the Springwater Plan District which includes an industrial study that identified targeted industries based on short, medium, and long term possibilities. The marketing and recruitment plan will include the Brickworks/HI site which, as it is already in the City and has nearby City services, may be an early candidate for Springwater development.

Policy 8 is addressed by applying the Springwater Plan District that provides for standards regarding green "LEED" building and green stormwater management practices

Policy 9 is addressed by planning for single-family townhouse and detached lot residential neighborhoods. And by applying the Springwater Plan District design standards provided for the Townhouse residential sub-district.

Policy 10 is addressed by the applying the Springwater Community Plan recruitment plan strategy to target these types of industries to the Brickworks/HI site.

Policy 11 and Policy 12 are addressed by planning for an average capacity of 1,586 jobs in the IND-SW, RTI-SW, and NC-SW sub-districts that will be added to the 15,330 planned jobs in the Springwater Plan District. At build-out this will bring the jobs-to-housing balance in Gresham to a regional figure.

The proposal is consistent with the applicable Springwater Economic Development goals and policies.

10.803 Sustainability

Goal

The Springwater Community shall strive to be a model for successful, sustainable, industrial development, and foster continued sustainability through encouraging businesses, industries and homes that are designed for and built with good environmental stewardship.

Policy Statements

1. Create a sustainable community through business practices, philosophies, and strategies that reduce environmental impacts; for example, using techniques like Leadership in Energy Efficiency and Design (LEED) criteria and renewable energy sources.

3. Utilize green development practices, including green streets. Community design and infrastructure plans should enhance the natural hydrologic system as a fundamental part of managing stormwater and water quality.

5. Preserve, restore and enhance natural resources in ways that help ensure its long-term economic, social and environmental benefits as Springwater urbanizes.

7. Develop a transportation system that promotes improved air quality and reduced energy consumption by providing alternatives to replace long vehicle trips with shorter trips or with transit or walking/biking trips.

8. Encourage the planting and preservation of trees.

9. Utilize land as efficiently as possible.

10. Encourage diverse economic activities within the context of industrial and industry-related activities and promote the integration of the Springwater economic development community into the greater Gresham and surrounding East Metro community.

Findings
The Springwater Sustainability goal and policies establish the City's intent develop an economically, environmentally and socially sustainable community in Springwater. In the Springwater Community Planning process the Brickworks/HI site with its proximate industrial lands, and connections by important roads, Johnson Creek and the Springwater Corridor Trail, was planned as a key component in reaching the Springwater sustainability goal.

For economic development purposes Springwater is positioned as sustainable community by practices such as targeting companies the produce environmentally-friendly or holistic products; by targeting companies that can benefit from co-location and collaboration in the management of resources; and by requiring and encouraging the US Green Building Council's Leadership in Energy and Environmental Design (LEED) practices. LEED practices improve occupant well-being, environmental performance and economic return of buildings. Both the RTI-SW and IND-SW provide for LEED practices.

Site development practices can also foster sustainability. All development in the Springwater Plan District will practice green or low impact stormwater management practices. This is system that will minimize the potential impact that the high level of industrial and urban development could have on flooding, erosion and water quality and natural habitats. These practices use a system of landscaping features that treat and infiltrate stormwater on the development site instead of using a traditional piped collection and conveyance system. These practices will include minimizing impervious surfaces, using ecoroofs, maximizing the tree canopy, using onsite stormwater treatment facilities such as landscape planters and bioswales and green streets.

There is a large 28.2 mixed grove forest located in the southern part of the site next to the Springwater Trial Corridor. The grove has been identified as a natural resources area and a Springwater Stormwater Master Plan CIP project to "enhance the value of significant forested area adjacent to Johnson Creek mainstem for flood protection and water quality enhancement".

Industrial and commercial developments will also be required to utilize xeriscape landscaping. Xeriscape landscaping promotes water conservation by maximizing native vegetation as well as drought resistant landscaping. It also supports and encourages protection and enhancement of natural areas where development takes place next to the ESRAs.

Sustainability is also promoted by providing for transit opportunities and for walking and biking facilities. The Springwater Transportation System Plan (TSP) identified Hogan Road that fronts along the Brickworks/HI site as a Primary Transit Route. The Springwater TSP includes a proposed hiking trail on the Brickworks/HI site which connects to the Springwater corridor trail and the proposed Springwater Village loop trail. The Springwater TSP provides for all streets to include sidewalk and bike facilities.

Conclusion
Goal 1 is addressed by applying the Springwater Plan District that has standards for green building practices, tree planting, Xeriscape landscaping, and green stormwater practices. Additionally open space strategies include programs to foster good environmental stewardship.

Policy 1 is addressed by applying the Springwater Plan District that includes requirements for green building practices based on LEED criteria.

Policy 3 is addressed by applying the Springwater Plan District that provides that streets will be green streets and by requiring the use of green development practices for all development.

Policy 5 is addressed by a natural resources plan that has identified natural resources to be preserved and the best opportunities for enhancements to the natural resources system. In the Brickworks/HI site ESRA-SW sub-district is applied to two Johnson Creek tributary areas and to a large tree grove near Johnson Creek.

Policy 7 is addressed by applying the Springwater Transportation System Plan (TSP) that plans for primary transit route alternatives on Hogan Road which serves the Brickworks/HI site, by providing trial connections to the Springwater planned trail system and providing for an extensive system of on-street and off-street biking and walking routes.

Policy 8 is addressed by applying the Springwater Plan District tree planting and preservation requirements that are intended to result in a Springwater urban forest canopy and by identifying the large mixed grove as ESRA-SW site.

Policy 9 is addressed by applying the IND-SW and RTI-SW sub-districts that provide for compact development to maximize job opportunities and efficient use of land.

Policy 10 is addressed by applying the IND-SW and RTI-SW sub-districts that are intended to encourage a diverse set of economic activities and to be flexible to accommodate changes in the future and to be part of a City-wide and east region-wide economic development strategy.

The proposal is consistent with the applicable Springwater Sustainability goals and policies.

10.804 Livability

Goals

1. The Springwater Community shall have a high quality of life provided through compact and sustainable development; a range of housing choices in close proximity to services and/or employment areas; walkable neighborhoods; access to natural resource areas, parks, and greenways for employees in the community; preservation of natural resources; and a variety of transportation choices.

3. The community shall be a unique environment that creates a sense of place both for residences and businesses, and acts as economic attractor.

Policy Statements

2. Promote a high standard for development practices. Promote developments and buildings that are pedestrian friendly.

3. Create a sense of place with respect to the community's cultural and natural history. Incorporate the natural environment into the design of the community.

5. Create a walkable community with an urban form that increases walking, biking and transit options. Access and connections to the Springwater Corridor Trail shall be emphasized as a unique characteristic of the Springwater Community.

6. Locate parks and open spaces throughout the community. Neighborhood parks, small green spaces and open spaces shall be within a short walk of all homes.

7. The park and trail system shall be connected to the Springwater Corridor Trail and connect to other regional trail systems where feasible.

11. Build upon Springwater's unique characteristics and location, such as its proximity to and views of Mt. Hood.

Findings
The Springwater livability goal and policies establish the City's intent that livability in Springwater can be achieved by developing a complete, sustainable community that balances the City's need for economic development with natural resource protection and infrastructure development. The Springwater Community Planning process established that the Brickworks/HI site with planned industrial, residential and commercial land uses, planned natural resource protection areas, and with its planned public infrastructure elements is a key component in reaching the Springwater livability goal.

The planned trail system is included in the Brickworks/HI site and offers access to and from the planned Springwater Village Center and pedestrian industrial office district (RTI-SW), the westside residential neighborhoods and the eastside industrial (IND-SW) districts.

The proposed THR-SW and LDR-SW sub-districts provides for a range of single family townhomes and detached lots that are part of the larger range of housing options in the Springwater Plan District that will meet a variety of needs. The planned housing in the Brickworks/HI site will provide housing for potential Springwater employees.

Application of the Springwater Plan District enhances access and use of the Springwater Corridor Trail. Its also provides for access to the planned Springwater community and neighborhood parks, trails and open spaces. It will also provide a good connection between the proposed Sports Center just north of the Brickworks/HI site and the rest of the Springwater Community Plan area.

The planned small neighborhood commercial sub-district will provide for local shopping and service needs both for the new and existing residential neighborhoods and the future industrial employees.

Conclusion
Goal 1 is addressed by applying the Springwater Plan District sub-districts that provide for compact and sustainable industrial development. The Springwater Plan District also promotes livability by requiring pedestrian friendly design in the residential neighborhoods, townhouse district, and the industrial/office district; by connecting the Brickworks sites to the planned community and neighborhoods parks and the open space and trail systems that integrate with Johnson Creek and its tributary natural system; and by a TSP that includes a transit plan with primary, secondary, and neighborhood circulation routes including a primary transit route along Hogan Road; a new arterial and collector system; and an extensive on-street and off-street bicycle and pedestrian system.

Goal 3 is addressed by the integration of the Johnson Creek system via the ESRA-SW sub-district, by taking advantage of Mt. Hood and other views, by planning for a robust mix of industrial and industrial related office businesses, and through regulations and incentives for sustainable and green practices such as green stormwater management and streets, green building practices, and Xeriscape landscaping.

Policy 2 is addressed by applying pedestrian friendly design standards and guidelines, the green building standards in the THR-SW, RTI-SW, and IND-SW sub-districts, and by the safe neighborhood standards in the LDR-SW sub-districts.

Policy 3 is addressed by inclusion of the ESRA-SW district for those areas identified and planned as ESRA-SW in the brickworks/LI site.

Policy 5 is addressed by applying the Springwater TSP and Parks PFP that plans for walking and biking and transit options with a primary transit route on Hogan to serve the Brickworks/HI site and to connect it to the planned Village Center, residential neighborhoods and industrial districts in Springwater. A strong green system is planned along the Springwater Corridor Trail and a natural themed community park is planned adjacent to Johnson Creek and the Springwater Trail.

Policy 6 is addressed by the ESRA-SW that incorporates Johnson Creek and its tributaries that flow through the area and on the Brickworks/HI site and by the planned parks and park blocks and a trail system that ties residential neighborhoods to the open space system and is connected to the Brickworks/Hi site.

Policy 7 is addressed by the Springwater trail system that will connect to the Springwater Corridor System and to the regional trail system west to Pleasant Valley.

Policy 10 is addressed by applying the Springwater Plan District which includes a marketing and recruiting plan identifying targeted industries such as recreational equipment and technology that can take advantage of proximity to Mt. Hood and the Gorge.

The proposal is consistent with the applicable Springwater Livability goals and policies.

10.805 Transportation

Goal

The Springwater Community will encompass a well-planned transportation system that supports the Springwater Community Plan, while promoting transit, walking and bicycling. The road and trail network will provide good connectivity within Springwater, with existing neighborhoods, and with the regional trail network.

Policy Statements

1. Incorporate the North/South Transportation Study into the implementation of the Springwater Plan to identify better connections between Springwater and I-84 and I-205.

2. Incorporate green streets designs as described in Metro's handbook entitled Green Streets: Innovative Solutions for Stormwater and Stream Crossings and as designed in the Pleasant Valley Plan District area.

7. Encourage alternative modes of transportation within the Springwater community.

8. Provide good connectivity and access to practical destinations.

11. Provide for public transit options, such as bus, streetcar and/or light rail within the Springwater community and for east/west and north/south connections to the greater region.

12. Consider traffic impacts on surrounding rural areas and existing City of Gresham neighborhoods.

15. Plan roads to accommodate the movement of goods and services (truck traffic).

17. Address existing transportation safety issues.

18. Identify and promote the quality and level of telecommunication services needed to serve industrial and other uses in the Springwater Community.

19. Identify improvements to Highway 26 that enhance access and mobility to and through the Springwater Community plan area to support industrial and employment development. Design elements are to be compatible and supportive of the Springwater Community Plan.

Findings
The Springwater Transportation goal and policies establish the City's intent that well-planned transportation system is critical to attracting economic development to Springwater and to achieving the area's goals for livability and sustainable development. The Springwater Community Planning process established that the Brickworks/HI site was part of the Springwater Transportation System Plan.

Key features of the Transportation System Plan as they apply to the Brickworks/HI site are:

- New north-south community street and east-west collector street connecting the site, Hogan Road and Palmquist Rd. to the planned Springwater arterial and collector system.
- Upgrades to Palmquist Rd., 252nd/Palmblad Avenue and to Hogan Road to accommodate biking and waking and to deal with existing safety issues.
- Connect the site to the planned regional and community transit service to Springwater. Hogan Road is planned as a primary transit route which provides 10-15 minute service at peak hours and at least 30 minute service during off-peak hours.
- Hogan Road is planned as an arterial road that will connect to a new Rugg Road arterial system that connects to the planned US 26 interchange. The 252nd/Palmblad/Telford collector system also connects to the Rugg Road arterial near the interchange. These connect the Brickworks/HI site to the Village Center and to the Springwater Industrial districts.
- Green streets are required and are an integral part of the stormwater management system and provide walkable, tree-lines streets.

Conclusion
The Transportation goal is addressed by applying Springwater Transportation System Plan (TSP) that applies to the Springwater Plan District. The TSP details a well-planned transportation system for connectivity within residential neighborhoods and to employment and shopping areas; transit; walking and biking, pedestrian friendly design; green streets; and improvements to US 26 regarding regional freight and transportation centers. The Brickyard/HI site is integrated into the already adopted TSP.

Policy 1 is addressed by the North/South Corridor Study identifying corridor wide projects that will need to be addressed, in part, to accommodate Springwater and the Brickworks/HI site. A future Metro Corridor Study will be undertaken.

Policy 2 is addressed applying the Springwater TSP that requires green streets in Springwater based on Metro and Pleasant Valley past studies and which identify the swale designs needed to handle specified stormwater design flows.

Policy 7 is addressed by applying the Springwater TSP that provides for transit, a bicycle and pedestrian, a trails, and street connectivity within the Brickworks/HI site and to the rest of Springwater.

Policy 8 is addressed by applying the Springwater TSP with a connectivity plan that meets local and regional standards and provides for community and collector streets within the Brickwork/HI site.

Policy 11 is addressed by applying to the Brickworks/HI site a Transit Plan that was created in cooperation with TriMet including designating Hogan Road as a primary transit route.

Policy 12 is addressed by applying the Springwater TSP that provides for improvement to Palmblad, Palmquist and Hogan Road and provides for connections regional arterial system planned for the future industrial development.

Policy 15 is addressed by the planned enhancements to US 26 and by the planned arterials and other street improvements for Springwater including the Brickworks/HI site.

Policy 17 is addressed in the TSP which identifies existing issues that will be improved by the planned system including existing streets fronting on the Brickworks/HI site.

Policy 18 is addressed in the North/South Corridor Study and will be an on-going action.

Policy 19 is addressed in the US 26 Concept Design and Access Plan that was developed under a TGM grant as a companion project to the Springwater planning effort and will support future development of the Brickworks/HI site.

The proposal is consistent with the applicable Springwater Transportation goal and policies.

10.806 Natural Resources

Goal

The plan will preserve, protect and enhance natural resources.

Policies

1. The Springwater Community Plan shall recognize the importance of the upper Johnson Creek system for Gresham, the Portland Metro region and the Willamette Valley.

3. The Plan will result in a green infrastructure that will provide regional natural amenities for future generations.

4. The plan will identify potential opportunities for "natural park" facilities that would enhance the sense of place for economic developments and that could be an attraction for residents and businesses.

7. The entire Johnson Creek Watershed and ecosystem will be considered.

8. To the extent practical, watershed functions and sensitive/natural species will be restored.

10. The urbanization of the Springwater Community shall be balanced with the protection of sensitive species and habitat, water quality, and groundwater resources.

11. The urbanization of the Springwater Community shall achieve, to the maximum extent practical, low levels of effective impervious surfaces, high levels of tree protection and reforestation, management of stormwater as close to the point of origin as possible, improved hydrology and flood protection, and removal of barriers to fish passages.

12. Urbanization of the Springwater Community shall provide appropriate erosion control and shall control sedimentation through the use of green development practices, context sensitive design, and appropriate construction management practices, re-vegetation of disturbed areas, and regular maintenance and monitoring.

Findings

The Springwater Natural Resources goal and policies establish the City's intent protect and enhance the extensive natural resource system in Springwater that includes a two-mile section of mainstem Johnson Creek, four miles of major tributaries, and other unique habitat such as "Hogan Cedar Grove" on the Brickworks site. The Springwater Community Planning process included developing a natural resources plan based on a State Goal 5 ESEE analysis that identified significant natural resources found on the Brickworks/HI site and recommended protection measures for them.

A natural resource study and implementation plan was conducted for Springwater and is detailed in the Natural Resources Report and State Goal 5 Economic, Social, Environmental and Energy (ESEE) Analysis Report. A regulatory tool was developed to protect significant natural resources, consistent with

the recommendations of the NR Report and ESEE Analysis. It is known as the Environmentally Sensitive Resource Areas-SW (ESRA-SW) sub-district.

The key steps in completing the natural resources plan were:

- Collecting and reviewing existing information. This included Metro's baseline information for riparian and wildlife resources (Metro adopted significant habitat inventory); from Multnomah County's West of Sandy River Plan; and Oregon Department of Fish and Wildlife (ODFW)
- Conducting field studies and determining fish and wildlife habitat quantity and quality. These field surveys were done by the Springwater environmental consultant, Natural Resource Planning Services, Inc. (NRPS).
- Conducting a local wetland inventory under State rules.
- Preparing map layers of resources. The resources included Johnson Creek and tributaries, wetlands, riparian areas, and wildlife habitat. Johnson Creek is considered by NOAA Fisheries as critical habitat for Lower Columbia River steelhead and Chinook and it has been listed as essential habitat for Coho and Chinook. It is also a DEQ listed water quality limited stream.
- Determining the significance of all resources mapped. This was a three-step process to consider how changes to natural resources change:
    - Identifies broad scale characteristics such as geology, terrain and human infrastructure in which changes occur
    - Identifying functions of water quality, channel dynamics, water quantity, microclimate, fish habitat, organic materials, wildlife habitat, sensitive species and upland interior habitat which are the processes for change
    - Identifying how specific areas have changed in terms or disturbance and resilience in order to determine areas best suited for preservation and for enhancements
- Adopting a ranked list of significant resource sites. Generally sites of Class 2 through 6 were identified as significant resource sites. Those sites functioning well, and/or combining three or more resources, were given the highest rating (Class 6). Whereas those sites that had low habitat/watershed health values or were relatively small and isolated were rated low (Class 1).
- Determining the level of protection by conducting an ESEE analysis. An ESEE analysis involves a determination as to the consequence to resource of allowing, limiting or prohibiting conflicting uses within an impact area. The impact area was determined to be the remaining Plan area situated outside of the resource sites. Conflicting uses are uses that can have economic, social, environmental, or energy consequences depending upon whether or not they are fully allowed or partially allowed within the resource site and adjoining impact area. The ESEE analysis concluded that the best approach in terms of the ESEE elements was to allow all the uses in the proposed IND-SW, RTI-SW, VC-SW, NC-SW, LDR-SW and VLDR-SW Springwater Plan sub-districts in the non-resource lands (impact area) and to allow some uses in the proposed ESRA-SW. The ESRA-SW limits conflicting uses primarily to allowing certain utilities and to allowing a limited amount of development in cases when all or most of the parcel is in the ESRA-SW.
- Determining the final ESRA-SW boundary. A boundary was determined for each resource site utilizing factors of the Springwater goals and policies; the resource significance ratings, Metro's protection standards; and the allowance of limited uses as determined by the ESEE. This boundary is based on Table 7.2 of the ESEE Analysis, which recommended for each creek a minimum development setback that is measured from the top of bank. The purpose of the ESRA-SW is to prevent resource degradation; protect the functional value of the resource site and health of the watershed; and provide where possible opportunities for enhancement of the resource site and overall watershed health.
- Establishing the ESRA-SW sub-district. All lands within the ESRA-SW are protected from urban development. Limited development is allowed and managed in a way that is compatible with the goals of the natural resource protection and the function of the resource site. Opportunity for development is provided for any existing parcel that is completely or substantially within the ESRA-SW.
- Identifying funding strategies. As the area develops, environmentally sensitive habitats and natural features will be protected through a combination of public acquisition and regulation. A natural resource management plan is included in the natural resources plan. It identifies

projects, their value and opportunities for enhancement, rough costs estimates, and potential funding sources.

Three ESRA-SW sites were established in the Brickworks/HI site. The ESRA-SW designation is proposed for two Johnson Creek tributaries (Bus and Oops Creek). Bus Creek (3.6acres) and Ops Creek (4.1 acres) are located in intact riparian areas of a mature conifer and deciduous forest canopy and mixed shrubs. The two tributaries were classified as Class 3 Resources (tributary to Johnson Creek in forest canopy) and the ESRA-SW area encompasses 175 of either side of the top of bank for water quality, riparian/upland connectivity, and large wood recruitment.

The third ESRA-SW site is a large (28.2 acres) mature mixed deciduous/conifer tree grove including Hogan Cedars with good wildlife value as wildlife movement corridor. It is located adjacent to the Springwater Corridor Trail and Johnson Creek. This tree grove was classified as a Class 5 Resource with major contribution to watershed protection based on its combination of tree grove and unique habitat protection qualities. The stormwater capital improvement project list includes acquiring this tree grove to "enhance value of significant forested area adjacent to Johnson Creek mainstem for flood protection and water quality enhancement". Lands south and adjacent of this tree grove have are also ESRA-SW lands and include a planned Springwater Community Park that is "intended to tie together open space, trails, and interpretive opportunities into a respectful and education encounter with the natural environment." The natural areas of this park are a potential synergy with the stormwater management and habitat values of the tree grove. The grove site is included as a potential area for surface mining (clay resources) under an existing Oregon Department of Geology and Mineral Industries permit. The site location was included in a City "Determination of Non-Conforming Situation" (MIS 02-6175) regarding the surface mining operation.

Development under the Springwater Plan District is subject to green stormwater management practices including building green streets. These practices manage stormwater quality and quantity in a manner which limits impacts to and can enhance natural resource riparian areas. Additionally Xeriscape landscaping required for industrial sites promote water conservation and the use of natural planting that can also enhance natural resource areas.

Conclusion

The Springwater Natural Resources goal is addressed by applying the natural resources plan and the accompanying ESEE analysis that has identified significant natural resources on the Brickworks/HI site and which provides protection and enhancement opportunities, and identifies funding strategies.

Policy 1 is addressed as the applied natural resources plan recognized the importance of Johnson Creek by identifying and designating as ESRA-SW two Johnson Creek tributaries and large tree grove adjacent to Johnson Creek that will enhance habitat, water quality and water quantity values of Johnson Creek.

Policy 3 is addressed by the designating as ESRA-SW sub-district the two tributaries and the large tree grove which are part the green infrastructure Johnson Creek system for Springwater and which preserves the areas and provides for future enhancement opportunities.

Policy 4 is addressed by the planned natural resources oriented community park located adjacent to Johnson Creek and the Springwater Corridor trail, and which includes wetland, riparian, and upland habitat potential and which will act in synergy with the Brickworks/HI tree grove that has been identified as CIP eligible stormwater acquisition project.

Policy 7 is addressed by applying the natural resources plan to the Brickworks/HI site. The natural resources plan incorporated inventory work for the entire watershed and considered impact of development in Springwater to the downstream ecosystem. The ESRA-SW areas and standards for green stormwater management practices address this policy.

Policy 8 is addressed in the natural resources plan that specifically identified watershed functions and provided for enhancement opportunities for sensitive species habitat including for the Brickworks/HI Bus and Ops Creeks.

Policy 10 is addressed by applying to the Brickworks/HI site a natural resources plan that is based on the State Goal 5 ESEE analysis that requires the balancing of economic, social, environmental, and energy considerations regarding urbanization and natural resources.

Policy 11 is addressed by the application of ESRA-SW district, by the natural resources plan, and by the Stormwater PFP that identify removal of barriers and systems that will enhance habitat and flood control, by provisions for tree planting, by provisions for green stormwater management, and by provisions for Xeriscape landscaping.

Policy 12 is addressed by application of provisions for erosion control that are consistent with regional and local standards and which uses green development practices.

The proposal is consistent with the applicable goal and policies of the Springwater Natural Resources goal.

C. Community Development Code Plan District Enabling Legislation (4.1000)

(A) A Plan District may be designated when the city finds that conditions within a specific area are such that unique planning and regulatory tools are required to achieve desired results. A Plan District designation may be warranted based on specific land use, economic, transportation, public facilities, historic, or natural conditions found to exist in the area. Plan District designation provides a means to create or modify development districts and standards in ways which address specific opportunities and problems within the plan area. These new or modified development districts and standards are not transferable to properties outside the boundaries of the established Plan District. The Plan District designation is generally not intended to be applied to small areas or to small individual properties.

Findings:
Findings under this section were made for establishing the Springwater Plan District when the Springwater Community Plan was originally adopted. As provided in subsection (B) below a Plan District can be modified when findings are made that it meets the specific criteria required for establishing a plan district.

Conclusion:
The Springwater Plan District (SWPD) has previously been established as consistent with this section and the amending of the (SWPD) by adding the approximately 160 acres of the Brickworks/HI site is consistent with the subsection and the applicable provisions of 4.1000.

*(B) Except as provided in Section 4.1000(E), a Plan District shall be established, **amended**, or removed at the initiative of the Planning Commission or the City Council through the Type IV legislative procedure. In establishing a Plan District, findings satisfying all of the following criteria must be made:*

Findings:
The proposal for amending the Springwater Plan District is being processed under the Type IV legislative procedure.

Conclusion:
The proposal is consistent with the subsection.

(1) The area proposed for the Plan District designation is generally affected by special characteristics or problems of a land use, economic, transportation, public facilities, historic, natural, or transitional use or development nature which are not common to other areas of the city.

Findings:
The following characteristics or problems occur in brickwork/HI site similarly to Springwater and are not common to other areas of the City:

Land use
The site has been zoned as Heavy Industrial since 1980 but has not developed with new industrial uses except for updating of the pre-existing brick manufacturing and clay extraction pit facility. Two public schools and school maintenance facility were recently developed when prior City code provisions allowed schools on industrial zoned land. In 2001 the City commissioned an economic development report regarding industrial development as part of State required periodic review of its comprehensive plan. The report[6] specifically addressed the Brickworks/HI site. It noted that "The brickyard area on the southeast side of Gresham does not appear suitable for heavy industrial reuse, but could eventually become a high amenity corporate/business park location – offering rolling topography and direct proximity to new upscale neighborhoods." It also noted that "Part of the master planning for the site should address suitability for industrial versus residential/commercial [mixed use] reuse." And it suggested that "Before transitioning portions of the area out of an industrial designation, it would be appropriate to secure replacement property that could be designated and more readily developed for industrial use elsewhere in the Gresham area."

The site was analyzed together with the balance of the Springwater Plan Area, taking into account all of the regional employment trends, Metro forecasts, and the project for East Multnomah County's emergence as an increasingly important jobs center. The brickwork/HI site has many of the same advantages and disadvantages for industrial growth as much of the rest of the Springwater Plan area.

The area is relatively flat, but is not very well served by a transportation network which would support intensive industrial development. There are some relatively minor natural resource areas in the northwest portion of the site, and a considerably larger natural resource area being a mature tree grove in the southeast portion of the site. There is abutting existing residential development to the east and the north, in addition to the two existing schools and a small maintenance facility in the northeast portion of the site. The area immediately to the north (across SE Palmquist Avenue) is the site of a slowly developing public sports park complex of several athletic fields.

Generally, considerable analysis and documentation exists to demonstrate that this is not a viable Heavy Industrial site. Given the lack of available industrial and employment sites in the Metro Area, and given the other elements of the Springwater Plan for those areas to the south and southeast of the Brickworks site, portions of the site identified were as having good potential for future industrial and/or jobs growth. A significant majority of the overall acreage was identified as viable jobs land. Other areas of the site, particularly those near the schools and the Sports Park were identified as being most appropriate for residential development.

Transportation
The existing transportation system is inadequate for planned uses. Urbanization will require reconfiguration, extension and completing linkages in the arterial, collector and community street system; providing for a bike and pedestrian system; and extension of the transit system to support the RTI-SW and IND-SW districts.

US 26
A key need for industrial and employment development is improvements to US 26. Improvements are intended to occur in phased plan that will be closely tied to development levels and specific development needs and traffic warrants.

Natural Resources
Johnson Creek and associated tributaries and wetlands are a major feature of Springwater. Issues of water quality, a unique five-creek confluence area, and aquatic and other animal habitats are present. Due to little urban development there are major opportunities to preserve and enhance the functions of the creek system. Johnson Creek has water quality DEQ listing issues, Endangered Species Act critical habitat issues and downstream flooding issues that can be impacted by urbanization. The Brickworks/HI site has identified Johnson Creek tributaries plus a unique 28.2 acre forested grove that has been identified as a Springwater Stormwater Master Plan CIP project for flood protection and water quality enhancement.

[6] GRESHAM INDUSTRIAL EMPLOYMENT & ECONOMIC STUDY, August 2001, E. D. Hovee

Transition
This area has remained largely undeveloped and has a strong visual and physical connection to the Springwater Plan area with frontages on Hogan Road, Palmblad Road and abutting the Springwater Corridor Trail and Johnson Creek. The development of the site will be closely tied to the issues of phasing and incorporation of the Springwater Plan area.

Sustainability
Springwater is planned to be developed as an economically, environmentally and socially sustainable community addition to the City. This starts at the community planning level and continue through the design and construction of individual buildings. The site's proximity to the rest of Springwater makes it critical that the area achieve the same goals as the current Springwater Plan District area.

Conclusion:
The brickwork/HI site in conjunction with the current Springwater Plan District has a number of unique characteristics and problems not generally found in the City that will pose challenges and opportunities that are best addressed by utilizing the Springwater Plan District on the site. The proposal is consistent with this subsection.

(2) Existing development districts and standards applying in the area are inadequate to achieve goals and implementation strategies of the Community Development Code, or to address an identified problem in the area.

Findings:
The Springwater Plan District addresses problems in the Springwater Community Plan area that are not addressed by existing development districts and standards. These will be extended to addressing similar problems that were found in the brickwork/HI site during the Springwater study.

- Springwater including the brickwork/HI site is a unique landscape with a unique plan. The participants in the Springwater planning process recognized that it is a special place and deserves a new and unique perspective on its Plan. Consequently, they created the Plan with a high level of freedom to integrate land use, transportation and natural resources, and explore new ways to create a unique Springwater community addition to the City. Implementing such a vision requires new techniques.
- The THR sub-district is unique to Springwater recognizing unique housing needs and opportunities.
- The IND sub-district is intended to provide for the target industries identified in the economic development study and to provide for large site industrial developments. There is no comparative Gresham district that addresses the NAICS industrial codes that are being utilized as a way to address target industries.
- Gresham's natural resource districts (Water Quality Overlay, Natural Resource Overlay and Open Space Overlay) were not created to fulfill the specific resource protection and enhancement objectives of the resource areas in Springwater. The Goal 5 analysis for Springwater identified the new Environmentally Sensitive Resources Areas sub-district as the appropriate tool for resolving potential resource conflicts.
- The proposed green development practices are part of the City's evolving work in stormwater and water quality regulations but do not include provisions in the existing Gresham code that could be utilized.
- The sustainable practices anticipated for Springwater development are not addressed in existing Development codes.
- A key to successful economic development and recruitment areas in Springwater is its identification as a place. A Springwater Plan District helps identify or "brand" it.

Conclusion:
The Springwater plan identified the brickwork/HI site as a key element of the Plan. The Plan is a carefully integrated plan that includes significant areas of employment in terms of industrial districts and research/technology districts. Two new community parks and a neighborhood park along with a regional trails system is planned including a natural resources system that is part of the community will enhance the brickwork/HI site. It envisions development techniques that create a sustainable environment and

minimizes that negative effect urbanization generally has on water quality, flooding, erosion, and fish and other wildlife habitat. Gresham's existing codes have not anticipated the development of a large area with the unique set of planning and development techniques intended to address the problems and unique characteristics that need to be addressed as Springwater transitions from a rural area to a new urban community in conjunction with development of the brickwork/HI site. The proposal is consistent with the subsection.

(3) The proposed Plan District designation is the result of a study or plan which documents the special characteristics of the study area and includes measures to address the relevant issues.

Findings:
This Springwater Community Plan was developed by the City of Gresham in partnership with Multnomah County and in cooperation with Metro, Clackamas County, and others through an 18-month planning process involving residents and property owners, area stakeholders, City staff and appointed and elected officials, and consultant team members. The brickwork/HI site was included in the Springwater study and the resulting Springwater Community Plan.

Conclusion:
The Springwater Plan District designation was based on the study and subsequent Springwater Community Plan. The brickwork/HI site was included in that study and plan. This proposal is consistent with this subsection.

(4) Any proposed policies, procedures, development standards, or other measures to be implemented are in conformance with the purposes, findings and recommendations of the study or plan which serves as the basis for the Plan District.

Findings:
The Springwater Plan District included adoption of goals, polices, procedures, development standards and other measures that were found to be consistent with the study and resultant Springwater Community Plan. The brickwork/HI site was part of that study and plan and by this proposal would utilize the same goals, policies, procedures, development standards and other measures.

Conclusion:
The proposed comprehensive plan amendments are a direct result of the planning process that resulted in the Springwater Plan District and would implement the Springwater Plan District at the Brickworks/HI site. The proposal is consistent with this subsection.

(5) The Plan District designation and related policies, procedures, standards, and other measures are consistent with applicable policies and implementation strategies of the Community Development Code, and with any applicable locational criteria identified in the Community Development Code.

Findings:
The findings of fact made in Section VIII.B (Policies) are the applicable provisions that apply to the proposed modification of the Springwater Plan District. This section made findings and conclusions that the proposal is consistent with these applicable policies and implementation strategies (and goals and action measures) including the already adopted Springwater Goals.

Conclusion:
Based on the findings and conclusions of Section VIII.B – Findings of Fact, the proposal is consistent with this subsection.

(C) Provisions of the Plan District may modify existing standards and procedures of the Community Development Code. The Plan District provisions may also apply additional requirements or allow exceptions to general regulations. Where there is a conflict between the provisions of the Plan District and those of other portions of the Community Development Code, the Plan District provisions control.

Findings:
This subsection provides authority to modify current and apply additional standards and procedures in a Plan District. It also clarifies that the Plan District applies when in conflict with other portions of the Code. This provision was applied to the adopted Springwater Plan District.

Conclusion:
The Springwater Plan District does modify current and apply additional standards as is authorized by this section. The proposal is consistent with this subsection.

(D) The location and boundaries of each Plan District shall be shown on the Community Development Plan Map.

Findings:
The proposed amended Springwater Plan District map will be adopted as an amendment to Volume II. The Community Development Plan Map will be modified by changing the current HI designation to the proposed Springwater Plan District designations.

Conclusion:
The proposed comprehensive plan amendments include a Plan District Map and an amendment to the Community Development Plan Map. The proposal is consistent with the subsection.

(G) Policies, procedures, standards, and other measures applying within a Plan District may be amended through the Type IV legislative procedure. Any such amendment intended to apply exclusively within a Plan District shall be initiated by the Planning Commission or the City Council, and shall be based on findings demonstrating that it is consistent with the purposes, findings, and recommendations of the plan or study which serves as the basis for the that Plan District.

Findings:
The proposed text amendments to the Springwater Plan District code included as part of this CPA proposal are being processed under the same Type IV legislative procedures as initiated by the Council. The proposed text amendments are minor clarification and findings of consistency with the Springwater Community Plan are included in the commentary column of Exhibit 'C'.

Conclusion:
The proposed comprehensive plan amendments are being processed under the Type IV legislative procedures as initiated by the Council and findings of consistency with the Springwater Community Plan have been made. The proposal is consistent with the subsection.

D. Metro Urban Growth Management Functional Plan

Title 1	Requirements for Housing and Employment Accommodation
Title 4	Industrial and Other Employment Areas
Title 13	Nature in Neighborhoods

The site has been designated as Heavy Industrial since 1980 and has remained primarily underdeveloped. Two public schools (elementary and alternative high school) were built on the northeast part of the site in recent years based on prior City code which allowed schools on industrially designated land (Gresham's codes no longer allow this). A brick and pavement manufacturer and associated surface mining (clay pit operating since 1906) is located on the southern portion of the site. A mini-storage warehouse and a school bus parking lot are also within the overall site area.

In 2001, the City commissioned an economic development report regarding industrial development as part of the State Periodic Review process. The report concluded that the Brickworks/HI site "did not appear suitable" for heavy industrial reuse, but could be a high amenity corporate/business park site. It suggested master planning of the site to address suitability for industrial versus residential/commercial mixed use. The City was also approached by property owners identifying the need change the HI designation.

The City, in March 2002, identified to Metro that the site may be more suited as a mixed use employment site. The Metro Council considered the change at the time of the expansion of the Urban Growth Boundary (UGB) in December 2002 that included the Springwater industrial areas (study area 6 and study area 12). The decision, with City concurrence, was to include the Brickworks site in the Springwater study area to address the issues of what industrial uses might be appropriate for the site and if there should be other residential or commercial uses on the site particularly in conjunction with the new lands that would be available for industrial development in Springwater. The Springwater study area included the 1,152 acres of expansion in Multnomah County and about 120 acres of adjacent unincorporated Multnomah County land already in the UGB but for which an urbanization plan has never been developed. The Brickworks/HI site is adjacent to the Springwater plan area.

The Brickworks site was therefore included in the Springwater Community Plan development process. In January 2003, the Council initiated a work program to create an urbanization plan for Springwater. In fall 2003, formal project planning began with the formation of an advisory group, the Springwater Community Working Group (CWG). In October 2004, the CWG endorsed a Springwater Draft Concept Plan Map including the Brickworks site. In November 2004, the Council accepted the Draft Concept Plan Map and initiated the legislative process to develop and adopt comprehensive plan amendments to establish the Springwater Plan District. The Springwater Community Plan was adopted by City Council, effective December 1, 2005.

Land brought into the UGB is subject to Title 11: Planning for New Urban Areas (Urban Growth Management Functional Plan [UGMFP]). Title 11 required development of plans and maps for Springwater regarding annexation/urban services provisions, residential densities, housing diversity, affordable housing, sufficient commercial and industrial lands, transportation systems, natural resource protection and enhancement, public facility and services , and schools. In addition the Metro Council ordinance for the UGB expansion included conditions that the Springwater Plan had to be consistent with. Those included addressing 2040 design types, applying the Metro Goal 5 inventory to the natural resource plan, persevering the identifies for planned or emerging town centers, and addressing RSIA land and lot sizes.

The City submitted a Title 11 Compliance report with the proposed Springwater Plan District comprehensive plan amendments. The Title 11 report did not address the brickwork/HI site as Title 11 only applies to UGB expansion areas and not existing City areas. However the same set of plans that addressed Title 11 was also created to apply to the brickwork/HI site. Metro stated that the Springwater Community Plan was in compliance with Title 11 in a letter to the City dated 9/20/05 from Michael Jordan, Metro Chief Operating Officer.

Title 1: Requirements for Housing and Employment Accommodation
Title 1 has provisions for housing and employment capacity that specify that the City meet capacity targets listed in the Title. Title 1 also has provisions for 2040 design type boundaries requirements. City land uses designations are to be consistent with the general locations of the shown on the 2040 Growth Concept Map. The proposal to change the Brickworks/HI site from Heavy Industrial to the Springwater Plan District affects capacity estimates and the 2040 design type boundaries.

Findings:
In 2000, the City completed a report[7] that demonstrated that the City met the Title 1 target capacity. Capacity targets have since been updated to include the Pleasant Valley Plan area and will be updated in the future to include the Springwater Plan area. The 2000 report identified about 87.0 acres of the site as vacant or refill. The existing brick manufacturing and clay resource and the associated tree grove were identified as developed or constrained. Since that time about 16.5 acres of vacant land has been improved with the public school buildings and about 1.8 acres with a mini-storage facility.

[7] Capacity Analysis Report, November 13, 2000, CEDD

This leaves about 69.0 acres of gross vacant land and net[8] 53.8 acres. The 2000 report used 14.5 minimum jobs per acre figure for HI zoning. By multiplying 55.1 times 14.5 the minimum job capacity for the current HI designation is 780 jobs.

The designations proposed for the vacant/refill acreage includes 7.7 acres of ESRA-SW (natural resources), 7.0 acres of LDR-SW, 19.1 acres of THR-SW, 2.5 acres of NC-SW, 22.4 acres of RTI-SW and 10.3 acres of IND-SW.

Below is a chart that estimates the minimum capacity for both dwelling units and for jobs. The minimum capacity estimate is 219 new dwellings and 1,195 new jobs. The dwellings figure is new capacity and jobs figure exceeds the 780 job capacity estimate for the current HI developable lands. The calculation for dwelling units is based on the minimum required density for the residential districts which is consistent with Title 1 provisions. The minimum job capacity for the NC-SW and for RTI-SW is based on the minimum FAR (floor area ratio) requirements. As there is no minimum job capacity is based on the same calculation used in the Title 11 Springwater Compliance report for the IND-SW. Title 1 has no specific provisions regarding calculating minimum job capacity.

Dwelling Unit Minimum Capacity				
District	Gross Acres	Net Acres[8]	Min Density	Dwelling Units
LDR-SW	9.1	7.1	5.8	41
THR-SW	19.1	14.9	12	178
			Total	**219**

Jobs Minimum Capacity						
District	Gross Acres	Net Acres[8]	Min FAR	Sq Footage	Sq Feet per job[9]	Jobs
NC-SW	2.5	2.0	.35:1	30,492	550	55
RTI-SW	24.1	18.0	.40:1	313.632	350	896
IND-SW	10.3	8.0	.35:1[10]	121,968	500	244
					Total	**1,195**

The current 2040 Design Type designation for the Brickworks/HI site is Industrial. Industrial is defined as "Industrial areas are set aside primarily for industrial activities with limited supporting uses". Although a 2040 Industrial designation will continue to be appropriate for some of this site parts of the site should have different designations.

The Title 11 compliance report proposed 2040 design types for the Springwater Plan District sub-district designations. The proposed 2040 Design Type designations for the Brickworks/HI site generally follow the same recommendations:

NC-SW – this sub-district is appropriate for Employment design type. Employment areas are various types of employment and some residential development are encouraged in employment areas with limited commercial uses." The NC-SW generally allows small and medium sized retail uses with retail stores limited to 10,000 square feet, a grocery store to 35,000 square feet and professional services to 5,000.

[8] The Title 11 compliance report used a 0.22 reduction to arrive at net. This was based on Metro's 0.25 deduction but excluded 0.03 that accounted for parks as park land was determined for Springwater and netted out.
[9] The square foot per job figures come from the Springwater Title 11 compliance report.
[10] There is no minimum FAR in the IND-SW. The .35:1 FAR was used for the IND-SW in the Title 11 compliance report.

RTI-SW – this sub-district is appropriate for Industrial design type. This sub-district is primarily intended to provide space for industrial users and research and technology employment in office-type buildings. It limits square footage of single retail and professional services to 5,000 square feet and multiple outlets to 20, 200 square feet.

IND-SW – this sub-district is appropriate for Industrial design type. Elsewhere in the Springwater Plan District the IND-SW is RSIA design type that primarily allow for large site industrial users. Industrial is proposed for this site as there is not enough land to put together large site development. The IND-SW limits retail and professional services uses that cater to daily customers to occupy no more than 3,000 square feet of sales or service are in a single outlet, or multiple outlets that occupy no more than 20,000 square feet.

THR-SW and LDR-SW – these sub-districts are not located on a transit street and are appropriate for Inner Neighborhood design type. These areas are residential areas accessible to jobs and neighborhood businesses. The THR-SW provides for small attached and detach dwelling lots at 12.0 to 15.6 net residential acre density and the LDR-SW provides for standard single family lots at a 5.8 to 7.3 residential net acreage.

ESRA-SW – these designations are located within the industrial design type areas and are potential open space areas as there are limited the primarily purpose of the ESRA-SW is to preserve and enhance natural resource areas and as the tree grove has been identified as a Stormwater CIP acquisition project.

Conclusion
The Springwater Community Plan has identified re-zoning of parts of the Brickworks/HI site to THR-SW and LDR-SW, to NC-SW and to ESRA-SW. As detailed elsewhere in this staff report these changes support a variety of goals including economic development and sustainability. The THR-SW and LDR-SW lands should be designated as Inner Neighborhood rather than Industrial and the NC-SW land should be designated as Employment rather than Industrial. The rest of the site remains industrial with the note that the ESRA-SW lands are potential open space area.

The proposal is consistent with Title 1.

Title 4: Industrial and Other Employment Areas
Title 4 seeks to provide and protect a supply of sites for employment by limiting the types and scale of non-industrial uses and to cluster industrial that operate more productively and efficiently in proximity to one another than in dispersed locations. The proposal to change the Brickworks/HI site from Heavy Industrial to the Springwater Plan District affects capacity estimates and the 2040 design type boundaries.

The Brickworks/HI site was part of the subsequent planning and created Concept Plan establishing it as a component in meeting economic development goals and policies of the Springwater Plan.

The Brickworks/HI site has been zoned as Heavy Industrial (HI) since at least 1980. During the past 35 years the HI designation has not resulted in any consequential industrial development (mini-storage and a school bus storage site). In August 2001 a report[1] was completed for the City that was intended to update its industrial lands inventory and its economic development goals, policies and strategies. A key recommendation of the study was consider rezoning portions or all of the Brickwork industrial areas from HI to BP (Business Park). It noted that "The brickyard area on the southeast side of Gresham does not appear suitable for heavy industrial reuse, but could eventually become a high amenity corporate/business park location – offering rolling topography and direct proximity to new upscale neighborhoods ... sub-area/master planning is recommended to establish framework for this long-term transition."

Subsequent to this report City planning and economic development staff and site property owners engaged in conversations about the future zoning for this site. This ultimately led to joint Metro and Gresham decision to include the Brickworks/HI site in the Springwater Community planning effort with intent to best understand what role the site could have in achieving economic development goals.

The Springwater Plan identified short term target industries that included such industries as specialized software applications, corporate headquarters, and professional services. The RTI-SW sub-district focuses on providing space for industrial users and related enterprises serving industrial clients and on research and technology employment in office-type buildings. The RTI-SW and the IND-SW were developed to provide for the needs of the targeted industries.

The proposed application of the Springwater Plan District would result in 24.2 acres of RTI-SW and about 10.3 acres of vacant, adjacent IND-SW land [the bulk of the IND-SW is the existing brick and tile manufacturing facility and clay extraction pit]. The Brickworks/HI site has a strong physical and visual connection to Springwater. The Palmblad/Telford collector street system connects the Brickworks/HI site to a planned east/west collector street that connects the IND-SW lands east of Telford to the Village Center and RTI-SW lands west of Telford. The Springwater Corridor Trail and Johnson Creek are important landscape features that tie the areas together.

The Springwater Community Plan industrial recruitment and marketing plan noted that a modest amount of housing in the Plan area was needed both meet Springwater vision as a community in which people could "live, work, and play" and to accommodate Springwater's employment goals. The townhouse sub-district along with the LDR-SW sub-district housing should attract single, couple and young family buyers that will likely make up much of the white and blue collar Springwater workers. Opportunities for large lot estate housing and other housing were planned in the current Springwater Plan District area.

As detailed in the Title 1 findings the RTI-SW and the IND-SW limit retail and similar uses consistent with the Title 4 Industrial design type designation and the NC-SW limits retail uses consistent with Title 4 Employment design type designation.

Conclusion
The Springwater Community Plan has identified re-zoning of parts of the Brickworks/HI site to THR-SW and LDR-SW, to NC-SW and to ESRA-SW while the remaining lands are designated with the industrial RTI-SW and IND-SW designations. Findings in this staff report have supported the changes as supporting economic development of Springwater, and especially of the industrial districts. It provides for a more viable set of land uses on a site that has not developed industrial uses since it was zoned Heavy Industrial in 1980. It still provides for a cluster of industrial lands that are well connected to the industrial lands south and east in Springwater. The industrial sub-districts are consistent with the Title 4 use limitations.

The proposal is consistent with Title 4.

Title 13: Nature in Neighborhoods
Title 13 seeks to 1) conserve, protect, and restore a continuous ecologically viable streamside corridor system integrated with upland wildlife habitat and the surrounding urban landscape and 2) control and prevent water pollution for the protection of the public health and safety. This title became effective on February 15, 2006 which is after the adoption of the Springwater Community Plan (December 2005).

Findings in this staff report under 10.806 Natural Resources document the extensive natural resources planning efforts including a State Goal 5 ESEE analysis which resulted in implementation of the natural resources plan through the Environmental Sensitive Resource Areas-SW designation (ESRA-SW).

The Springwater planning for natural resources began with an inventory and needs analysis. The natural resources inventory used Metro's adopted regionally significant habitat inventory as its baseline. Consistent with Metro's inventory, the project found most of the riparian areas and waterways is Springwater regionally significant.

The Springwater natural resources planning effort was patterned and executed similarly to the Pleasant Valley Title 11 and Goal 5 natural resource planning effort. The ESRA-SW code is essentially the same as the Pleasant Valley ESRA-PV code. The Pleasant Valley ESRA-PV code and accompanying strategies was model for the Title 13 provisions.

Metro, in a letter from Michael Jordon (CEO), noted that the Springwater Natural Resources plan "meets or exceeds the requirements of Title 11".

The ESRA-SW designation is proposed to be applied to three areas identified in the Springwater Goal 5 ESEE analysis:

Three ESRA-SW sites were established in the Brickworks/HI site. The ESRA-SW designation is proposed for two Johnson Creek tributaries (Bus and Oops Creek). Bus Creek (3.6acres) and Ops Creek (4.1 acres) are located in intact riparian areas of a mature conifer and deciduous forest canopy and mixed shrubs. The ESRA-SW area encompasses 175 feet of either side of the top of bank for water quality, riparian/upland connectivity, and large wood recruitment. The third ESRA-SW site is a large (28.2 acres) mature mixed deciduous/conifer tree grove including Hogan Cedars with good wildlife value as wildlife movement corridor. It is located adjacent to the Springwater Corridor Trail and Johnson Creek. The Springwater Master Stormwater capital improvement project list includes acquiring this tree grove to "enhance value of significant forested area adjacent to Johnson Creek mainstem for flood protection and water quality enhancement".

Conclusion
The Springwater Plan District includes a natural resources plan and implementing regulations that were based on Metro's Goal 5 inventory; that was developed using Goal 5 ESEE analysis; and which was patterned after the Pleasant Valley natural resource plan which provided a model for the Title 13 work. The Springwater Plan meets or exceeds Title 11 requirements. These requirements are being applied to the Brickworks/HI site.

The proposal is consistent with Title 13.

E. Oregon Statewide Planning Goals

The Springwater Community Plan was previously shown and acknowledged (CPA 04-8178) to be in compliance with Metro Title 11; existing Gresham Community Development Policies; and State Goals 2, 5, 11, 12 and 14. In this staff report additional findings have been made for the Gresham Springwater Goals and Policies and for Metro Titles 1, 4 and 13. As both Gresham and Metro are incompliance with Statewide Planning Goals and additional findings have been made for the application of the Springwater Plan District to the Brickworks/HI site the proposal is in compliance with the Statewide Planning Goals. However, as the Springwater planning process is unique and covers a large area, findings for some applicable Oregon Statewide Planning Goals are made.

Goal 2: Land Use Planning. To establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land and to assure an adequate factual base for such decisions and actions.

Guidelines: Preparation of Plans and Implementation Measures. Preparation should be based on a series of broad phases, proceeding from the very general identification of problems and issues to the specific provisions for dealing with these issues. During each phase there should be opportunity to review and comment by citizens and affected governmental units. Sufficient time should be allocated for collection of factual information, refinement of problems, issues and alternative solutions and strategies; incorporation of citizen needs; and the identification and resolution of conflict with other government agencies.

Plan Content: Inventories and other forms of data are needed as the basis for policies and other decisions. Data should be included for natural resources, man-made structures and utilities; population and economic characteristics, and roles and responsibilities of government agencies.

Elements of Plan: Elements should include applicable statewide planning goals, elements that express the special needs or desires of the people in the area and time periods of the plan.

Findings:
Findings and conclusions found in the proceeding sections of this staff report document the planning process including the public involvement process involved in creating the Springwater Community Plan. The Brickworks/HI site was part of the Springwater Community Plan.

Conclusion:
The proposal was created using a comprehensive planning process as suggested by the Goal 2 guidelines and is consistent with Goal 2 – Land Use Planning.

Goal 5: Natural Resources. To protect natural resources and conserve scenic and historic areas and opens spaces. Local governments shall adopt programs that will protect natural resources and conserve scenic, historic and open space resources for present and future generations. These resources promote a healthy environment and natural landscape that contributes to Oregon's livability.

Findings:
The adopted Springwater Community Plan included a natural resources plan and an ESEE Analysis. The natural resources plan is intended to comply with OAR 660-015-000(5) for natural resources. This involves an inventory, significance determination, identifying conflicting uses and an Economic, Social, Environmental and Energy (ESEE) analysis; and developing a program to achieve the goal. The specific steps of a Goal 5 process was documented Springwater Community Plan adoption process. Findings for applying the natural resources plan to the Brickworks/HI site are made earlier in this report.

Conclusion:
The proposal implements a natural resources plan that has previously been shown to be in compliance with conducting a Goal 5 natural resources process.

This proposal is consistent with statewide Goal 5 – Natural Resources.

Goal 11: Public Facilities and Services. To plan and develop in a timely, orderly, and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.

Guidelines: Plans providing for public facilities and services should be coordinated with plans for designation of urban boundaries, urbanizable land, and rural uses and for the transition of rural land to urban uses.

Findings:

The adopted Springwater Community Plan included water, wastewater and stormwater public facility plans (PFP) consistent with OAR 660-011-0010. The OAR specifies the elements of a PFP including inventory and assessment, a list of significant projects with a map and written description, rough cost estimates, service provider and estimate of when needed and these elements were included in the PFPs. The PFPs included the Brickworks/HI site and are applied with the proposal.

Conclusion:
The proposal applied already completed and acknowledged PFPs for water, wastewater and stormwater consistent with the applicable OAR and is consistent with Goal 11 – Public Facility Planning.

Goal 12. To provide and encourage a safe, convenient, and economic transportation system.

Guidelines: All current area-wide transportation studies and plans should be revised in coordination with local and regional comprehensive plans and submitted to local and regional agencies for review and approval.

Findings:
The Springwater Community Plan developed a Transportation System Plan that included Planning Framework; Policies and Action Measures; System Inventory and Assessment; Transportation System Alternatives Analysis; Recommended Transportation System Plan including a Motor Vehicle Plan, a Transit Plan, a Bicycle and Pedestrian Plan, a Freight Master Plan, a US 26 Concept Design and Access

and Other Travel Modes; and an Implementation Plan that includes Functional Class changes, Street cross-section, Amendments to Street Project List, Local Street Connectivity Map and Funding needs.

The Springwater TSP amended the City's TSP. It will also be the basis for amendments to the Regional Transportation Plan (RTP) as it has identified those projects of regional significance. The Springwater TSP included the Brickworks/HI site as is detailed in findings elsewhere in this report.

Conclusion:
The proposal implements a TSP that has already been acknowledged as consistent with Goal 12. The TSP is based on an analysis of system needs for planned Brickworks/HI land uses. The proposal is consistent with Goal 12 – Transportation.

Goal 14: Urbanization. To provide for orderly and efficient transition from rural to urban land use.

Findings:
The guidelines for this statewide goal primarily relate to factors to consider in deciding which lands should be brought into an Urban Growth Boundary and thus go from rural to urban land use. The goal emphasizes the need to accommodate long-range urban population growth; housing, employment opportunities and livability; orderly and economic provision for public facilities and services; maximizing efficiency of land; environmental, energy, economic and social consequences; and the type, design, phasing and location of major transportation facilities. The adopted Springwater Community Plan addressed these issues. The Brickworks/HI site, although already in the UGB and City limits, was part of the plan and found to be a key element is realizing the urbanization of Springwater.

Conclusion:
The proposal implements a plan that provides for the orderly and efficient transition from rural to urban land use as it addresses needed land uses including housing and employment; social and cultural values; natural resources; public facilities including water, wastewater, stormwater, schools and parks; and transportation by applying it to the Brickwork/HI site. The proposal is consistent with statewide Goal 14 – Urbanization.

SECTION IX
CONCLUSION

The proposed comprehensive plan amendments attached as Exhibit 'A' are consistent with applicable criteria and policies of the Community Development Plan, the applicable development code of the Community Development Plan; Applicable Metro UGMFP code and the applicable Oregon Statewide Planning Goals; as indicated by findings contained or referenced in Section VIII of this report.

SECTION X
RECOMMENDATION

Staff recommends **adoption** of the proposed comprehensive plan amendments as contained in the attached Exhibit 'A'.

End of Staff Report

Ordinance No. 07-1148
Attachment 7

Transportation Impact Analysis

Brickworks Village

Gresham, Oregon

March 2007

Ordinance No. 07-1148
Attachment 7

Transportation Impact Analysis

Brickworks Village

Gresham, Oregon

Prepared For:
Willamette Builders Group
1750 SW Harbor Way, Suite 240
Portland, OR 97201
(503) 224-0022

Prepared By:
Kittelson & Associates, Inc.
610 SW Alder, Suite 700
Portland, OR 97205
(503) 228-5230

Project Manager: Chris Brehmer, P.E.
Project Principal: Julia Kuhn, P.E.
Project Analyst: Andrew Ooms

Project No. 7670.0

March 2007

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Section 1
Executive Summary

Executive Summary

Willamette Builders Group is proposing a residential development in the southwest quadrant of the SE Palmquist Road/SE Fleming Avenue intersection in Gresham, Oregon. Upon full buildout, the 19.05-acre site is anticipated to include approximately 183 residential units.

Primary access to the residential development will be via new neighborhood street connections on SE Fleming Avenue and SE Palmquist Road. Street improvements will be made along the project frontage on SE Palmquist Road and SE Fleming Avenue, expanding both to 3-lane cross-sections with a center left-turn lane. Full site build-out and occupancy is anticipated in 2008. The findings of key intersection operational analysis documented in this study are summarized below.

Summary of Weekday AM and PM Peak Hour Intersection Operational Analysis

Intersection	Traffic Control	Time Period	Existing Traffic		Year 2008 Traffic Without Site		Year 2008 Traffic With Site	
			LOS	V/C	LOS	V/C	LOS	V/C
SE Palmquist Road/ SE Hogan Avenue	Signalized	AM	C	0.69	C	0.71	C	0.75
		PM	B	0.63	C	0.87	C	0.91
SE Palmquist Road/ SE Fleming Avenue	Unsignalized	AM	D	0.59	D	0.60	C	0.30
		PM	C	0.12	F	0.52	F	0.47
SE Palmquist Road/ SE Palmblad Road	Unsignalized	AM	C	0.55	C	0.51	C	0.55
		PM	C	0.41	D	0.52	D	0.57
SE Palmquist Road/ Mount Hood Highway	Signalized	AM	C	0.70	C	0.73	C	0.75
		PM	C	0.67	C	0.71	C	0.73

LOS: Level of Service
V/C: Volume/Capacity Ratio
Note: Unsignalized intersection LOS and V/C ratio represents operations of critical movement only.

In addition to the result presented above, all local neighborhood street intersections and proposed site access driveways are forecast to operate acceptably as document in the report.

Summary of Mitigation Recommendations for Site Development

The following mitigation measures are recommended in conjunction with site development.

- Standard half-street improvements should be provided along the site frontage on SE Fleming Avenue. In addition, SE Fleming Avenue should be widened to provide a center left-turn lane between SE Palmquist Road and the southern driveway serving Hogan Cedars Elementary School to accommodate existing turn movements and queuing at the start and end of school days. Provision of the turn lane is necessary to allow for movement of north-south through traffic on SE Fleming Avenue.

- The widened section of SE Fleming Avenue should be striped to provide a separate northbound left-turn lane and shared through/right lane at the intersection with SE Palmquist Road.
- Standard half-street improvements should be provided along the site frontage on SE Palmquist Road.
- Upon completion of the half-street frontage improvements being made by the Gresham Sports Park to the north, SE Palmquist Road should be restriped to provide westbound left turns into the Brickworks Village site at the SE Street "C" and SE Street "A" intersections. The turn lanes could be striped as a two-way left-turn lane along the site frontage beginning west of SE Fleming Avenue.
- At the SE Palmquist Road intersection, the northbound SE Street "A" approach should provide a separate northbound left-turn lane and shared through/right lane.
- Alley 5, the alley closest to SE Palmquist Road, should be signed and striped for one-way westbound movements between SE Fleming Avenue and SE Street "A" to eliminate potential conflicts with northbound queues at the SE Palmquist Road/SE Fleming Avenue and SE Palmquist Road/SE Avenue "A" intersections.
- In accordance with the Manual on Uniform Traffic Control Devices (MUTCD), stop signs should be posted on the northbound approaches of both the SE Street "A" and SE Street "C" intersections with SE Palmquist Road. Stop signs should also be posted on the eastbound approach of the SE Street "D" intersection with SE Fleming Avenue and on the westbound approach of SE Street "D" at its intersection with SE Street "A".
- Additional stop signs should be placed on internal roadways within the site in accordance with the MUTCD.
- One R10-7 "DO NOT BLOCK INTERSECTION" sign should be installed facing traffic eastbound on SE Palmquist Road west of US 26-Mount Hood Highway, alerting drivers of the possibility of queues blocking the Palmquist Mobile Estates driveway.
- Any new landscaping and/or above-ground utilities installed along the site frontage and internal roadways should be properly located and maintained to ensure adequate sight distance is available.

Based on the results of this study, the proposed Brickworks Village can be developed while maintaining acceptable traffic operations and safety at the study intersections within the site vicinity with the recommended mitigation measures in place. Additional details of the study methodology, findings, and recommendations are provided within this report.

Section 2
Introduction

Introduction

PROJECT DESCRIPTION

Willamette Builders Group, LLC proposes to construct a 183-unit housing development in southeast Gresham. The site is located in the southwest quadrant of the intersection of SE Palmquist Road and SE Fleming Avenue. Figure 1 shows the site vicinity map and Figure 2 shows the proposed site plan. As illustrated in Figure 2, the overall site will ultimately be accessed by new neighborhood street connections on SE Fleming Avenue and SE Palmquist Road. Full site build-out and occupancy is anticipated in 2008.

SCOPE OF THE REPORT

This analysis determines the transportation-related impacts associated with residential development and was prepared in accordance with City of Gresham transportation impact analysis requirements. The study scope and overall study area for this project were selected based on a review of the local transportation system, discussions with City staff, and analysis of Metro's EMME/2 network model.

This report addresses the following transportation issues:

- Existing land use and transportation system conditions within the site vicinity;
- Planned developments and transportation improvements in the study area;
- Forecast year 2008 background traffic conditions during the weekday a.m. and p.m. peak hours;
- Trip generation, distribution, and assignment estimates for the proposed development;
- Forecast year 2008 total traffic conditions with full build-out of the site during the weekday a.m. and p.m. peak hours;
- Queuing and operations at the new neighborhood street intersections and at the existing school driveways on SE Fleming Avenue during the weekday a.m. peak hour;
- On-site access and circulation; and
- Conclusions and recommendations.

Based on communication with City of Gresham staff, the following intersections were studied:

- SE Palmquist Road/SE Hogan Avenue
- SE Palmquist Road/SE Fleming Avenue
- SE Palmquist Road/SE Palmblad Road
- SE Palmquist Road/US 26-Mount Hood Highway
- The proposed neighborhood street intersections on SE Palmquist Road

Ordinance No. 07-1148
Attachment 7

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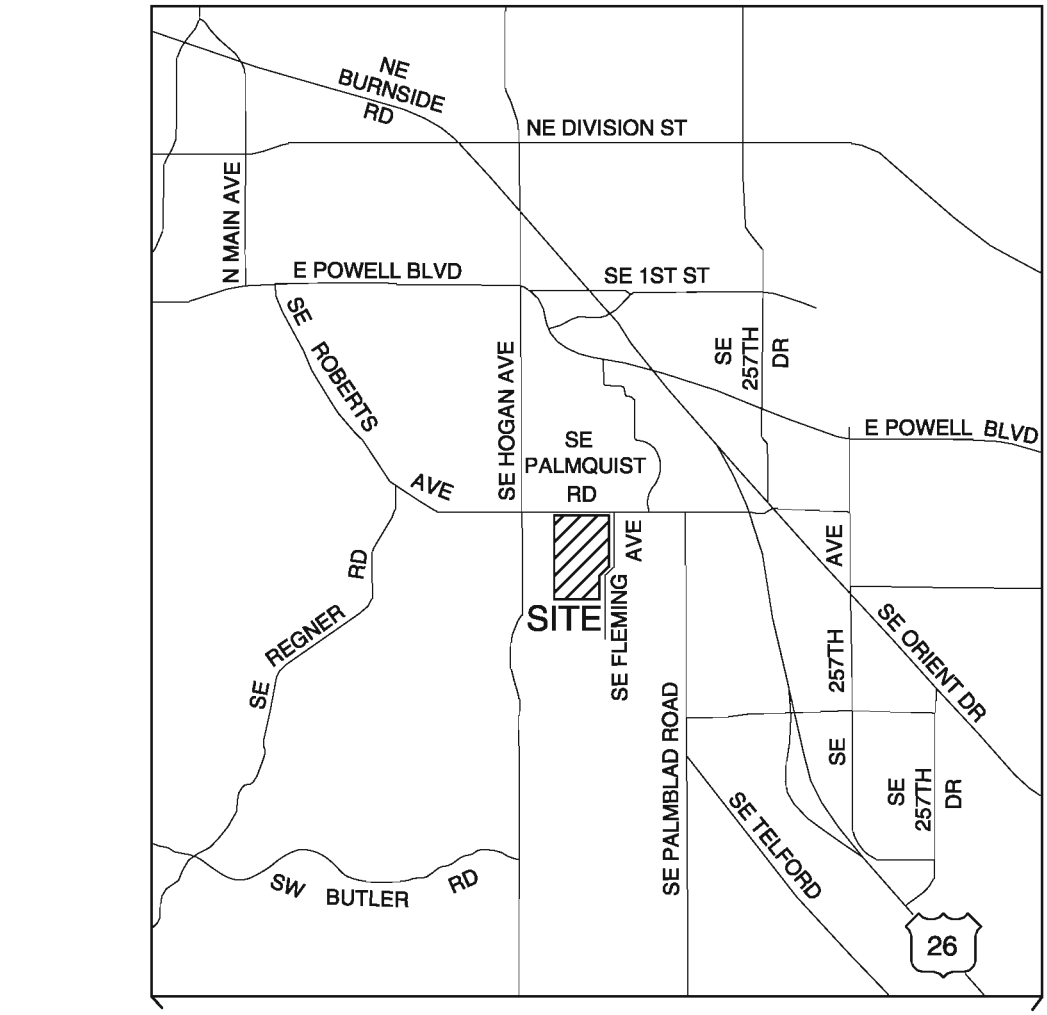

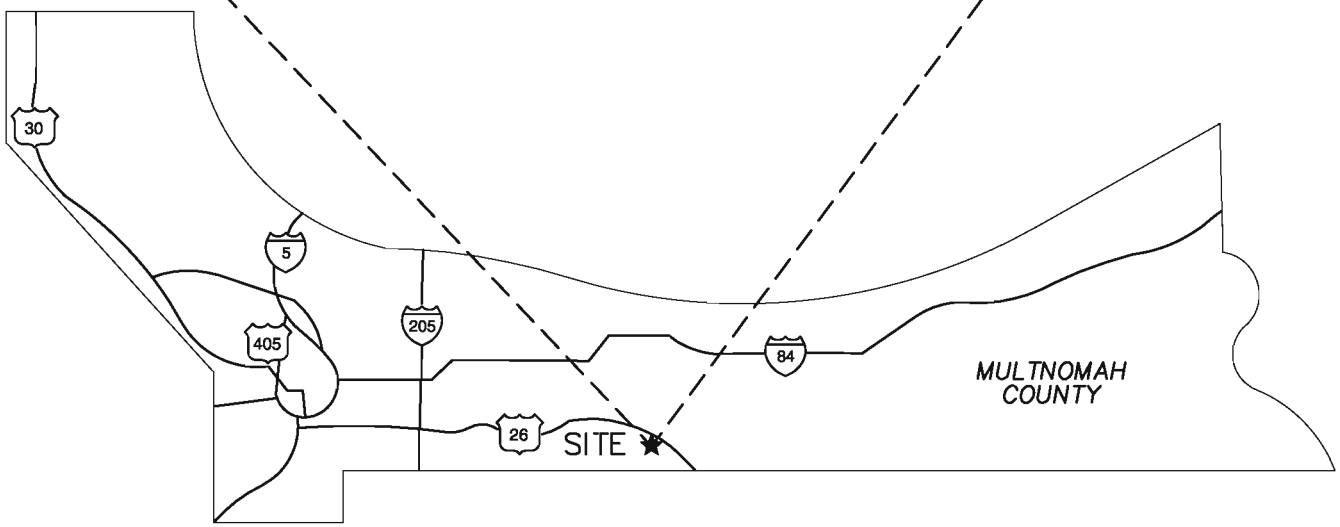

SITE VICINITY MAP
GRESHAM, OREGON

FIGURE 1

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION PLANNING / TRAFFIC ENGINEERING

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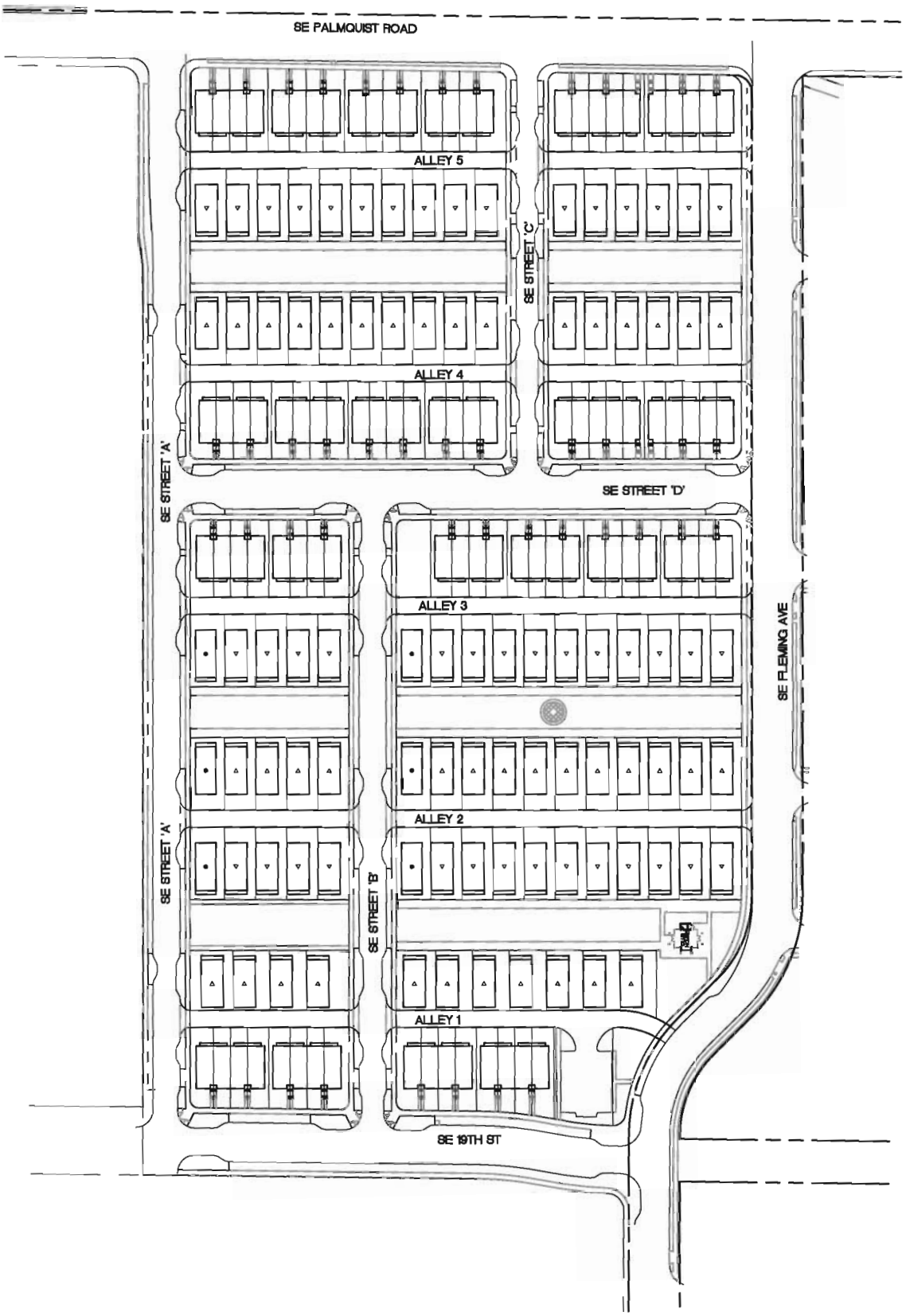

PROPOSED SITE PLAN
GRESHAM, OREGON

FIGURE **2**

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION PLANNING / TRAFFIC ENGINEERING

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ANALYSIS METHODOLOGY

Current and Future Levels of Service

All level-of-service analyses described in this report were performed in accordance with the procedures stated in the *2000 Highway Capacity Manual* (Reference 1). A description of level of service and the criteria by which they are determined is presented in Appendix "A". Appendix "A" also indicates how level of service is measured and what is generally considered the acceptable range of level of service.

To ensure that this analysis was based on a reasonable worst-case scenario, the peak 15-minute flow rate during the weekday peak hours was used in the evaluation of all intersection levels of service. For this reason, the analyses reflect conditions that are only likely to occur for 15 minutes out of each average peak hour. Traffic conditions during all other weekday hours will likely operate better than conditions described in this report.

Operating Standards

Level-of-service (LOS) analyses in this report for signalized intersections were based on the average control delay per vehicle entering the intersection. The City of Gresham requires that LOS "D" and a volume-to-capacity ratio of 0.90 or better be maintained at signalized intersections.

For two-way stop-controlled intersections, level of service is based on the intersection's ability to accommodate the most difficult, or critical, movement (i.e. the minor street left-turn) as overall intersection level of service is not defined by the *2000 Highway Capacity Manual* (Reference 1). The City of Gresham requires that the critical minor-street movement operate at LOS "E" or better.

Queuing Analysis

A queuing analysis was conducted to ensure that adequate storage distance will be available at key study intersections. Estimated 95th percentile queues were estimated using Equation 17-37 of the *Highway Capacity Manual* (Reference 1).

Section 3
Existing Conditions

Existing Conditions

The existing conditions analysis identifies site conditions and the current operational and geometric characteristics of roadways within the study area. The purpose of this section is to set the stage for a basis of comparison to future conditions.

The site of the proposed housing development was visited and inventoried in December 2005. At that time, information was collected regarding site conditions, adjacent land uses, existing traffic operations, and transportation facilities in the study area.

SITE CONDTIONS AND ADJACENT LAND USES

The 19.05-acre study site is currently vacant. Key developments in the site vicinity include residential uses and a future city sports park to the north, a high school and an elementary school to the east, and empty lots to the west and south. The Springwater Trail runs near the site to the south. Figure 3 shows the location of existing school driveways in the site vicinity.

TRANSPORTATION FACILITIES

Roadway Facilities

Table 1 provides a summary of key transportation facilities in the site vicinity.

Table 1 Existing Transportation Facilities and Roadway Designations

Roadway	Classification	Cross Section	Speed Limit	Side-walks?	Bicycle Lanes?	Median?	On-Street Parking?
SE Palmquist Road	Collector	2-lanes	35 mph	Partial	None	None	Partial
SE Hogan Road	Arterial	2/3-lanes	35 mph	Partial	Yes	None	Partial
SE Fleming Avenue	Local Street	2-Lane	20 mph	Yes	None	None	Yes
SE Palmblad Road	Community Street	2-lanes	25 mph	Partial	None	None	Partial
US 26-Mount Hood Highway	Principal Arterial	5-lanes	45 mph	None	Yes	None	None

Pedestrian and Bicycle Facilities

Sidewalks and roadway illumination are provided on SE Hogan Road and on portions of SE Palmquist Road. Frontage improvements have not been provided along SE Palmquist Road near the site except at Springwater Trail High School. It is expected that the level of pedestrian and bicyclist activity will increase as additional development and pedestrian and bicyclist connections on and surrounding the Brickworks Village development are completed.

Ordinance No. 07-1148
Attachment 7

LEGEND

#	INTERSECTION NUMBER
4	SE FLEMING AVENUE/SE PALMQUIST ROAD
7	HIGH SCHOOL DRIVEWAY
9	NORTH ELEMENTRY SCHOOL DRIVEWAY
10	MIDDLE ELEMENTRY SCHOOL DRIVEWAY
11	SOUTH ELEMENTRY SCHOOL DRIVEWAY

LOCATION OF EXISTING SE FLEMING AVENUE SCHOOL DRIVEWAYS GRESHAM, OREGON

FIGURE **3**

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Transit Facilities

None of the adjacent streets are served by transit. TriMet operates the #80, #81, and #84 bus routes along SE Powell Boulevard. The nearest bus stop is located approximately three-quarters of a mile to the north at the SE Powell Boulevard/SE Hogan Road intersection (Reference 4).

TRAFFIC VOLUMES AND PEAK HOUR INTERSECTION OPERATIONS

Figures 4 and 5 summarizes existing lane configurations[1], traffic control devices, and traffic conditions for each existing study intersection during the weekday a.m. and p.m. peak hours. A summary of the traffic volume derivations and intersection operations are provided below.

CURRENT LEVELS OF SERVICE

Manual turning movement counts were conducted between 7:00 and 9:00 a.m. and between 4:00 and 6:00 p.m. at the study intersections in early December 2005, February 2006, and March 2007[2]. Traffic counts were also conducted at the school driveways on SE Fleming Avenue from 7:00 – 9:00 a.m. The turning movement counts were summarized and rounded to the nearest five vehicles per hour. As shown in the figures, all of the study intersections operate acceptably today. *Appendix "B" contains the traffic count sheets used in this study. Appendix "C" contains the level-of-service worksheets.*

SE Fleming Avenue Queuing Observations

From approximately 7:50 to 8:05 a.m. on school days, long queues are often observed southbound on SE Fleming Avenue as parents drop off children at Hogan Cedars Elementary School in the minutes before school starts. These queues begin on the school site and spill onto southbound SE Fleming Avenue. The southbound queues were observed to reach as far north as the Springwater Trail High School driveway (Driveway 7, shown in Figure 3) along SE Fleming Avenue.

These school-related queues on SE Fleming Avenue are caused by parents individually waiting to drop off children on the school site and are not a result of intersection control delay so they are not directly accounted for in the operational analysis results shown in Figures 4 and 5. Parents circulate into the school parking lot driveway, proceed to the front entrance, drop off their

[1] The northbound approach to the SE Palmquist Road/SE Hogan Road intersection contains one through lane and one shared through-right lane. However, the two lanes merge north of the intersection, affecting lane utilization at the approach. As a result, the approach was modeled with one northbound through lane and one northbound right turn lane to ensure a conservative analysis and to reflect observed lane utilization patterns.

[2] The counts conducted in March 2007 during the weekday p.m. peak hour at the SE Palmquist Road/SE Hogan Road, SE Palmquist Road/SE Fleming Avenue, and SE Palmquist Road/US 26 intersections showed traffic volumes were approximately 10% higher than those collected in December 2005 and February 2006 at the same intersections. This increase is likely accounted for by modest growth as well as daily and seasonal variations. Intersections often experience the lowest traffic volumes of the year in December though February. To present a conservative analysis, a 10% factor was applied to the weekday a.m. traffic volumes, collected in 2005 and 2006, representing the same increase that was observed in the p.m. peak hour.

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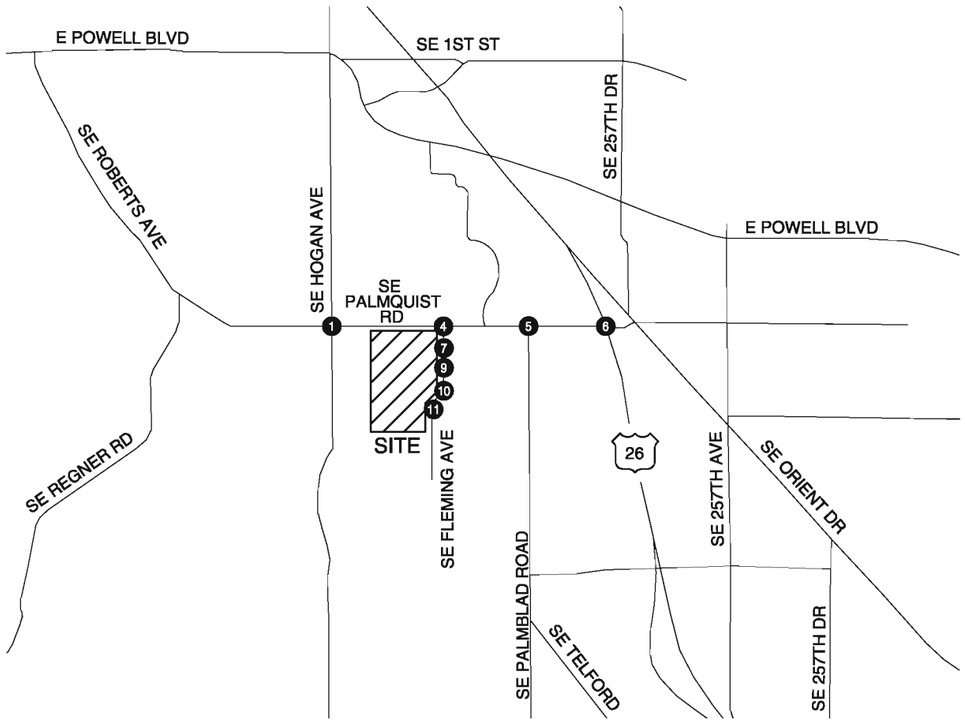

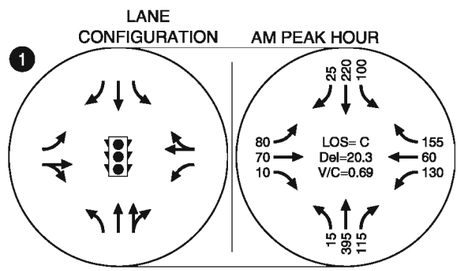

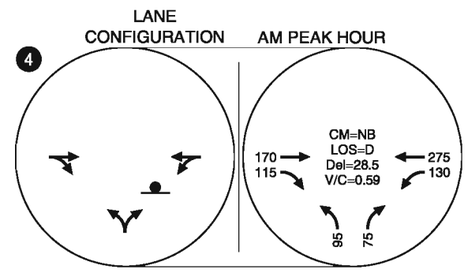

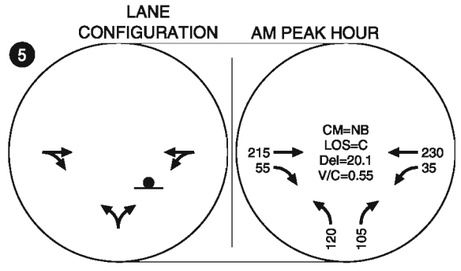

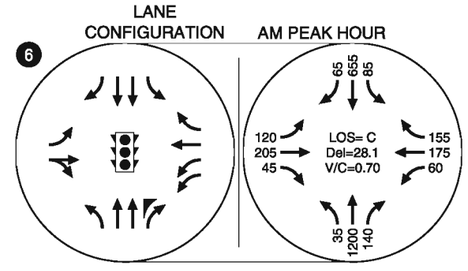

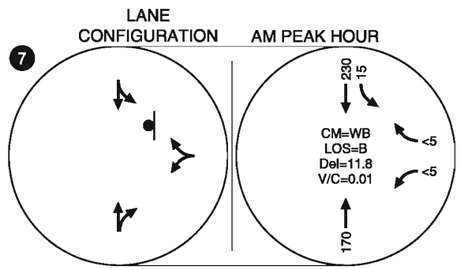

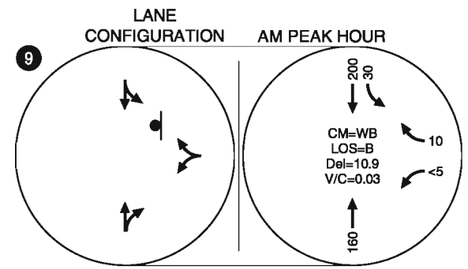

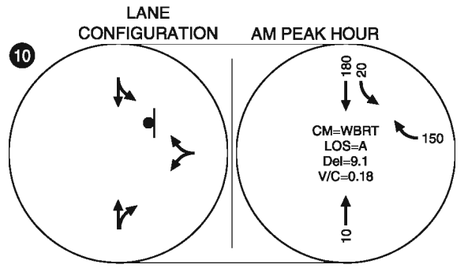

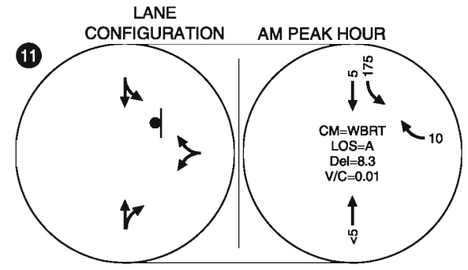

LEGEND

- STOP SIGN
- TRAFFIC SIGNAL

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

EXISTING LANE CONFIGURATIONS, TRAFFIC CONTROL DEVICES, AND TRAFFIC CONDITIONS, WEEKDAY AM PEAK HOUR
GRESHAM, OREGON

FIGURE **4**

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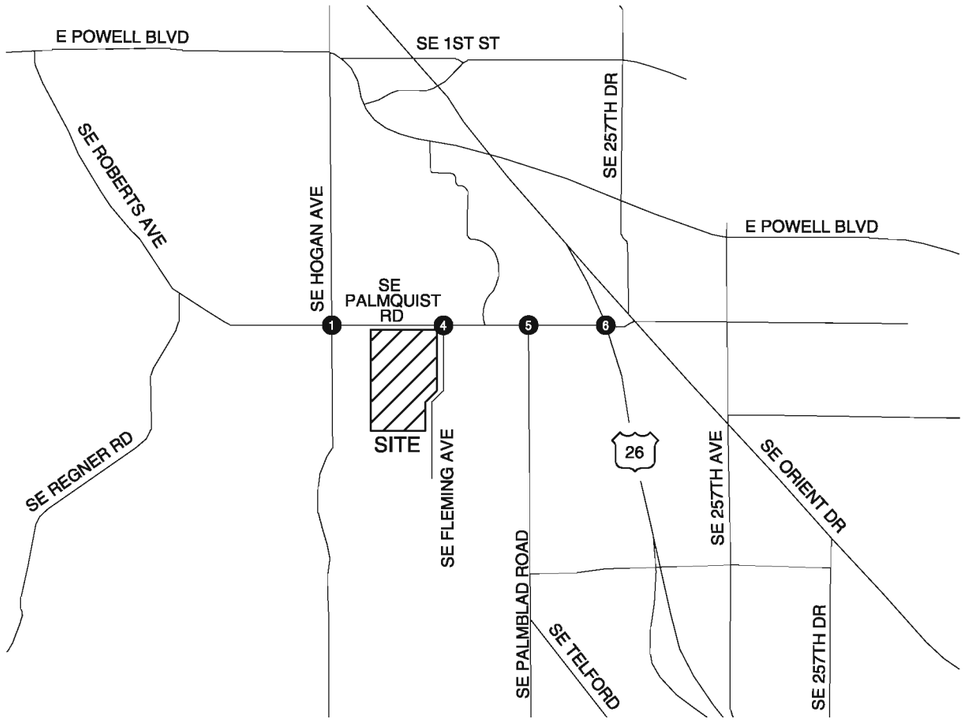

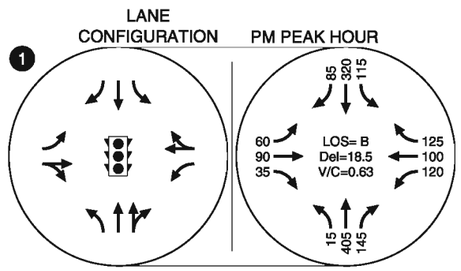

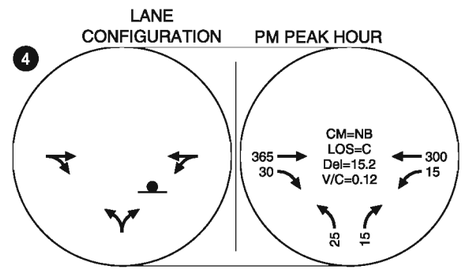

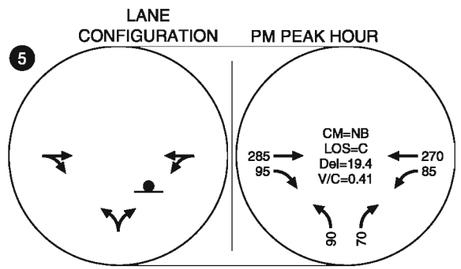

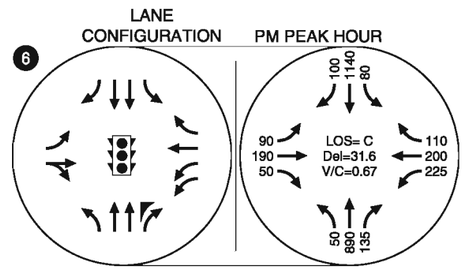

LEGEND

- STOP SIGN
- TRAFFIC SIGNAL

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

EXISTING LANE CONFIGURATIONS, TRAFFIC CONTROL DEVICES, AND TRAFFIC CONDITIONS, WEEKDAY PM PEAK HOUR
GRESHAM, OREGON

FIGURE **5**

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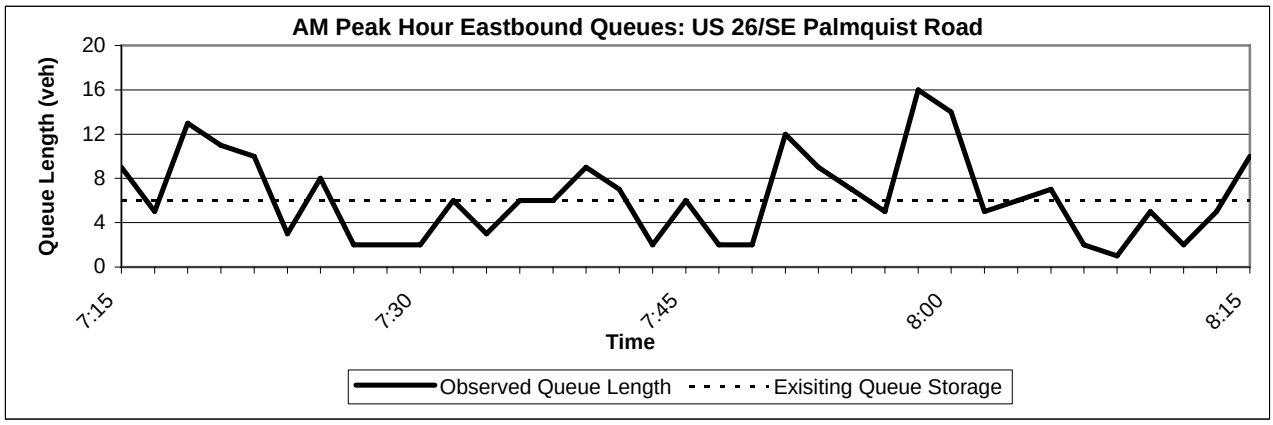
child(ren), and then leave the school. It appears that only two or three parents are simultaneously able to drop off their child. With each vehicle taking 20 seconds to a minute to unload, the service time for over 100 cars arriving in a 15-minute period and then individually unloading results in an extensive queue.

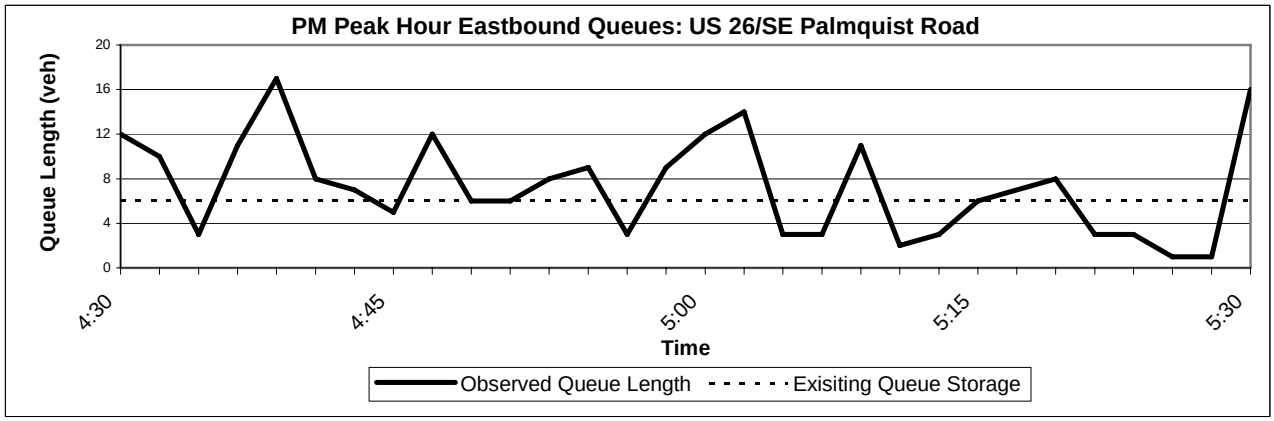
SE Palmquist Road Queuing Observations

Palmquist Mobile Estates takes its sole access on the south side of SE Palmquist Road approximately 150 feet west of the SE Palmquist Road/US 26-Mount Hood Highway intersection. At the City's request, a queuing study was conducted at the west approach to that intersection to determine how eastbound queues currently affect access to the driveway. Observation of the SE Palmquist Road/US 26-Mount Hood Highway intersection on a typical weekday showed that the eastbound queue blocked access to the Palmquist Mobile Estates driveway for a westbound vehicle attempting to turn left on two occasions during the weekday a.m. peak hour. During the weekday p.m. peak hour, eastbound queues at the intersection blocked the driveway for a left-turning vehicles on eight occasions, during two of which the blocked left-turning vehicle blocked one westbound through vehicle. These blocked westbound vehicles have the long-term potential to queue back into the SE Palmquist Road/US 26-Mount Hood Highway intersection. Observed eastbound queues at the intersection are shown in Data Plots 1 and 2.

Data Plot 1



Data Plot 2



The study showed that during the weekday a.m. peak hour, the eastbound queues spilled back past the mobile home park driveway during 40 percent of the signal cycles. Similarly in the weekday p.m. peak hour, the eastbound queues extended past the driveway during 53 percent of the signal cycles. Some drivers on SE Palmquist Road were observed to stop to avoid blocking the mobile home park driveway while other drivers did not. *Appendix "B" shows the queuing data used in this study.*

TRAFFIC SAFETY

A five-year (2001-2005) crash history of the study intersections was requested from ODOT in an effort to identify potential safety issues. A summary of the crash data is provided in Table 2, including the severity and type of crashes over the analysis period. For comparison purposes, Table 2 includes a summary of the crash rate experienced at the study intersections in terms of crashes per million entering vehicles (MEV).

Table 2 Summary of Intersection Crash History (2001 - 2005)

Intersection	Number of Crashes	Crash Rate (Crashes/ MEV)	Collision Type				Severity	
			Side-swipe/ Turning	Rear-End	Angle	Other	Property Damage Only	Injury
SE Palmquist Road/ SE Hogan Avenue	8	0.27	6	2	0	0	4	4
SE Palmquist Road/ SE Fleming Avenue	0	0.0	0	0	0	0	0	0
SE Palmquist Road/ SE Palmblad Road	1	0.06	0	1	0	0	1	0
SE Palmquist Road/ US 26	19	0.32	3	7	7	2	8	11

The SE Palmquist Road/US 26 intersection was significantly reconstructed in February 2005. One eastbound left turn lane, two westbound left turn lanes, and one westbound right turn lane were added and the left turns on SE Palmquist Road were changed to protected phasing. It is anticipated that these changes improved safety at the intersection. No safety mitigation measures were identified through the crash data review. *Appendix "D" contains the crash data provided by ODOT.*

There were no sight distance deficiencies observed at the existing study intersections.

Section 4
Transportation Impact Analysis

Transportation Impact Analysis

The transportation impact analysis identifies how the study area's transportation system will operate in the horizon year 2008 when the development is expected to be fully occupied. The impact of traffic generated by the proposed residential development during a typical weekday a.m. and p.m. peak hour was examined as follows:

- Planned developments and transportation improvements in the site vicinity were identified and reviewed.
- Background weekday a.m. and p.m. peak hour traffic conditions for the year 2008 were analyzed.
- Future weekday a.m. and p.m. peak hour site-generated trips were estimated for build-out of the site.
- A trip distribution pattern was derived through a review of a select zone analysis from Metro's EMME/2 model, the expected "travel shed" of the proposed site, and review of the local roadway network.
- Predicted site-generated traffic for the residential development was added to the background traffic volumes to evaluate total traffic operations at the study area intersections under 2008 conditions during the weekday a.m. and p.m. peak hours.
- Year 2008 traffic conditions analyzed with the site fully occupied.

2008 BACKGROUND TRAFFIC CONDITIONS

The study intersections were analyzed under forecast year 2008 conditions without the Brickworks Village development, considering approved developments in the site vicinity, regional growth, and planned transportation improvements.

PLANNED DEVELOPMENTS

The Gresham Youth Sports Park is approved for construction to the north of the site across SE Palmquist Road. The park will have a full access driveway located on SE Palmquist Road aligned with SE Fleming Avenue. As part of the park's construction, exclusive left-turn lanes will be added at the east- and westbound approaches of the SE Palmquist Road/SE Fleming Avenue intersection.

Four small approved residential developments are located to the southeast of the site and are described below.

- Palmblad Road Subdivision, located on SE Palmblad Road at SE 19th Street (ten new lots);
- Schmidt Subdivision, located on SE Palmblad Road between SE 19th and SE 23rd Streets;
- Amy's Acres Phase 2, located on SE Palmblad Road at SE 23rd Street (five new lots); and,

- Cedar Works, located between SE Fleming Road and SE Palmblad Road at SE 19th Street (47 new lots).

Figures E1 and E2 in Appendix "E" show the in-process traffic used in this analysis.

PLANNED TRANSPORTATION IMPROVEMENTS

The City of Gresham's 2002 Transportation System Plan identifies the improvement of SE Palmquist Road to Collector standards, including a three-lane cross-section, sidewalks, and 80-foot right-of-way (Reference 5). This improvement was not assumed to be in place for the Year 2008 analysis due to the project's construction timing.

The Gresham Youth Sports Park project Transportation Impact Study (Reference 6) recommends provision of a left-turn lane on SE Palmquist Road at SE Fleming Avenue. The turn lane was assumed to be in place for the purposes of the transportation impact analysis.

SE 19th Street will be extended west from SE Cochran Drive to SE Fleming Avenue as a part of the Palmblad Road Subdivision development. This connection improves circulation in the neighborhood to the southeast of the development as well as provides a connection between SE Fleming Avenue and other roads to the east. Existing school traffic that is expected to utilize this roadway connection and internal Brickworks Village roadways are shown in Figures E1 and E2 in Appendix "E".

TRAFFIC VOLUMES AND LEVEL-OF-SERVICE ANALYSIS

The 2008 background traffic analysis identifies how the study area's transportation system will operate in the year the proposed development will be completed and occupied. This analysis includes in-process traffic and an annual growth rate of two percent along SE Palmquist Road, SE Hogan Road, and US 26 per Metro's EMME/2 model, but does not include traffic from the proposed development. Figure 6 shows the assumed lane configurations and traffic control devices for the study intersections based on the previously described transportation improvement projects in the study area as well as the year 2008 background traffic conditions for the weekday a.m. and p.m. peak hours. As shown in Figure 6, the northbound approach to the SE Palmquist Road/SE Fleming Avenue intersection is forecast to operate at Level-of-Service "F" during the weekday p.m. peak hour. All other study intersections operate acceptably in both the weekday a.m. and p.m. peak hours.

PROPOSED DEVELOPMENT PLAN

Willamette Builders Group is proposing to develop 91 detached and 92 attached residential units (a total of 183 units) on the 19.05-acre Brickworks Village site. Key new roadways proposed to serve the new site include:

- SE Street "A": a two-way north-south street along the west side of the site with exclusive left- and right-turn lanes at SE Palmquist Road;

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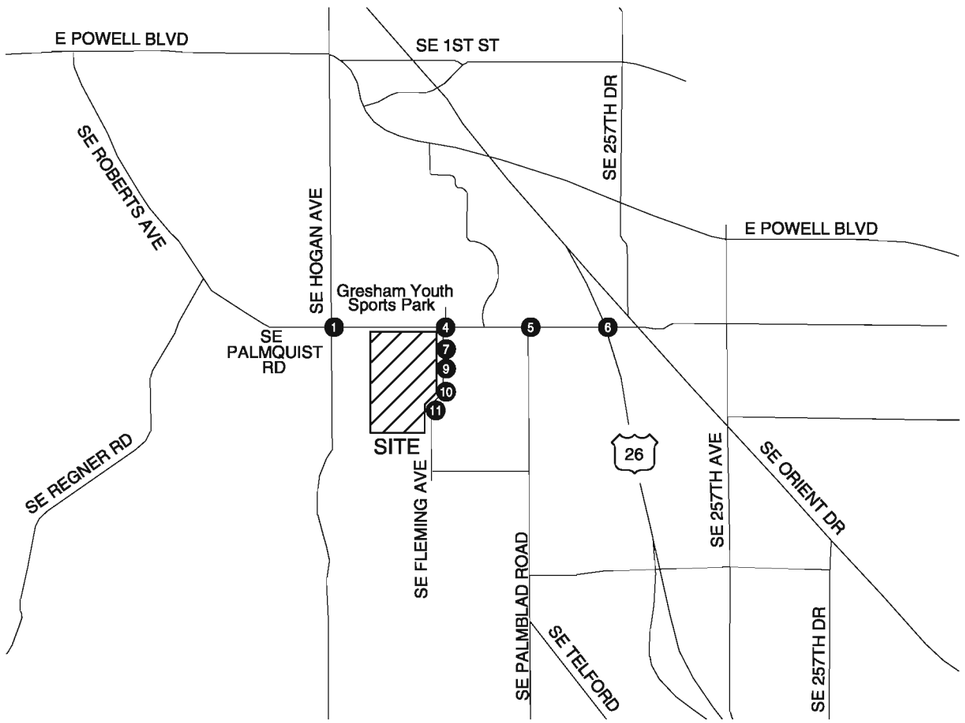

LEGEND

- STOP SIGN
- TRAFFIC SIGNAL
- PROPOSED IMPROVEMENT BY OTHERS

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

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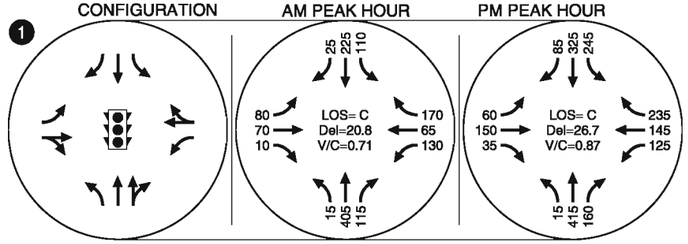

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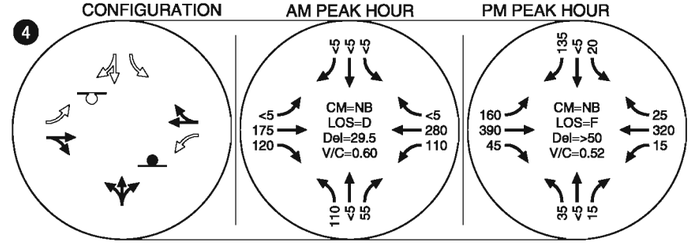

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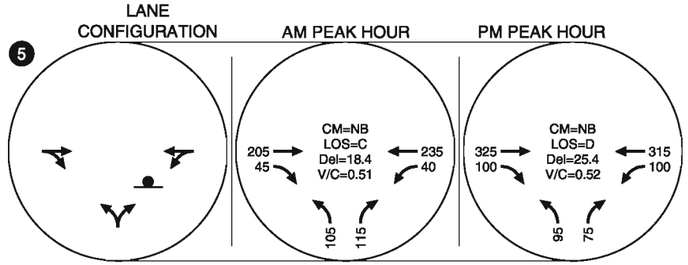
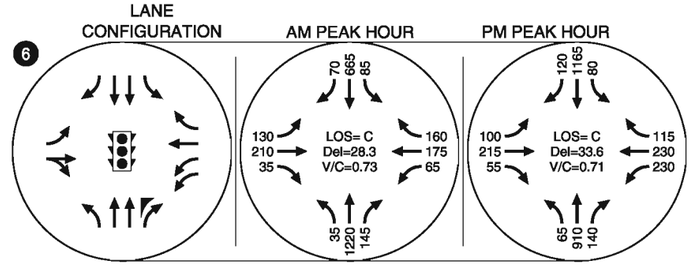
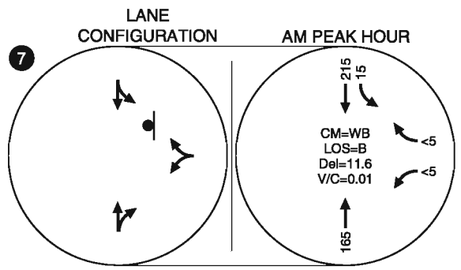


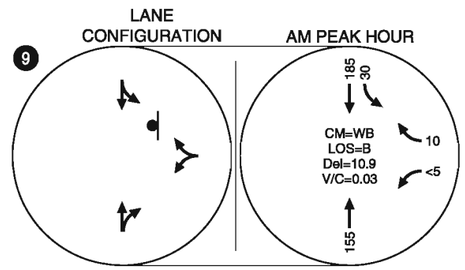
6 — LANE CONFIGURATION | AM PEAK HOUR | PM PEAK HOUR



7 — LANE CONFIGURATION | AM PEAK HOUR



9 — LANE CONFIGURATION | AM PEAK HOUR



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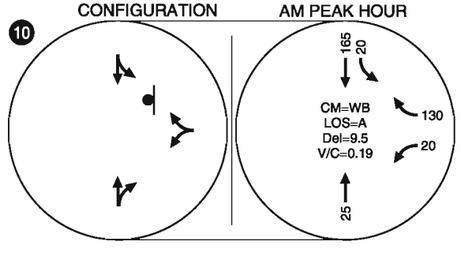

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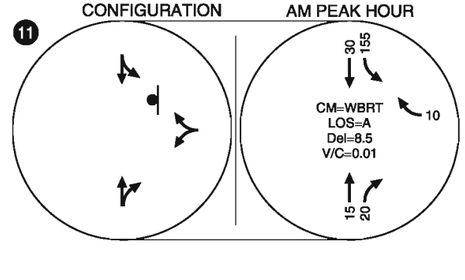

2008 ASSUMED LANE CONFIGURATIONS, TRAFFIC CONTROL DEVICES, AND BACKGROUND TRAFFIC CONDITIONS, WEEKDAY PEAK HOUR GRESHAM, OREGON

FIGURE 6

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- SE Street "C": a two-way north-south street with a shared left/right turn lane at SE Palmquist Road;
- SE Street "D": a two-way east-west street connecting SE Street "A" to SE Fleming Avenue with a shared left/right turn lane at each end; and
- Alleys 1, 2, 3, 4, and 5: east-west alleys between SE Street "A" and SE Fleming Avenue. Alley 5, the alley closest to SE Palmquist Road, will be one-way westbound to eliminate conflicts with the northbound queues at the SE Palmquist Road/SE Fleming Avenue intersection.

The relationship between the proposed neighborhood street intersections and the existing school driveways is shown in Figure 7.

As part of the Brickworks Village development, a half-street improvement will be constructed on SE Fleming Avenue, converting it to a three-lane cross-section between SE Palmquist Road and the south elementary school driveway. Construction of the third lane is proposed in part to ensure that southbound traffic accessing the adjacent schools doesn't block southbound through traffic on SE Fleming Avenue. The addition of a center turn-lane will provide a northbound left-turn lane at the SE Palmquist Road/SE Fleming Avenue intersection.

In addition, half-street improvements will be provided on SE Palmquist Avenue. Assuming completion of the Gresham Sports Park half-street frontage improvements to the north, SE Palmquist Road should be restriped to provide westbound left turns into the Brickworks Village site at the SE Street "C" and SE Street "A" intersections. The turn lanes could be striped as a two-way left-turn lane along the site frontage beginning west of SE Fleming Avenue.

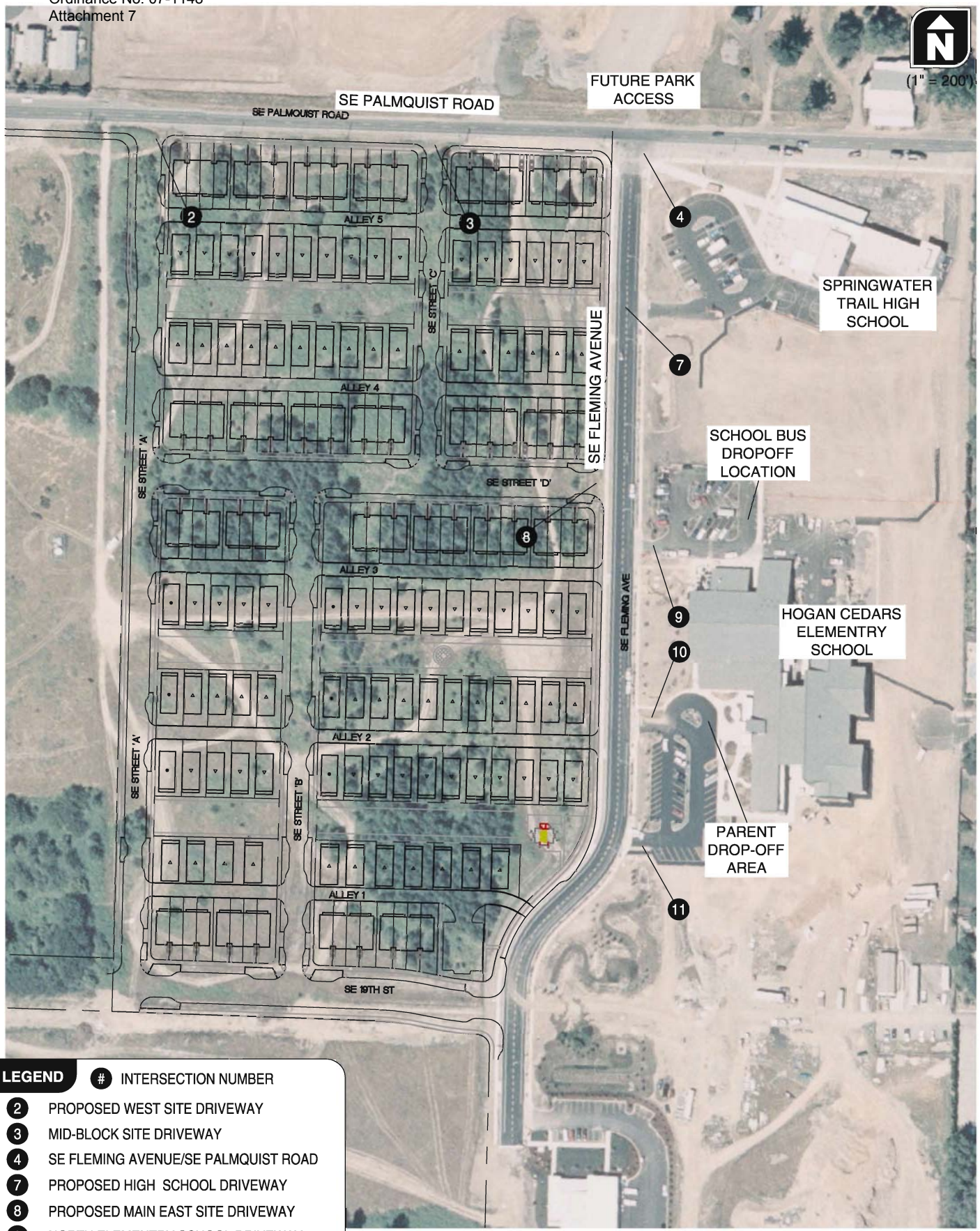
TRIP GENERATION

Table 3 summarizes the estimated Brickworks Village trip generation for the proposed residential land use application during a typical weekday as well as during the weekday a.m. and p.m. peak hours (all trip ends shown in the table have been rounded to the nearest five trips).

Table 3 Proposed Weekday Trip Generation Estimate

Land Use	ITE Code	Size (units)	Daily Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips		
				Total	In	Out	Total	In	Out
Single-Family Detached Housing	210	91	870	70	20	50	90	60	30
Residential Townhouse	230	92	540	40	5	35	50	30	20
Total New Trips			**1,410**	**110**	**25**	**85**	**140**	**90**	**50**

Ordinance No. 07-1148
Attachment 7



LEGEND

#	INTERSECTION NUMBER
2	PROPOSED WEST SITE DRIVEWAY
3	MID-BLOCK SITE DRIVEWAY
4	SE FLEMING AVENUE/SE PALMQUIST ROAD
7	PROPOSED HIGH SCHOOL DRIVEWAY
8	PROPOSED MAIN EAST SITE DRIVEWAY
9	NORTH ELEMENTRY SCHOOL DRIVEWAY
10	MIDDLE ELEMENTRY SCHOOL DRIVEWAY
11	SOUTH ELEMENTRY SCHOOL DRIVEWAY

LOCATION OF PROPOSED SITE ACCESS AND SCHOOL DRIVEWAYS GRESHAM, OREGON

FIGURE 7

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TRIP DISTRIBUTION

The estimated distribution pattern of site-generated trips associated with the residential development was determined through a review of a select zone analysis from Metro's EMME/2 model, the expected "travel shed" of the proposed site, review of the local roadway network, and conversations with City of Gresham staff. Figure 8 shows the estimated trip distribution pattern for the development.

2008 TOTAL TRAFFIC CONDITIONS

The 2008 total traffic analysis forecasts how the study area's transportation system will operate with the inclusion of traffic from the proposed residential development and assuming provision of the roadway infrastructure improvements proposed in conjunction with site development.

With the construction of the Brickworks Village development, it is anticipated that some of the weekday a.m. peak hour traffic accessing the existing elementary and high schools on SE Fleming Avenue will be rerouted through the site using the new roadways to avoid the queuing described in the existing conditions section. Figures E1 and E2 in Appendix "E" show the rerouted traffic used in this analysis. The year 2008 background traffic volumes for the weekday a.m. and p.m. peak hours were added to the site-generated traffic to arrive at the total traffic volumes. In addition, the rerouted school traffic was accounted for in the weekday a.m. peak hour.

Figures 9 and 10 illustrate the year 2008 site-generated and forecast total traffic conditions for the weekday a.m. and p.m. peak hours. As forecast under 2008 background traffic conditions, the northbound left-turn movement at the SE Palmquist Road/SE Fleming Avenue intersection is forecast to continue to operate at Level-of-Service "F" during the weekday p.m. peak hour under total traffic conditions. All other study intersections operate acceptably in both the weekday a.m. and p.m. peak hours.

Though the critical movement at the SE Palmquist Road/SE Fleming Avenue intersection is forecast to not meet the City of Gresham operations standard of Level-of-Service "E" during the weekday p.m. peak hour, the movement is well under capacity with a volume-to-capacity ratio of 0.47. As shown in Table 4 below, the northbound left-turn movement is forecast to experience a 95th percentile vehicle queue of only 50 feet. Additionally, all of the major street turning and through movements are forecast to operate acceptably and traffic signal and all-way stop-control warrants will not be met. A number of factors indicate that this circumstance may not be detrimental to the circulation and operations of the surrounding transportation network. These issues are described below.

- **Improved Capacity** – It should be noted that the reported total traffic level of service represents an improvement in the intersection operations. Comparing the 2008 background traffic operations of the intersection with the 2008 total traffic operations, the overall northbound approach delay decreases due to the proposed addition of the northbound left-

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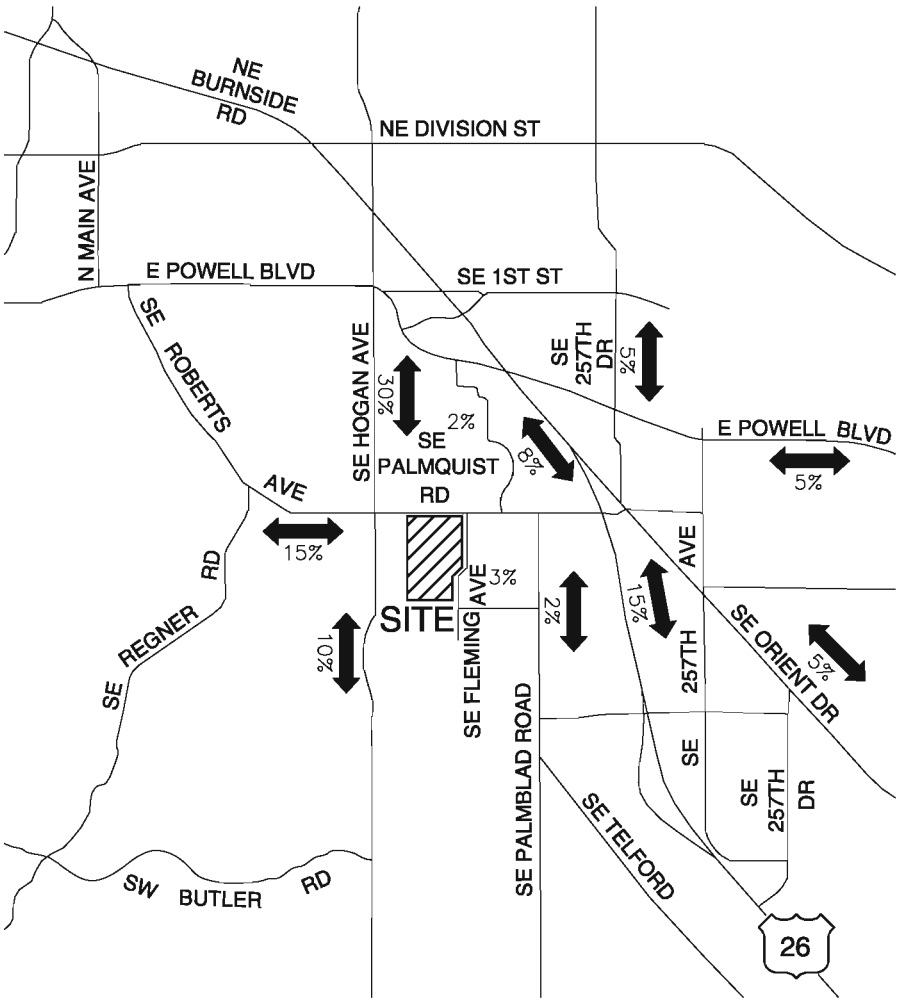

ESTIMATED TRIP DISTRIBUTION PATTERN
GRESHAM, OREGON

FIGURE **8**

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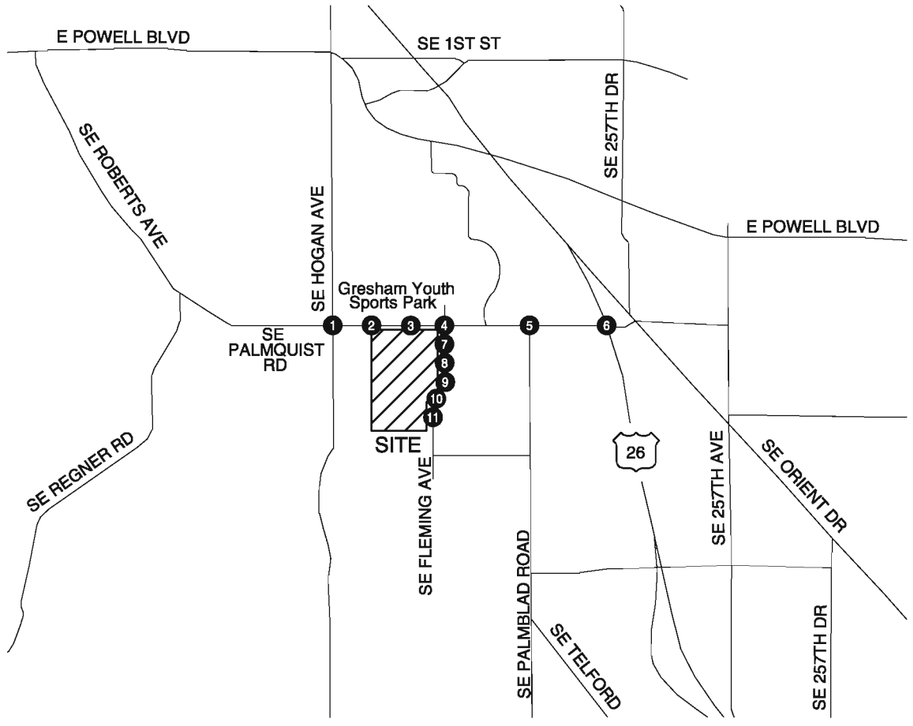

LEGEND

- - STOP SIGN
- - TRAFFIC SIGNAL
- - PROPOSED IMPROVEMENT

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

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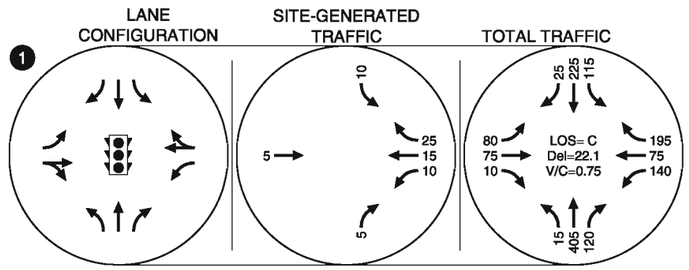

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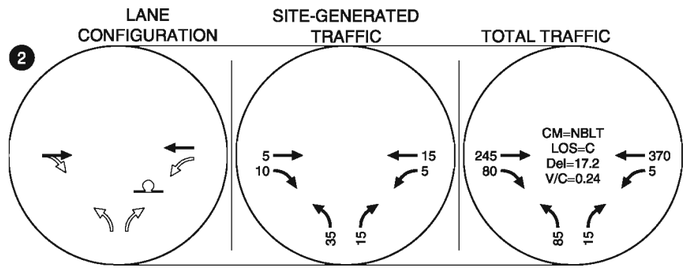

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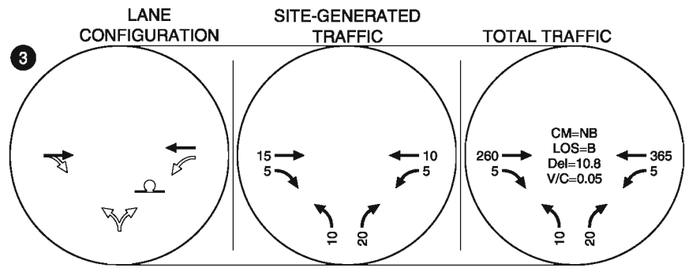

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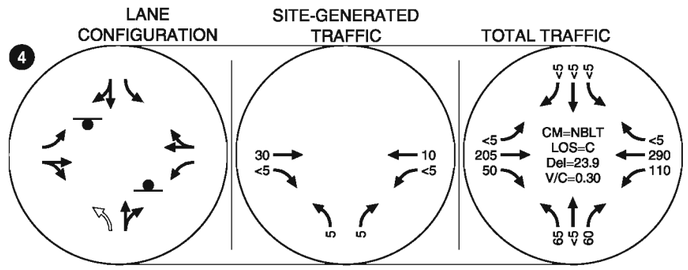

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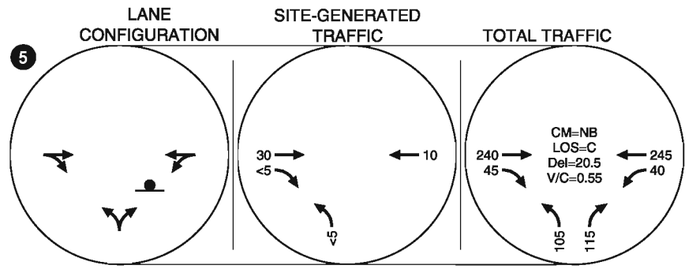

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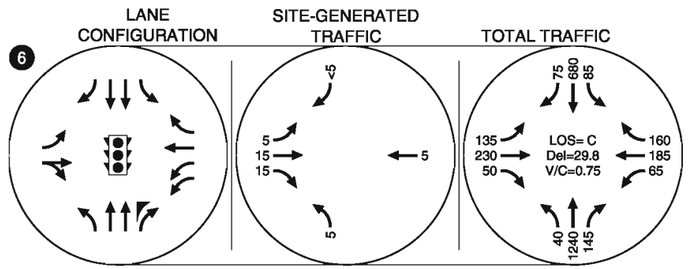

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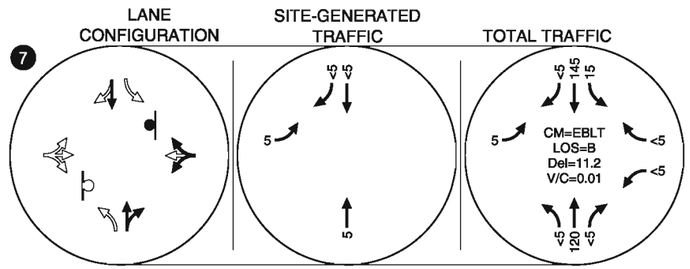

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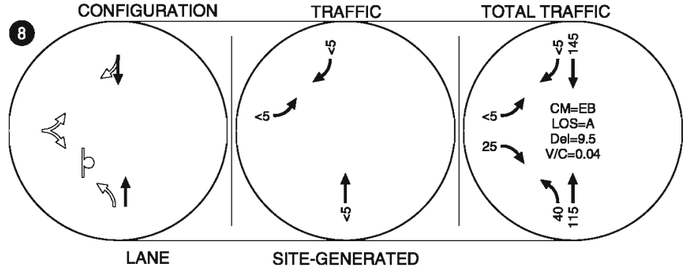

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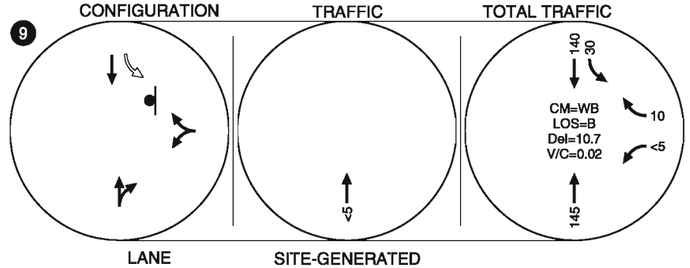

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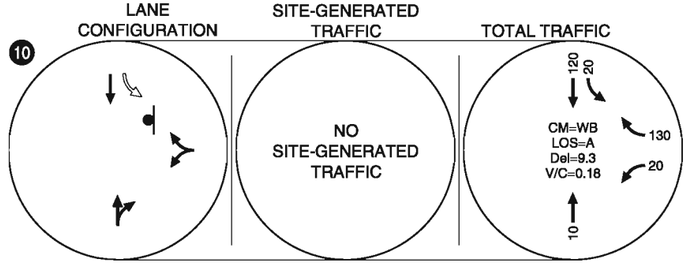

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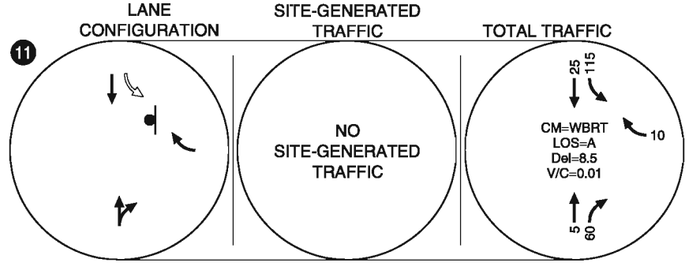

2008 ASSUMED LANE CONFIGURATIONS, TRAFFIC CONTROL DEVICES, SITE-GENERATED TRAFFIC AND TOTAL TRAFFIC CONDITIONS, WEEKDAY AM PEAK HOUR
GRESHAM, OREGON

FIGURE 9

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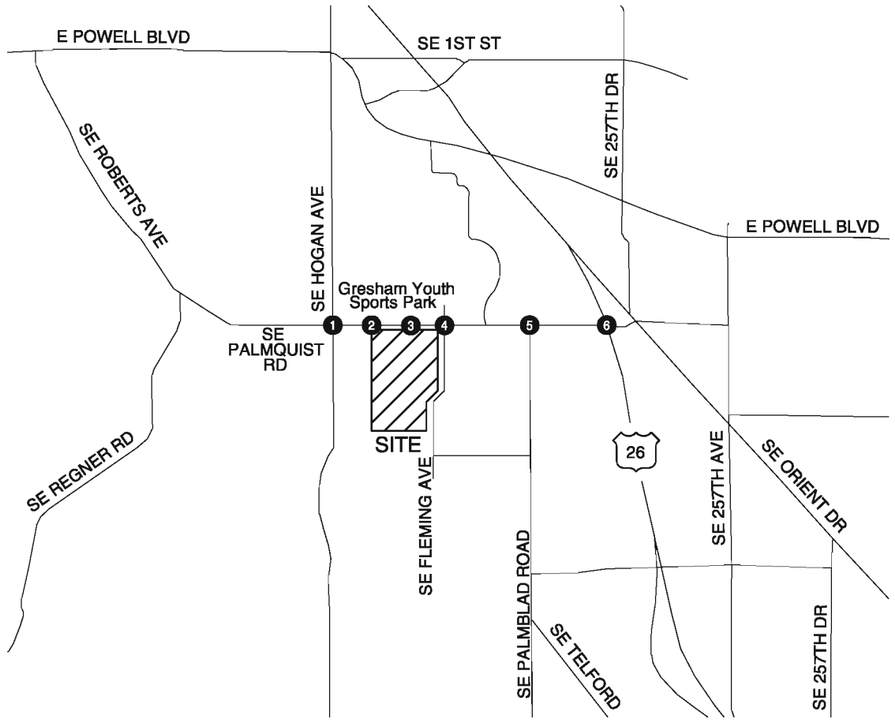
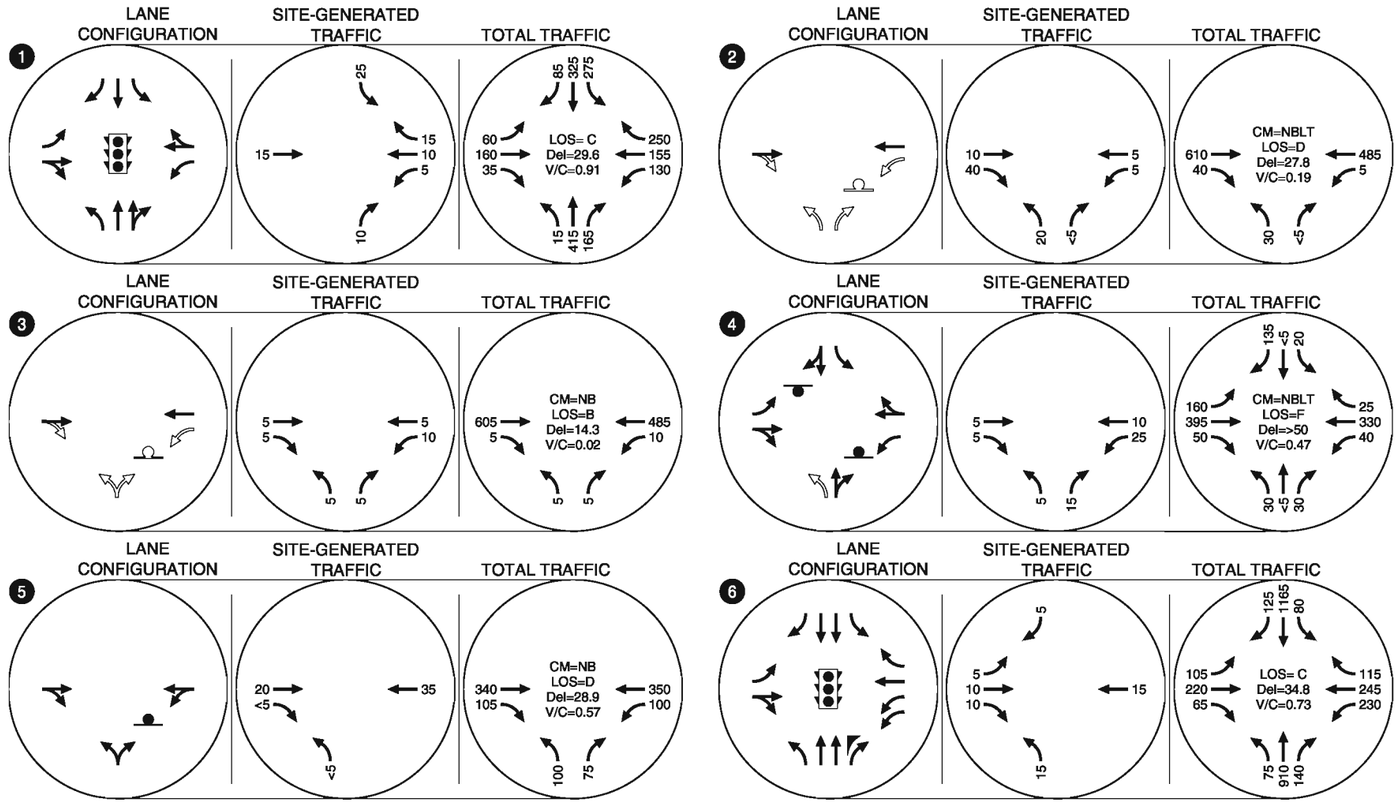
(NO SCALE)





LEGEND

- STOP SIGN
- TRAFFIC SIGNAL
- PROPOSED MOVEMENT

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

2008 ASSUMED LANE CONFIGURATIONS, TRAFFIC CONTROL DEVICES, SITE-GENERATED TRAFFIC AND TOTAL TRAFFIC CONDITIONS, WEEKDAY PM PEAK HOUR GRESHAM, OREGON

FIGURE **10**

H:\profile\7670 - Brickworks Village TIA\dwgs\figs\7670FIGS.dwg Mar 23, 2007 - 9:45am - aooms Layout Tab: FIG 10

turn lane in conjunction with site development. Under the *Highway Capacity Manual* methodology, the new left-turn lane became the critical movement of the intersection and reflects an increase in delay for the movement, even though the overall approach will operate better than under background conditions (because northbound through and right-turn movements will no longer be delayed by northbound left-turns). Critical movement and approach operations are compared in the table below.

Intersection Operations Comparison

Operational Evaluation	2008 Background Traffic with Shared NB Lane	2008 Total Traffic with NB Left-Turn Lane	
	Approach Operations	Critical Movement Operations	Approach Operations
Capacity (vehicles/hour)	112	72	645
Volume-to-Capacity Ratio	0.52	0.47	0.11
Delay (seconds/vehicle)	67.9	92.5	52.1

- **Alternate Routes** – The construction of the internal site roadways provide two other connections to Palmquist Road at SE Street "A" and SE Street "C". Additionally, the SE 19th Avenue Extension will provide further alternative routes to the south and east. As a result, vehicles can reroute to other roadways based on experienced delay and reduce delays for this movement.
- **Gresham Youth Sports Park Operations** – This analysis accounted for the Gresham Youth Sports Park to be in full operation with 185 entering and 155 exiting vehicles during the weekday p.m. peak hour. Though the YMCA building is anticipated to be in operation all year, this peak operation includes full, simultaneous use of the outdoor soccer, baseball, softball, and basketball playing fields in addition to the amphitheater and playground areas. This level of outdoor activity is likely only to occur between late spring and early fall, including the summer months with traffic generated by the schools is nominal.
- **Minimal Impact** – The Brickworks Village development is anticipated to have a minimal impact on the northbound left-turn movement at this intersection, adding only an estimated five cars. As described above, the intersection improvements and parallel routes provided by the development more than outweigh the negative impacts of site-generated traffic.
- **Future Extension of SE 19th Street** – The planned future collector roadway connection to SE Hogan Road will provide additional travel routes and enhanced connectivity. This connection will benefit the nearby schools and the study site and should further reduce travel demand on SE Fleming Avenue.

QUEUING ANALYSIS

The results of the Year 2008 Total Traffic queuing analysis are presented in Table 4. *Queuing analysis worksheets are included in Appendix "F".*

Table 4 Year 2008 Projected 95th Percentile Queue Lengths

Intersection	Approach Lane	Weekday AM Peak Hour Queue	Weekday PM Peak Hour Queue	Adequate?
SE Palmquist Road/ SE Street "A"	NBLT	25	25	Yes
	NBRT	25	25	Yes
	WBLT	25	25	Yes
SE Palmquist Road/ SE Street "C"	NBLT/RT	25	25	Yes
	WBLT	25	25	Yes
SE Palmquist Road/ SE Fleming Avenue	NBLT	25	50	Yes
	NBTH/LT	25	25	Yes
	WBLT	25	25	Yes
SE Palmquist Road/ US 26-Mount Hood Highway	EBLT	175	150	**No**
	EBTH/RT	150	300	**No**
SE Palmquist Road/ SE Hogan Avenue	NBLT	25	25	Yes
	NBTH	225	250	Yes
	SBLT	75	150	Yes[1]
	SBTH	125	175	Yes
	EBLT	100	75	Yes[2]
	EBTH/RT	100	150	Yes
	WBLT	100	100	Yes
	WBTH/RT	200	250	Yes

[1] Approximately 100 feet of southbound left-turn storage is provided at the intersection with additional left-turn storage available in the transition area to the north.
[2] Approximately 75 feet of eastbound left-turn storage is provided at the intersection with additional left-turn storage available in the transition area to the west.

Table 4 shows that adequate queue storage is available for all approaches except the eastbound approach at SE Palmquist Road/US 26-Mount Hood Highway. As documented in the existing conditions section, the west approach to the SE Palmquist Road/US 26-Mount Hood Highway currently has insufficient left-turn bay storage to accommodate existing weekday a.m. and p.m. peak hour queues between US 26 and the Palmquist Mobile Estates Driveway. This queuing behavior is anticipated to continue in the future. Field observation showed that during the weekday a.m. peak hour, the eastbound queues at the intersection spilled back past the mobile home park driveway during approximately 40 percent of the signal cycles. The Brickworks Village development would add 33 eastbound vehicles during the weekday a.m. peak hour (less than 1 per signal cycle). Similarly during the weekday p.m. peak hour, the driveway is currently blocked by eastbound queues during approximately 53 percent of the cycles. Development of Brickworks Village is forecast to add approximately 20 eastbound site-generated trips during the weekday p.m. peak hour (less than 1 per signal cycle).

As traffic volumes on SE Palmquist Road increase in the area over time, the potential for blockage of the mobile estates access will increase. Given the comparatively small impact Brickworks Village will have on the current queuing conditions, long-term mitigations such as construction of a

westbound left-turn lane at the Palmquist Mobile Estates driveway or restricting the driveway to right-in and right-out movements is beyond the scope of the Brickworks Village development. As an interim measure, it is recommended that "DO NOT BLOCK INTERSECTION" signing be installed on SE Palmquist Road facing eastbound drivers in compliance with the Manual on Uniform Traffic Control Devices (MUTCD). The intent of the signing would be to minimize queue blockage of the mobile estates access driveway.

ON-SITE ACCESS AND CIRCULATION

As part of this study, internal circulation was evaluated to ensure that the site provides sufficient on-site circulation for pedestrian movements and internal site traffic. Kittelson & Associates, Inc. worked with the project development team to enhance the operational and safety aspects of the proposed neighborhood streets, on-site circulation, and parking. Through this analysis, the proposed site plan has been refined to meet the needs of both pedestrian and vehicular traffic.

It is recommended that stop signs be posted on the northbound approaches of SE Street "A" and SE Street "C" at their intersections with SE Palmquist Road, on the eastbound approaches of SE Street "D" at its intersection with SE Fleming Avenue, and on the westbound approaches of SE Street "D" at its intersection with SE Street "A" in accordance with the MUTCD. Additional stop signs should be placed on internal roadways within the site in accordance with the MUTCD.

It is recommended that Alley 5 be restricted to one-way westbound operations to eliminate potential conflicts with northbound queues at the SE Palmquist Road/SE Fleming Avenue and SE Palmquist Road/SE Street "A" intersections.

Based on a review of the proposed site plan and field observations, it appears that adequate intersection sight distance can be provided at the neighborhood street intersections. On-site landscaping and any new above-ground utilities along the site frontage and internal roadways should be provided appropriately to ensure that adequate sight distance is maintained.

The proposed site will include sidewalks along SE Palmquist Road and SE Fleming Avenue as well along all of the neighborhood streets within the development. Bike lanes and street lighting will also be provided along the site frontage on SE Palmquist Road.

Section 5
Conclusions and Recommendations

Conclusions and Recommendations

Based on the results of the traffic impact analysis, the proposed Brickworks Village can be developed while maintaining acceptable levels of service and safety on the surrounding transportation system with the recommended mitigation measures in place. The analysis resulted in the following findings and recommendations.

FINDINGS

Existing Conditions

- The study intersection currently operate acceptably during the weekday a.m. and p.m. peak hours.
- The school driveways on SE Fleming Avenue experience significant southbound queuing during the peak 15 minutes before classes at the Hogan Cedars Elementary School begin as parents drop off children at the elementary school. This queuing is contained on SE Fleming Avenue and does not interact with traffic on SE Palmquist Road.
- Queuing at the eastbound approach to the SE Palmquist Road/US 26-Mount Hood Highway intersection occasionally blocks the sole Palmquist Mobile Estates driveway during the weekday a.m. and p.m. peak hours. These queues have the potential to prevent westbound left turns into the mobile estates site and thereby block westbound through traffic on SE Palmquist Road.

Year 2008 Background Traffic Conditions

- Year 2008 background traffic conditions (without construction of the proposed development) were estimated assuming continued local and regional growth and approved developments in the site vicinity. The northbound approach to the SE Palmquist Road/SE Fleming Avenue intersection is forecast to operate at Level of Service "F" during the weekday p.m. peak hour. All other study intersections operate acceptably in both the weekday a.m. and p.m. peak hours.

Proposed Development Activities

- The proposed Brickworks Village is estimated to generate approximately 1,410 net new daily trip ends, of which approximately 110 trips occur during the weekday a.m. peak hour (25 in, 85 out) and 140 trips occur during the weekday p.m. peak hour (90 in, 50 out).
- The development of the site will include half-street improvements to SE Fleming Avenue and SE Palmquist Road. Further, SE Fleming Avenue will be widened to a three-lane cross section extending from the southern access to Hogan Cedars Elementary School north to SE Palmquist Road.

Year 2008 Total Traffic Conditions

- Year 2008 total traffic conditions (with construction of the proposed development) were estimated by adding site-generated and rerouted traffic volumes to the background traffic volumes. The northbound left-turn movement to the SE Palmquist Road/SE Fleming Avenue intersection is forecast to continue to operate at Level of Service "F" during the weekday p.m. peak hour. The addition of the northbound left-turn lane at this location will reduce delay at the intersection. All other study intersections operate acceptably in both the weekday a.m. and p.m. peak hours.

RECOMMENDATIONS

- Standard half-street improvements should be provided along the site frontage on SE Fleming Avenue. In addition, SE Fleming Avenue should be widened to provide a center left-turn lane between SE Palmquist Road and the southern driveway serving Hogan Cedars Elementary School to accommodate existing turn movements and queuing at the start and end of school days. Provision of the turn lane is necessary to allow for movement of north-south through traffic on SE Fleming Avenue.
- The widened section of SE Fleming Avenue should be striped to provide a separate northbound left-turn lane and shared through/right lane at the intersection with SE Palmquist Road.
- Standard half-street improvements should be provided along the site frontage on SE Palmquist Road.
- Upon completion of the half-street frontage improvements being made by the Gresham Sports Park to the north, SE Palmquist Road should be restriped to provide westbound left turns into the Brickworks Village site at the SE Street "C" and SE Street "A" intersections. The turn lanes could be striped as a two-way left-turn lane along the site frontage beginning west of SE Fleming Avenue.
- Alley 5, the alley closest to SE Palmquist Road, should be signed and striped for one-way westbound movements between SE Fleming Avenue and SE Street "A" to eliminate potential conflicts with northbound queues at the SE Palmquist Road/SE Fleming Avenue and SE Palmquist Road/SE Avenue "A" intersections.
- In accordance with the Manual on Uniform Traffic Control Devices (MUTCD), stop signs should be posted on the northbound approaches of both the SE Street "A" and SE Street "C" intersections with SE Palmquist Road. Stop signs should also be posted on the eastbound approach of the SE Street "D" intersection with SE Fleming Avenue and on the westbound approach of SE Street "D" at its intersection with SE Street "A".
- Additional stop signs should be placed on internal roadways within the site in accordance with the MUTCD.
- One R10-7 "DO NOT BLOCK INTERSECTION" sign should be installed facing traffic eastbound on SE Palmquist Road west of US 26-Mount Hood Highway, alerting drivers of the possibility of queues blocking the Palmquist Mobile Estates driveway.

- Any new landscaping and/or above-ground utilities installed along the site frontage and internal roadways should be properly located and maintained to ensure adequate sight distance is available.

Section 6
References

References

1. Transportation Research Board, *Highway Capacity Manual*, 2000.

2. Institute of Transportation Engineers, *Trip Generation Manual*, *Seventh Edition*, 2003.

3. Institute of Transportation Engineers, *Trip Generation Handbook, Second Edition,* June 2004.

4. TriMet, http://www.trimet.org, March 2007.

5. Transportation System Plan, http://www.ci.gresham.or.us, January 2006.

6. DKS Associates, *Gresham Youth Sports Park,* February 2001.

Appendix A
Description of Level-of-Service Methods and Criteria

Appendix A Level-of-Service Concept

Level of service (LOS) is a concept developed to quantify the degree of comfort (including such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles) afforded to drivers as they travel through an intersection or roadway segment. Six grades are used to denote the various level of service from A to F.[1]

SIGNALIZED INTERSECTIONS

The six level-of-service grades are described qualitatively for signalized intersections in Table A-1. Additionally, Table A-2 identifies the relationship between level of service and average control delay per vehicle. Control delay is defined to include initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Using this definition, Level of Service D is generally considered to represent the minimum acceptable design standard.

Table A-1 Level-of-Service Definitions (Signalized Intersections)

Level of Service	Average Delay per Vehicle
A	Very low average control delay, less than 10 seconds per vehicle. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	Average control delay is greater than 10 seconds per vehicle and less than or equal to 20 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for a level of service A, causing higher levels of average delay.
C	Average control delay is greater than 20 seconds per vehicle and less than or equal to 35 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	Average control delay is greater than 35 seconds per vehicle and less than or equal to 55 seconds per vehicle. The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle length, or high volume/capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Average control delay is greater than 55 seconds per vehicle and less than or equal to 80 seconds per vehicle. This is usually considered to be the limit of acceptable delay. These high delay values generally (but not always) indicate poor progression, long cycle lengths, and high volume/capacity ratios. Individual cycle failures are frequent occurrences.
F	Average control delay is in excess of 80 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation. It may also occur at high volume/capacity ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also contribute to such high delay values.

[1] Most of the material in this appendix is adapted from the Transportation Research Board, Highway Capacity Manual, (2000).

Table A-2 Level-of-Service Criteria for Signalized Intersections

Level of Service	Average Control Delay per Vehicle (Seconds)
A	<10.0
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

UNSIGNALIZED INTERSECTIONS

Unsignalized intersections include two-way stop-controlled (TWSC) and all-way stop-controlled (AWSC) intersections. The 2000 Highway Capacity Manual (HCM) provides models for estimating control delay at both TWSC and AWSC intersections. A qualitative description of the various service levels associated with an unsignalized intersection is presented in Table A-3. A quantitative definition of level of service for unsignalized intersections is presented in Table A-4. Using this definition, level of service E is generally considered to represent the minimum acceptable design standard.

Table A-3 Level-of-Service Criteria for Unsignalized Intersections

Level of Service	Average Delay per Vehicle to Minor Street
A	• Nearly all drivers find freedom of operation. • Very seldom is there more than one vehicle in queue.
B	• Some drivers begin to consider the delay an inconvenience. • Occasionally there is more than one vehicle in queue.
C	• Many times there is more than one vehicle in queue. • Most drivers feel restricted, but not objectionably so.
D	• Often there is more than one vehicle in queue. • Drivers feel quite restricted.
E	• Represents a condition in which the demand is near or equal to the probable maximum number of vehicles that can be accommodated by the movement. • There is almost always more than one vehicle in queue. • Drivers find the delays approaching intolerable levels.
F	• Forced flow. • Represents an intersection failure condition that is caused by geometric and/or operational constraints external to the intersection.

Table A-4 Level-of-Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay per Vehicle (Seconds)
A	<10.0
B	>10.0 and ≤ 15.0
C	>15.0 and ≤ 25.0
D	>25.0 and ≤ 35.0
E	>35.0 and ≤ 50.0
F	>50.0

It should be noted that the level-of-service criteria for unsignalized intersections are somewhat different than the criteria used for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, there are a number of driver behavior considerations that combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, while drivers on the minor street approaches to TWSC intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized intersections than signalized intersections. For these reasons, it is considered that the control delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection. While overall intersection level of service is calculated for AWSC intersections, level of service is only calculated for the minor approaches and the major street left turn movements at TWSC intersections. No delay is assumed to the major street through movements. For TWSC intersections, the overall intersection level of service remains undefined: level of service is only calculated for each minor street lane.

In the performance evaluation of TWSC intersections, it is important to consider other measures of effectiveness (MOE's) in addition to delay, such as v/c ratios for individual movements, average queue lengths, and 95th-percentile queue lengths. By focusing on a single MOE for the worst movement only, such as delay for the minor-street left turn, users may make inappropriate traffic control decisions. The potential for making such inappropriate decisions is likely to be particularly pronounced when the HCM level-of-service thresholds are adopted as legal standards, as is the case in many public agencies.

Appendix B
Traffic Count and Queuing Data

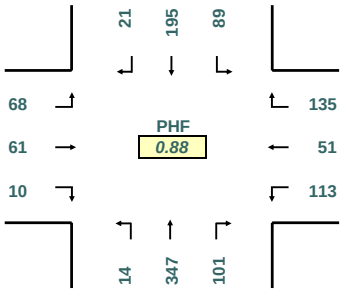
Ordinance No. 07-1148
Attachment 7

INTERSECTION: Hogan--/Palmquist--
PROJECT ID#:
QC JOB #: 10129402

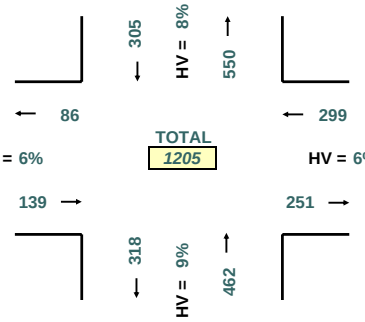
START TIME: 7:00 AM
END TIME: 9:00 AM
DATE: 12/8/2005

QUALITY COUNTS
16285 SW 85th Avenue, Ste. 105
Tigard, OR 97224
Phone: 503-620-4242
Fax: 503 620-4545
email: jrw@qualitycounts.net
www.qualitycounts.net

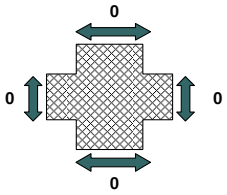
PEAK HOUR TURNING MOVEMENTS



PEAK HOUR LINK VOLUMES



PEAK HOUR PED CROSSING VOLUMES



PEAK HOUR: 7:15 AM TO 8:15 AM

PEAK 15 MINUTES: 7:45 AM TO 8:00 AM

5-MINUTE COUNT PERIOD	*Hogan--* (Southbound)			*Palmquist--* (Westbound)			*Hogan--* (Northbound)			*Palmquist--* (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
BEGINNING AT	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
7:00 AM	1	10	6	9	2	5	3	16	1	2	9	3	0	0	0	0	67	0
7:05 AM	2	19	3	8	3	10	8	26	2	3	2	7	0	0	0	0	93	0
7:10 AM	4	16	6	9	3	11	11	22	1	0	6	2	0	0	0	0	91	0
7:15 AM	2	23	7	12	0	9	8	28	1	0	8	8	0	0	0	0	106	0
7:20 AM	1	15	7	7	3	9	9	19	1	0	3	2	0	0	0	0	76	0
7:25 AM	2	19	3	11	9	11	2	28	1	1	7	6	0	0	0	0	100	0
7:30 AM	0	26	7	9	2	7	7	34	1	1	5	9	0	0	0	0	108	0
7:35 AM	1	9	6	13	3	7	10	15	4	0	4	9	0	0	0	0	81	0
7:40 AM	1	12	9	8	5	12	3	39	0	0	10	4	0	0	0	0	103	0
7:45 AM	1	7	8	14	7	12	11	32	1	1	5	4	0	0	0	0	103	0
7:50 AM	1	18	9	8	2	5	17	41	1	1	4	2	0	0	0	0	109	0
7:55 AM	2	22	14	20	7	15	11	29	1	1	4	4	0	0	0	0	130	0
8:00 AM	5	9	5	12	6	7	12	23	1	2	4	5	0	0	0	0	91	0
8:05 AM	1	9	5	10	3	13	5	32	2	1	3	7	0	0	0	0	91	0
8:10 AM	4	26	9	11	4	6	6	27	0	2	4	8	0	0	0	0	107	0
8:15 AM	0	12	14	13	4	7	8	17	2	1	4	4	0	0	0	0	86	0
8:20 AM	0	15	2	7	3	6	6	21	1	0	4	10	0	0	0	0	75	0
8:25 AM	0	21	7	8	6	13	6	27	0	0	4	3	0	0	0	0	95	0
8:30 AM	3	22	7	7	5	7	8	33	0	0	7	6	0	0	0	0	105	0
8:35 AM	3	15	3	13	2	7	6	30	0	0	0	6	0	0	0	0	85	0
8:40 AM	2	22	6	7	4	7	4	28	0	1	2	4	0	0	0	0	87	0
8:45 AM	5	19	8	7	7	15	5	20	1	0	6	2	0	0	0	0	95	0
8:50 AM	2	17	2	8	3	15	3	31	1	2	1	2	0	0	0	0	87	0
8:55 AM	3	21	6	4	2	23	6	20	0	1	6	8	0	0	0	0	100	0

HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
7:00 AM	18	196	85	128	46	113	100	329	15	10	67	60	0	0	0	0	1167	0
7:15 AM	21	195	89	135	51	113	101	347	14	10	61	68	0	0	0	0	1205	0
7:30 AM	16	186	95	133	52	110	102	337	14	10	55	69	0	0	0	0	1179	0
7:45 AM	22	198	89	130	53	105	100	340	9	10	45	63	0	0	0	0	1164	0
8:00 AM	28	208	74	107	49	126	75	309	8	10	45	65	0	0	0	0	1104	0

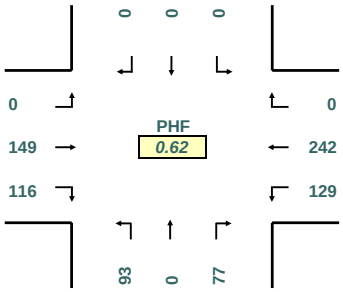
Ordinance No. 07-1148
Attachment 7

INTERSECTION: *SE Flemming--/SE Palmquist--*
PROJECT ID#:
QC JOB #: *10129401*

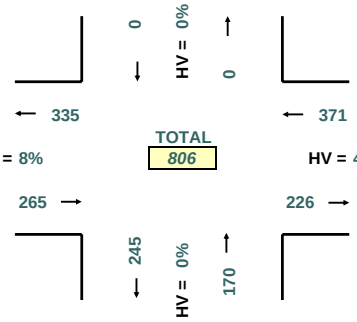
START TIME: *7:00 AM*
END TIME: *9:00 AM*
DATE: *12/8/2005*

QUALITY COUNTS
16285 SW 85th Avenue, Ste. 105
Tigard, OR 97224
Phone: 503-620-4242
Fax: 503 620-4545
email: jrw@qualitycounts.net
www.qualitycounts.net

PEAK HOUR TURNING MOVEMENTS



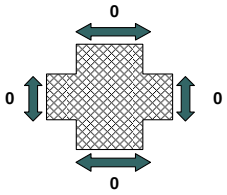
PEAK HOUR LINK VOLUMES



PEAK HOUR: 7:15 AM TO 8:15 AM

PEAK 15 MINUTES: 7:45 AM TO 8:00 AM

PEAK HOUR PED CROSSING VOLUMES



5-MINUTE COUNT PERIOD	*N/A--* (Southbound)			*SE Palmquist--* (Westbound)			*SE Flemming Ave--* (Northbound)			*SE Palmquist--* (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
BEGINNING AT	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
7:00 AM	0	0	0	0	17	2	0	0	0	5	15	0	0	0	0	0	39	0
7:05 AM	0	0	0	0	23	0	0	0	0	1	9	0	0	0	0	0	33	0
7:10 AM	0	0	0	0	20	1	0	0	1	5	21	0	0	0	0	0	48	0
7:15 AM	0	0	0	0	19	1	0	0	0	6	17	0	0	0	0	0	43	0
7:20 AM	0	0	0	0	20	3	0	0	1	7	12	0	0	0	0	0	43	0
7:25 AM	0	0	0	0	34	2	0	0	2	4	9	0	0	0	0	0	51	0
7:30 AM	0	0	0	0	15	6	0	0	2	8	10	0	0	0	0	0	41	0
7:35 AM	0	0	0	0	22	2	3	0	4	4	11	0	0	0	0	0	46	0
7:40 AM	0	0	0	0	17	18	4	0	8	9	17	0	0	0	0	0	73	0
7:45 AM	0	0	0	0	21	27	17	0	13	12	13	0	0	0	0	0	103	0
7:50 AM	0	0	0	0	19	30	12	0	16	22	11	0	0	0	0	0	110	0
7:55 AM	0	0	0	0	26	22	13	0	20	17	14	0	0	0	0	0	112	0
8:00 AM	0	0	0	0	12	11	22	0	17	14	12	0	0	0	0	0	88	0
8:05 AM	0	0	0	0	14	7	6	0	9	4	10	0	0	0	0	0	50	0
8:10 AM	0	0	0	0	23	0	0	0	1	9	13	0	0	0	0	0	46	0
8:15 AM	0	0	0	0	18	2	0	0	5	5	23	0	0	0	0	0	53	0
8:20 AM	0	0	0	0	16	4	4	0	1	1	11	0	0	0	0	0	37	0
8:25 AM	0	0	0	0	27	0	0	0	0	2	15	0	0	0	0	0	44	0
8:30 AM	0	0	0	0	16	1	1	0	0	3	18	0	0	0	0	0	39	0
8:35 AM	0	0	0	0	19	1	0	0	3	2	11	0	0	0	0	0	36	0
8:40 AM	0	0	0	0	16	0	0	0	0	2	10	0	0	0	0	0	28	0
8:45 AM	0	0	0	0	31	2	3	0	1	3	17	0	0	0	0	0	57	0
8:50 AM	0	0	0	0	34	5	2	0	1	5	0	0	0	0	0	0	47	0
8:55 AM	0	0	0	0	27	1	1	0	1	2	17	0	0	0	0	0	49	0

HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
7:00 AM	0	0	0	0	253	114	49	0	67	100	159	0	0	0	0	0	742	0
7:15 AM	0	0	0	0	242	129	77	0	93	116	149	0	0	0	0	0	806	0
7:30 AM	0	0	0	0	230	129	81	0	96	107	160	0	0	0	0	0	803	0
7:45 AM	0	0	0	0	227	105	75	0	85	93	161	0	0	0	0	0	746	0
8:00 AM	0	0	0	0	253	34	39	0	39	52	157	0	0	0	0	0	574	0

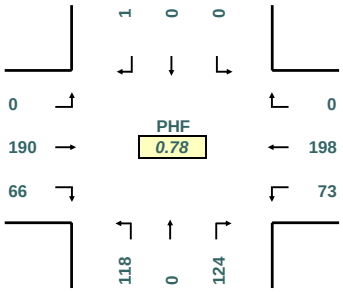
Ordinance No. 07-1148
Attachment 7

INTERSECTION: *SE Palmblad Rd--/Se Palmquist--*
PROJECT ID#:
QC JOB #: *10129403*

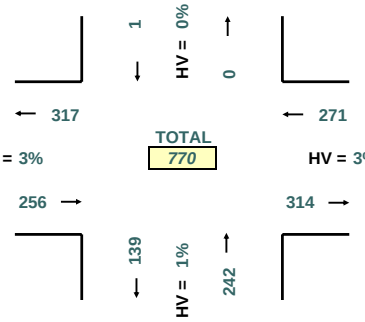
START TIME: *7:00 AM*
END TIME: *9:00 AM*
DATE: *12/8/2005*

QUALITY COUNTS
16285 SW 85th Avenue, Ste. 105
Tigard, OR 97224
Phone: 503-620-4242
Fax: 503 620-4545
email: jrw@qualitycounts.net
www.qualitycounts.net

PEAK HOUR TURNING MOVEMENTS



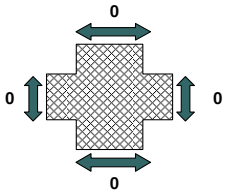
PEAK HOUR LINK VOLUMES



PEAK HOUR: 7:45 AM TO 8:45 AM

PEAK 15 MINUTES: 7:45 AM TO 8:00 AM

PEAK HOUR PED CROSSING VOLUMES



5-MINUTE COUNT PERIOD	SE Palmblad Rd-- (Southbound)			Se Palmquist-- (Westbound)			SE Palmblad Rd-- (Northbound)			Se Palmquist-- (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
BEGINNING AT	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
7:00 AM	0	0	0	0	7	6	5	0	10	2	17	0	0	0	0	0	47	0
7:05 AM	0	0	0	0	13	1	13	0	10	1	8	0	0	0	0	0	46	0
7:10 AM	0	0	0	0	11	1	11	0	7	1	17	0	0	0	0	0	48	0
7:15 AM	0	0	0	0	7	1	9	0	4	0	17	0	0	0	0	0	38	0
7:20 AM	0	0	0	0	18	2	5	0	8	2	11	0	0	0	0	0	46	0
7:25 AM	0	0	0	0	21	0	10	0	9	3	8	0	0	0	0	0	51	0
7:30 AM	0	0	0	0	9	2	11	0	4	2	8	0	0	0	0	0	36	0
7:35 AM	0	0	0	0	15	1	12	0	11	4	11	0	0	0	0	0	54	0
7:40 AM	0	0	0	0	12	5	8	0	20	5	16	0	0	0	0	5	66	5
7:45 AM	0	0	0	0	25	2	8	0	14	10	22	0	0	0	0	0	81	0
7:50 AM	1	0	0	0	23	3	14	0	22	8	18	0	0	0	0	0	89	0
7:55 AM	0	0	0	0	19	5	12	0	11	5	24	0	0	0	0	0	76	0
8:00 AM	0	0	0	0	23	4	5	0	4	10	23	0	0	0	0	0	69	0
8:05 AM	0	0	0	0	14	5	8	0	9	3	16	0	0	0	0	0	55	0
8:10 AM	0	0	0	0	15	6	5	0	4	2	13	0	0	0	0	0	45	0
8:15 AM	0	0	0	0	13	10	5	0	9	10	16	0	0	0	0	0	63	0
8:20 AM	0	0	0	0	16	10	8	0	5	6	7	0	0	0	0	0	52	0
8:25 AM	0	0	0	0	14	12	14	0	11	8	8	0	0	0	0	0	67	0
8:30 AM	0	0	0	0	12	7	15	0	8	2	16	0	0	0	0	0	60	0
8:35 AM	0	0	0	0	14	7	11	0	13	1	11	0	0	0	0	0	57	0
8:40 AM	0	0	0	0	10	2	19	0	8	1	16	0	0	0	0	0	56	0
8:45 AM	0	0	0	0	33	6	8	0	3	1	17	0	0	0	0	0	68	0
8:50 AM	0	0	0	0	24	1	7	0	6	0	6	0	0	0	0	0	44	0
8:55 AM	0	0	0	0	17	1	2	0	9	6	11	0	0	0	0	0	46	0

HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
7:00 AM	1	0	0	0	180	29	118	0	130	43	177	0	0	0	0	5	678	5
7:15 AM	1	0	0	0	201	36	107	0	120	54	187	0	0	0	0	5	706	5
7:30 AM	1	0	0	0	198	65	110	0	124	73	182	0	0	0	0	5	753	5
7:45 AM	1	0	0	0	198	73	124	0	118	66	190	0	0	0	0	0	770	0
8:00 AM	0	0	0	0	205	71	107	0	89	50	160	0	0	0	0	0	682	0

Version 3.1

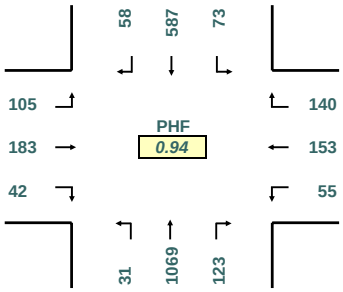
Ordinance No. 07-1148
Attachment 7

INTERSECTION: *US 26--/SE Palmquist--*
PROJECT ID#: *7670*
QC JOB #: *10145101*

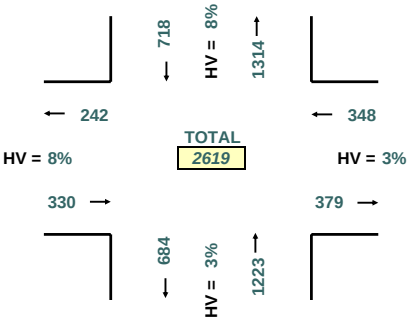
START TIME: *7:00 AM*
END TIME: *9:00 AM*
DATE: *2/16/2006*

QUALITY COUNTS
16285 SW 85th Avenue, Ste. 105
Tigard, OR 97224
Phone: 503-620-4242
Fax: 503 620-4545
email: jrw@qualitycounts.net
www.qualitycounts.net

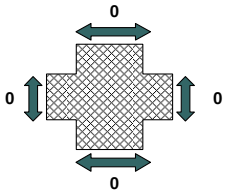
PEAK HOUR TURNING MOVEMENTS



PEAK HOUR LINK VOLUMES



PEAK HOUR PED CROSSING VOLUMES



PEAK HOUR: 7:15 AM TO 8:15 AM

PEAK 15 MINUTES: 7:45 AM TO 8:00 AM

5-MINUTE COUNT PERIOD	*US 26--* (Southbound)			*SE Palmquist--* (Westbound)			*Mount Hood Hwy--* (Northbound)			*SE Palmquist--* (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
BEGINNING AT	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
7:00 AM	0	41	6	9	15	4	10	67	1	3	14	7	0	0	0	0	177	0
7:05 AM	2	49	5	8	8	2	14	92	1	5	10	6	0	0	0	0	202	0
7:10 AM	1	35	4	9	10	6	11	84	1	2	13	8	0	0	0	0	184	0
7:15 AM	6	48	9	6	9	3	11	86	3	7	13	7	0	0	0	0	208	0
7:20 AM	5	57	2	11	8	3	8	91	2	4	18	16	0	0	0	0	225	0
7:25 AM	5	45	6	15	9	4	9	113	1	1	13	9	0	0	0	0	230	0
7:30 AM	5	55	3	9	6	9	11	100	3	1	9	4	0	0	0	0	215	0
7:35 AM	1	55	9	9	20	3	12	79	7	5	16	13	0	0	0	0	229	0
7:40 AM	3	70	5	14	13	9	12	84	2	4	17	5	0	0	0	0	238	0
7:45 AM	4	39	3	14	19	5	15	115	3	1	13	4	0	0	0	0	235	0
7:50 AM	5	49	6	9	11	5	14	100	2	4	16	11	0	0	0	0	232	0
7:55 AM	9	58	12	16	16	4	5	83	4	4	15	4	0	0	0	0	230	0
8:00 AM	3	37	5	15	14	2	7	72	2	6	21	14	0	0	0	0	198	0
8:05 AM	2	32	3	13	19	3	9	77	2	2	14	14	0	0	0	0	190	0
8:10 AM	10	42	10	9	9	5	10	69	0	3	18	4	0	0	0	0	189	0
8:15 AM	8	47	3	10	7	6	13	69	1	1	8	8	0	0	0	0	181	0
8:20 AM	1	56	9	8	11	4	10	81	5	2	11	10	0	0	0	0	208	0
8:25 AM	8	47	4	6	17	4	12	65	8	0	17	6	0	0	0	0	194	0
8:30 AM	4	52	3	14	16	5	10	43	2	3	17	2	0	0	0	0	171	0
8:35 AM	3	50	3	10	11	2	7	57	3	0	11	10	0	0	0	0	167	0
8:40 AM	0	37	5	4	12	4	7	83	2	3	16	8	0	0	0	0	181	0
8:45 AM	1	48	2	8	16	11	11	41	2	2	18	9	0	0	0	0	169	0
8:50 AM	5	46	4	8	20	5	10	66	1	2	13	5	0	0	0	0	185	0
8:55 AM	5	29	5	8	21	4	7	61	0	0	9	9	0	0	0	0	158	0

HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
7:00 AM	46	601	70	129	144	57	132	1094	30	41	167	94	0	0	0	0	2605	0
7:15 AM	58	587	73	140	153	55	123	1069	31	42	183	105	0	0	0	0	2619	0
7:30 AM	59	587	72	132	162	59	130	994	39	33	175	97	0	0	0	0	2539	0
7:45 AM	57	546	66	128	162	49	119	914	34	29	177	95	0	0	0	0	2376	0
8:00 AM	50	523	56	113	173	55	113	784	28	24	173	99	0	0	0	0	2191	0

Version 3.1

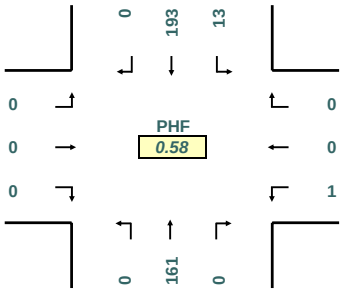
Ordinance No. 07-1148
Attachment 7

INTERSECTION: *SW Fleming Ave--/High School Driveway--*
PROJECT ID#:
QC JOB #: *10137801*

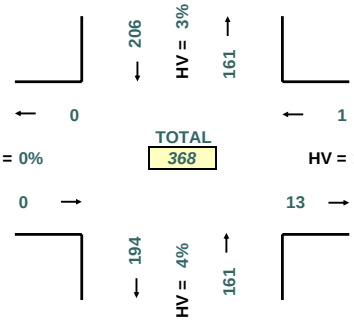
START TIME: *7:00 AM*
END TIME: *9:00 AM*
DATE: *1/17/2006*

QUALITY COUNTS
16285 SW 85th Avenue, Ste. 105
Tigard, OR 97224
Phone: 503-620-4242
Fax: 503 620-4545
email: jrw@qualitycounts.net
www.qualitycounts.net

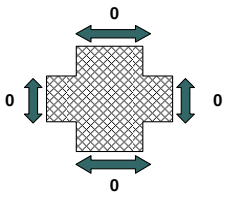
PEAK HOUR TURNING MOVEMENTS



PEAK HOUR LINK VOLUMES



PEAK HOUR PED CROSSING VOLUMES



PEAK HOUR: 7:15 AM TO 8:15 AM

PEAK 15 MINUTES: 7:45 AM TO 8:00 AM

5-MINUTE COUNT PERIOD	*SW Fleming Ave--* (Southbound)			*Driveway 1--* (Westbound)			*SW Fleming Ave--* (Northbound)			*Driveway 1--* (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
BEGINNING AT	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
7:00 AM	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0
7:05 AM	0	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	4	0
7:10 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
7:15 AM	0	4	2	0	0	1	0	1	0	0	0	0	0	0	0	0	8	0
7:20 AM	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
7:25 AM	0	8	1	0	0	0	0	2	0	0	0	0	0	0	0	0	11	0
7:30 AM	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0
7:35 AM	0	6	0	0	0	0	0	8	0	0	0	0	0	0	0	0	14	0
7:40 AM	0	26	2	0	0	0	0	20	0	0	0	0	0	0	0	0	48	0
7:45 AM	0	38	0	0	0	0	0	18	0	0	0	0	0	0	0	0	56	0
7:50 AM	0	36	0	0	0	0	0	35	0	0	0	0	0	0	0	0	71	0
7:55 AM	0	15	3	0	0	0	0	14	0	0	0	0	0	0	0	0	32	0
8:00 AM	0	17	1	0	0	0	0	17	0	0	0	0	0	0	0	0	35	0
8:05 AM	0	24	1	0	0	0	0	30	0	0	0	0	0	0	0	0	55	0
8:10 AM	0	6	3	0	0	0	0	16	0	0	0	0	0	0	0	0	25	0
8:15 AM	0	1	4	0	0	0	0	2	0	0	0	0	0	0	0	0	7	0
8:20 AM	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	3	0
8:25 AM	0	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	5	0
8:30 AM	0	1	2	0	0	0	0	1	0	0	0	0	0	0	0	0	4	0
8:35 AM	0	1	2	0	0	0	0	2	0	0	0	0	0	0	0	0	5	0
8:40 AM	0	2	1	0	0	0	1	1	0	0	0	0	0	0	0	0	5	0
8:45 AM	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3	0
8:50 AM	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	4	0
8:55 AM	0	2	1	0	0	0	0	2	0	0	0	0	0	0	0	0	5	0

HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
7:00 AM	0	152	8	0	0	1	0	100	0	0	0	0	0	0	0	0	261	0
7:15 AM	0	193	13	0	0	1	0	161	0	0	0	0	0	0	0	0	368	0
7:30 AM	0	180	17	1	0	0	0	161	0	0	0	0	0	0	0	0	359	0
7:45 AM	0	144	20	1	0	0	1	137	0	0	0	0	0	0	0	0	303	0
8:00 AM	0	58	19	6	0	0	1	72	0	0	0	0	0	0	0	0	156	0

Version 3.1

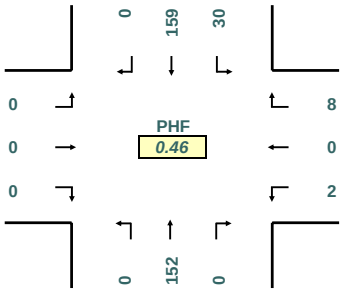
Ordinance No. 07-1148
Attachment 17

INTERSECTION: *SW Fleming Ave--/North Elem School*
PROJECT ID#:
QC JOB #: *10137802*

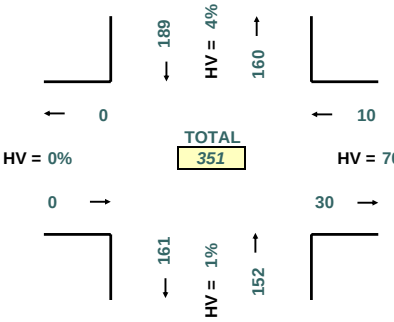
START TIME: *7:00 AM*
END TIME: *9:00 AM*
DATE: *1/17/2006*

QUALITY COUNTS
16285 SW 85th Avenue, Ste. 105
Tigard, OR 97224
Phone: 503-620-4242
Fax: 503 620-4545
email: jrw@qualitycounts.net
www.qualitycounts.net

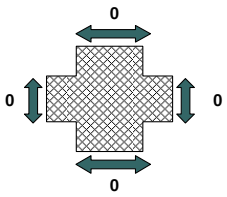
PEAK HOUR TURNING MOVEMENTS



PEAK HOUR LINK VOLUMES



PEAK HOUR PED CROSSING VOLUMES



PEAK HOUR: 7:15 AM TO 8:15 AM

PEAK 15 MINUTES: 7:45 AM TO 8:00 AM

5-MINUTE COUNT PERIOD	*SW Fleming Ave--* (Southbound)			*Driveway 2--* (Westbound)			*SW Fleming Ave--* (Northbound)			*Driveway 2--* (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
BEGINNING AT	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
7:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
7:05 AM	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	0
7:10 AM	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
7:15 AM	0	1	2	1	0	0	0	1	0	0	0	0	0	0	0	0	5	0
7:20 AM	0	1	5	0	0	1	0	0	0	0	0	0	0	0	0	0	7	0
7:25 AM	0	1	5	0	0	1	0	1	0	0	0	0	0	0	0	0	8	0
7:30 AM	0	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
7:35 AM	0	9	0	0	0	0	0	6	0	0	0	0	0	0	0	0	15	0
7:40 AM	0	16	7	2	0	0	0	13	0	0	0	0	0	0	0	0	38	0
7:45 AM	0	43	3	5	0	0	0	30	0	0	0	0	0	0	0	0	81	0
7:50 AM	0	19	0	0	0	0	0	25	0	0	0	0	0	0	0	0	44	0
7:55 AM	0	28	4	0	0	0	0	33	0	0	0	0	0	0	0	0	65	0
8:00 AM	0	31	1	0	0	0	0	27	0	0	0	0	0	0	0	0	59	0
8:05 AM	0	4	1	0	0	0	0	14	0	0	0	0	0	0	0	0	19	0
8:10 AM	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	4	0
8:15 AM	0	3	0	0	0	0	0	2	0	0	0	0	0	0	0	0	5	0
8:20 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
8:25 AM	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	4	0
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:35 AM	0	1	0	1	0	0	0	3	0	0	0	0	0	0	0	0	5	0
8:40 AM	0	0	1	1	0	0	0	2	0	0	0	0	0	0	0	0	4	0
8:45 AM	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	0
8:50 AM	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0
8:55 AM	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	3	0

HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
7:00 AM	0	127	31	8	0	2	0	110	0	0	0	0	0	0	0	0	278	0
7:15 AM	0	159	30	8	0	2	0	152	0	0	0	0	0	0	0	0	351	0
7:30 AM	0	161	18	7	0	0	0	155	0	0	0	0	0	0	0	0	341	0
7:45 AM	0	134	10	7	0	0	0	141	0	0	0	0	0	0	0	0	292	0
8:00 AM	0	48	3	2	0	0	0	57	0	0	0	0	0	0	0	0	110	0

Version 3.1

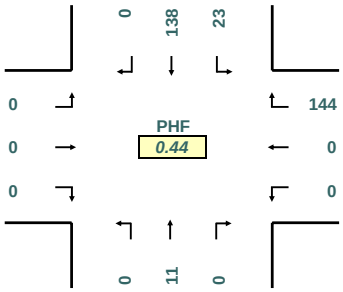
Ordinance No. 07-1148
Attachment 7

INTERSECTION: *SW Fleming Ave--/Middle Elem School*
PROJECT ID#:
QC JOB #: *10137803*

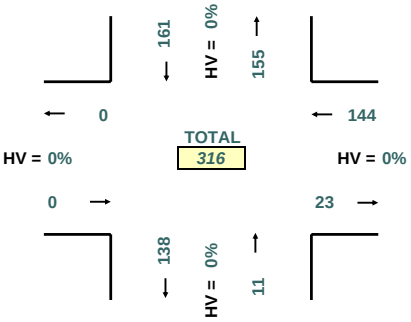
START TIME: *7:00 AM*
END TIME: *9:00 AM*
DATE: *1/17/2006*

QUALITY COUNTS
16285 SW 85th Avenue, Ste. 105
Tigard, OR 97224
Phone: 503-620-4242
Fax: 503 620-4545
email: jrw@qualitycounts.net
www.qualitycounts.net

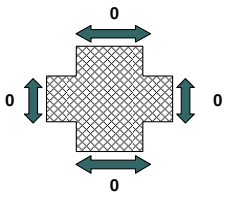
PEAK HOUR TURNING MOVEMENTS



PEAK HOUR LINK VOLUMES



PEAK HOUR PED CROSSING VOLUMES



PEAK HOUR: 7:30 AM TO 8:30 AM

PEAK 15 MINUTES: 7:45 AM TO 8:00 AM

5-MINUTE COUNT PERIOD	*SW Fleming Ave--* (Southbound)			*Driveway 3--* (Westbound)			*SW Fleming Ave--* (Northbound)			*Driveway 3--* (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
BEGINNING AT	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
7:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
7:05 AM	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	0
7:10 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:15 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0
7:20 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:25 AM	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	0
7:30 AM	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
7:35 AM	0	6	3	6	0	0	0	0	0	0	0	0	0	0	0	0	15	0
7:40 AM	0	15	1	12	0	0	0	1	0	0	0	0	0	0	0	0	29	0
7:45 AM	0	42	1	30	0	0	0	0	0	0	0	0	0	0	0	0	73	0
7:50 AM	0	15	4	23	0	0	0	2	0	0	0	0	0	0	0	0	44	0
7:55 AM	0	27	1	33	0	0	0	0	0	0	0	0	0	0	0	0	61	0
8:00 AM	0	26	5	24	0	0	0	3	0	0	0	0	0	0	0	0	58	0
8:05 AM	0	2	2	11	0	0	0	3	0	0	0	0	0	0	0	0	18	0
8:10 AM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	4	0
8:15 AM	0	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	5	0
8:20 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:25 AM	0	1	1	0	0	0	0	2	0	0	0	0	0	0	0	0	4	0
8:30 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
8:35 AM	0	1	0	1	0	0	0	2	0	0	0	0	0	0	0	0	4	0
8:40 AM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0
8:45 AM	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0
8:50 AM	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0
8:55 AM	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	3	0

HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
7:00 AM	0	114	14	105	0	0	0	5	0	0	0	0	0	0	0	0	238	0
7:15 AM	0	139	21	142	0	0	0	10	0	0	0	0	0	0	0	0	312	0
7:30 AM	0	138	23	144	0	0	0	11	0	0	0	0	0	0	0	0	316	0
7:45 AM	0	118	17	127	0	0	0	14	0	0	0	0	0	0	0	0	276	0
8:00 AM	0	36	13	43	0	0	0	14	0	0	0	0	0	0	0	0	106	0

Version 3.1

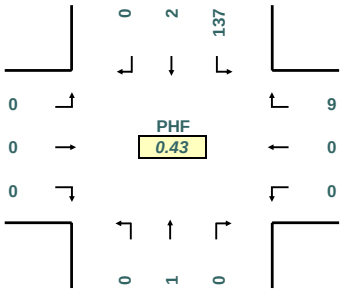
Ordinance No. 07-1148
Attachment 7

INTERSECTION: *SW Fleming Ave--/South Elem School*
PROJECT ID#: *31-Dec*
QC JOB #: *10137804*

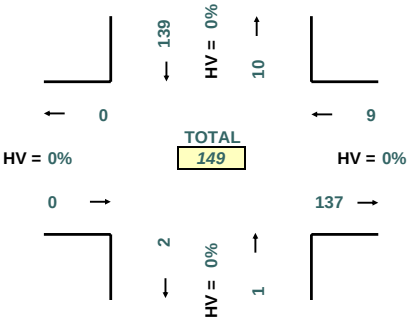
START TIME: *7:00 AM*
END TIME: *9:00 AM*
DATE: *1/17/2006*

QUALITY COUNTS
16285 SW 85th Avenue, Ste. 105
Tigard, OR 97224
Phone: 503-620-4242
Fax: 503 620-4545
email: jrw@qualitycounts.net
www.qualitycounts.net

PEAK HOUR TURNING MOVEMENTS



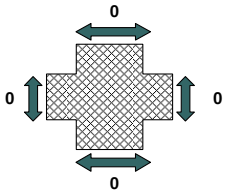
PEAK HOUR LINK VOLUMES



PEAK HOUR: 7:15 AM TO 8:15 AM

PEAK 15 MINUTES: 7:45 AM TO 8:00 AM

PEAK HOUR PED CROSSING VOLUMES



5-MINUTE COUNT PERIOD	*SW Fleming Ave--* (Southbound)			*Driveway 4--* (Westbound)			*SW Fleming--* (Northbound)			*Driveway 4--* (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
BEGINNING AT	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
7:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
7:05 AM	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	3	0
7:10 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:20 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:25 AM	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	3	0
7:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:35 AM	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
7:40 AM	0	0	15	1	0	0	0	0	0	0	0	0	0	0	0	0	16	0
7:45 AM	0	0	42	0	0	0	0	0	0	0	0	0	0	0	0	0	42	0
7:50 AM	0	0	15	2	0	0	0	0	0	0	0	0	0	0	0	0	17	0
7:55 AM	0	1	26	0	0	0	0	0	0	0	0	0	0	0	0	0	27	0
8:00 AM	0	0	26	3	0	0	0	0	0	0	0	0	0	0	0	0	29	0
8:05 AM	0	0	2	3	0	0	0	0	0	0	0	0	0	0	0	0	5	0
8:10 AM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
8:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:25 AM	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	3	0
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:35 AM	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	3	0
8:40 AM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0
8:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:50 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
8:55 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0

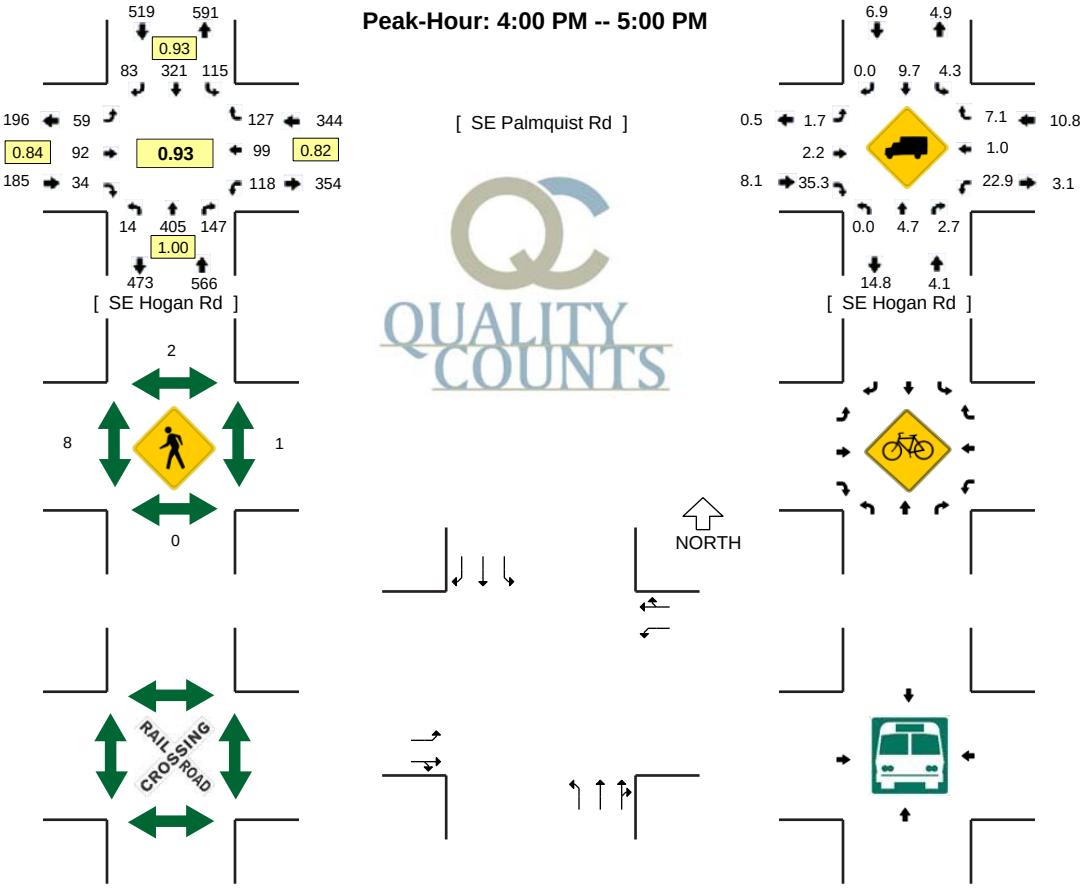
HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
7:00 AM	0	4	110	3	0	0	0	2	0	0	0	0	0	0	0	0	119	0
7:15 AM	0	2	137	9	0	0	0	1	0	0	0	0	0	0	0	0	149	0
7:30 AM	0	1	137	9	0	0	0	2	0	0	0	0	0	0	0	0	149	0
7:45 AM	0	3	115	8	0	0	0	6	0	0	0	0	0	0	0	0	132	0
8:00 AM	0	2	34	7	0	0	0	7	0	0	0	0	0	0	0	0	50	0

Version 3.1

Ordinance No. 07-1148
Attachment 7

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

INTERSECTION: SE Hogan Rd--SE Palmquist Rd | **QC JOB #:** 10240103
WEATHER: | **DATE:** 3/15/2007



*SEE LEGEND SHEET

5-MIN COUNT PERIOD BEGINNING AT	SE Hogan Rd (Northbound)				SE Hogan Rd (Southbound)				SE Palmquist Rd (Eastbound)				SE Palmquist Rd (Westbound)				TOTAL	HOURLY TOTALS
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	24	13	0	5	33	4	0	5	12	4	0	15	5	18	0	138	
4:05 PM	0	40	9	0	8	30	3	0	5	8	8	0	15	4	8	0	138	
4:10 PM	0	41	11	0	4	24	9	0	7	9	4	0	9	10	14	0	142	
4:15 PM	4	24	7	0	17	41	4	0	2	9	3	0	11	18	16	0	156	
4:20 PM	0	32	12	0	10	22	5	0	6	8	3	0	13	8	9	0	128	
4:25 PM	1	34	18	0	7	16	8	0	5	9	0	0	5	7	11	0	121	
4:30 PM	1	42	14	0	13	34	9	0	3	6	2	0	7	4	11	0	146	
4:35 PM	1	27	10	0	10	18	11	0	10	8	2	0	8	4	11	0	120	
4:40 PM	3	38	16	0	12	31	7	0	7	9	4	0	7	11	5	0	150	
4:45 PM	2	34	15	0	18	27	9	0	4	2	2	0	3	11	4	0	131	
4:50 PM	2	39	7	0	3	23	8	0	4	11	0	0	16	11	9	0	133	
4:55 PM	0	30	15	0	8	22	6	0	1	1	2	0	9	6	11	0	111	1614
5:00 PM	3	29	12	0	7	21	8	0	1	5	0	0	8	6	9	0	109	1585
5:05 PM	0	21	20	0	9	39	2	0	4	9	1	0	10	6	14	0	135	1582
5:10 PM	3	32	14	0	14	29	14	0	4	8	2	0	4	14	13	0	151	1591
5:15 PM	0	23	15	0	11	33	9	0	10	15	1	0	11	10	21	0	159	1594
5:20 PM	0	31	10	0	18	29	3	0	2	8	3	0	7	8	11	0	130	1596
5:25 PM	0	23	15	0	18	24	5	0	9	5	2	0	6	7	15	0	129	1604
5:30 PM	1	28	11	0	14	25	5	0	9	9	1	0	11	5	10	0	129	1587
5:35 PM	1	29	16	0	10	38	3	0	3	4	2	0	2	11	9	0	128	1595
5:40 PM	2	26	15	0	8	31	12	0	5	7	1	0	9	12	12	0	140	1585
5:45 PM	1	30	15	0	14	32	4	0	8	9	0	0	6	8	11	0	138	1592
5:50 PM	3	32	9	0	13	30	6	0	6	10	1	0	4	9	12	0	135	1594
5:55 PM	0	20	13	0	12	40	10	0	4	4	1	0	11	5	8	0	128	1611

PEAK 15-MIN FLOW RATES	Northbound				Southbound				Eastbound				Westbound				TOTAL
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	16	420	108	0	116	380	64	0	56	104	60	0	140	128	152	0	1744
Heavy Trucks	0	20	4		0	60	0		0	4	24		44	0	12		168
Pedestrians		0				0				8				0			8
Bicycles																	
Railroad																	
Stopped Buses																	

Counter Comments:

Report generated on 3/21/2007

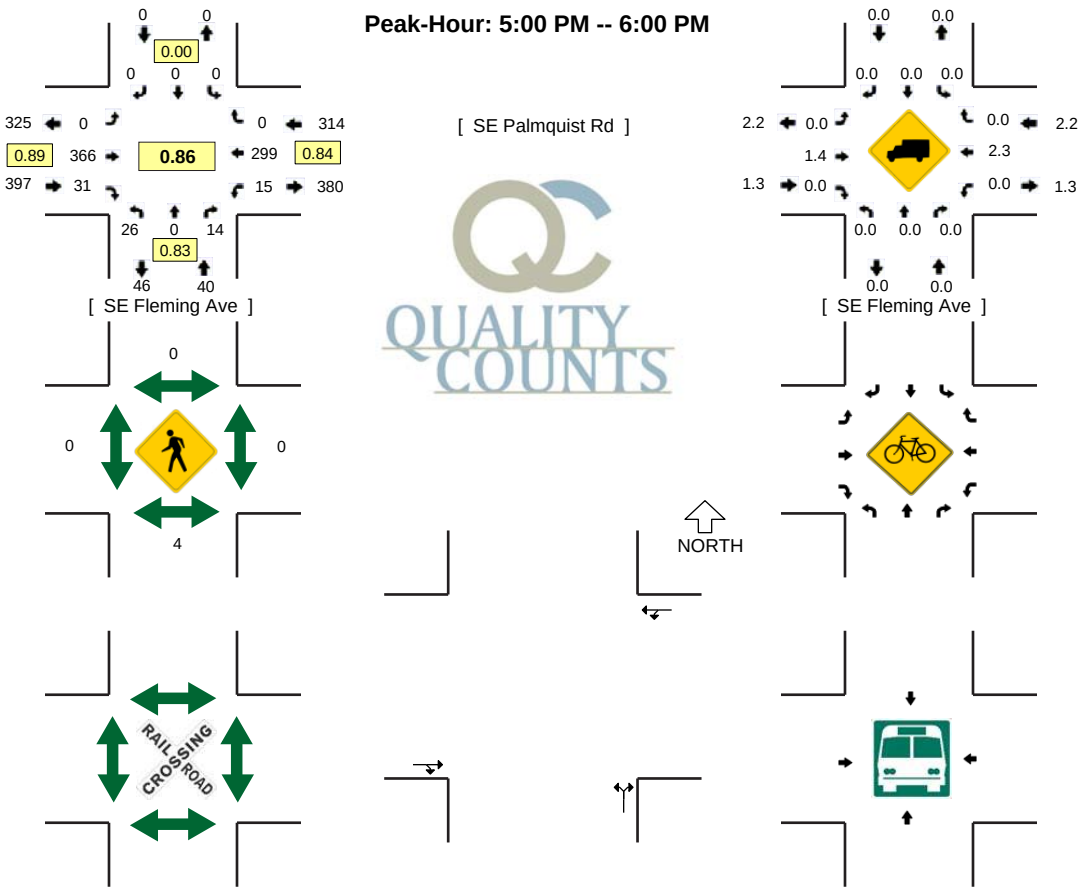
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Ordinance No. 07-1148
Attachment 7

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

INTERSECTION: SE Fleming Ave--SE Palmquist Rd | **QC JOB #:** 10240102
WEATHER: | **DATE:** 3/15/2007

Peak-Hour: 5:00 PM -- 6:00 PM



*SEE LEGEND SHEET

5-MIN COUNT PERIOD BEGINNING AT	SE Fleming Ave (Northbound)				SE Fleming Ave (Southbound)				SE Palmquist Rd (Eastbound)				SE Palmquist Rd (Westbound)				TOTAL	HOURLY TOTALS
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	7	0	2	0	0	0	0	0	0	24	1	0	0	34	0	0	68	
4:05 PM	4	0	5	0	0	0	0	0	0	25	1	0	0	21	0	0	56	
4:10 PM	2	0	0	0	0	0	0	0	0	24	1	0	1	34	0	0	62	
4:15 PM	3	0	3	0	0	0	0	0	0	24	0	0	0	40	0	0	70	
4:20 PM	2	0	1	0	0	0	0	0	0	35	1	0	1	27	0	0	67	
4:25 PM	3	0	1	0	0	0	0	0	0	37	1	0	1	24	0	0	67	
4:30 PM	1	0	1	0	0	0	0	0	0	27	3	0	0	19	0	0	51	
4:35 PM	1	0	1	0	0	0	0	0	0	28	1	0	1	20	0	0	52	
4:40 PM	4	0	1	0	0	0	0	0	0	25	3	0	2	25	0	0	60	
4:45 PM	1	0	6	0	0	0	0	0	0	33	5	0	3	16	0	0	64	
4:50 PM	1	0	2	0	0	0	0	0	0	28	2	0	1	32	0	0	66	
4:55 PM	1	0	0	0	0	0	0	0	0	27	1	0	0	25	0	0	54	737
5:00 PM	2	0	0	0	0	0	0	0	0	20	0	0	2	21	0	0	45	714
5:05 PM	0	0	0	0	0	0	0	0	0	25	4	0	0	22	0	0	51	709
5:10 PM	1	0	0	0	0	0	0	0	0	37	4	0	2	30	0	0	74	721
5:15 PM	8	0	0	0	0	0	0	0	0	33	2	0	0	40	0	0	83	734
5:20 PM	2	0	1	0	0	0	0	0	0	36	0	0	1	21	0	0	61	728
5:25 PM	0	0	1	0	0	0	0	0	0	25	4	0	2	23	0	0	55	716
5:30 PM	3	0	2	0	0	0	0	0	0	41	6	0	1	23	0	0	76	741
5:35 PM	1	0	2	0	0	0	0	0	0	24	2	0	2	27	0	0	58	747
5:40 PM	3	0	2	0	0	0	0	0	0	28	2	0	2	23	0	0	60	747
5:45 PM	2	0	2	0	0	0	0	0	0	34	3	0	1	23	0	0	65	748
5:50 PM	3	0	2	0	0	0	0	0	0	34	2	0	1	26	0	0	68	750
5:55 PM	1	0	2	0	0	0	0	0	0	29	2	0	1	20	0	0	55	751

PEAK 15-MIN FLOW RATES	Northbound				Southbound				Eastbound				Westbound				TOTAL
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	44	0	4	0	0	0	0	0	0	424	24	0	12	364	0	0	872
Heavy Trucks	0	0	0		0	0	0		0	12	0		0	12	0		24
Pedestrians		0				0				0				0			0
Bicycles																	
Railroad																	
Stopped Buses																	

Counter Comments:

Report generated on 3/21/2007 | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

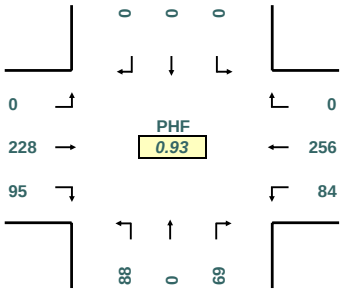
Ordinance No. 07-1148
Attachment 7

INTERSECTION: *Palmblad Rd--/SE Palmquist--*
PROJECT ID#:
QC JOB #: *10129407*

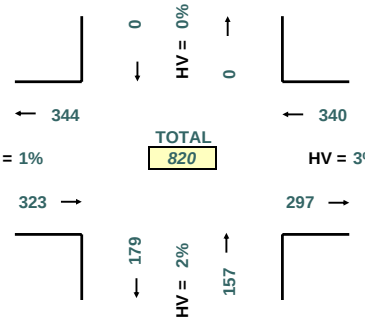
START TIME: *4:00 PM*
END TIME: *6:00 PM*
DATE: *12/8/2005*

QUALITY COUNTS
16285 SW 85th Avenue, Ste. 105
Tigard, OR 97224
Phone: 503-620-4242
Fax: 503 620-4545
email: jrw@qualitycounts.net
www.qualitycounts.net

PEAK HOUR TURNING MOVEMENTS



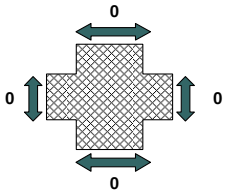
PEAK HOUR LINK VOLUMES



PEAK HOUR: 4:30 PM TO 5:30 PM

PEAK 15 MINUTES: 4:45 PM TO 5:00 PM

PEAK HOUR PED CROSSING VOLUMES



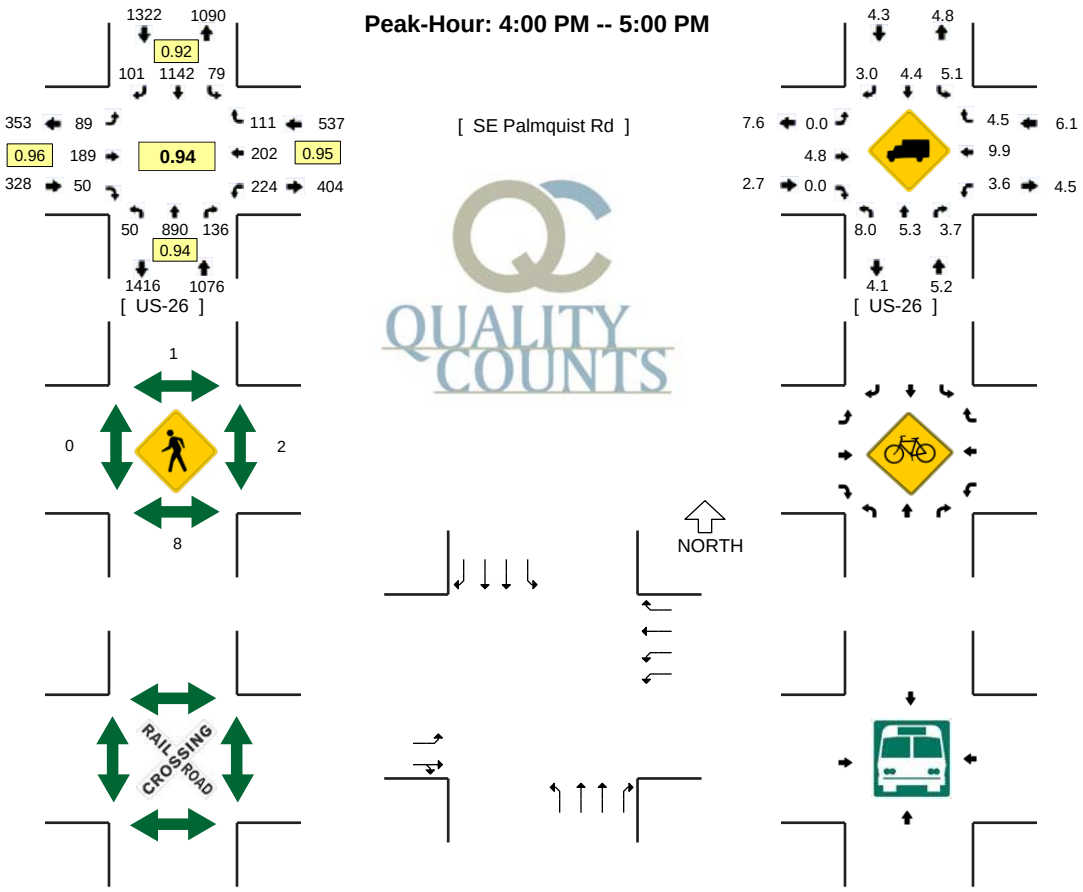
5-MINUTE COUNT PERIOD BEGINNING AT	*Palmblad Rd--* (Southbound)			*SE Palmquist--* (Westbound)			*Palmblad Rd--* (Northbound)			*SE Palmquist--* (Eastbound)			Crosswalk Usage (Peds By Approach)				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	North	East	South	West	Veh	Peds
4:00 PM	0	0	0	2	15	8	4	0	3	9	23	0	0	0	0	0	64	0
4:05 PM	0	0	0	0	26	10	3	0	11	11	18	0	0	0	0	0	79	0
4:10 PM	0	0	0	0	21	9	2	0	10	11	8	0	0	0	0	0	61	0
4:15 PM	0	0	0	0	23	12	10	0	4	9	8	0	0	0	0	0	66	0
4:20 PM	0	0	0	0	19	6	7	0	4	7	17	0	0	0	0	0	60	0
4:25 PM	0	0	0	0	14	5	9	0	8	5	9	0	0	0	0	0	50	0
4:30 PM	0	0	0	0	17	11	11	0	8	7	18	0	0	0	0	0	72	0
4:35 PM	0	0	0	0	26	6	2	0	8	6	12	0	0	0	0	0	60	0
4:40 PM	0	0	0	0	16	7	3	0	10	5	22	0	0	0	0	0	63	0
4:45 PM	0	0	0	0	27	9	6	0	11	10	24	0	0	0	0	0	87	0
4:50 PM	0	0	0	0	22	6	8	0	4	11	16	0	0	0	0	0	67	0
4:55 PM	0	0	0	0	20	11	6	0	3	9	18	0	0	0	0	0	67	0
5:00 PM	0	0	0	0	22	9	8	0	9	4	26	0	0	0	0	0	78	0
5:05 PM	0	0	0	0	18	4	6	0	10	10	27	0	0	0	0	0	75	0
5:10 PM	0	0	0	0	21	5	2	0	6	6	9	0	0	0	0	0	49	0
5:15 PM	0	0	0	0	29	3	6	0	6	8	24	0	0	0	0	0	76	0
5:20 PM	0	0	0	0	21	5	7	0	4	8	17	0	0	0	0	0	62	0
5:25 PM	0	0	0	0	17	8	4	0	9	11	15	0	0	0	0	0	64	0
5:30 PM	0	0	0	0	12	7	8	0	6	8	16	0	0	0	0	0	57	0
5:35 PM	0	0	0	0	14	8	7	0	10	8	17	0	0	0	0	0	64	0
5:40 PM	0	0	0	0	19	9	3	0	7	8	14	0	0	0	0	0	60	0
5:45 PM	0	0	0	0	14	12	12	0	11	10	15	0	0	0	0	0	74	0
5:50 PM	0	0	0	0	13	6	5	0	5	9	12	0	0	0	0	0	50	0
5:55 PM	0	0	0	0	7	10	2	0	8	9	12	0	0	0	0	0	48	0

HOURLY TOTALS	Southbound			Westbound			Northbound			Eastbound			Pedestrians By Approach				TOTAL	
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	West	East	North	South	Veh	Peds
4:00 PM	0	0	0	2	246	100	71	0	84	100	193	0	0	0	0	0	796	0
4:15 PM	0	0	0	0	245	91	78	0	85	89	206	0	0	0	0	0	794	0
4:30 PM	0	0	0	0	256	84	69	0	88	95	228	0	0	0	0	0	820	0
4:45 PM	0	0	0	0	242	84	71	0	85	101	223	0	0	0	0	0	806	0
5:00 PM	0	0	0	0	207	86	70	0	91	99	204	0	0	0	0	0	757	0

Version 3.1

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

INTERSECTION: US-26--SE Palmquist Rd | **QC JOB #:** 10240101
WEATHER: | **DATE:** 3/15/2007



*SEE LEGEND SHEET

5-MIN COUNT PERIOD BEGINNING AT	US-26 (Northbound)				US-26 (Southbound)				SE Palmquist Rd (Eastbound)				SE Palmquist Rd (Westbound)				TOTAL	HOURLY TOTALS
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	3	58	9	0	12	91	7	0	6	13	1	0	12	26	6	0	244	
4:05 PM	5	82	14	0	5	105	9	0	7	19	4	0	16	18	10	0	294	
4:10 PM	7	85	7	0	5	77	13	0	5	16	4	0	23	16	11	0	269	
4:15 PM	15	86	12	0	7	74	9	0	10	17	9	0	9	19	7	0	274	
4:20 PM	3	83	12	0	2	112	8	0	7	11	0	0	32	23	15	0	308	
4:25 PM	3	54	10	0	5	87	13	0	12	18	6	0	17	10	11	0	246	
4:30 PM	3	52	12	0	4	88	4	0	10	25	3	0	20	15	5	0	241	
4:35 PM	1	68	8	0	5	116	3	0	2	17	3	0	14	13	5	0	255	
4:40 PM	2	83	14	0	6	90	7	0	4	11	3	0	23	11	9	0	263	
4:45 PM	1	127	13	0	12	102	6	0	9	10	7	0	10	12	15	0	324	
4:50 PM	6	51	10	0	6	100	7	0	11	24	5	0	23	24	6	0	273	
4:55 PM	1	61	15	0	10	100	15	0	6	8	5	0	25	15	11	0	272	3263
5:00 PM	2	60	13	0	9	88	15	0	5	15	2	0	7	15	6	0	237	3256
5:05 PM	7	50	12	0	4	62	10	1	7	19	7	0	19	25	9	0	232	3194
5:10 PM	3	76	13	0	6	123	17	0	4	12	3	0	19	11	8	0	295	3220
5:15 PM	8	69	14	0	9	89	10	0	4	16	6	0	32	22	6	0	285	3231
5:20 PM	4	83	11	0	2	120	15	0	10	16	1	0	14	16	7	0	299	3222
5:25 PM	5	62	12	0	11	72	13	0	7	18	2	0	28	16	6	0	252	3228
5:30 PM	4	52	9	0	7	87	13	0	3	25	2	0	18	13	9	0	242	3229
5:35 PM	2	81	8	0	6	110	4	0	4	14	1	0	18	9	4	0	261	3235
5:40 PM	4	47	9	0	6	100	11	0	7	16	2	0	30	21	8	0	261	3233
5:45 PM	4	61	19	0	6	112	8	0	8	20	4	0	8	16	8	0	274	3183
5:50 PM	5	48	10	0	1	72	12	0	5	18	5	0	20	12	9	0	217	3127
5:55 PM	4	43	11	0	8	87	11	0	3	17	5	0	20	13	7	0	229	3084

PEAK 15-MIN FLOW RATES	Northbound				Southbound				Eastbound				Westbound				TOTAL
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	32	956	152	0	112	1208	112	0	104	168	68	0	232	204	128	0	3476
Heavy Trucks	0	44	4		4	44	8		0	4	0		4	4	8		124
Pedestrians		8				4				0				4			16
Bicycles																	
Railroad																	
Stopped Buses																	

Counter Comments:

16285 SW 85th Avenue, Ste. 105
Tigard, OR 97224
Phone: 503-620-4242
Fax: 503 620-4545
email: abellamy@qualitycounts.net
www.qualitycounts.net

Palmquist Queue AM and PM

Queue blocking turn PM		Queue blocking turn AM	
Time		Time	
16:04	1	7:08	1
16:18	1	7:15	1
16:21	1	7:43	1
16:29	1	8:16	1
16:31	1	8:36	1
16:46	1		
16:49	1		
16:58	1		
17:00	1		
17:01	1		
17:06	1		
17:29	2		
17:43	2		
17:48	1		

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email: abellamy@qualitycounts.net
www.qualitycounts.net

US 26 and SE Palmquist Rd West Leg AM

Green Time	Queue @ start of green	Green Time	Queue @ start of green
7:01	8	8:08	1
7:03	5	8:09	5
7:05	5	8:11	2
7:07	10	8:12	5
7:08	5	8:14	10
7:11	5	8:15	1
7:13	6	8:16	4
7:15	9	8:19	5
7:17	5	8:20	2
7:19	13	8:22	2
7:21	11	8:24	2
7:23	10	8:26	8
7:25	3	8:28	5
7:26	8	8:29	2
7:28	2	8:30	6
7:29	2	8:32	5
7:30	2	8:33	2
7:31	6	8:34	0
7:33	3	8:35	2
7:35	6	8:37	7
7:37	6	8:38	2
7:39	9	8:40	5
7:41	7	8:42	3
7:43	2	8:43	3
7:44	6	8:44	2
7:46	2	8:45	6
7:48	2	8:47	2
7:50	12	8:48	4
7:52	9	8:50	4
7:55	7	8:51	1
7:56	5	8:52	5
7:58	16	8:53	1
8:00	14	8:55	3
8:01	5	8:56	2
8:03	6	8:57	1
8:05	7	8:58	4
8:06	2	9:00	1

16285 SW 85th Avenue, Ste. 105
Tigard, OR 97224
Phone: 503-620-4242
Fax: 503 620-4545
email: abellamy@qualitycounts.net
www.qualitycounts.net

US 26 and SE Palmquist Rd West Leg PM

Green Time	Que @ start of green	Green Time	Que @ start of green
16:01	10	17:06	3
16:03	8	17:08	3
16:05	9	17:11	11
16:07	1	17:13	2
16:08	2	17:15	3
16:09	5	17:16	6
16:10	5	17:18	7
16:12	4	17:20	8
16:16	3	17:22	3
16:18	7	17:24	3
16:20	2	17:26	1
16:21	5	17:27	1
16:22	6	17:29	16
16:24	5	17:31	5
16:26	3	17:33	3
16:28	12	17:34	2
16:30	12	17:35	8
16:32	10	17:37	3
16:35	3	17:39	7
16:37	11	17:41	1
16:39	17	17:43	7
16:41	8	17:45	3
16:43	7	17:47	4
16:46	5	17:48	11
16:48	12	17:51	7
16:50	6	17:53	9
16:52	6	17:54	4
16:53	8	17:56	2
16:55	9	17:57	3
16:57	3	17:58	2
16:59	9	17:59	1
17:01	12	18:00	2
17:04	14		

Appendix C
Level-of-Service Worksheets

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday AM Peak Hour

Scenario Report

Scenario:	exam
Command:	exam
Volume:	exam
Geometry:	exam
Impact Fee:	Default Impact Fee
Trip Generation:	null
Trip Distribution:	null
Paths:	null
Routes:	Default Routes
Configuration:	exam

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday AM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 SE Hogan Ave/SE Palmquist Rd	C	20.3	0.693	C	20.3	0.693	+ 0.000 D/V
# 4 SE Fleming/SE Palmquist	D	28.5	0.000	D	28.5	0.000	+ 0.000 D/V
# 5 SE Palmblad Rd/SE Palmquist Rd	C	20.1	0.000	C	20.1	0.000	+ 0.000 D/V
# 6 US 26/SE Palmquist Rd	C	28.1	0.703	C	28.1	0.703	+ 0.000 D/V
# 19 SE Fleming/HS Driveway	B	11.8	0.000	B	11.8	0.000	+ 0.000 D/V
# 21 Fleming/North Elem School Dwy	B	10.9	0.000	B	10.9	0.000	+ 0.000 D/V
# 23 Fleming/Middle Elem School Dwy	A	9.1	0.000	A	9.1	0.000	+ 0.000 D/V
# 24 Fleming/South Elem School Dwy	A	8.3	0.000	A	8.3	0.000	+ 0.000 D/V

Traffix 7.8.0115 (c) 2007 Dowling Assoc. Licensed to KITTELSON, PORTLAND

```
exam                        Fri Mar 23, 2007 08:22:57                 Page 3-1
------------------------------------------------------------------------------
               Kittelson & Associates, Inc.  --  Project #7670
                   Brickworks Village  --  Gresham, Oregon
              2007 Existing Conditions  --  Weekday AM Peak Hour
------------------------------------------------------------------------------
                     Level Of Service Computation Report
              2000 HCM Operations Method (Base Volume Alternative)
******************************************************************************
Intersection #1 SE Hogan Ave/SE Palmquist Rd
******************************************************************************
Cycle (sec):          70               Critical Vol./Cap.(X):         0.693
Loss Time (sec):      16 (Y+R=4.0 sec) Average Delay (sec/veh):        20.3
Optimal Cycle:        61               Level Of Service:                 C
******************************************************************************
Street Name:           SE Hogan Ave                 SE Palmquist Rd
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Prot+Permit      Prot+Permit      Prot+Permit      Prot+Permit
Rights:           Include          Include          Include          Include
Min. Green:     0    0    0     0    0    0     0    0    0     0    0    0
Lanes:        1  0  1  0  1    1  0  1  0  1    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 8 Dec 2005 << 7:15 - 8:15 a.m.
Base Vol:      14  347  101    89  195   21    68   61   10   113   51  135
Growth Adj:  1.14 1.14 1.14  1.14 1.14 1.14  1.14 1.14 1.14  1.14 1.14 1.14
Initial Bse:   16  396  115   101  222   24    78   70   11   129   58  154
User Adj:    1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Adj:     0.88 0.88 0.88  0.88 0.88 0.88  0.88 0.88 0.88  0.88 0.88 0.88
PHF Volume:    18  450  131   115  253   27    88   79   13   146   66  175
Reduct Vol:     0    0    0     0    0    0     0    0    0     0    0    0
Reduced Vol:   18  450  131   115  253   27    88   79   13   146   66  175
PCE Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
MLF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Final Vol.:    18  450  131   115  253   27    88   79   13   146   66  175
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900 1900  1900 1900 1900  1900 1900 1900
Adjustment:  0.85 0.90  0.76  0.88 0.93 0.79  0.90 0.92 0.92  0.90 0.84 0.84
Lanes:       1.00 1.00  1.00  1.00 1.00 1.00  1.00 0.86 0.14  1.00 0.27 0.73
Final Sat.:  1622 1707  1451  1671 1759 1495  1702 1507  247  1702  438 1159
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.26  0.09  0.07 0.14 0.02  0.05 0.05 0.05  0.09 0.15 0.15
Crit Moves:       ****        ****            ****                 ****
Green/Cycle: 0.41 0.38  0.38  0.54 0.44 0.44  0.19 0.11 0.11  0.35 0.22 0.22
Volume/Cap:  0.04 0.69  0.24  0.31 0.32 0.04  0.36 0.47 0.47  0.32 0.69 0.69
Delay/Veh:   12.2 21.5  15.0  10.3 12.9 11.0  25.4 31.0 31.0  16.7 31.2 31.2
User DelAdj: 1.00 1.00  1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
AdjDel/Veh:  12.2 21.5  15.0  10.3 12.9 11.0  25.4 31.0 31.0  16.7 31.2 31.2
LOS by Move:   B    C     B     B    B    B     C    C    C     B    C    C
HCM2kAvgQ:     0    9     2     2    4    0     2    3    3     3    6    6
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
```



```
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------------------------------------------------------------------------------
               Kittelson & Associates, Inc.  --  Project #7670
                   Brickworks Village  --  Gresham, Oregon
              2007 Existing Conditions  --  Weekday AM Peak Hour
------------------------------------------------------------------------------
                  Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
******************************************************************************
Intersection #1 SE Hogan Ave/SE Palmquist Rd
******************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  1  0  1    1  0  1  0  1    1  0  0  1  0    1  0  0  1  0
Lane Group:    L    T    R     L    T    R     L   RT    RT    L   RT    RT
#LnsInGrps:     1    1    1     1    1    1     1    1    1     1    1    1
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12   12    12   12   12    12   12   12    12   12   12
CrosswalkWid          8              8              8              8
% Hev Veh:            9              8              6              6
Grade:               +4%             0%             0%             0%
Parking/Hr:           No             No             No             No
Bus Stp/Hr:            0              0              0              0
Area Type:    < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >
Cnft Ped/Hr:           0              0              0              0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:            0              0              0              0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:      1 xxxx  xxxx     1 xxxx  xxxx     1 xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Hev Veh Adj: 0.92 0.92  0.92  0.93 0.93  0.93  0.94 0.94  0.94  0.94 0.94  0.94
Grade Adj:   0.98 0.98  0.98  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Parking Adj: xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Bus Stp Adj: xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Area Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
RT Adj:      xxxx xxxx  0.85  xxxx xxxx  0.85  xxxx 0.98  0.98  xxxx 0.89  0.89
LT Adj:      0.95 xxxx xxxxx  0.95 xxxx xxxxx  0.95 xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.85 0.90  0.76  0.88 0.93  0.79  0.90 0.92  0.92  0.90 0.84  0.84
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.85 0.90  0.76  0.88 0.93  0.79  0.90 0.92  0.92  0.90 0.84  0.84
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
PrtPermCase:          1              1              1              1
Coordinated:  < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
******************************************************************************
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Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report (Dual Phase Control)
2000 HCM Operations Method
Base Volume Alternative

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L2 -	L1 -	T	L2 -	L1 -	T	L2 -	L1 -	T	L2 -	L1 -	T
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
HCM Ops f(rt) and f(lt) Adj Case Module:												
f(rt) Case:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	5	xxxx	xxxx	5
f(lt) Case:	2	1	xxxx	2	1	xxxx	2	1	xxxx	2	1	xxxx
HCM Ops Saturation Adj Module:												
Ln Wid Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hev Veh Adj:	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94	0.94	0.94	0.94
Grade Adj:	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	xxxx	xxxx	1.00
Bus Stp Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	xxxx	xxxx	1.00
Area Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RT Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	0.98	xxxx	xxxx	0.89
LT Adj:	0.60	0.95	xxxxx	0.26	0.95	xxxxx	0.60	0.95	xxxxx	0.50	0.95	xxxxx
HCM Sat Adj:	0.54	0.85	0.90	0.24	0.88	0.93	0.57	0.90	0.92	0.47	0.90	0.84
Usr Sat Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Sat Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fnl Sat Adj:	0.54	0.85	0.90	0.24	0.88	0.93	0.57	0.90	0.92	0.47	0.90	0.84
Volume Module:												
Volume:	0	18	450	0	115	253	0	88	79	0	146	66
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.54	0.85	0.90	0.24	0.88	0.93	0.57	0.90	0.92	0.47	0.90	0.84
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.27
Final Sat.:	1017	1622	1707	463	1671	1759	1078	1702	1507	891	1702	438
Capacity Analysis Module:												
Vol/Sat:	0.00	0.01	0.26	0.00	0.07	0.14	0.00	0.05	0.05	0.00	0.09	0.15
Crit Moves:			****		****			****				****
Green/Cycle:	0.38	0.03	0.38	0.44	0.10	0.44	0.11	0.07	0.11	0.17	0.18	0.22
Volume/Cap:	0.00	0.32	0.69	0.00	0.69	0.32	0.00	0.70	0.47	0.00	0.47	0.69

Note: L2 = Permitted Left, L1 = Protected Left, T = Thru

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
2000 HCM Operations Method
Base Volume Alternative

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Approach:	North	South	East	West
Cycle Length, C:	70	70	70	70
Actual Green Time Per Lane Group, G:	29.00	37.54	12.97	24.46
Effective Green Time Per Lane Group, g:	26.58	30.58	7.75	11.75
Opposing Effective Green Time, go:	31.12	26.58	15.24	7.75
Number Of Opposing Lanes, No:	1	1	1	1
Number Of Lanes In Lane Group, N:	1	1	1	1
Adjusted Left-Turn Flow Rate, Vlt:	18	115	88	146
Proportion of Left Turns in Lane Group, Plt:	1.00	1.00	1.00	1.00
Proportion of Left Turns in Opp Flow, Plto:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Left Turns Per Cycle, LTC:	0.35	2.24	1.71	2.85
Adjusted Opposing Flow Rate, Vo:	253	450	241	92
Opposing Flow Per Lane Per Cycle, Volc:	4.92	8.75	4.69	1.79
Opposing Platoon Ratio, Rpo:	1.00	1.00	1.00	1.00
Lost Time Per Phase, tl:	4.00	0.00	4.00	0.00
Eff grn until arrival of left-turn car, gf:	0.00	0.00	0.00	0.00
Opposing Queue Ratio, qro:	0.56	0.62	0.78	0.89
Eff grn blocked by opposing queue, gq:	0.00	14.47	0.00	3.35
Eff grn while left turns filter thru, gu:	26.58	16.11	7.75	8.40
Max opposing cars arriving during gq-gf, n:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Proportion of Opposing Thru & RT cars, ptho:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Left-turn Saturation Factor, fs:	0.72	0.59	0.72	0.82
Proportion of Left Turns in Shared Lane, pl:	1.00	1.00	1.00	1.00
Through-car Equivalents, el1:	1.68	2.00	1.66	1.44
Single Lane Through-car Equivalents, el2:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Minimum Left Turn Adjustment Factor, fmin:	0.15	0.13	0.52	0.34
Single Lane Left Turn Adjustment Factor, fm:	0.60	0.26	0.60	0.50
Left Turn Adjustment Factor, flt:	0.60	0.26	0.60	0.50

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report (HCM2000 Queue Method)
2000 HCM Operations Method
Base Volume Alternative

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Green/Cycle:	0.03	0.38	0.38	0.10	0.44	0.44	0.07	0.11	0.11	0.18	0.22	0.22
ArrivalType:		3			3			3			3	
ProgFactor:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1:	0.2	7.4	1.7	1.2	3.2	0.3	1.5	1.7	1.7	2.1	4.3	4.3
UpstreamVC:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UpstreamAdj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EarlyArrAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q2:	0.0	2.1	0.3	0.4	0.5	0.0	0.5	0.8	0.8	0.5	2.0	2.0
HCM2KQueue:	0.3	9.4	2.0	1.7	3.7	0.3	2.0	2.5	2.5	2.5	6.3	6.3
70th%Factor:	1.20	1.18	1.20	1.20	1.19	1.20	1.20	1.19	1.19	1.19	1.19	1.19
70th%HCM2kQ:	0.3	11.1	2.4	2.0	4.4	0.4	2.4	3.0	3.0	3.0	7.5	7.5
85th%Factor:	1.60	1.52	1.58	1.58	1.57	1.60	1.58	1.58	1.58	1.58	1.54	1.54
85th%HCM2kQ:	0.4	14.3	3.2	2.7	5.7	0.5	3.2	4.0	4.0	4.0	9.7	9.7
90th%Factor:	1.79	1.65	1.76	1.77	1.73	1.79	1.76	1.75	1.75	1.75	1.69	1.69
90th%HCM2kQ:	0.5	15.6	3.6	3.0	6.3	0.6	3.6	4.4	4.4	4.5	10.6	10.6
95th%Factor:	2.09	1.86	2.04	2.05	1.99	2.09	2.04	2.02	2.02	2.02	1.92	1.92
95th%HCM2kQ:	0.5	17.5	4.2	3.5	7.3	0.7	4.1	5.1	5.1	5.1	12.1	12.1
98th%Factor:	2.68	2.18	2.55	2.58	2.45	2.67	2.56	2.52	2.52	2.52	2.32	2.32
98th%HCM2kQ:	0.7	20.6	5.2	4.4	9.0	0.9	5.2	6.4	6.4	6.4	14.6	14.6

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 SE Fleming/SE Palmquist

Average Delay (sec/veh): 6.9 Worst Case Level Of Service: D[28.5]

Street Name:	SE Fleming Ave									SE Palmquist Rd					
Approach:	North Bound			South Bound			East Bound			West Bound					
Movement:	L	T	R	L	T	R	L	T	R	L	T	R			
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled					
Rights:	Include			Include			Include			Include					
Lanes:	0	0	1! 0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
Volume Module: >> Count Date: 8 Dec 2005 << 7:15 - 8:15 a.m.																	
Base Vol:	95	0	75	0	0	0	0	150	115	130	240	0					
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.14	1.00	1.00	1.14	1.00					
Initial Bse:	95	0	75	0	0	0	0	171	115	130	274	0					
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00					
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80					
PHF Volume:	119	0	94	0	0	0	0	214	144	163	342	0					
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0					
Final Vol.:	119	0	94	0	0	0	0	214	144	163	342	0					
Critical Gap Module:																	
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx					
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx					
Capacity Module:																	
Cnflict Vol:	953	953	286	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	358	xxxx	xxxxx					
Potent Cap.:	288	259	753	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1190	xxxx	xxxxx					
Move Cap.:	254	220	753	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1190	xxxx	xxxxx					
Volume/Cap:	0.47	0.00	0.12	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.14	xxxx	xxxx					
Level Of Service Module:																	
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.5	xxxx	xxxxx					
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.5	xxxx	xxxxx					
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*					
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT					
Shared Cap.:	xxxx	360	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx					
SharedQueue:	xxxxx	3.6	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.5	xxxx	xxxxx					
Shrd ConDel:	xxxxx	28.5	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.5	xxxx	xxxxx					
Shared LOS:	*	D	*	*	*	*	*	*	*	A	*	*					
ApproachDel:	28.5			xxxxxx			xxxxxx			xxxxxx					
ApproachLOS:	D			*			*			*					

Note: Queue reported is the number of cars per lane.

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------------------------------------------------------------------------------
               Kittelson & Associates, Inc.  --  Project #7670
                   Brickworks Village  --  Gresham, Oregon
              2007 Existing Conditions  --  Weekday AM Peak Hour
------------------------------------------------------------------------------
                  Level Of Service Detailed Computation Report
                          2000 HCM Unsignalized Method
                             Base Volume Alternative
******************************************************************************
Intersection #4 SE Fleming/SE Palmquist
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
-----------|---------------|---------------|---------------|---------------|
HevVeh:             2%              0%              8%              4%
Grade:              0%              0%              0%              0%
Peds/Hour:          0               0               0               0
Pedestrian Walk Speed: 4.00 feet/sec
LaneWidth:       12 feet         12 feet         12 feet         12 feet
Time Period: 0.25 hour
-----------|---------------|---------------|---------------|---------------|
Upstream Signals:
Link Index:                                      #68             #18
Dist(miles):                                     0.000           0.000
Speed (mph):                                      0.00            0.00
SignalIndex:                                     #1              #6
Cycle Time:                                          0 secs          0 secs
InitVolume:                                   0     0         0     0
Saturation:                                   0     0         0     0
ArrivalType:                                  0     0         0     0
G/C:                                       0.00  0.00      0.00  0.00
*** Computation 1: Time for Queue to Clear at Each Upstream Intersection
P:                                         0.000 0.000     0.000 0.000
gq1:                                       0.00  0.00      0.00  0.00
gq2:                                       0.00  0.00      0.00  0.00
gq:                                        0.00  0.00      0.00  0.00
*** Computation 2: Time Intersection Blocked Because of Upstream Platoons
alpha:                                           0.000           0.000
beta:                                            0.000           0.000
ta (secs):                                       0.000           0.000
F:                                               0.000           0.000
f:                                         0.000 0.000     0.000 0.000
vcmax:                                        0     0         0     0
vcg:                                          0     0         0     0
vcmin:                                        0     0         0     0
tp:                                         0.0   0.0       0.0   0.0
p:                                               0.000           0.000
*** Computation 3: Platoon Event Periods
pdom/psubo:                                        0.000/0.000/Unconstrained
*** Computation 4: Conflicting Flows During Each Unblocked Period
InitCnflVol: 953   953   286 1000  1025   342    0 xxxxx xxxxx  358 xxxxx xxxxx
UpstreamAdj:1.00 1.000 1.000 1.00 1.000 1.000 1.00 x.xxx x.xxx 1.00 x.xxx x.xxx
ConflictVol: 953   953   286 1000  1025   342    0 xxxxx xxxxx  358 xxxxx xxxxx
*** Computation 5: Capactiy for Subject Movement During Unblocked Period
InitPotCap:  288   259   753  224   237   705  900 xxxxx xxxxx 1190 xxxxx xxxxx
UpstreamAdj:1.00 1.000 1.000 1.00 1.000 1.000 1.00 x.xxx x.xxx 1.00 x.xxx x.xxx
PotentCap:   288   259   753  224   237   705  900 xxxxx xxxxx 1190 xxxxx xxxxx

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------------------------------------------------------------------------------
               Kittelson & Associates, Inc.  --  Project #7670
                   Brickworks Village  --  Gresham, Oregon
              2007 Existing Conditions  --  Weekday AM Peak Hour
------------------------------------------------------------------------------
                     Level Of Service Computation Report
              2000 HCM Unsignalized Method (Base Volume Alternative)
******************************************************************************
Intersection #5 SE Palmblad Rd/SE Palmquist Rd
******************************************************************************
Average Delay (sec/veh):      6.4       Worst Case Level Of Service: C[ 20.1]
******************************************************************************
Street Name:          SE Palmblad Rd                  SE Palmquist Rd
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
-----------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:       0  0  1! 0  0    0  0  0  0  0    0  0  0  1  0    0  1  0  0  0
-----------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 8 Dec 2005 << 7:15 - 8:15 a.m.
Base Vol:     120    0   107     0    0     0     0  187    54    36  201     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.14  1.00  1.00 1.14  1.00
Initial Bse:  120    0   107     0    0     0     0  213    54    36  229     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.80 0.80  0.80  0.80 0.80  0.80  0.80 0.80  0.80  0.80 0.80  0.80
PHF Volume:   150    0   134     0    0     0     0  266    68    45  286     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:   150    0   134     0    0     0     0  266    68    45  286     0
-----------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  6.4  6.5   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
-----------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  677  677   300  xxxx xxxx xxxxx  xxxx xxxx xxxxx   334 xxxx xxxxx
Potent Cap.:  420  376   742  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1220 xxxx xxxxx
Move Cap.:    408  362   742  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1220 xxxx xxxxx
Volume/Cap:  0.37 0.00  0.18  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.04 xxxx  xxxx
-----------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.1 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.1 xxxx xxxxx
LOS by Move:   *    *     *     *    *     *     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  518 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  3.3 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.1 xxxx xxxxx
Shrd ConDel:xxxxx 20.1 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.1 xxxx xxxxx
Shared LOS:    *    C     *     *    *     *     *    *     *     A    *     *
ApproachDel:      20.1           xxxxxx           xxxxxx           xxxxxx
ApproachLOS:       C               *                *                *
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************

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Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #5 SE Palmblad Rd/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	1%			0%			3%			3%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		

Pedestrian Walk Speed: 4.00 feet/sec

LaneWidth:	12 feet	12 feet	12 feet	12 feet
Time Period: 0.25 hour				

Upstream Signals:												
Link Index:					#68			#18				
Dist(miles):					0.000			0.000				
Speed (mph):					0.00			0.00				
SignalIndex:					#1			#6				
Cycle Time:					0 secs			0 secs				
InitVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Saturation:	0	0	0	0	0	0	0	0	0	0	0	0
ArrivalType:	0	0	0	0	0	0	0	0	0	0	0	0
G/C:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
*** Computation 1: Time for Queue to Clear at Each Upstream Intersection												
P:	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
gq1:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
gq2:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
gq:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
*** Computation 2: Time Intersection Blocked Because of Upstream Platoons												
alpha:					0.000			0.000				
beta:					0.000			0.000				
ta (secs):					0.000			0.000				
F:					0.000			0.000				
f:	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
vcmax:	0	0	0	0	0	0	0	0	0	0	0	0
vcg:	0	0	0	0	0	0	0	0	0	0	0	0
vcmin:	0	0	0	0	0	0	0	0	0	0	0	0
tp:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
p:					0.000			0.000				
*** Computation 3: Platoon Event Periods												
pdom/psubo:					0.000/0.000/Unconstrained							
*** Computation 4: Conflicting Flows During Each Unblocked Period												
InitCnflVol:	677	677	300	744	710	286	0	xxxxx	xxxxx	334	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
ConflictVol:	677	677	300	744	710	286	0	xxxxx	xxxxx	334	xxxxx	xxxxx
*** Computation 5: Capactiy for Subject Movement During Unblocked Period												
InitPotCap:	420	376	742	333	361	757	900	xxxxx	xxxxx	1220	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
PotentCap:	420	376	742	333	361	757	900	xxxxx	xxxxx	1220	xxxxx	xxxxx

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Base Volume Alternative)

Intersection #6 US 26/SE Palmquist Rd

Cycle (sec):	100	Critical Vol./Cap.(X):	0.703
Loss Time (sec):	16 (Y+R=4.0 sec)	Average Delay (sec/veh):	28.1
Optimal Cycle:	69	Level Of Service:	C

Street Name:	US 26/Mount Hood Hwy						SE Palmquist Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ignore			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 2	0 1	1	0 2	0 1	1	0 0	1 0	2	0 1	0 1
Volume Module: >> Count Date: 16 Feb 2006 << 7:15 - 8:15 a.m.												
Base Vol:	30	1070	125	75	585	60	105	185	40	55	155	140
Growth Adj:	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12
Initial Bse:	34	1198	140	84	655	67	118	207	45	62	174	157
User Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.00	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	36	1275	0	89	697	71	125	220	48	66	185	167
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	36	1275	0	89	697	71	125	220	48	66	185	167
PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	36	1275	0	89	697	71	125	220	48	66	185	167
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	1.00	0.88	0.88	0.79	0.87	0.89	0.89	0.91	0.99	0.84
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	0.82	0.18	2.00	1.00	1.00
Final Sat.:	1753	3505	1900	1671	3343	1495	1655	1393	301	3468	1882	1600
Capacity Analysis Module:												
Vol/Sat:	0.02	0.36	0.00	0.05	0.21	0.05	0.08	0.16	0.16	0.02	0.10	0.10
Crit Moves:		****			****			****			****	
Green/Cycle:	0.05	0.52	0.00	0.08	0.54	0.54	0.11	0.22	0.22	0.03	0.14	0.14
Volume/Cap:	0.39	0.70	0.00	0.70	0.39	0.09	0.70	0.72	0.72	0.72	0.70	0.75
Delay/Veh:	48.5	19.6	0.0	61.4	13.5	11.2	55.1	42.6	42.6	72.0	49.4	54.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	48.5	19.6	0.0	61.4	13.5	11.2	55.1	42.6	42.6	72.0	49.4	54.3
LOS by Move:	D	B	A	E	B	B	E	D	D	E	D	D
HCM2kAvgQ:	2	16	0	4	7	1	5	9	9	2	7	7

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Operations Method
Base Volume Alternative

Intersection #6 US 26/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HCM Ops Adjusted Lane Utilization Module:												
Lanes:	1 0	2 0	1	1 0	2 0	1	1 0	0 1	0	2 0	1 0	1
Lane Group:	L	T	R	L	T	R	L	RT	RT	L	T	R
#LnsInGrps:	1	2	1	1	2	1	1	1	1	2	1	1
HCM Ops Input Saturation Adj Module:												
Lane Width:	12	12	12	12	12	12	12	12	12	12	12	12
CrosswalkWid		8			8			8			8	
% Hev Veh:		3			8			8			3	
Grade:		0%			0%			+2%			-4%	
Parking/Hr:		No			No			No			No	
Bus Stp/Hr:		0			0			0			0	
Area Type:	< < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >											
Cnft Ped/Hr:		0			0			0			0	
ExclusiveRT:		Include			Include			Include			Include	
% RT Prtct:		0			0			0			0	
HCM Ops f(lt) Adj Case Module:												
f(lt) Case:	1	xxxx	xxxx	1	xxxx	xxxx	1	xxxx	xxxx	1	xxxx	xxxx
HCM Ops Saturation Adj Module:												
Ln Wid Adj:	1.00	1.00	xxxxx	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hev Veh Adj:	0.97	0.97	xxxxx	0.93	0.93	0.93	0.93	0.93	0.93	0.97	0.97	0.97
Grade Adj:	1.00	1.00	xxxxx	1.00	1.00	1.00	0.99	0.99	0.99	1.02	1.02	1.02
Parking Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	xxxx	1.00	1.00	xxxx	xxxx	1.00
Bus Stp Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	xxxx	1.00	1.00	xxxx	xxxx	1.00
Area Adj:	1.00	1.00	xxxxx	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RT Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	0.85	xxxx	0.97	0.97	xxxx	xxxx	0.85
LT Adj:	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx
PedBike Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
HCM Sat Adj:	0.92	0.97	1.00	0.88	0.93	0.79	0.87	0.89	0.89	0.94	0.99	0.84
Usr Sat Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Sat Adj:	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Fnl Sat Adj:	0.92	0.92	1.00	0.88	0.88	0.79	0.87	0.89	0.89	0.91	0.99	0.84
Delay Adjustment Factor Module:												
Coordinated:	< < < < < < < < < < < < < < < No > > > > > > > > > > > > > > >											
Signal Type:	< < < < < < < < < < < < < Actuated > > > > > > > > > > > > >											
DelAdjFctr:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report (HCM2000 Queue Method)
2000 HCM Operations Method
Base Volume Alternative

Intersection #6 US 26/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Green/Cycle:	0.05	0.52	0.00	0.08	0.54	0.54	0.11	0.22	0.22	0.03	0.14	0.14
ArrivalType:		3			3			3			3	
ProgFactor:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1:	1.0	14.1	0.0	2.4	5.9	1.0	3.4	6.9	6.9	0.9	4.9	4.5
UpstreamVC:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UpstreamAdj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EarlyArrAdj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q2:	0.6	2.2	0.0	1.7	0.6	0.1	1.9	2.2	2.2	1.4	2.0	2.2
HCM2KQueue:	1.5	16.4	0.0	4.2	6.5	1.1	5.2	9.1	9.1	2.3	6.9	6.7
70th%Factor:	1.20	1.17	1.20	1.19	1.18	1.20	1.19	1.18	1.18	1.19	1.18	1.18
70th%HCM2kQ:	1.8	19.1	0.0	4.9	7.8	1.3	6.2	10.7	10.7	2.8	8.1	7.9
85th%Factor:	1.58	1.47	1.60	1.56	1.54	1.59	1.55	1.52	1.52	1.58	1.54	1.54
85th%HCM2kQ:	2.4	24.1	0.0	6.5	10.1	1.7	8.1	13.8	13.8	3.7	10.6	10.3
90th%Factor:	1.77	1.58	1.80	1.72	1.69	1.78	1.71	1.65	1.65	1.76	1.68	1.69
90th%HCM2kQ:	2.7	25.8	0.0	7.2	11.0	1.9	8.9	15.0	15.0	4.1	11.6	11.3
95th%Factor:	2.05	1.74	2.10	1.98	1.92	2.07	1.95	1.86	1.86	2.03	1.91	1.91
95th%HCM2kQ:	3.2	28.5	0.0	8.2	12.5	2.2	10.2	16.9	16.9	4.7	13.1	12.8
98th%Factor:	2.59	1.98	2.70	2.43	2.30	2.62	2.37	2.20	2.20	2.54	2.29	2.30
98th%HCM2kQ:	4.0	32.5	0.0	10.1	15.1	2.8	12.3	19.9	19.9	5.9	15.7	15.4

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #19 SE Fleming/HS Driveway

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: B[11.8]

Street Name:	SE Fleming Ave						High School Driveway					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1	0	0	0 1	0	0 0	0 0	0	0 0	0 0	1! 0	0
Volume Module: 7:15 - 8:15 a.m.												
Base Vol:	0	170	0	15	230	0	0	0	0	1	0	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	170	0	15	230	0	0	0	0	1	0	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	0	213	0	19	288	0	0	0	0	1	0	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	213	0	19	288	0	0	0	0	1	0	1
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.9	7.0	6.7
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.0	4.5	3.8
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	213	xxxx	xxxxx	xxxx	xxxx	xxxxx	538	538	213
Potent Cap.:	xxxx	xxxx	xxxxx	1352	xxxx	xxxxx	xxxx	xxxx	xxxxx	431	389	721
Move Cap.:	xxxx	xxxx	xxxxx	1352	xxxx	xxxxx	xxxx	xxxx	xxxxx	426	384	721
Volume/Cap:	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	xxxx	xxxx	xxxx	0.00	0.00	0.00
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	535	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.0	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	11.8	xxxxx
Shared LOS:	*	*	*	A	*	*	*	*	*	B	*	
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			11.8		
ApproachLOS:	*			*			*			B		

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #19 SE Fleming/HS Driveway

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	4%			3%			0%			50%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #21 Fleming/North Elem School Dwy

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: B[10.9]

Street Name:	SE Fleming Ave						North Elem School Dwy					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1	0	0	0 1	0	0 0	0 0	0	0 0	0 0	1! 0	0
Volume Module: 7:15 - 8:15 a.m.												
Base Vol:	0	160	0	30	200	0	0	0	0	2	0	10
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	160	0	30	200	0	0	0	0	2	0	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	0	200	0	38	250	0	0	0	0	3	0	13
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	200	0	38	250	0	0	0	0	3	0	13
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.1	7.2	6.9
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	4.6	3.9
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	200	xxxx	xxxxx	xxxx	xxxx	xxxxx	525	525	200
Potent Cap.:	xxxx	xxxx	xxxxx	1360	xxxx	xxxxx	xxxx	xxxx	xxxxx	412	374	695
Move Cap.:	xxxx	xxxx	xxxxx	1360	xxxx	xxxxx	xxxx	xxxx	xxxxx	403	364	695
Volume/Cap:	xxxx	xxxx	xxxx	0.03	xxxx	xxxx	xxxx	xxxx	xxxx	0.01	0.00	0.02
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	620	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	10.9	xxxxx
Shared LOS:	*	*	*	A	*	*	*	*	*	*	B	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			10.9		
ApproachLOS:	*			*			*			B		

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #21 Fleming/North Elem School Dwy

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	1%			4%			0%			70%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #23 Fleming/Middle Elem School Dwy

Average Delay (sec/veh): 4.2 Worst Case Level Of Service: A[9.1]

Street Name:	SE Fleming Ave						Middle Elem School Dwy					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1	0	0	0 1	0	0 0	0 0	0	0 0	0 0	0	1
Volume Module: 7:15 - 8:15 a.m.												
Base Vol:	0	10	0	20	180	0	0	0	0	0	0	150
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	10	0	20	180	0	0	0	0	0	0	150
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	0	13	0	25	225	0	0	0	0	0	0	188
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	13	0	25	225	0	0	0	0	0	0	188
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	13	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	13
Potent Cap.:	xxxx	xxxx	xxxxx	1613	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1074
Move Cap.:	xxxx	xxxx	xxxxx	1613	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1074
Volume/Cap:	xxxx	xxxx	xxxx	0.02	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.17
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	0.6
Control Del:	xxxxx	xxxx	xxxxx	7.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	9.1
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	A
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	7.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	A	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			9.1		
ApproachLOS:	*			*			*			A		

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #23 Fleming/Middle Elem School Dwy

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	1%			1%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #24 Fleming/South Elem School Dwy

Average Delay (sec/veh): 7.4 Worst Case Level Of Service: A[8.3]

Street Name:	SE Fleming Ave						South Elem School Dwy					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1	0	0	0 1	0	0 0	0 0	0	0 0	0 0	0	1
Volume Module: 7:15 - 8:15 a.m.												
Base Vol:	0	1	0	175	5	0	0	0	0	0	0	10
Growth Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
Initial Bse:	0	1	0	175	5	0	0	0	0	0	0	10
User Adj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
PHF Adj:	0.80 0.80	0.80		0.80 0.80	0.80		0.80 0.80	0.80		0.80 0.80	0.80	
PHF Volume:	0	1	0	219	6	0	0	0	0	0	0	13
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	1	0	219	6	0	0	0	0	0	0	13
Critical Gap Module:												
Critical Gp:	xxxxx xxxx xxxxx			4.1 xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx xxxx		6.2
FollowUpTim:	xxxxx xxxx xxxxx			2.2 xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx xxxx		3.3
Capacity Module:												
Cnflict Vol:	xxxx xxxx xxxxx			1 xxxx xxxxx			xxxx xxxx xxxxx			xxxx xxxx		1
Potent Cap.:	xxxx xxxx xxxxx			1628 xxxx xxxxx			xxxx xxxx xxxxx			xxxx xxxx		1089
Move Cap.:	xxxx xxxx xxxxx			1628 xxxx xxxxx			xxxx xxxx xxxxx			xxxx xxxx		1089
Volume/Cap:	xxxx xxxx	xxxx		0.13 xxxx	xxxx		xxxx xxxx	xxxx		xxxx xxxx		0.01
Level Of Service Module:												
2Way95thQ:	xxxx xxxx xxxxx			0.5 xxxx xxxxx			xxxx xxxx xxxxx			xxxx xxxx		0.0
Control Del:	xxxxx xxxx xxxxx			7.6 xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx xxxx		8.3
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	A
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx xxxx xxxxx			xxxx xxxx xxxxx			xxxx xxxx xxxxx			xxxx xxxx xxxxx		
SharedQueue:	xxxxx xxxx xxxxx			0.5 xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx xxxx xxxxx		
Shrd ConDel:	xxxxx xxxx xxxxx			7.6 xxxx xxxxx			xxxxx xxxx xxxxx			xxxxx xxxx xxxxx		
Shared LOS:	*	*	*	A	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			8.3		
ApproachLOS:	*			*			*			A		

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Base Volume Alternative

Intersection #24 Fleming/South Elem School Dwy

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	1%			1%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday PM Peak Hour

Scenario Report

Scenario:	expm
Command:	expm
Volume:	expm
Geometry:	expm
Impact Fee:	Default Impact Fee
Trip Generation:	null
Trip Distribution:	null
Paths:	null
Routes:	Default Routes
Configuration:	expm

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday PM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 SE Hogan Ave/SE Palmquist Rd	B	18.5	0.631	B	18.5	0.631	+ 0.000 D/V
# 4 SE Fleming/SE Palmquist	C	15.2	0.000	C	15.2	0.000	+ 0.000 D/V
# 5 SE Palmblad Rd/SE Palmquist Rd	C	19.4	0.000	C	19.4	0.000	+ 0.000 D/V
# 6 US 26/SE Palmquist Rd	C	31.6	0.670	C	31.6	0.670	+ 0.000 D/V

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------------------------------------------------------------------------------
               Kittelson & Associates, Inc.  --  Project #7670
                   Brickworks Village  --  Gresham, Oregon
              2007 Existing Conditions  --  Weekday PM Peak Hour
------------------------------------------------------------------------------
                     Level Of Service Computation Report
              2000 HCM Operations Method (Base Volume Alternative)
******************************************************************************
Intersection #1 SE Hogan Ave/SE Palmquist Rd
******************************************************************************
Cycle (sec):          70               Critical Vol./Cap.(X):         0.631
Loss Time (sec):      16 (Y+R=4.0 sec) Average Delay (sec/veh):        18.5
Optimal Cycle:        55               Level Of Service:                 B
******************************************************************************
Street Name:           SE Hogan Ave                 SE Palmquist Rd
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Prot+Permit      Prot+Permit      Prot+Permit      Prot+Permit
Rights:           Include          Include          Include          Include
Min. Green:     0    0    0     0    0    0     0    0    0     0    0    0
Lanes:        1  0  1  0  1    1  0  1  0  1    1  0  0  1  0    1  0  0  1  0
------------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 15 Mar 2007 << 4:00 - 5:00 p.m.
Base Vol:      14  405  147   115  321   83    59   92   34   118   99  127
Growth Adj:  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Initial Bse:   14  405  147   115  321   83    59   92   34   118   99  127
User Adj:    1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
PHF Adj:     0.93 0.93 0.93  0.93 0.93 0.93  0.93 0.93 0.93  0.93 0.93 0.93
PHF Volume:    15  435  158   124  345   89    63   99   37   127  106  137
Reduct Vol:     0    0    0     0    0    0     0    0    0     0    0    0
Reduced Vol:   15  435  158   124  345   89    63   99   37   127  106  137
PCE Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
MLF Adj:     1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
Final Vol.:    15  435  158   124  345   89    63   99   37   127  106  137
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900 1900  1900 1900 1900  1900 1900 1900
Adjustment:  0.91 0.96  0.82  0.93 0.98 0.83  0.94 0.95 0.95  0.93 0.90 0.90
Lanes:       1.00 1.00  1.00  1.00 1.00 1.00  1.00 0.73 0.27  1.00 0.44 0.56
Final Sat.:  1734 1825  1551  1769 1862 1583  1787 1318  487  1769  747  958
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.01 0.24  0.10  0.07 0.19 0.06  0.04 0.08 0.08  0.07 0.14 0.14
Crit Moves:       ****        ****             ****                 ****
Green/Cycle: 0.40 0.38  0.38  0.55 0.47 0.47  0.20 0.14 0.14  0.34 0.23 0.23
Volume/Cap:  0.04 0.63  0.27  0.29 0.40 0.12  0.24 0.52 0.52  0.31 0.63 0.63
Delay/Veh:   12.7 19.7  15.3   9.7 12.5 10.6  23.7 29.6 29.6  17.1 27.8 27.8
User DelAdj: 1.00 1.00  1.00  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00 1.00
AdjDel/Veh:  12.7 19.7  15.3   9.7 12.5 10.6  23.7 29.6 29.6  17.1 27.8 27.8
LOS by Move:   B    B     B     A    B    B     C    C    C     B    C    C
HCM2kAvgQ:     0    9     2     2    5    1     1    3    3     2    6    6
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
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------------------------------------------------------------------------------
               Kittelson & Associates, Inc.  --  Project #7670
                   Brickworks Village  --  Gresham, Oregon
              2007 Existing Conditions  --  Weekday PM Peak Hour
------------------------------------------------------------------------------
                  Level Of Service Detailed Computation Report
                          2000 HCM Operations Method
                            Base Volume Alternative
******************************************************************************
Intersection #1 SE Hogan Ave/SE Palmquist Rd
******************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HCM Ops Adjusted Lane Utilization Module:
Lanes:        1  0  1  0  1    1  0  1  0  1    1  0  0  1  0    1  0  0  1  0
Lane Group:    L    T    R     L    T    R     L   RT    RT    L   RT    RT
#LnsInGrps:     1    1    1     1    1    1     1    1    1     1    1    1
------------|---------------||---------------||---------------||---------------|
HCM Ops Input Saturation Adj Module:
Lane Width:    12   12   12    12   12   12    12   12   12    12   12   12
CrosswalkWid          8              8              8              8
% Hev Veh:            2              2              1              2
Grade:               +4%            0%             0%             0%
Parking/Hr:           No             No             No             No
Bus Stp/Hr:           0              0              0              0
Area Type:    < < < < < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > > > > >
Cnft Ped/Hr:          0              0              0              0
ExclusiveRT:     Include          Include          Include          Include
% RT Prtct:           0              0              0              0
------------|---------------||---------------||---------------||---------------|
HCM Ops f(lt) Adj Case Module:
f(lt) Case:      1 xxxx  xxxx     1 xxxx  xxxx     1 xxxx  xxxx     1 xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
HCM Ops Saturation Adj Module:
Ln Wid Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Hev Veh Adj: 0.98 0.98  0.98  0.98 0.98  0.98  0.99 0.99  0.99  0.98 0.98  0.98
Grade Adj:   0.98 0.98  0.98  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Parking Adj: xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Bus Stp Adj: xxxx xxxx  1.00  xxxx xxxx  1.00  xxxx 1.00  1.00  xxxx 1.00  1.00
Area Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
RT Adj:      xxxx xxxx  0.85  xxxx xxxx  0.85  xxxx 0.96  0.96  xxxx 0.92  0.92
LT Adj:      0.95 xxxx xxxxx  0.95 xxxx xxxxx  0.95 xxxx xxxxx  0.95 xxxx xxxxx
PedBike Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
HCM Sat Adj: 0.91 0.96  0.82  0.93 0.98  0.83  0.94 0.95  0.95  0.93 0.90  0.90
Usr Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
MLF Sat Adj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Fnl Sat Adj: 0.91 0.96  0.82  0.93 0.98  0.83  0.94 0.95  0.95  0.93 0.90  0.90
------------|---------------||---------------||---------------||---------------|
Delay Adjustment Factor Module:
PrtPermCase:          1              1              1              1
Coordinated:  < < < < < < < < < < < < < < < < < < No   > > > > > > > > > > > > > > > > > >
Signal Type:  < < < < < < < < < < < < < <    Actuated    > > > > > > > > > > > > > > > > >
DelAdjFctr:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
******************************************************************************
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Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday PM Peak Hour

Level Of Service Detailed Computation Report (Dual Phase Control)
2000 HCM Operations Method
Base Volume Alternative

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L2 -	L1 -	T	L2 -	L1 -	T	L2 -	L1 -	T	L2 -	L1 -	T
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
HCM Ops f(rt) and f(lt) Adj Case Module:												
f(rt) Case:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	5	xxxx	xxxx	5
f(lt) Case:	2	1	xxxx	2	1	xxxx	2	1	xxxx	2	1	xxxx
HCM Ops Saturation Adj Module:												
Ln Wid Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hev Veh Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.99	0.99	0.99	0.98	0.98	0.98
Grade Adj:	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	xxxx	xxxx	1.00
Bus Stp Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	xxxx	xxxx	1.00
Area Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RT Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	0.96	xxxx	xxxx	0.92
LT Adj:	0.55	0.95	xxxxx	0.28	0.95	xxxxx	0.60	0.95	xxxxx	0.44	0.95	xxxxx
HCM Sat Adj:	0.53	0.91	0.96	0.27	0.93	0.98	0.59	0.94	0.95	0.43	0.93	0.90
Usr Sat Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Sat Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fnl Sat Adj:	0.53	0.91	0.96	0.27	0.93	0.98	0.59	0.94	0.95	0.43	0.93	0.90
Volume Module:												
Volume:	0	15	435	0	124	345	0	63	99	0	127	106
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.53	0.91	0.96	0.27	0.93	0.98	0.59	0.94	0.95	0.43	0.93	0.90
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.73	1.00	1.00	0.44
Final Sat.:	1004	1734	1825	515	1769	1862	1130	1787	1318	812	1769	747
Capacity Analysis Module:												
Vol/Sat:	0.00	0.01	0.24	0.00	0.07	0.19	0.00	0.04	0.08	0.00	0.07	0.14
Crit Moves:			****		****			****				****
Green/Cycle:	0.38	0.02	0.38	0.44	0.11	0.47	0.14	0.06	0.14	0.20	0.14	0.23
Volume/Cap:	0.00	0.41	0.63	0.00	0.63	0.40	0.00	0.64	0.52	0.00	0.52	0.63

Note: L2 = Permitted Left, L1 = Protected Left, T = Thru

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday PM Peak Hour

Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
2000 HCM Operations Method
Base Volume Alternative

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Approach:	North	South	East	West
Cycle Length, C:	70	70	70	70
Actual Green Time Per Lane Group, G:	28.02	38.25	14.04	23.75
Effective Green Time Per Lane Group, g:	26.49	30.49	10.10	14.10
Opposing Effective Green Time, go:	32.71	26.49	15.81	10.10
Number Of Opposing Lanes, No:	1	1	1	1
Number Of Lanes In Lane Group, N:	1	1	1	1
Adjusted Left-Turn Flow Rate, Vlt:	15	124	63	127
Proportion of Left Turns in Lane Group, Plt:	1.00	1.00	1.00	1.00
Proportion of Left Turns in Opp Flow, Plto:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Left Turns Per Cycle, LTC:	0.29	2.40	1.23	2.47
Adjusted Opposing Flow Rate, Vo:	345	435	243	135
Opposing Flow Per Lane Per Cycle, Volc:	6.71	8.46	4.72	2.63
Opposing Platoon Ratio, Rpo:	1.00	1.00	1.00	1.00
Lost Time Per Phase, tl:	4.00	0.00	4.00	0.00
Eff grn until arrival of left-turn car, gf:	0.00	0.00	0.00	0.00
Opposing Queue Ratio, qro:	0.53	0.62	0.77	0.86
Eff grn blocked by opposing queue, gq:	0.00	13.87	0.00	4.86
Eff grn while left turns filter thru, gu:	26.49	16.62	10.10	9.24
Max opposing cars arriving during gq-gf, n:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Proportion of Opposing Thru & RT cars, ptho:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Left-turn Saturation Factor, fs:	0.66	0.60	0.72	0.79
Proportion of Left Turns in Shared Lane, pl:	1.00	1.00	1.00	1.00
Through-car Equivalents, el1:	1.82	1.97	1.66	1.50
Single Lane Through-car Equivalents, el2:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Minimum Left Turn Adjustment Factor, fmin:	0.15	0.13	0.40	0.28
Single Lane Left Turn Adjustment Factor, fm:	0.55	0.28	0.60	0.44
Left Turn Adjustment Factor, flt:	0.55	0.28	0.60	0.44

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday PM Peak Hour

Level Of Service Detailed Computation Report (HCM2000 Queue Method)
2000 HCM Operations Method
Base Volume Alternative

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Green/Cycle:	0.02	0.38	0.38	0.11	0.47	0.47	0.06	0.14	0.14	0.14	0.23	0.23
ArrivalType:		3			3			3			3	
ProgFactor:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1:	0.2	6.9	2.1	1.3	4.4	1.0	1.0	2.4	2.4	1.8	4.3	4.3
UpstreamVC:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UpstreamAdj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EarlyArrAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q2:	0.0	1.6	0.4	0.4	0.7	0.1	0.3	1.0	1.0	0.4	1.6	1.6
HCM2KQueue:	0.2	8.5	2.5	1.7	5.0	1.1	1.3	3.5	3.5	2.3	5.8	5.8
70th%Factor:	1.20	1.18	1.19	1.20	1.19	1.20	1.20	1.19	1.19	1.19	1.19	1.19
70th%HCM2kQ:	0.3	10.1	3.0	2.0	6.0	1.3	1.6	4.1	4.1	2.7	6.9	6.9
85th%Factor:	1.60	1.53	1.58	1.58	1.55	1.59	1.59	1.57	1.57	1.58	1.55	1.55
85th%HCM2kQ:	0.3	13.0	3.9	2.7	7.8	1.8	2.1	5.4	5.4	3.6	9.0	9.0
90th%Factor:	1.80	1.66	1.75	1.77	1.71	1.78	1.77	1.74	1.74	1.76	1.70	1.70
90th%HCM2kQ:	0.4	14.2	4.4	3.0	8.6	2.0	2.4	6.0	6.0	4.0	9.9	9.9
95th%Factor:	2.09	1.87	2.02	2.05	1.95	2.06	2.06	2.00	2.00	2.03	1.93	1.93
95th%HCM2kQ:	0.5	16.0	5.0	3.5	9.8	2.3	2.8	6.9	6.9	4.6	11.3	11.3
98th%Factor:	2.68	2.22	2.53	2.58	2.38	2.62	2.60	2.47	2.47	2.54	2.34	2.34
98th%HCM2kQ:	0.6	18.9	6.3	4.4	12.0	2.9	3.5	8.5	8.5	5.8	13.6	13.6

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #4 SE Fleming/SE Palmquist

Average Delay (sec/veh): 1.0 Worst Case Level Of Service: C[15.2]

Street Name:	SE Fleming Ave						SE Palmquist Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0	0	1! 0	0	0	0	0	0	1	0	0	1	0	0	0
Volume Module: >> Count Date: 15 Mar 2007 << 5:00 - 6:00 p.m.															
Base Vol:	26	0	14	0	0	0	0	366	31	15	299	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	26	0	14	0	0	0	0	366	31	15	299	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
PHF Volume:	30	0	16	0	0	0	0	426	36	17	348	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	30	0	16	0	0	0	0	426	36	17	348	0
Critical Gap Module:												
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	826	826	446	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	462	xxxx	xxxxx
Potent Cap.:	340	306	611	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1094	xxxx	xxxxx
Move Cap.:	336	301	610	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1094	xxxx	xxxxx
Volume/Cap:	0.09	0.00	0.03	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.02	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.3	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	399	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	0.4	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.0	xxxx	xxxxx
Shrd ConDel:	xxxxx	15.2	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.3	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	*	*	*	*	A	*	*
ApproachDel:	15.2			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	C			*			*			*		

Note: Queue reported is the number of cars per lane.

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------------------------------------------------------------------------------
               Kittelson & Associates, Inc.  --  Project #7670
                   Brickworks Village  --  Gresham, Oregon
              2007 Existing Conditions  --  Weekday PM Peak Hour
------------------------------------------------------------------------------
                  Level Of Service Detailed Computation Report
                         2000 HCM Unsignalized Method
                            Base Volume Alternative
******************************************************************************
Intersection #4 SE Fleming/SE Palmquist
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
-----------|---------------|---------------|---------------|---------------|
HevVeh:             3%              0%              1%              3%
Grade:              0%              0%              0%              0%
Peds/Hour:          0               0               0               2
Pedestrian Walk Speed: 4.00 feet/sec
LaneWidth:       12 feet         12 feet         12 feet         12 feet
Time Period: 0.25 hour
-----------|---------------|---------------|---------------|---------------|
Upstream Signals:
Link Index:                                      #68             #18
Dist(miles):                                     0.000           0.000
Speed (mph):                                      0.00            0.00
SignalIndex:                                     #1              #6
Cycle Time:                                          0 secs          0 secs
InitVolume:                                   0     0         0     0
Saturation:                                   0     0         0     0
ArrivalType:                                  0     0         0     0
G/C:                                       0.00  0.00      0.00  0.00
*** Computation 1: Time for Queue to Clear at Each Upstream Intersection
P:                                         0.000 0.000     0.000 0.000
gq1:                                       0.00  0.00      0.00  0.00
gq2:                                       0.00  0.00      0.00  0.00
gq:                                        0.00  0.00      0.00  0.00
*** Computation 2: Time Intersection Blocked Because of Upstream Platoons
alpha:                                           0.000           0.000
beta:                                            0.000           0.000
ta (secs):                                       0.000           0.000
F:                                               0.000           0.000
f:                                         0.000 0.000     0.000 0.000
vcmax:                                        0     0         0     0
vcg:                                          0     0         0     0
vcmin:                                        0     0         0     0
tp:                                         0.0   0.0       0.0   0.0
p:                                               0.000           0.000
*** Computation 3: Platoon Event Periods
pdom/psubo:                                        0.000/0.000/Unconstrained
*** Computation 4: Conflicting Flows During Each Unblocked Period
InitCnflVol: 826   826   446  836   844   348    0 xxxxx xxxxx  462 xxxxx xxxxx
UpstreamAdj:1.00 1.000 1.000 1.00 1.000 1.000 1.00 x.xxx x.xxx 1.00 x.xxx x.xxx
ConflictVol: 826   826   446  836   844   348    0 xxxxx xxxxx  462 xxxxx xxxxx
*** Computation 5: Capactiy for Subject Movement During Unblocked Period
InitPotCap:  340   306   611  289   302   700  900 xxxxx xxxxx 1094 xxxxx xxxxx
UpstreamAdj:1.00 1.000 1.000 1.00 1.000 1.000 1.00 x.xxx x.xxx 1.00 x.xxx x.xxx
PotentCap:   340   306   611  289   302   700  900 xxxxx xxxxx 1094 xxxxx xxxxx

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------------------------------------------------------------------------------
               Kittelson & Associates, Inc.  --  Project #7670
                   Brickworks Village  --  Gresham, Oregon
              2007 Existing Conditions  --  Weekday PM Peak Hour
------------------------------------------------------------------------------
                     Level Of Service Computation Report
              2000 HCM Unsignalized Method (Base Volume Alternative)
******************************************************************************
Intersection #5 SE Palmblad Rd/SE Palmquist Rd
******************************************************************************
Average Delay (sec/veh):      4.2       Worst Case Level Of Service: C[ 19.4]
******************************************************************************
Street Name:          SE Palmblad Rd                  SE Palmquist Rd
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
-----------|---------------||---------------||---------------||---------------|
Control:        Stop Sign        Stop Sign       Uncontrolled     Uncontrolled
Rights:           Include          Include          Include          Include
Lanes:       0  0  1! 0  0    0  0  0  0  0    0  0  0  1  0    0  1  0  0  0
-----------|---------------||---------------||---------------||---------------|
Volume Module: >> Count Date: 8 Dec 2005 << 4:30 - 5:30 p.m.
Base Vol:      88    0    69     0    0     0     0  275    95    84  260     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.04  1.00  1.00 1.04  1.00
Initial Bse:   88    0    69     0    0     0     0  286    95    84  270     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.93 0.93  0.93  0.93 0.93  0.93  0.93 0.93  0.93  0.93 0.93  0.93
PHF Volume:    95    0    74     0    0     0     0  308   102    90  291     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:    95    0    74     0    0     0     0  308   102    90  291     0
-----------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:  6.4  6.5   6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   4.1 xxxx xxxxx
FollowUpTim:  3.5  4.0   3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxxx   2.2 xxxx xxxxx
-----------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol:  830  830   359  xxxx xxxx xxxxx  xxxx xxxx xxxxx   410 xxxx xxxxx
Potent Cap.:  340  306   686  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1144 xxxx xxxxx
Move Cap.:    318  280   686  xxxx xxxx xxxxx  xxxx xxxx xxxxx  1144 xxxx xxxxx
Volume/Cap:  0.30 0.00  0.11  xxxx xxxx  xxxx  xxxx xxxx  xxxx  0.08 xxxx  xxxx
-----------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx   0.3 xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.4 xxxx xxxxx
LOS by Move:   *    *     *     *    *     *     *    *     *     A    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx  416 xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx  1.9 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   0.3 xxxx xxxxx
Shrd ConDel:xxxxx 19.4 xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx   8.4 xxxx xxxxx
Shared LOS:    *    C     *     *    *     *     *    *     *     A    *     *
ApproachDel:      19.4           xxxxxx           xxxxxx           xxxxxx
ApproachLOS:       C               *                *                *
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************

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------------------------------------------------------------------------------
               Kittelson & Associates, Inc.  --  Project #7670
                   Brickworks Village  --  Gresham, Oregon
              2007 Existing Conditions  --  Weekday PM Peak Hour
------------------------------------------------------------------------------
                  Level Of Service Detailed Computation Report
                          2000 HCM Unsignalized Method
                             Base Volume Alternative
******************************************************************************
Intersection #5 SE Palmblad Rd/SE Palmquist Rd
******************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
-----------|----------------|----------------|----------------|----------------|
HevVeh:             2%               0%               1%               3%
Grade:              0%               0%               0%               0%
Peds/Hour:          0                0                0                0
Pedestrian Walk Speed: 4.00 feet/sec
LaneWidth:       12 feet          12 feet          12 feet          12 feet
Time Period: 0.25 hour
-----------|----------------|----------------|----------------|----------------|
Upstream Signals:
Link Index:                                        #68              #18
Dist(miles):                                       0.000            0.000
Speed (mph):                                        0.00             0.00
SignalIndex:                                       #1               #6
Cycle Time:                                            0 secs           0 secs
InitVolume:                                    0     0          0     0
Saturation:                                    0     0          0     0
ArrivalType:                                   0     0          0     0
G/C:                                        0.00  0.00       0.00  0.00
*** Computation 1: Time for Queue to Clear at Each Upstream Intersection
P:                                          0.000 0.000      0.000 0.000
gq1:                                        0.00  0.00       0.00  0.00
gq2:                                        0.00  0.00       0.00  0.00
gq:                                         0.00  0.00       0.00  0.00
*** Computation 2: Time Intersection Blocked Because of Upstream Platoons
alpha:                                             0.000            0.000
beta:                                              0.000            0.000
ta (secs):                                         0.000            0.000
F:                                                 0.000            0.000
f:                                          0.000 0.000      0.000 0.000
vcmax:                                         0     0          0     0
vcg:                                           0     0          0     0
vcmin:                                         0     0          0     0
tp:                                          0.0   0.0        0.0   0.0
p:                                                 0.000            0.000
*** Computation 3: Platoon Event Periods
pdom/psubo:                                        0.000/0.000/Unconstrained
*** Computation 4: Conflicting Flows During Each Unblocked Period
InitCnflVol: 830   830   359  867   881   291    0 xxxxx xxxxx  410 xxxxx xxxxx
UpstreamAdj:1.00 1.000 1.000 1.00 1.000 1.000 1.00 x.xxx x.xxx 1.00 x.xxx x.xxx
ConflictVol: 830   830   359  867   881   291    0 xxxxx xxxxx  410 xxxxx xxxxx
*** Computation 5: Capactiy for Subject Movement During Unblocked Period
InitPotCap:  340   306   686  275   288   753  900 xxxxx xxxxx 1144 xxxxx xxxxx
UpstreamAdj:1.00 1.000 1.000 1.00 1.000 1.000 1.00 x.xxx x.xxx 1.00 x.xxx x.xxx
PotentCap:   340   306   686  275   288   753  900 xxxxx xxxxx 1144 xxxxx xxxxx

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------------------------------------------------------------------------------
               Kittelson & Associates, Inc.  --  Project #7670
                   Brickworks Village  --  Gresham, Oregon
              2007 Existing Conditions  --  Weekday PM Peak Hour
------------------------------------------------------------------------------
                     Level Of Service Computation Report
              2000 HCM Operations Method (Base Volume Alternative)
******************************************************************************
Intersection #6 US 26/SE Palmquist Rd
******************************************************************************
Cycle (sec):         120              Critical Vol./Cap.(X):         0.670
Loss Time (sec):      16 (Y+R=4.0 sec) Average Delay (sec/veh):        31.6
Optimal Cycle:        68               Level Of Service:                    C
******************************************************************************
Street Name:       US 26/Mount Hood Hwy              SE Palmquist Rd
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
-----------|----------------||----------------||----------------||----------------|
Control:        Protected        Protected        Protected        Protected
Rights:           Ignore           Include          Include          Include
Min. Green:    0    0    0      0    0    0      0    0    0      0    0    0
Lanes:       1  0  2  0  1    1  0  2  0  1    1  0  0  1  0    2  0  1  0  1
-----------|----------------||----------------||----------------||----------------|
Volume Module: >> Count Date: 15 Mar 2007 << 4:00 - 5:00 p.m.
Base Vol:     50  890  136    79 1142  101    89  189    50   224  202  111
Growth Adj:  1.00 1.00 1.00  1.00 1.00 1.00  1.00 1.00  1.00  1.00 1.00 1.00
Initial Bse:  50  890  136    79 1142  101    89  189    50   224  202  111
User Adj:    1.00 1.00 0.00  1.00 1.00 1.00  1.00 1.00  1.00  1.00 1.00 1.00
PHF Adj:     0.94 0.94 0.00  0.94 0.94 0.94  0.94 0.94  0.94  0.94 0.94 0.94
PHF Volume:   53  947    0    84 1215  107    95  201    53   238  215  118
Reduct Vol:    0    0    0     0    0    0     0    0     0     0    0    0
Reduced Vol:  53  947    0    84 1215  107    95  201    53   238  215  118
PCE Adj:     1.00 1.00 0.00  1.00 1.00 1.00  1.00 1.00  1.00  1.00 1.00 1.00
MLF Adj:     1.00 1.00 0.00  1.00 1.00 1.00  1.00 1.00  1.00  1.00 1.00 1.00
Final Vol.:   53  947    0    84 1215  107    95  201    53   238  215  118
-----------|----------------||----------------||----------------||----------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  0.93 0.93  1.00  0.93 0.93  0.83  0.94 0.96  0.96  0.93 1.01  0.86
Lanes:       1.00 2.00  1.00  1.00 2.00  1.00  1.00 0.79  0.21  2.00 1.00  1.00
Final Sat.:  1769 3538  1900  1769 3538  1583  1787 1441   381  3536 1919  1631
-----------|----------------||----------------||----------------||----------------|
Capacity Analysis Module:
Vol/Sat:     0.03 0.27  0.00  0.05 0.34  0.07  0.05 0.14  0.14  0.07 0.11  0.07
Crit Moves:  ****                ****             ****        ****
Green/Cycle: 0.04 0.47  0.00  0.08 0.51  0.51  0.10 0.21  0.21  0.10 0.21  0.21
Volume/Cap:  0.67 0.57  0.00  0.57 0.67  0.13  0.53 0.67  0.67  0.67 0.53  0.35
Delay/Veh:   76.3 23.1   0.0  57.8 22.7  15.4  54.6 48.3  48.3  56.9 43.6  41.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:  76.3 23.1   0.0  57.8 22.7  15.4  54.6 48.3  48.3  56.9 43.6  41.0
LOS by Move:   E    C     A     E    C     B     D    D     D     E    D     D
HCM2kAvgQ:     3   13     0     4   18     2     4   10    10     6    7     4
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************

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Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday PM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Operations Method
Base Volume Alternative

Intersection #6 US 26/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HCM Ops Adjusted Lane Utilization Module:												
Lanes:	1 0	2 0	1	1 0	2 0	1	1 0	0 1	0	2 0	1 0	1
Lane Group:	L	T	R	L	T	R	L	RT	RT	L	T	R
#LnsInGrps:	1	2	1	1	2	1	1	1	1	2	1	1
HCM Ops Input Saturation Adj Module:												
Lane Width:	12	12	12	12	12	12	12	12	12	12	12	12
CrosswalkWid		8			8			8			8	
% Hev Veh:		2			2			0			1	
Grade:		0%			0%			+2%			-4%	
Parking/Hr:		No			No			No			No	
Bus Stp/Hr:		0			0			0			0	
Area Type:	< < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >											
Cnft Ped/Hr:		1			0			1			0	
ExclusiveRT:		Include			Include			Include			Include	
% RT Prtct:		0			0			0			0	
HCM Ops f(lt) Adj Case Module:												
f(lt) Case:	1	xxxx	xxxx	1	xxxx	xxxx	1	xxxx	xxxx	1	xxxx	xxxx
HCM Ops Saturation Adj Module:												
Ln Wid Adj:	1.00	1.00	xxxxx	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hev Veh Adj:	0.98	0.98	xxxxx	0.98	0.98	0.98	1.00	1.00	1.00	0.99	0.99	0.99
Grade Adj:	1.00	1.00	xxxxx	1.00	1.00	1.00	0.99	0.99	0.99	1.02	1.02	1.02
Parking Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	xxxx	1.00	1.00	xxxx	xxxx	1.00
Bus Stp Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	xxxx	1.00	1.00	xxxx	xxxx	1.00
Area Adj:	1.00	1.00	xxxxx	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RT Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	0.85	xxxx	0.97	0.97	xxxx	xxxx	0.85
LT Adj:	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx
PedBike Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
HCM Sat Adj:	0.93	0.98	1.00	0.93	0.98	0.83	0.94	0.96	0.96	0.96	1.01	0.86
Usr Sat Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Sat Adj:	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Fnl Sat Adj:	0.93	0.93	1.00	0.93	0.93	0.83	0.94	0.96	0.96	0.93	1.01	0.86
Delay Adjustment Factor Module:												
Coordinated:	< < < < < < < < < < < < < < < No > > > > > > > > > > > > > > >											
Signal Type:	< < < < < < < < < < < < < Actuated > > > > > > > > > > > > >											
DelAdjFctr:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2007 Existing Conditions -- Weekday PM Peak Hour

Level Of Service Detailed Computation Report (HCM2000 Queue Method)
2000 HCM Operations Method
Base Volume Alternative

Intersection #6 US 26/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Green/Cycle:	0.04	0.47	0.00	0.08	0.51	0.51	0.10	0.21	0.21	0.10	0.21	0.21
ArrivalType:		3			3			3			3	
ProgFactor:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1:	1.7	11.9	0.0	2.7	15.8	1.9	3.0	7.8	7.8	3.9	6.4	3.4
UpstreamVC:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UpstreamAdj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EarlyArrAdj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q2:	1.4	1.3	0.0	1.1	1.9	0.2	1.0	1.8	1.8	1.7	1.1	0.5
HCM2KQueue:	3.2	13.2	0.0	3.8	17.7	2.0	4.0	9.6	9.6	5.6	7.5	3.9
70th%Factor:	1.19	1.17	1.20	1.19	1.16	1.20	1.19	1.18	1.18	1.19	1.18	1.19
70th%HCM2kQ:	3.8	15.5	0.0	4.6	20.7	2.4	4.8	11.3	11.3	6.7	8.8	4.6
85th%Factor:	1.57	1.49	1.60	1.56	1.47	1.58	1.56	1.52	1.52	1.55	1.53	1.56
85th%HCM2kQ:	5.0	19.7	0.0	6.0	26.0	3.2	6.3	14.6	14.6	8.7	11.5	6.1
90th%Factor:	1.74	1.61	1.80	1.73	1.56	1.76	1.73	1.65	1.65	1.70	1.68	1.73
90th%HCM2kQ:	5.5	21.2	0.0	6.6	27.8	3.6	7.0	15.8	15.8	9.6	12.5	6.7
95th%Factor:	2.00	1.79	2.10	1.98	1.72	2.04	1.98	1.85	1.85	1.94	1.90	1.98
95th%HCM2kQ:	6.3	23.6	0.0	7.6	30.6	4.1	8.0	17.8	17.8	10.9	14.2	7.7
98th%Factor:	2.48	2.06	2.70	2.44	1.96	2.56	2.43	2.18	2.18	2.35	2.26	2.44
98th%HCM2kQ:	7.9	27.2	0.0	9.4	34.7	5.2	9.8	20.9	20.9	13.2	16.9	9.5

Ordinance No. 07-1148
Attachment 7

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday AM Peak Hour

Scenario Report

Scenario:	bkam
Command:	bkam
Volume:	bkam
Geometry:	bkam
Impact Fee:	Default Impact Fee
Trip Generation:	null
Trip Distribution:	null
Paths:	null
Routes:	Default Routes
Configuration:	bkam

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday AM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 SE Hogan Ave/SE Palmquist Rd	C	20.2	0.690	C	20.8	0.710	+ 0.588 D/V
# 4 SE Fleming/SE Palmquist	D	28.6	0.000	D	29.5	0.000	+ 0.825 D/V
# 5 SE Palmblad Rd/SE Palmquist Rd	C	20.4	0.000	C	18.4	0.000	-1.991 D/V
# 6 US 26/SE Palmquist Rd	C	28.3	0.723	C	28.3	0.730	+ 0.025 D/V
# 19 SE Fleming/HS Driveway	B	11.8	0.000	B	11.6	0.000	-0.178 D/V
# 21 Fleming/North Elem School Dwy	B	10.9	0.000	B	10.9	0.000	-0.098 D/V
# 23 Fleming/Middle Elem School Dwy	A	9.1	0.000	A	9.5	0.000	+ 0.461 D/V
# 24 Fleming/South Elem School Dwy	A	8.3	0.000	A	8.5	0.000	+ 0.136 D/V

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Cycle (sec):	70			Critical Vol./Cap.(X):			0.710					
Loss Time (sec):	16 (Y+R=4.0 sec)			Average Delay (sec/veh):			20.8					
Optimal Cycle:	63			Level Of Service:			C					

Street Name:	SE Hogan Ave						SE Palmquist Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 1	0 1	1	0 1	0 1	1	0 0	1 0	1	0 0	1 0
Volume Module: >> Count Date: 8 Dec 2005 << 7:15 - 8:15 a.m.												
Base Vol:	14	347	101	89	195	21	68	61	10	113	51	135
Growth Adj:	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Initial Bse:	16	403	117	103	226	24	79	71	12	131	59	157
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
In Process:	0	0	0	5	0	0	0	0	0	0	5	13
Initial Fut:	16	403	117	108	226	24	79	71	12	131	64	170
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	18	447	130	120	251	27	88	79	13	146	71	188
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	447	130	120	251	27	88	79	13	146	71	188
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	18	447	130	120	251	27	88	79	13	146	71	188
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.85	0.90	0.76	0.88	0.93	0.79	0.90	0.92	0.92	0.90	0.84	0.84
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.86	0.14	1.00	0.27	0.73
Final Sat.:	1622	1707	1451	1671	1759	1495	1702	1507	247	1702	438	1158
Capacity Analysis Module:												
Vol/Sat:	0.01	0.26	0.09	0.07	0.14	0.02	0.05	0.05	0.05	0.09	0.16	0.16
Crit Moves:		****		****			****				****	
Green/Cycle:	0.40	0.37	0.37	0.53	0.44	0.44	0.19	0.11	0.11	0.36	0.23	0.23
Volume/Cap:	0.04	0.71	0.24	0.33	0.33	0.04	0.36	0.46	0.46	0.31	0.71	0.71
Delay/Veh:	12.7	22.7	15.6	10.7	13.2	11.4	25.3	30.6	30.6	16.2	31.2	31.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	12.7	22.7	15.6	10.7	13.2	11.4	25.3	30.6	30.6	16.2	31.2	31.2
LOS by Move:	B	C	B	B	B	B	C	C	C	B	C	C
HCM2kAvgQ:	0	10	2	2	4	0	2	2	2	2	7	7

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Operations Method
Future Volume Alternative

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound				West Bound					
Movement:	L	- T	- R	L	- T	- R	L	- T	- R		L	- T	- R			
HCM Ops Adjusted Lane Utilization Module:																
Lanes:	1	0 1	0 1	1	0 1	0 1	1	0 0	1 0	1	1	0 0	1 0	1	0 0	1 0
Lane Group:	L	T	R	L	T	R	L	RT		RT	L	RT		RT		
#LnsInGrps:	1	1	1	1	1	1	1	1		1	1	1		1		
HCM Ops Input Saturation Adj Module:																
Lane Width:	12	12	12	12	12	12	12	12		12	12	12		12		
CrosswalkWid		8			8			8				8				
% Hev Veh:		9			8			6				6				
Grade:		+4%			0%			0%				0%				
Parking/Hr:		No			No			No				No				
Bus Stp/Hr:		0			0			0				0				
Area Type:	< < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >															
Cnft Ped/Hr:		0			0			0				0				
ExclusiveRT:	Include			Include			Include				Include					
% RT Prtct:		0			0			0				0				
HCM Ops f(lt) Adj Case Module:																
f(lt) Case:	1 xxxx	xxxx		1 xxxx	xxxx		1 xxxx	xxxx			1 xxxx	xxxx				
HCM Ops Saturation Adj Module:																
Ln Wid Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hev Veh Adj:	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Grade Adj:	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Adj:	xxxx	xxxx	1.00	xxxx	xxxx	1.00	xxxx	1.00	1.00	xxxx	1.00	1.00	xxxx	1.00	1.00	1.00
Bus Stp Adj:	xxxx	xxxx	1.00	xxxx	xxxx	1.00	xxxx	1.00	1.00	xxxx	1.00	1.00	xxxx	1.00	1.00	1.00
Area Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RT Adj:	xxxx	xxxx	0.85	xxxx	xxxx	0.85	xxxx	0.98	0.98	xxxx	0.89	0.89	xxxx	0.89	0.89	0.89
LT Adj:	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx	xxxxx
PedBike Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
HCM Sat Adj:	0.85	0.90	0.76	0.88	0.93	0.79	0.90	0.92	0.92	0.90	0.84	0.84	0.90	0.84	0.84	0.84
Usr Sat Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Sat Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fnl Sat Adj:	0.85	0.90	0.76	0.88	0.93	0.79	0.90	0.92	0.92	0.90	0.84	0.84	0.90	0.84	0.84	0.84
Delay Adjustment Factor Module:																
PrtPermCase:	1			1			1				1					
Coordinated:	< < < < < < < < < < < < < < < No > > > > > > > > > > > > > > >															
Signal Type:	< < < < < < < < < < < < < Actuated > > > > > > > > > > > > >															
DelAdjFctr:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report (Dual Phase Control)
2000 HCM Operations Method
Future Volume Alternative

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L2 -	L1 -	T	L2 -	L1 -	T	L2 -	L1 -	T	L2 -	L1 -	T
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
HCM Ops f(rt) and f(lt) Adj Case Module:												
f(rt) Case:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	5	xxxx	xxxx	5
f(lt) Case:	2	1	xxxx	2	1	xxxx	2	1	xxxx	2	1	xxxx
HCM Ops Saturation Adj Module:												
Ln Wid Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hev Veh Adj:	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94	0.94	0.94	0.94
Grade Adj:	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	xxxx	xxxx	1.00
Bus Stp Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	xxxx	xxxx	1.00
Area Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RT Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	0.98	xxxx	xxxx	0.89
LT Adj:	0.60	0.95	xxxxx	0.26	0.95	xxxxx	0.59	0.95	xxxxx	0.50	0.95	xxxxx
HCM Sat Adj:	0.54	0.85	0.90	0.24	0.88	0.93	0.56	0.90	0.92	0.47	0.90	0.84
Usr Sat Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Sat Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fnl Sat Adj:	0.54	0.85	0.90	0.24	0.88	0.93	0.56	0.90	0.92	0.47	0.90	0.84
Volume Module:												
Volume:	0	18	447	0	120	251	0	88	79	0	146	71
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.54	0.85	0.90	0.24	0.88	0.93	0.56	0.90	0.92	0.47	0.90	0.84
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.27
Final Sat.:	1018	1622	1707	450	1671	1759	1060	1702	1507	899	1702	438
Capacity Analysis Module:												
Vol/Sat:	0.00	0.01	0.26	0.00	0.07	0.14	0.00	0.05	0.05	0.00	0.09	0.16
Crit Moves:			****		****			****				****
Green/Cycle:	0.37	0.03	0.37	0.43	0.10	0.44	0.11	0.07	0.11	0.17	0.19	0.23
Volume/Cap:	0.00	0.32	0.71	0.00	0.71	0.33	0.00	0.70	0.46	0.00	0.46	0.71

Note: L2 = Permitted Left, L1 = Protected Left, T = Thru

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
2000 HCM Operations Method
Future Volume Alternative

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Approach:	North	South	East	West
Cycle Length, C:	70	70	70	70
Actual Green Time Per Lane Group, G:	28.18	36.90	13.07	25.10
Effective Green Time Per Lane Group, g:	25.81	29.81	7.99	11.99
Opposing Effective Green Time, go:	30.52	25.81	16.03	7.99
Number Of Opposing Lanes, No:	1	1	1	1
Number Of Lanes In Lane Group, N:	1	1	1	1
Adjusted Left-Turn Flow Rate, Vlt:	18	120	88	146
Proportion of Left Turns in Lane Group, Plt:	1.00	1.00	1.00	1.00
Proportion of Left Turns in Opp Flow, Plto:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Left Turns Per Cycle, LTC:	0.35	2.34	1.70	2.83
Adjusted Opposing Flow Rate, Vo:	251	447	260	92
Opposing Flow Per Lane Per Cycle, Volc:	4.88	8.69	5.06	1.79
Opposing Platoon Ratio, Rpo:	1.00	1.00	1.00	1.00
Lost Time Per Phase, tl:	4.00	0.00	4.00	0.00
Eff grn until arrival of left-turn car, gf:	0.00	0.00	0.00	0.00
Opposing Queue Ratio, qro:	0.56	0.63	0.77	0.89
Eff grn blocked by opposing queue, gq:	0.00	14.60	0.00	3.34
Eff grn while left turns filter thru, gu:	25.81	15.21	7.99	8.65
Max opposing cars arriving during gq-gf, n:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Proportion of Opposing Thru & RT cars, ptho:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Left-turn Saturation Factor, fs:	0.72	0.60	0.71	0.82
Proportion of Left Turns in Shared Lane, pl:	1.00	1.00	1.00	1.00
Through-car Equivalents, el1:	1.68	1.99	1.69	1.44
Single Lane Through-car Equivalents, el2:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Minimum Left Turn Adjustment Factor, fmin:	0.15	0.13	0.50	0.33
Single Lane Left Turn Adjustment Factor, fm:	0.60	0.26	0.59	0.50
Left Turn Adjustment Factor, flt:	0.60	0.26	0.59	0.50

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report (HCM2000 Queue Method)
2000 HCM Operations Method
Future Volume Alternative

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Green/Cycle:	0.03	0.37	0.37	0.10	0.44	0.44	0.07	0.11	0.11	0.19	0.23	0.23
ArrivalType:		3			3			3			3	
ProgFactor:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1:	0.2	7.4	1.8	1.3	3.2	0.3	1.5	1.7	1.7	2.0	4.7	4.7
UpstreamVC:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UpstreamAdj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EarlyArrAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q2:	0.0	2.2	0.3	0.5	0.5	0.0	0.5	0.8	0.8	0.4	2.1	2.1
HCM2KQueue:	0.3	9.7	2.1	1.8	3.7	0.3	2.0	2.5	2.5	2.5	6.8	6.8
70th%Factor:	1.20	1.18	1.19	1.20	1.19	1.20	1.20	1.19	1.19	1.19	1.18	1.18
70th%HCM2kQ:	0.3	11.4	2.5	2.2	4.4	0.4	2.4	2.9	2.9	3.0	8.0	8.0
85th%Factor:	1.60	1.52	1.58	1.58	1.57	1.60	1.58	1.58	1.58	1.58	1.54	1.54
85th%HCM2kQ:	0.4	14.7	3.3	2.9	5.8	0.6	3.2	3.9	3.9	3.9	10.4	10.4
90th%Factor:	1.79	1.65	1.76	1.76	1.73	1.79	1.76	1.75	1.75	1.75	1.69	1.69
90th%HCM2kQ:	0.5	15.9	3.7	3.2	6.4	0.6	3.6	4.3	4.3	4.4	11.4	11.4
95th%Factor:	2.09	1.85	2.03	2.04	1.99	2.09	2.04	2.02	2.02	2.02	1.91	1.91
95th%HCM2kQ:	0.5	17.9	4.2	3.7	7.4	0.7	4.1	5.0	5.0	5.0	12.9	12.9
98th%Factor:	2.68	2.18	2.55	2.57	2.45	2.67	2.56	2.53	2.53	2.53	2.29	2.29
98th%HCM2kQ:	0.7	21.0	5.3	4.7	9.1	0.9	5.2	6.2	6.2	6.3	15.5	15.5

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 SE Fleming/SE Palmquist

Average Delay (sec/veh): 6.8 Worst Case Level Of Service: D[29.5]

Street Name:	SE Fleming Ave						SE Palmquist Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0	0	1! 0	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0
Volume Module: >> Count Date: 8 Dec 2005 << 7:15 - 8:15 a.m.																			
Base Vol:	95	0	75	0	0	0	0	150	115	130	240	0							
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.16	1.00	1.00	1.16	1.00							
Initial Bse:	95	0	75	0	0	0	0	174	115	130	278	0							
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0							
In Process:	15	0	-20	0	0	0	0	1	4	-20	3	0							
Initial Fut:	110	0	55	0	0	0	0	175	119	110	281	0							
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00							
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80							
PHF Volume:	138	0	69	0	0	0	0	219	149	138	352	0							
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0							
Final Vol.:	138	0	69	0	0	0	0	219	149	138	352	0							
Critical Gap Module:																			
Critical Gp:	6.4	6.5	6.2	7.1	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx							
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx							
Capacity Module:																			
Cnflict Vol:	920	920	293	954	994	352	xxxx	xxxx	xxxxx	368	xxxx	xxxxx							
Potent Cap.:	301	271	746	240	247	696	xxxx	xxxx	xxxxx	1180	xxxx	xxxxx							
Move Cap.:	274	239	746	199	218	696	xxxx	xxxx	xxxxx	1180	xxxx	xxxxx							
Volume/Cap:	0.50	0.00	0.09	0.00	0.00	0.00	xxxx	xxxx	xxxx	0.12	xxxx	xxxx							
Level Of Service Module:																			
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.4	xxxx	xxxxx							
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.5	xxxx	xxxxx							
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*							
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT							
Shared Cap.:	xxxx	347	xxxxx	xxxx	xxxx	0	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx							
SharedQueue:	xxxxx	3.6	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx							
Shrd ConDel:	xxxxx	29.5	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx							
Shared LOS:	*	D	*	*	*	*	*	*	*	*	*	*							
ApproachDel:		29.5			xxxxxx			xxxxxx			xxxxxx								
ApproachLOS:		D			*			*			*								

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Future Volume Alternative

Intersection #4 SE Fleming/SE Palmquist

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
HevVeh:	2%			0%			8%			4%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												
Upstream Signals:												
Link Index:							#68			#18		
Dist(miles):							0.000			0.000		
Speed (mph):							0.00			0.00		
SignalIndex:							#1			#6		
Cycle Time:							0 secs			0 secs		
InitVolume:							0	0	0	0		
Saturation:							0	0	0	0		
ArrivalType:							0	0	0	0		
G/C:							0.00	0.00	0.00	0.00		
*** Computation 1: Time for Queue to Clear at Each Upstream Intersection												
P:							0.000	0.000	0.000	0.000		
gq1:							0.00	0.00	0.00	0.00		
gq2:							0.00	0.00	0.00	0.00		
gq:							0.00	0.00	0.00	0.00		
*** Computation 2: Time Intersection Blocked Because of Upstream Platoons												
alpha:							0.000			0.000		
beta:							0.000			0.000		
ta (secs):							0.000			0.000		
F:							0.000			0.000		
f:							0.000	0.000	0.000	0.000		
vcmax:							0	0	0	0		
vcg:							0	0	0	0		
vcmin:							0	0	0	0		
tp:							0.0	0.0	0.0	0.0		
p:							0.000			0.000		
*** Computation 3: Platoon Event Periods												
pdom/psubo:							0.000/0.000/Unconstrained					
*** Computation 4: Conflicting Flows During Each Unblocked Period												
InitCnflVol:	920	920	293	954	994	352	0	xxxxx	xxxxx	368	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
ConflictVol:	920	920	293	954	994	352	0	xxxxx	xxxxx	368	xxxxx	xxxxx
*** Computation 5: Capactiy for Subject Movement During Unblocked Period												
InitPotCap:	301	271	746	240	247	696	900	xxxxx	xxxxx	1180	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
PotentCap:	301	271	746	240	247	696	900	xxxxx	xxxxx	1180	xxxxx	xxxxx

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 SE Palmblad Rd/SE Palmquist Rd

Average Delay (sec/veh): 5.8 Worst Case Level Of Service: C[18.4]

Street Name:	SE Palmblad Rd						SE Palmquist Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0	0 1!	0	0	0 0	0 0	0	0 0	1 0	0	1 0	0 0
Volume Module: >> Count Date: 8 Dec 2005 << 7:15 - 8:15 a.m.												
Base Vol:	120	0	107	0	0	0	0	187	54	36	201	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.16	1.00	1.00	1.16	1.00
Initial Bse:	120	0	107	0	0	0	0	217	54	36	233	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
In Process:	-17	0	8	0	0	0	0	-10	-9	4	0	0
Initial Fut:	103	0	115	0	0	0	0	207	45	40	233	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	129	0	144	0	0	0	0	259	56	50	291	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	129	0	144	0	0	0	0	259	56	50	291	0
Critical Gap Module:												
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	678	678	287	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	315	xxxx	xxxxx
Potent Cap.:	419	375	755	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1240	xxxx	xxxxx
Move Cap.:	406	360	755	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1240	xxxx	xxxxx
Volume/Cap:	0.32	0.00	0.19	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.04	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.0	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	537	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	2.8	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx
Shrd ConDel:	xxxxx	18.4	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.0	xxxx	xxxxx
Shared LOS:	*	C	*	*	*	*	*	*	*	A	*	*
ApproachDel:		18.4			xxxxxx			xxxxxx			xxxxxx	
ApproachLOS:		C			*			*			*	

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Future Volume Alternative

Intersection #5 SE Palmblad Rd/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	1%			0%			3%			3%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												
Upstream Signals:												
Link Index:							#68			#18		
Dist(miles):							0.000			0.000		
Speed (mph):							0.00			0.00		
SignalIndex:							#1			#6		
Cycle Time:							0 secs			0 secs		
InitVolume:							0	0	0	0		
Saturation:							0	0	0	0		
ArrivalType:							0	0	0	0		
G/C:							0.00	0.00	0.00	0.00		
*** Computation 1: Time for Queue to Clear at Each Upstream Intersection												
P:							0.000	0.000	0.000	0.000		
gq1:							0.00	0.00	0.00	0.00		
gq2:							0.00	0.00	0.00	0.00		
gq:							0.00	0.00	0.00	0.00		
*** Computation 2: Time Intersection Blocked Because of Upstream Platoons												
alpha:							0.000			0.000		
beta:							0.000			0.000		
ta (secs):							0.000			0.000		
F:							0.000			0.000		
f:							0.000	0.000	0.000	0.000		
vcmax:							0	0	0	0		
vcg:							0	0	0	0		
vcmin:							0	0	0	0		
tp:							0.0	0.0	0.0	0.0		
p:							0.000			0.000		
*** Computation 3: Platoon Event Periods												
pdom/psubo:							0.000/0.000/Unconstrained					
*** Computation 4: Conflicting Flows During Each Unblocked Period												
InitCnflVol:	678	678	287	750	706	291	0	xxxxx	xxxxx	315	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
ConflictVol:	678	678	287	750	706	291	0	xxxxx	xxxxx	315	xxxxx	xxxxx
*** Computation 5: Capactiy for Subject Movement During Unblocked Period												
InitPotCap:	419	375	755	330	363	753	900	xxxxx	xxxxx	1240	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
PotentCap:	419	375	755	330	363	753	900	xxxxx	xxxxx	1240	xxxxx	xxxxx

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 US 26/SE Palmquist Rd

Cycle (sec): 100 Critical Vol./Cap.(X): 0.730
Loss Time (sec): 16 (Y+R=4.0 sec) Average Delay (sec/veh): 28.3
Optimal Cycle: 73 Level Of Service: C

Street Name:	US 26/Mount Hood Hwy									SE Palmquist Rd					
Approach:	North Bound			South Bound			East Bound			West Bound					
Movement:	L	T	R	L	T	R	L	T	R	L	T	R			
Control:	Protected			Protected			Protected			Protected					
Rights:	Ignore			Include			Include			Include					
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0			
Lanes:	1	0	2	0	1	1	0	2	0	1	1	0	0	1	0	2	0	1	0	1
Volume Module: >> Count Date: 16 Feb 2006 << 7:15 - 8:15 a.m.															
Base Vol:	30	1070	125	75	585	60	105	185	40	55	155	140			
Growth Adj:	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14			
Initial Bse:	34	1220	143	85	667	68	120	211	46	63	177	160			
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0			
In Process:	1	0	0	0	0	3	8	0	-10	0	0	0			
Initial Fut:	35	1220	143	85	667	71	128	211	36	63	177	160			
User Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
PHF Adj:	0.94	0.94	0.00	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
PHF Volume:	37	1298	0	91	709	76	136	224	38	67	188	170			
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0			
Reduced Vol:	37	1298	0	91	709	76	136	224	38	67	188	170			
PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Final Vol.:	37	1298	0	91	709	76	136	224	38	67	188	170			
Saturation Flow Module:															
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Adjustment:	0.92	0.92	1.00	0.88	0.88	0.79	0.87	0.90	0.90	0.91	0.99	0.84			
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	0.86	0.14	2.00	1.00	1.00			
Final Sat.:	1753	3505	1900	1671	3343	1495	1655	1457	246	3468	1882	1600			
Capacity Analysis Module:															
Vol/Sat:	0.02	0.37	0.00	0.05	0.21	0.05	0.08	0.15	0.15	0.02	0.10	0.11			
Crit Moves:		****			****			****				****			
Green/Cycle:	0.05	0.51	0.00	0.07	0.53	0.53	0.11	0.23	0.23	0.03	0.15	0.15			
Volume/Cap:	0.40	0.73	0.00	0.73	0.40	0.10	0.73	0.67	0.67	0.67	0.69	0.73			
Delay/Veh:	48.6	20.8	0.0	64.8	14.2	11.8	56.5	39.6	39.6	64.5	47.7	52.0			
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
AdjDel/Veh:	48.6	20.8	0.0	64.8	14.2	11.8	56.5	39.6	39.6	64.5	47.7	52.0			
LOS by Move:	D	C	A	E	B	B	E	D	D	E	D	D			
HCM2kAvgQ:	2	17	0	4	7	1	6	8	8	2	7	7			

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Operations Method
Future Volume Alternative

Intersection #6 US 26/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HCM Ops Adjusted Lane Utilization Module:												
Lanes:	1 0	2 0	1	1 0	2 0	1	1 0	0 1	0	2 0	1 0	1
Lane Group:	L	T	R	L	T	R	L	RT	RT	L	T	R
#LnsInGrps:	1	2	1	1	2	1	1	1	1	2	1	1
HCM Ops Input Saturation Adj Module:												
Lane Width:	12	12	12	12	12	12	12	12	12	12	12	12
CrosswalkWid		8			8			8			8	
% Hev Veh:		3			8			8			3	
Grade:		0%			0%			+2%			-4%	
Parking/Hr:		No			No			No			No	
Bus Stp/Hr:		0			0			0			0	
Area Type:	< < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >											
Cnft Ped/Hr:		0			0			0			0	
ExclusiveRT:		Include			Include			Include			Include	
% RT Prtct:		0			0			0			0	
HCM Ops f(lt) Adj Case Module:												
f(lt) Case:	1	xxxx	xxxx	1	xxxx	xxxx	1	xxxx	xxxx	1	xxxx	xxxx
HCM Ops Saturation Adj Module:												
Ln Wid Adj:	1.00	1.00	xxxxx	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hev Veh Adj:	0.97	0.97	xxxxx	0.93	0.93	0.93	0.93	0.93	0.93	0.97	0.97	0.97
Grade Adj:	1.00	1.00	xxxxx	1.00	1.00	1.00	0.99	0.99	0.99	1.02	1.02	1.02
Parking Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	xxxx	1.00	1.00	xxxx	xxxx	1.00
Bus Stp Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	xxxx	1.00	1.00	xxxx	xxxx	1.00
Area Adj:	1.00	1.00	xxxxx	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RT Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	0.85	xxxx	0.98	0.98	xxxx	xxxx	0.85
LT Adj:	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx
PedBike Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
HCM Sat Adj:	0.92	0.97	1.00	0.88	0.93	0.79	0.87	0.90	0.90	0.94	0.99	0.84
Usr Sat Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Sat Adj:	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Fnl Sat Adj:	0.92	0.92	1.00	0.88	0.88	0.79	0.87	0.90	0.90	0.91	0.99	0.84
Delay Adjustment Factor Module:												
Coordinated:	< < < < < < < < < < < < < < < No > > > > > > > > > > > > > > >											
Signal Type:	< < < < < < < < < < < < < Actuated > > > > > > > > > > > > >											
DelAdjFctr:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report (HCM2000 Queue Method)
2000 HCM Operations Method
Future Volume Alternative

Intersection #6 US 26/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Green/Cycle:	0.05	0.51	0.00	0.07	0.53	0.53	0.11	0.23	0.23	0.03	0.15	0.15
ArrivalType:		3			3			3			3	
ProgFactor:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1:	1.0	14.8	0.0	2.5	6.2	1.0	3.6	6.6	6.6	0.9	5.0	4.5
UpstreamVC:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UpstreamAdj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EarlyArrAdj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q2:	0.6	2.5	0.0	1.9	0.7	0.1	2.0	1.8	1.8	1.3	1.9	2.1
HCM2KQueue:	1.6	17.3	0.0	4.3	6.9	1.2	5.7	8.5	8.5	2.2	6.8	6.6
70th%Factor:	1.20	1.16	1.20	1.19	1.18	1.20	1.19	1.18	1.18	1.19	1.18	1.18
70th%HCM2kQ:	1.9	20.2	0.0	5.2	8.1	1.4	6.7	10.0	10.0	2.6	8.1	7.9
85th%Factor:	1.58	1.47	1.60	1.56	1.54	1.59	1.55	1.53	1.53	1.58	1.54	1.54
85th%HCM2kQ:	2.6	25.5	0.0	6.8	10.6	1.8	8.8	12.9	12.9	3.5	10.5	10.2
90th%Factor:	1.77	1.57	1.80	1.72	1.68	1.78	1.70	1.66	1.66	1.76	1.68	1.69
90th%HCM2kQ:	2.9	27.2	0.0	7.5	11.6	2.1	9.7	14.1	14.1	3.9	11.5	11.2
95th%Factor:	2.05	1.73	2.10	1.97	1.91	2.06	1.94	1.87	1.87	2.03	1.91	1.92
95th%HCM2kQ:	3.3	30.0	0.0	8.6	13.1	2.4	11.0	15.9	15.9	4.5	13.0	12.7
98th%Factor:	2.58	1.96	2.70	2.42	2.29	2.62	2.35	2.22	2.22	2.54	2.29	2.30
98th%HCM2kQ:	4.2	34.0	0.0	10.5	15.7	3.0	13.3	18.8	18.8	5.6	15.6	15.3

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Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 SE Fleming/HS Driveway

Average Delay (sec/veh): 0.3 Worst Case Level Of Service: B[11.6]

Street Name:	SE Fleming Ave						High School Driveway					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1	0	0	0 1	0	0 0	0 0	0	0	0 0	1! 0	0
Volume Module: 7:15 - 8:15 a.m.												
Base Vol:	0	170	0	15	230	0	0	0	0	1	0	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	170	0	15	230	0	0	0	0	1	0	1
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
In Process:	0	-5	0	0	-16	0	0	0	0	0	0	0
Initial Fut:	0	165	0	15	214	0	0	0	0	1	0	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	0	206	0	19	267	0	0	0	0	1	0	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	206	0	19	267	0	0	0	0	1	0	1
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.9	7.0	6.7
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.0	4.5	3.8
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	206	xxxx	xxxxx	xxxx	xxxx	xxxxx	511	511	206
Potent Cap.:	xxxx	xxxx	xxxxx	1359	xxxx	xxxxx	xxxx	xxxx	xxxxx	447	404	727
Move Cap.:	xxxx	xxxx	xxxxx	1359	xxxx	xxxxx	xxxx	xxxx	xxxxx	442	398	727
Volume/Cap:	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	xxxx	xxxx	xxxx	0.00	0.00	0.00
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	550	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.0	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	11.6	xxxxx
Shared LOS:	*	*	*	A	*	*	*	*	*	*	B	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			11.6		
ApproachLOS:	*			*			*			B		

Note: Queue reported is the number of cars per lane.

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Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Future Volume Alternative

Intersection #19 SE Fleming/HS Driveway

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	4%			3%			0%			50%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #21 Fleming/North Elem School Dwy

Average Delay (sec/veh): 0.9 Worst Case Level Of Service: B[10.9]

Street Name:	SE Fleming Ave						North Elem School Dwy					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1	0	0	0 1	0	0 0	0 0	0	0	0 0	1! 0	0
Volume Module: 7:15 - 8:15 a.m.												
Base Vol:	0	160	0	30	200	0	0	0	0	2	0	10
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	160	0	30	200	0	0	0	0	2	0	10
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
In Process:	0	-5	0	0	-16	0	0	0	0	0	0	0
Initial Fut:	0	155	0	30	184	0	0	0	0	2	0	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	0	194	0	38	230	0	0	0	0	3	0	13
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	194	0	38	230	0	0	0	0	3	0	13
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.1	7.2	6.9
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	4.6	3.9
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	194	xxxx	xxxxx	xxxx	xxxx	xxxxx	499	499	194
Potent Cap.:	xxxx	xxxx	xxxxx	1368	xxxx	xxxxx	xxxx	xxxx	xxxxx	428	388	701
Move Cap.:	xxxx	xxxx	xxxxx	1368	xxxx	xxxxx	xxxx	xxxx	xxxxx	419	378	701
Volume/Cap:	xxxx	xxxx	xxxx	0.03	xxxx	xxxx	xxxx	xxxx	xxxx	0.01	0.00	0.02
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	630	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	10.9	xxxxx
Shared LOS:	*	*	*	A	*	*	*	*	*	*	B	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			10.9		
ApproachLOS:	*			*			*			B		

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Future Volume Alternative

Intersection #21 Fleming/North Elem School Dwy

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	1%			4%			0%			70%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												

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Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #23 Fleming/Middle Elem School Dwy

Average Delay (sec/veh): 4.4 Worst Case Level Of Service: A[9.5]

Street Name:	SE Fleming Ave						Middle Elem School Dwy					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1	0	0	0 1	0	0 0	0 0	0	0 0	0 0	1! 0	0
Volume Module: 7:15 - 8:15 a.m.												
Base Vol:	0	10	0	20	180	0	0	0	0	0	0	150
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	10	0	20	180	0	0	0	0	0	0	150
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
In Process:	0	15	0	0	-16	0	0	0	0	20	0	-20
Initial Fut:	0	25	0	20	164	0	0	0	0	20	0	130
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	0	31	0	25	205	0	0	0	0	25	0	163
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	31	0	25	205	0	0	0	0	25	0	163
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	6.5	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	4.0	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	31	xxxx	xxxxx	xxxx	xxxx	xxxxx	286	286	31
Potent Cap.:	xxxx	xxxx	xxxxx	1588	xxxx	xxxxx	xxxx	xxxx	xxxxx	708	627	1049
Move Cap.:	xxxx	xxxx	xxxxx	1588	xxxx	xxxxx	xxxx	xxxx	xxxxx	700	617	1049
Volume/Cap:	xxxx	xxxx	xxxx	0.02	xxxx	xxxx	xxxx	xxxx	xxxx	0.04	0.00	0.15
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	7.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	983	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.7	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	7.3	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	9.5	xxxxx
Shared LOS:	*	*	*	A	*	*	*	*	*	*	A	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			9.5		
ApproachLOS:	*			*			*			A		

Note: Queue reported is the number of cars per lane.

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Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Future Volume Alternative

Intersection #23 Fleming/Middle Elem School Dwy

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	1%			1%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												

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------------------------------------------------------------------------------
               Kittelson & Associates, Inc.  --  Project #7670
                   Brickworks Village  --  Gresham, Oregon
             2008 Background Conditions  --  Weekday AM Peak Hour
------------------------------------------------------------------------------
                     Level Of Service Computation Report
            2000 HCM Unsignalized Method (Future Volume Alternative)
******************************************************************************
Intersection #24 Fleming/South Elem School Dwy
******************************************************************************
Average Delay (sec/veh):      5.5       Worst Case Level Of Service: A[  8.5]
******************************************************************************
Street Name:          SE Fleming Ave               South Elem School Dwy
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:        0  0  0  1  0    0  1  0  0  0    0  0  0  0  0    0  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module: 7:15 - 8:15 a.m.
Base Vol:       0    1     0   175    5     0     0    0     0     0    0    10
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0    1     0   175    5     0     0    0     0     0    0    10
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
In Process:     0   15    20   -20   24     0     0    0     0     0    0     0
Initial Fut:    0   16    20   155   29     0     0    0     0     0    0    10
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.80 0.80  0.80  0.80 0.80  0.80  0.80 0.80  0.80  0.80 0.80  0.80
PHF Volume:     0   20    25   194   36     0     0    0     0     0    0    13
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0   20    25   194   36     0     0    0     0     0    0    13
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   3.3
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx    45 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx    33
Potent Cap.: xxxx xxxx xxxxx  1570 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx  1047
Move Cap.:   xxxx xxxx xxxxx  1570 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx  1047
Volume/Cap:  xxxx xxxx  xxxx  0.12 xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  0.01
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.4 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   0.0
Control Del:xxxxx xxxx xxxxx   7.6 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   8.5
LOS by Move:   *    *     *     A    *     *     *    *     *     *    *     A
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx   0.4 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx   7.6 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:    *    *     *     A    *     *     *    *     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx           xxxxxx             8.5
ApproachLOS:         *                *                *               A
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
```



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------------------------------------------------------------------------------
               Kittelson & Associates, Inc.  --  Project #7670
                   Brickworks Village  --  Gresham, Oregon
             2008 Background Conditions  --  Weekday AM Peak Hour
------------------------------------------------------------------------------
                  Level Of Service Detailed Computation Report
                        2000 HCM Unsignalized Method
                          Future Volume Alternative
******************************************************************************
Intersection #24 Fleming/South Elem School Dwy
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
HevVeh:             1%               1%               0%               0%
Grade:              0%               0%               0%               0%
Peds/Hour:          0                0                0                0
Pedestrian Walk Speed: 4.00 feet/sec
LaneWidth:       12 feet          12 feet          12 feet          12 feet
Time Period: 0.25 hour
```

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday PM Peak Hour

Scenario Report

Scenario:	bkpm
Command:	bkpm
Volume:	bkpm
Geometry:	bkpm
Impact Fee:	Default Impact Fee
Trip Generation:	null
Trip Distribution:	null
Paths:	null
Routes:	Default Routes
Configuration:	bkpm

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday PM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 SE Hogan Ave/SE Palmquist Rd	B	18.7	0.643	C	26.7	0.871	+ 8.014 D/V
# 4 SE Fleming/SE Palmquist	C	15.4	0.000	F	67.9	0.000	+52.485 D/V
# 5 SE Palmblad Rd/SE Palmquist Rd	C	20.0	0.000	D	25.4	0.000	+ 5.372 D/V
# 6 US 26/SE Palmquist Rd	C	32.0	0.683	C	33.6	0.710	+ 1.641 D/V

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Cycle (sec):	70	Critical Vol./Cap.(X):	0.871	
Loss Time (sec):	16 (Y+R=4.0 sec)	Average Delay (sec/veh):	26.7	
Optimal Cycle:	87	Level Of Service:	C	

Street Name:	SE Hogan Ave								SE Palmquist Rd											
Approach:	North Bound				South Bound				East Bound				West Bound							
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Prot+Permit				Prot+Permit				Prot+Permit				Prot+Permit							
Rights:	Include				Include				Include				Include							
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0					
Lanes:	1	0	1	0	1	1	0	1	0	1	1	0	0	1	0	1	0	0	1	0
Volume Module: >> Count Date: 15 Mar 2007 << 4:45 - 5:45 p.m.																				
Base Vol:	14	405	147		115	321	83		59	92	34		118	99	127					
Growth Adj:	1.02	1.02	1.02		1.02	1.02	1.02		1.02	1.02	1.02		1.02	1.02	1.02					
Initial Bse:	14	413	150		117	327	85		60	94	35		120	101	130					
Added Vol:	0	0	0		0	0	0		0	0	0		0	0	0					
In Process:	0	0	8		129	0	0		0	54	0		6	46	105					
Initial Fut:	14	413	158		246	327	85		60	148	35		126	147	235					
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00					
PHF Adj:	0.93	0.93	0.93		0.93	0.93	0.93		0.93	0.93	0.93		0.93	0.93	0.93					
PHF Volume:	15	444	170		265	352	91		65	159	37		136	158	252					
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0					
Reduced Vol:	15	444	170		265	352	91		65	159	37		136	158	252					
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00					
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00					
Final Vol.:	15	444	170		265	352	91		65	159	37		136	158	252					
Saturation Flow Module:																				
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900					
Adjustment:	0.91	0.96	0.82		0.93	0.98	0.83		0.94	0.96	0.96		0.93	0.89	0.89					
Lanes:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	0.81	0.19		1.00	0.39	0.61					
Final Sat.:	1734	1825	1551		1769	1862	1583		1787	1481	347		1769	651	1039					
Capacity Analysis Module:																				
Vol/Sat:	0.01	0.24	0.11		0.15	0.19	0.06		0.04	0.11	0.11		0.08	0.24	0.24					
Crit Moves:		****			****				****					****						
Green/Cycle:	0.30	0.28	0.28		0.51	0.43	0.43		0.23	0.19	0.19		0.38	0.28	0.28					
Volume/Cap:	0.05	0.87	0.39		0.65	0.44	0.13		0.33	0.58	0.58		0.34	0.87	0.87					
Delay/Veh:	17.4	39.1	21.0		16.1	14.4	12.1		22.8	28.3	28.3		15.6	40.1	40.1					
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00					
AdjDel/Veh:	17.4	39.1	21.0		16.1	14.4	12.1		22.8	28.3	28.3		15.6	40.1	40.1					
LOS by Move:	B	D	C		B	B	B		C	C	C		B	D	D					
HCM2kAvgQ:	0	13	3		5	6	1		2	5	5		2	12	12					

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday PM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Operations Method
Future Volume Alternative

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
HCM Ops Adjusted Lane Utilization Module:																
Lanes:	1	0	1	0 1	1	0	1	0 1	1	0	0	1 0	1	0	0	1 0
Lane Group:	L		T	R	L		T	R	L		RT	RT	L		RT	RT
#LnsInGrps:	1		1	1	1		1	1	1		1	1	1		1	1
HCM Ops Input Saturation Adj Module:																
Lane Width:	12		12	12	12		12	12	12		12	12	12		12	12
CrosswalkWid	8				8				8				8			
% Hev Veh:	2				2				1				2			
Grade:	+4%				0%				0%				0%			
Parking/Hr:	No				No				No				No			
Bus Stp/Hr:	0				0				0				0			
Area Type:	< < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >															
Cnft Ped/Hr:	0				0				0				0			
ExclusiveRT:	Include				Include				Include				Include			
% RT Prtct:	0				0				0				0			
HCM Ops f(lt) Adj Case Module:																
f(lt) Case:	1 xxxx		xxxx		1 xxxx		xxxx		1 xxxx		xxxx		1 xxxx		xxxx	
HCM Ops Saturation Adj Module:																
Ln Wid Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Hev Veh Adj:	0.98	0.98	0.98		0.98	0.98	0.98		0.99	0.99	0.99		0.98	0.98	0.98	
Grade Adj:	0.98	0.98	0.98		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Parking Adj:	xxxx	xxxx	1.00		xxxx	xxxx	1.00		xxxx	1.00	1.00		xxxx	1.00	1.00	
Bus Stp Adj:	xxxx	xxxx	1.00		xxxx	xxxx	1.00		xxxx	1.00	1.00		xxxx	1.00	1.00	
Area Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
RT Adj:	xxxx	xxxx	0.85		xxxx	xxxx	0.85		xxxx	0.97	0.97		xxxx	0.91	0.91	
LT Adj:	0.95	xxxx	xxxxx		0.95	xxxx	xxxxx		0.95	xxxx	xxxxx		0.95	xxxx	xxxxx	
PedBike Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
HCM Sat Adj:	0.91	0.96	0.82		0.93	0.98	0.83		0.94	0.96	0.96		0.93	0.89	0.89	
Usr Sat Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Sat Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Fnl Sat Adj:	0.91	0.96	0.82		0.93	0.98	0.83		0.94	0.96	0.96		0.93	0.89	0.89	
Delay Adjustment Factor Module:																
PrtPermCase:	1				1				1				1			
Coordinated:	< < < < < < < < < < < < < < < No > > > > > > > > > > > > > > >															
Signal Type:	< < < < < < < < < < < < < Actuated > > > > > > > > > > > > > > >															
DelAdjFctr:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday PM Peak Hour

Level Of Service Detailed Computation Report (Dual Phase Control)
2000 HCM Operations Method
Future Volume Alternative

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L2	L1	T	L2	L1	T	L2	L1	T	L2	L1	T
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
HCM Ops f(rt) and f(lt) Adj Case Module:												
f(rt) Case:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	5	xxxx	xxxx	5
f(lt) Case:	2	1	xxxx	2	1	xxxx	2	1	xxxx	2	1	xxxx
HCM Ops Saturation Adj Module:												
Ln Wid Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hev Veh Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.99	0.99	0.99	0.98	0.98	0.98
Grade Adj:	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	xxxx	xxxx	1.00
Bus Stp Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	xxxx	xxxx	1.00
Area Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RT Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	0.97	xxxx	xxxx	0.91
LT Adj:	0.55	0.95	xxxxx	0.17	0.95	xxxxx	0.34	0.95	xxxxx	0.37	0.95	xxxxx
HCM Sat Adj:	0.53	0.91	0.96	0.17	0.93	0.98	0.34	0.94	0.96	0.36	0.93	0.89
Usr Sat Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Sat Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fnl Sat Adj:	0.53	0.91	0.96	0.17	0.93	0.98	0.34	0.94	0.96	0.36	0.93	0.89
Volume Module:												
Volume:	0	15	444	0	265	352	0	65	159	0	136	158
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.53	0.91	0.96	0.17	0.93	0.98	0.34	0.94	0.96	0.36	0.93	0.89
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	1.00	1.00	0.39
Final Sat.:	998	1734	1825	316	1769	1862	645	1787	1481	692	1769	651
Capacity Analysis Module:												
Vol/Sat:	0.00	0.01	0.24	0.00	0.15	0.19	0.00	0.04	0.11	0.00	0.08	0.24
Crit Moves:			****		****			****				****
Green/Cycle:	0.28	0.02	0.28	0.34	0.17	0.43	0.19	0.04	0.19	0.24	0.13	0.28
Volume/Cap:	0.00	0.45	0.87	0.00	0.87	0.44	0.00	0.87	0.58	0.00	0.58	0.87

Note: L2 = Permitted Left, L1 = Protected Left, T = Thru

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday PM Peak Hour

Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
2000 HCM Operations Method
Future Volume Alternative

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Approach:	North	South	East	West
Cycle Length, C:	70	70	70	70
Actual Green Time Per Lane Group, G:	20.97	35.59	15.97	26.41
Effective Green Time Per Lane Group, g:	19.56	23.56	13.06	17.06
Opposing Effective Green Time, go:	30.18	19.56	19.50	13.06
Number Of Opposing Lanes, No:	1	1	1	1
Number Of Lanes In Lane Group, N:	1	1	1	1
Adjusted Left-Turn Flow Rate, Vlt:	15	265	65	136
Proportion of Left Turns in Lane Group, Plt:	1.00	1.00	1.00	1.00
Proportion of Left Turns in Opp Flow, Plto:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Left Turns Per Cycle, LTC:	0.30	5.15	1.26	2.64
Adjusted Opposing Flow Rate, Vo:	352	444	410	196
Opposing Flow Per Lane Per Cycle, Volc:	6.84	8.63	7.97	3.81
Opposing Platoon Ratio, Rpo:	1.00	1.00	1.00	1.00
Lost Time Per Phase, tl:	4.00	0.00	4.00	0.00
Eff grn until arrival of left-turn car, gf:	0.00	0.00	0.00	0.00
Opposing Queue Ratio, qro:	0.57	0.72	0.72	0.81
Eff grn blocked by opposing queue, gq:	0.00	16.52	4.46	6.96
Eff grn while left turns filter thru, gu:	19.56	7.04	8.60	10.10
Max opposing cars arriving during gq-gf, n:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Proportion of Opposing Thru & RT cars, ptho:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Left-turn Saturation Factor, fs:	0.66	0.60	0.62	0.75
Proportion of Left Turns in Shared Lane, pl:	1.00	1.00	1.00	1.00
Through-car Equivalents, el1:	1.83	1.99	1.92	1.59
Single Lane Through-car Equivalents, el2:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Minimum Left Turn Adjustment Factor, fmin:	0.20	0.17	0.31	0.23
Single Lane Left Turn Adjustment Factor, fm:	0.55	0.17	0.34	0.37
Left Turn Adjustment Factor, flt:	0.55	0.17	0.34	0.37

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday PM Peak Hour

Level Of Service Detailed Computation Report (HCM2000 Queue Method)
2000 HCM Operations Method
Future Volume Alternative

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Green/Cycle:	0.02	0.28	0.28	0.17	0.43	0.43	0.04	0.19	0.19	0.13	0.28	0.28
ArrivalType:		3			3			3			3	
ProgFactor:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1:	0.2	8.2	2.7	3.8	4.8	1.1	1.1	3.5	3.5	1.9	7.6	7.6
UpstreamVC:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UpstreamAdj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EarlyArrAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q2:	0.1	4.4	0.6	1.7	0.8	0.2	0.5	1.3	1.3	0.5	4.3	4.3
HCM2KQueue:	0.3	12.6	3.3	5.4	5.6	1.2	1.5	4.7	4.7	2.4	11.9	11.9
70th%Factor:	1.20	1.17	1.19	1.19	1.19	1.20	1.20	1.19	1.19	1.19	1.17	1.17
70th%HCM2kQ:	0.3	14.8	3.9	6.5	6.6	1.5	1.8	5.6	5.6	2.8	14.0	14.0
85th%Factor:	1.60	1.50	1.57	1.55	1.55	1.59	1.59	1.56	1.56	1.58	1.50	1.50
85th%HCM2kQ:	0.4	18.9	5.2	8.4	8.6	1.9	2.4	7.4	7.4	3.8	17.9	17.9
90th%Factor:	1.79	1.61	1.74	1.70	1.70	1.78	1.77	1.72	1.72	1.76	1.62	1.62
90th%HCM2kQ:	0.5	20.4	5.7	9.3	9.5	2.2	2.7	8.1	8.1	4.2	19.3	19.3
95th%Factor:	2.09	1.80	2.00	1.94	1.94	2.06	2.05	1.96	1.96	2.03	1.81	1.81
95th%HCM2kQ:	0.6	22.7	6.6	10.6	10.8	2.5	3.1	9.3	9.3	4.8	21.6	21.6
98th%Factor:	2.68	2.08	2.48	2.36	2.35	2.61	2.59	2.39	2.39	2.53	2.10	2.10
98th%HCM2kQ:	0.7	26.2	8.2	12.8	13.1	3.2	4.0	11.4	11.4	6.0	25.0	25.0

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 SE Fleming/SE Palmquist

Average Delay (sec/veh): 6.4 Worst Case Level Of Service: F[67.9]

Street Name:	SE Fleming Ave						SE Palmquist Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0	0 1! 0	0	1	0	0 1	0	1	0	0 1	0	1	0	0 1	0
Volume Module: >> Count Date: 15 Mar 2007 << 4:30 - 5:30 p.m.												
Base Vol:	26	0	14	0	0	0	0	366	31	15	299	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.02	1.00	1.00	1.02	1.00
Initial Bse:	26	0	14	0	0	0	0	373	31	15	305	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
In Process:	10	0	0	22	0	133	158	18	15	0	14	26
Initial Fut:	36	0	14	22	0	133	158	391	46	15	319	26
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
PHF Volume:	42	0	16	26	0	155	184	455	53	17	371	30
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	42	0	16	26	0	155	184	455	53	17	371	30
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1347	1285	484	1280	1297	386	401	xxxx	xxxxx	509	xxxx	xxxxx
Potent Cap.:	127	164	581	144	163	666	1163	xxxx	xxxxx	1051	xxxx	xxxxx
Move Cap.:	85	136	580	121	135	666	1163	xxxx	xxxxx	1051	xxxx	xxxxx
Volume/Cap:	0.49	0.00	0.03	0.21	0.00	0.23	0.16	xxxx	xxxx	0.02	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	0.8	xxxx	xxxxx	0.6	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	42.5	xxxx	xxxxx	8.7	xxxx	xxxxx	8.5	xxxx	xxxxx
LOS by Move:	*	*	*	E	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	112	xxxxx	xxxx	xxxx	666	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	2.4	xxxxx	xxxxx	xxxx	0.9	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	67.9	xxxxx	xxxxx	xxxx	12.0	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	F	*	*	*	B	*	*	*	*	*	*
ApproachDel:	67.9			16.3			xxxxxx			xxxxxx		
ApproachLOS:	F			C			*			*		

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday PM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Future Volume Alternative

Intersection #4 SE Fleming/SE Palmquist

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
HevVeh:	3%			0%			1%			3%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			2		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												
Upstream Signals:												
Link Index:							#68			#18		
Dist(miles):							0.000			0.000		
Speed (mph):							0.00			0.00		
SignalIndex:							#1			#6		
Cycle Time:							0 secs			0 secs		
InitVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Saturation:	0	0	0	0	0	0	0	0	0	0	0	0
ArrivalType:	0	0	0	0	0	0	0	0	0	0	0	0
G/C:	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
*** Computation 1: Time for Queue to Clear at Each Upstream Intersection												
P:	0.000	0.000		0.000	0.000		0.000	0.000		0.000	0.000	
gq1:	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
gq2:	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
gq:	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
*** Computation 2: Time Intersection Blocked Because of Upstream Platoons												
alpha:							0.000			0.000		
beta:							0.000			0.000		
ta (secs):							0.000			0.000		
F:							0.000			0.000		
f:	0.000	0.000		0.000	0.000		0.000	0.000		0.000	0.000	
vcmax:	0	0	0	0	0	0	0	0	0	0	0	0
vcg:	0	0	0	0	0	0	0	0	0	0	0	0
vcmin:	0	0	0	0	0	0	0	0	0	0	0	0
tp:	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
p:							0.000			0.000		
*** Computation 3: Platoon Event Periods												
pdom/psubo:							0.000/0.000/Unconstrained					
*** Computation 4: Conflicting Flows During Each Unblocked Period												
InitCnflVol:	1347	1285	484	1280	1297	386	401	xxxxx	xxxxx	509	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
ConflictVol:	1347	1285	484	1280	1297	386	401	xxxxx	xxxxx	509	xxxxx	xxxxx
*** Computation 5: Capactiy for Subject Movement During Unblocked Period												
InitPotCap:	127	164	581	144	163	666	1163	xxxxx	xxxxx	1051	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
PotentCap:	127	164	581	144	163	666	1163	xxxxx	xxxxx	1051	xxxxx	xxxxx

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 SE Palmblad Rd/SE Palmquist Rd

Average Delay (sec/veh): 5.2 Worst Case Level Of Service: D[25.4]

Street Name:	SE Palmblad Rd						SE Palmquist Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0	0 1!	0	0	0 0	0	0	0 0	1 0	0	1 0	0 0
Volume Module: >> Count Date: 8 Dec 2005 << 4:30 - 5:30 p.m.												
Base Vol:	90	0	70	0	0	0	0	275	95	85	260	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.06	1.00	1.00	1.06	1.00
Initial Bse:	90	0	70	0	0	0	0	292	95	85	276	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
In Process:	7	0	7	0	0	0	0	31	7	14	38	0
Initial Fut:	97	0	77	0	0	0	0	323	102	99	314	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	104	0	83	0	0	0	0	347	110	106	337	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	104	0	83	0	0	0	0	347	110	106	337	0
Critical Gap Module:												
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	952	952	402	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	456	xxxx	xxxxx
Potent Cap.:	288	260	649	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1099	xxxx	xxxxx
Move Cap.:	265	233	649	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1099	xxxx	xxxxx
Volume/Cap:	0.39	0.00	0.13	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.10	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.6	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	359	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	2.9	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.3	xxxx	xxxxx
Shrd ConDel:	xxxxx	25.4	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.6	xxxx	xxxxx
Shared LOS:	*	D	*	*	*	*	*	*	*	A	*	*
ApproachDel:		25.4			xxxxxx			xxxxxx			xxxxxx	
ApproachLOS:		D			*			*			*	

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday PM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Future Volume Alternative

Intersection #5 SE Palmblad Rd/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	2%			0%			1%			3%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												
Upstream Signals:												
Link Index:							#68			#18		
Dist(miles):							0.000			0.000		
Speed (mph):							0.00			0.00		
SignalIndex:							#1			#6		
Cycle Time:							0 secs			0 secs		
InitVolume:							0	0	0	0		
Saturation:							0	0	0	0		
ArrivalType:							0	0	0	0		
G/C:							0.00	0.00	0.00	0.00		
*** Computation 1: Time for Queue to Clear at Each Upstream Intersection												
P:							0.000	0.000	0.000	0.000		
gq1:							0.00	0.00	0.00	0.00		
gq2:							0.00	0.00	0.00	0.00		
gq:							0.00	0.00	0.00	0.00		
*** Computation 2: Time Intersection Blocked Because of Upstream Platoons												
alpha:							0.000			0.000		
beta:							0.000			0.000		
ta (secs):							0.000			0.000		
F:							0.000			0.000		
f:							0.000	0.000	0.000	0.000		
vcmax:							0	0	0	0		
vcg:							0	0	0	0		
vcmin:							0	0	0	0		
tp:							0.0	0.0	0.0	0.0		
p:							0.000			0.000		
*** Computation 3: Platoon Event Periods												
pdom/psubo:							0.000/0.000/Unconstrained					
*** Computation 4: Conflicting Flows During Each Unblocked Period												
InitCnflVol:	952	952	402	993	1007	337	0	xxxxx	xxxxx	456	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
ConflictVol:	952	952	402	993	1007	337	0	xxxxx	xxxxx	456	xxxxx	xxxxx
*** Computation 5: Capactiy for Subject Movement During Unblocked Period												
InitPotCap:	288	260	649	226	243	710	900	xxxxx	xxxxx	1099	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
PotentCap:	288	260	649	226	243	710	900	xxxxx	xxxxx	1099	xxxxx	xxxxx

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 US 26/SE Palmquist Rd

Cycle (sec):	120	Critical Vol./Cap.(X):	0.710	
Loss Time (sec):	16 (Y+R=4.0 sec)	Average Delay (sec/veh):	33.6	
Optimal Cycle:	74	Level Of Service:	C	

Street Name:	US 26/Mount Hood Hwy									SE Palmquist Rd								
Approach:	North Bound				South Bound				East Bound				West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Protected				Protected				Protected				Protected					
Rights:	Ignore				Include				Include				Include					
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0			
Lanes:	1	0	2	0	1	1	0	2	0	1	1	0	0	1	0	2	0	1	0	1
Volume Module: >> Count Date: 15 Mar 2007 << 4:30 - 5:30 p.m.																				
Base Vol:	50	890	136		79	1142	101		89	189	50		224	202	111			
Growth Adj:	1.02	1.02	1.02		1.02	1.02	1.02		1.02	1.02	1.02		1.02	1.02	1.02			
Initial Bse:	51	908	139		81	1165	103		91	193	51		228	206	113			
Added Vol:	0	0	0		0	0	0		0	0	0		0	0	0			
In Process:	13	0	0		0	0	17		11	21	6		0	25	0			
Initial Fut:	64	908	139		81	1165	120		102	214	57		228	231	113			
User Adj:	1.00	1.00	0.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00			
PHF Adj:	0.94	0.94	0.00		0.94	0.94	0.94		0.94	0.94	0.94		0.94	0.94	0.94			
PHF Volume:	68	966	0		86	1239	128		108	227	61		243	246	120			
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0			
Reduced Vol:	68	966	0		86	1239	128		108	227	61		243	246	120			
PCE Adj:	1.00	1.00	0.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00			
MLF Adj:	1.00	1.00	0.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00			
Final Vol.:	68	966	0		86	1239	128		108	227	61		243	246	120			
Saturation Flow Module:																		
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900			
Adjustment:	0.93	0.93	1.00		0.93	0.93	0.83		0.94	0.96	0.96		0.93	1.01	0.86			
Lanes:	1.00	2.00	1.00		1.00	2.00	1.00		1.00	0.79	0.21		2.00	1.00	1.00			
Final Sat.:	1769	3538	1900		1769	3538	1583		1787	1438	383		3536	1919	1631			
Capacity Analysis Module:																		
Vol/Sat:	0.04	0.27	0.00		0.05	0.35	0.08		0.06	0.16	0.16		0.07	0.13	0.07			
Crit Moves:	****					****				****			****					
Green/Cycle:	0.05	0.46	0.00		0.08	0.49	0.49		0.10	0.22	0.22		0.10	0.22	0.22			
Volume/Cap:	0.71	0.59	0.00		0.59	0.71	0.16		0.59	0.71	0.71		0.71	0.59	0.34			
Delay/Veh:	77.7	24.2	0.0		59.2	25.1	16.9		56.5	48.8	48.8		59.4	44.5	40.3			
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00			
AdjDel/Veh:	77.7	24.2	0.0		59.2	25.1	16.9		56.5	48.8	48.8		59.4	44.5	40.3			
LOS by Move:	E	C	A		E	C	B		E	D	D		E	D	D			
HCM2kAvgQ:	4	14	0		4	19	3		5	11	11		6	9	4			

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday PM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Operations Method
Future Volume Alternative

Intersection #6 US 26/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HCM Ops Adjusted Lane Utilization Module:												
Lanes:	1 0	2 0	1	1 0	2 0	1	1 0	0 1	0	2 0	1 0	1
Lane Group:	L	T	R	L	T	R	L	RT	RT	L	T	R
#LnsInGrps:	1	2	1	1	2	1	1	1	1	2	1	1
HCM Ops Input Saturation Adj Module:												
Lane Width:	12	12	12	12	12	12	12	12	12	12	12	12
CrosswalkWid		8			8			8			8	
% Hev Veh:		2			2			0			1	
Grade:		0%			0%			+2%			-4%	
Parking/Hr:		No			No			No			No	
Bus Stp/Hr:		0			0			0			0	
Area Type:	< < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >											
Cnft Ped/Hr:		1			0			1			0	
ExclusiveRT:		Include			Include			Include			Include	
% RT Prtct:		0			0			0			0	
HCM Ops f(lt) Adj Case Module:												
f(lt) Case:	1	xxxx	xxxx	1	xxxx	xxxx	1	xxxx	xxxx	1	xxxx	xxxx
HCM Ops Saturation Adj Module:												
Ln Wid Adj:	1.00	1.00	xxxxx	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hev Veh Adj:	0.98	0.98	xxxxx	0.98	0.98	0.98	1.00	1.00	1.00	0.99	0.99	0.99
Grade Adj:	1.00	1.00	xxxxx	1.00	1.00	1.00	0.99	0.99	0.99	1.02	1.02	1.02
Parking Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	xxxx	1.00	1.00	xxxx	xxxx	1.00
Bus Stp Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	xxxx	1.00	1.00	xxxx	xxxx	1.00
Area Adj:	1.00	1.00	xxxxx	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RT Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	0.85	xxxx	0.97	0.97	xxxx	xxxx	0.85
LT Adj:	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx
PedBike Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
HCM Sat Adj:	0.93	0.98	1.00	0.93	0.98	0.83	0.94	0.96	0.96	0.96	1.01	0.86
Usr Sat Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Sat Adj:	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Fnl Sat Adj:	0.93	0.93	1.00	0.93	0.93	0.83	0.94	0.96	0.96	0.93	1.01	0.86
Delay Adjustment Factor Module:												
Coordinated:	< < < < < < < < < < < < < < < No > > > > > > > > > > > > > > >											
Signal Type:	< < < < < < < < < < < < < Actuated > > > > > > > > > > > > >											
DelAdjFctr:	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Background Conditions -- Weekday PM Peak Hour

Level Of Service Detailed Computation Report (HCM2000 Queue Method)
2000 HCM Operations Method
Future Volume Alternative

Intersection #6 US 26/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Green/Cycle:	0.05	0.46	0.00	0.08	0.49	0.49	0.10	0.22	0.22	0.10	0.22	0.22
ArrivalType:		3			3			3			3	
ProgFactor:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1:	2.2	12.5	0.0	2.8	17.0	2.3	3.4	8.9	8.9	4.1	7.4	3.4
UpstreamVC:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UpstreamAdj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EarlyArrAdj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q2:	1.7	1.4	0.0	1.2	2.3	0.2	1.3	2.1	2.1	1.9	1.4	0.5
HCM2KQueue:	3.9	13.9	0.0	4.0	19.3	2.5	4.7	11.0	11.0	5.9	8.7	3.9
70th%Factor:	1.19	1.17	1.20	1.19	1.16	1.19	1.19	1.18	1.18	1.19	1.18	1.19
70th%HCM2kQ:	4.6	16.2	0.0	4.7	22.4	3.0	5.6	12.9	12.9	7.0	10.3	4.6
85th%Factor:	1.56	1.49	1.60	1.56	1.46	1.58	1.56	1.51	1.51	1.55	1.52	1.56
85th%HCM2kQ:	6.1	20.6	0.0	6.2	28.1	4.0	7.3	16.6	16.6	9.2	13.3	6.1
90th%Factor:	1.73	1.60	1.80	1.73	1.55	1.75	1.72	1.63	1.63	1.70	1.66	1.73
90th%HCM2kQ:	6.7	22.2	0.0	6.9	29.9	4.5	8.1	18.0	18.0	10.1	14.5	6.7
95th%Factor:	1.98	1.78	2.10	1.98	1.71	2.02	1.96	1.83	1.83	1.93	1.87	1.98
95th%HCM2kQ:	7.7	24.6	0.0	7.9	32.9	5.1	9.3	20.1	20.1	11.5	16.3	7.7
98th%Factor:	2.44	2.04	2.70	2.44	1.93	2.52	2.40	2.13	2.13	2.33	2.21	2.44
98th%HCM2kQ:	9.5	28.3	0.0	9.7	37.1	6.4	11.3	23.4	23.4	13.9	19.3	9.5

Ordinance No. 07-1148
Attachment 7

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Scenario Report

Scenario:	wsam
Command:	wsam
Volume:	wsam
Geometry:	wsam
Impact Fee:	Default Impact Fee
Trip Generation:	wsam
Trip Distribution:	ws
Paths:	am
Routes:	Default Routes
Configuration:	wsam

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 SE Hogan Ave/SE Palmquist Rd	C	20.2	0.690	C	22.1	0.752	+ 1.917 D/V
# 2 West Site Driveway/SE Palmquis	A	0.0	0.000	C	16.2	0.000	+16.186 D/V
# 3 Mid-Block Site Driveway/SE Pal	A	0.0	0.000	B	10.8	0.000	+10.819 D/V
# 4 SE Fleming/SE Palmquist	C	22.0	0.000	C	17.5	0.000	-4.513 D/V
# 5 SE Palmblad Rd/SE Palmquist Rd	C	20.4	0.000	C	20.5	0.000	+ 0.047 D/V
# 6 US 26/SE Palmquist Rd	C	28.7	0.736	C	29.8	0.748	+ 1.061 D/V
# 19 SE Fleming/HS Driveway	B	11.8	0.000	B	11.2	0.000	-0.531 D/V
# 20 SE Fleming/Main East Dwy	A	0.0	0.000	A	9.5	0.000	+ 9.499 D/V
# 21 Fleming/North Elem School Dwy	B	10.9	0.000	B	10.7	0.000	-0.295 D/V
# 23 Fleming/Middle Elem School Dwy	A	9.1	0.000	A	9.3	0.000	+ 0.277 D/V
# 24 Fleming/South Elem School Dwy	A	8.3	0.000	A	8.5	0.000	+ 0.193 D/V

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Cycle (sec):	70			Critical Vol./Cap.(X):			0.752					
Loss Time (sec):	16 (Y+R=4.0 sec)			Average Delay (sec/veh):			22.1					
Optimal Cycle:	68			Level Of Service:			C					

Street Name:	SE Hogan Ave						SE Palmquist Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 0	1	1 0	1 0	1	1 0	0 1	0	1 0	0 1	0
Volume Module: >> Count Date: 8 Dec 2005 << 7:15 - 8:15 a.m.												
Base Vol:	14	347	101	89	195	21	68	61	10	113	51	135
Growth Adj:	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Initial Bse:	16	403	117	103	226	24	79	71	12	131	59	157
Added Vol:	0	0	3	8	0	0	0	4	0	9	13	26
In Process:	0	0	0	5	0	0	0	0	0	0	5	13
Initial Fut:	16	403	120	116	226	24	79	75	12	140	77	196
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	18	447	134	129	251	27	88	83	13	156	86	217
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	18	447	134	129	251	27	88	83	13	156	86	217
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	18	447	134	129	251	27	88	83	13	156	86	217
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.85	0.90	0.76	0.88	0.93	0.79	0.90	0.92	0.92	0.90	0.84	0.84
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.87	0.13	1.00	0.28	0.72
Final Sat.:	1622	1707	1451	1671	1759	1495	1702	1520	236	1702	452	1146
Capacity Analysis Module:												
Vol/Sat:	0.01	0.26	0.09	0.08	0.14	0.02	0.05	0.05	0.05	0.09	0.19	0.19
Crit Moves:		****		****			****				****	
Green/Cycle:	0.38	0.35	0.35	0.51	0.42	0.42	0.19	0.12	0.12	0.38	0.25	0.25
Volume/Cap:	0.04	0.75	0.26	0.38	0.34	0.04	0.37	0.46	0.46	0.31	0.75	0.75
Delay/Veh:	13.6	25.5	16.7	11.8	14.1	12.1	25.3	30.2	30.2	15.4	31.9	31.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	13.6	25.5	16.7	11.8	14.1	12.1	25.3	30.2	30.2	15.4	31.9	31.9
LOS by Move:	B	C	B	B	B	B	C	C	C	B	C	C
HCM2kAvgQ:	0	10	2	2	4	0	2	3	3	3	8	8

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Operations Method
Future Volume Alternative

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound				West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
HCM Ops Adjusted Lane Utilization Module:																				
Lanes:	1	0	1	0	1	1	0	1	0	1	1	0	0	1	0	1	0	0	1	0
Lane Group:	L		T		R	L		T		R	L		RT		RT	L		RT		RT
#LnsInGrps:	1		1		1	1		1		1	1		1		1	1		1		1
HCM Ops Input Saturation Adj Module:																				
Lane Width:	12		12		12	12		12		12	12		12		12	12		12		12
CrosswalkWid	8					8					8					8				
% Hev Veh:	9					8					6					6				
Grade:	+4%					0%					0%					0%				
Parking/Hr:	No					No					No					No				
Bus Stp/Hr:	0					0					0					0				
Area Type:	< < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >																			
Cnft Ped/Hr:	0					0					0					0				
ExclusiveRT:	Include					Include					Include					Include				
% RT Prtct:	0					0					0					0				
HCM Ops f(lt) Adj Case Module:																				
f(lt) Case:	1	xxxx	xxxx			1	xxxx	xxxx			1	xxxx	xxxx			1	xxxx	xxxx		
HCM Ops Saturation Adj Module:																				
Ln Wid Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hev Veh Adj:	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Grade Adj:	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Adj:	xxxx	xxxx	1.00	xxxx	xxxx	1.00	xxxx	1.00	1.00	xxxx	1.00	1.00	xxxx	1.00	1.00	xxxx	1.00	1.00	xxxx	1.00
Bus Stp Adj:	xxxx	xxxx	1.00	xxxx	xxxx	1.00	xxxx	1.00	1.00	xxxx	1.00	1.00	xxxx	1.00	1.00	xxxx	1.00	1.00	xxxx	1.00
Area Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RT Adj:	xxxx	xxxx	0.85	xxxx	xxxx	0.85	xxxx	0.98	0.98	xxxx	0.89	0.89	xxxx	0.89	0.89	xxxx	0.89	0.89	xxxx	0.89
LT Adj:	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx	0.95	xxxx
PedBike Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
HCM Sat Adj:	0.85	0.90	0.76	0.88	0.93	0.79	0.90	0.92	0.92	0.90	0.84	0.84	0.85	0.90	0.76	0.88	0.93	0.79	0.90	0.92
Usr Sat Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Sat Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fnl Sat Adj:	0.85	0.90	0.76	0.88	0.93	0.79	0.90	0.92	0.92	0.90	0.84	0.84	0.85	0.90	0.76	0.88	0.93	0.79	0.90	0.92
Delay Adjustment Factor Module:																				
PrtPermCase:	1					1					1					1				
Coordinated:	< < < < < < < < < < < < < < < No > > > > > > > > > > > > > > >																			
Signal Type:	< < < < < < < < < < < < < Actuated > > > > > > > > > > > > > > >																			
DelAdjFctr:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report (Dual Phase Control)
2000 HCM Operations Method
Future Volume Alternative

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L2	L1	T	L2	L1	T	L2	L1	T	L2	L1	T
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
HCM Ops f(rt) and f(lt) Adj Case Module:												
f(rt) Case:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	5	xxxx	xxxx	5
f(lt) Case:	2	1	xxxx	2	1	xxxx	2	1	xxxx	2	1	xxxx
HCM Ops Saturation Adj Module:												
Ln Wid Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hev Veh Adj:	0.92	0.92	0.92	0.93	0.93	0.93	0.94	0.94	0.94	0.94	0.94	0.94
Grade Adj:	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	xxxx	xxxx	1.00
Bus Stp Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	xxxx	xxxx	1.00
Area Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RT Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	0.98	xxxx	xxxx	0.89
LT Adj:	0.60	0.95	xxxxx	0.24	0.95	xxxxx	0.57	0.95	xxxxx	0.50	0.95	xxxxx
HCM Sat Adj:	0.54	0.85	0.90	0.22	0.88	0.93	0.54	0.90	0.92	0.47	0.90	0.84
Usr Sat Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Sat Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fnl Sat Adj:	0.54	0.85	0.90	0.22	0.88	0.93	0.54	0.90	0.92	0.47	0.90	0.84
Volume Module:												
Volume:	0	18	447	0	129	251	0	88	83	0	156	86
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.54	0.85	0.90	0.22	0.88	0.93	0.54	0.90	0.92	0.47	0.90	0.84
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.87	1.00	1.00	0.28
Final Sat.:	1018	1622	1707	414	1671	1759	1021	1702	1520	893	1702	452
Capacity Analysis Module:												
Vol/Sat:	0.00	0.01	0.26	0.00	0.08	0.14	0.00	0.05	0.06	0.00	0.09	0.19
Crit Moves:			****		****			****				****
Green/Cycle:	0.35	0.03	0.35	0.41	0.10	0.42	0.12	0.07	0.12	0.18	0.20	0.25
Volume/Cap:	0.00	0.34	0.75	0.00	0.75	0.34	0.00	0.75	0.46	0.00	0.45	0.75

Note: L2 = Permitted Left, L1 = Protected Left, T = Thru

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
2000 HCM Operations Method
Future Volume Alternative

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Approach:	North	South	East	West
Cycle Length, C:	70	70	70	70
Actual Green Time Per Lane Group, G:	26.65	35.56	13.18	26.44
Effective Green Time Per Lane Group, g:	24.37	28.37	8.39	12.39
Opposing Effective Green Time, go:	29.28	24.37	17.65	8.39
Number Of Opposing Lanes, No:	1	1	1	1
Number Of Lanes In Lane Group, N:	1	1	1	1
Adjusted Left-Turn Flow Rate, Vlt:	18	129	88	156
Proportion of Left Turns in Lane Group, Plt:	1.00	1.00	1.00	1.00
Proportion of Left Turns in Opp Flow, Plto:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Left Turns Per Cycle, LTC:	0.35	2.51	1.70	3.03
Adjusted Opposing Flow Rate, Vo:	251	447	303	96
Opposing Flow Per Lane Per Cycle, Volc:	4.88	8.69	5.89	1.87
Opposing Platoon Ratio, Rpo:	1.00	1.00	1.00	1.00
Lost Time Per Phase, tl:	4.00	0.00	4.00	0.00
Eff grn until arrival of left-turn car, gf:	0.00	0.00	0.00	0.00
Opposing Queue Ratio, qro:	0.58	0.65	0.75	0.88
Eff grn blocked by opposing queue, gq:	0.00	15.07	0.00	3.47
Eff grn while left turns filter thru, gu:	24.37	13.30	8.39	8.92
Max opposing cars arriving during gq-gf, n:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Proportion of Opposing Thru & RT cars, ptho:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Left-turn Saturation Factor, fs:	0.72	0.60	0.69	0.82
Proportion of Left Turns in Shared Lane, pl:	1.00	1.00	1.00	1.00
Through-car Equivalents, el1:	1.68	1.99	1.75	1.44
Single Lane Through-car Equivalents, el2:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Minimum Left Turn Adjustment Factor, fmin:	0.16	0.14	0.48	0.32
Single Lane Left Turn Adjustment Factor, fm:	0.60	0.24	0.57	0.50
Left Turn Adjustment Factor, flt:	0.60	0.24	0.57	0.50

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report (HCM2000 Queue Method)
2000 HCM Operations Method
Future Volume Alternative

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Green/Cycle:	0.03	0.35	0.35	0.10	0.42	0.42	0.07	0.12	0.12	0.20	0.25	0.25
ArrivalType:		3			3			3			3	
ProgFactor:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1:	0.2	7.7	1.9	1.5	3.3	0.3	1.5	1.7	1.7	2.1	5.4	5.4
UpstreamVC:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UpstreamAdj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EarlyArrAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q2:	0.0	2.7	0.4	0.6	0.5	0.0	0.6	0.8	0.8	0.4	2.5	2.5
HCM2KQueue:	0.3	10.3	2.2	2.1	3.8	0.4	2.0	2.5	2.5	2.6	8.0	8.0
70th%Factor:	1.20	1.18	1.19	1.19	1.19	1.20	1.20	1.19	1.19	1.19	1.18	1.18
70th%HCM2kQ:	0.3	12.2	2.7	2.5	4.6	0.4	2.4	3.0	3.0	3.1	9.4	9.4
85th%Factor:	1.60	1.51	1.58	1.58	1.56	1.60	1.58	1.58	1.58	1.58	1.53	1.53
85th%HCM2kQ:	0.4	15.6	3.5	3.4	6.0	0.6	3.2	4.0	4.0	4.1	12.2	12.2
90th%Factor:	1.79	1.64	1.76	1.76	1.73	1.79	1.76	1.75	1.75	1.75	1.67	1.67
90th%HCM2kQ:	0.5	16.9	3.9	3.8	6.6	0.6	3.6	4.4	4.4	4.5	13.3	13.3
95th%Factor:	2.09	1.84	2.03	2.03	1.98	2.09	2.04	2.02	2.02	2.02	1.89	1.89
95th%HCM2kQ:	0.6	19.0	4.5	4.3	7.6	0.7	4.2	5.1	5.1	5.2	15.0	15.0
98th%Factor:	2.68	2.15	2.54	2.55	2.44	2.67	2.55	2.52	2.52	2.52	2.24	2.24
98th%HCM2kQ:	0.7	22.2	5.6	5.4	9.4	1.0	5.2	6.4	6.4	6.5	17.9	17.9

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 West Site Driveway/SE Palmquist Rd

Average Delay (sec/veh): 2.0 Worst Case Level Of Service: C[16.2]

Street Name:	West Site Driveway						SE Palmquist Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	1 0	0	0 1	0 0	0	0 0	0 0	0	1 0	1 0	1	0 0
Volume Module:												
Base Vol:	0	0	0	0	0	0	0	265	0	0	335	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.16	1.00	1.00	1.16	1.00
Initial Bse:	0	0	0	0	0	0	0	307	0	0	389	0
Added Vol:	33	0	14	0	0	0	0	4	10	4	14	0
In Process:	50	0	0	0	0	0	0	-64	69	0	-32	0
Initial Fut:	83	0	14	0	0	0	0	247	79	4	371	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	92	0	16	0	0	0	0	275	88	4	412	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	92	0	16	0	0	0	0	275	88	4	412	0
Critical Gap Module:												
Critical Gp:	6.4	xxxx	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	xxxx	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	739	xxxx	319	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	363	xxxx	xxxxx
Potent Cap.:	387	xxxx	727	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1185	xxxx	xxxxx
Move Cap.:	386	xxxx	727	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1185	xxxx	xxxxx
Volume/Cap:	0.24	xxxx	0.02	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.00	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.9	xxxx	0.1	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	17.2	xxxx	10.1	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.0	xxxx	xxxxx
LOS by Move:	C	*	B	*	*	*	*	*	*	A	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	16.2			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	C			*			*			*		

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Future Volume Alternative

Intersection #2 West Site Driveway/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			8%			4%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												
Upstream Signals:												
Link Index:							#68			#18		
Dist(miles):							0.000			0.000		
Speed (mph):							0.00			0.00		
SignalIndex:							#1			#6		
Cycle Time:							0 secs			0 secs		
InitVolume:							0	0	0	0		
Saturation:							0	0	0	0		
ArrivalType:							0	0	0	0		
G/C:							0.00	0.00	0.00	0.00		
*** Computation 1: Time for Queue to Clear at Each Upstream Intersection												
P:							0.000	0.000	0.000	0.000		
gq1:							0.00	0.00	0.00	0.00		
gq2:							0.00	0.00	0.00	0.00		
gq:							0.00	0.00	0.00	0.00		
*** Computation 2: Time Intersection Blocked Because of Upstream Platoons												
alpha:							0.000			0.000		
beta:							0.000			0.000		
ta (secs):							0.000			0.000		
F:							0.000			0.000		
f:							0.000	0.000	0.000	0.000		
vcmax:							0	0	0	0		
vcg:							0	0	0	0		
vcmin:							0	0	0	0		
tp:							0.0	0.0	0.0	0.0		
p:							0.000			0.000		
*** Computation 3: Platoon Event Periods												
pdom/psubo:							0.000/0.000/Unconstrained					
*** Computation 4: Conflicting Flows During Each Unblocked Period												
InitCnflVol:	739	739	319	747	783	412	0	xxxxx	xxxxx	363	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
ConflictVol:	739	739	319	747	783	412	0	xxxxx	xxxxx	363	xxxxx	xxxxx
*** Computation 5: Capactiy for Subject Movement During Unblocked Period												
InitPotCap:	387	347	727	331	328	644	900	xxxxx	xxxxx	1185	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
PotentCap:	387	347	727	331	328	644	900	xxxxx	xxxxx	1185	xxxxx	xxxxx

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #3 Mid-Block Site Driveway/SE Palmquist Rd

Average Delay (sec/veh): 0.5 Worst Case Level Of Service: B[10.8]

Street Name:	Mid-BlockSite Driveway						SE Palmquist Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0	0	1! 0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	0	0
Volume Module:																			
Base Vol:	0	0	0	0	0	0	0	265	0	0	335	0							
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.16	1.00	1.00	1.16	1.00							
Initial Bse:	0	0	0	0	0	0	0	307	0	0	389	0							
Added Vol:	9	0	18	0	0	0	0	16	3	5	9	0							
In Process:	0	0	0	0	0	0	0	-64	0	0	-32	0							
Initial Fut:	9	0	18	0	0	0	0	259	3	5	366	0							
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00							
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90							
PHF Volume:	10	0	20	0	0	0	0	288	3	6	406	0							
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0							
Final Vol.:	10	0	20	0	0	0	0	288	3	6	406	0							
Critical Gap Module:																			
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx							
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx							
Capacity Module:																			
Cnflict Vol:	707	707	290	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	292	xxxx	xxxxx							
Potent Cap.:	405	362	754	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1259	xxxx	xxxxx							
Move Cap.:	403	361	754	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1259	xxxx	xxxxx							
Total Cap:	507	451	xxxxx	449	450	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx							
Volume/Cap:	0.02	0.00	0.03	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.00	xxxx	xxxx							
Level Of Service Module:																			
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx							
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.9	xxxx	xxxxx							
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*							
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT							
Shared Cap.:	xxxx	649	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx							
SharedQueue:	xxxxx	0.1	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx							
Shrd ConDel:	xxxxx	10.8	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx							
Shared LOS:	*	B	*	*	*	*	*	*	*	*	*	*							
ApproachDel:	10.8			xxxxxx			xxxxxx			xxxxxx									
ApproachLOS:	B			*			*			*									

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Future Volume Alternative

Intersection #3 Mid-Block Site Driveway/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			8%			4%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		

Pedestrian Walk Speed: 4.00 feet/sec

LaneWidth:	12 feet	12 feet	12 feet	12 feet

Time Period: 0.25 hour

Upstream Signals:

Link Index:			#68	#18
Dist(miles):			0.000	0.000
Speed (mph):			0.00	0.00
SignalIndex:			#1	#6
Cycle Time:			0 secs	0 secs
InitVolume:	0	0	0	0
Saturation:	0	0	0	0
ArrivalType:	0	0	0	0
G/C:	0.00	0.00	0.00	0.00

*** Computation 1: Time for Queue to Clear at Each Upstream Intersection

P:	0.000	0.000	0.000	0.000
gq1:	0.00	0.00	0.00	0.00
gq2:	0.00	0.00	0.00	0.00
gq:	0.00	0.00	0.00	0.00

*** Computation 2: Time Intersection Blocked Because of Upstream Platoons

alpha:			0.000	0.000
beta:			0.000	0.000
ta (secs):			0.000	0.000
F:			0.000	0.000
f:	0.000	0.000	0.000	0.000
vcmax:	0	0	0	0
vcg:	0	0	0	0
vcmin:	0	0	0	0
tp:	0.0	0.0	0.0	0.0
p:			0.000	0.000

*** Computation 3: Platoon Event Periods

pdom/psubo: 0.000/0.000/Unconstrained

*** Computation 4: Conflicting Flows During Each Unblocked Period

InitCnflVol:	707	707	290	717	709	406	0	xxxxx	xxxxx	292	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
ConflictVol:	707	707	290	717	709	406	0	xxxxx	xxxxx	292	xxxxx	xxxxx

*** Computation 5: Capactiy for Subject Movement During Unblocked Period

InitPotCap:	405	362	754	347	362	649	900	xxxxx	xxxxx	1259	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
PotentCap:	405	362	754	347	362	649	900	xxxxx	xxxxx	1259	xxxxx	xxxxx

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Two-Stage Gap Acceptance [Median Type: TWLTL][Median Storage: 1 car]

Two-Stage Gap Acceptance - Stage One Module:

InitCfltVol:	290	290	xxxxx	417	417	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
UpstreamSat:	0	0	xxxxx	0	0	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
UpstreamAdj:	1.00	1.00	xxxxx	1.00	1.00	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
Cnflict Vol:	290	290	xxxxx	417	417	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
InitPotCap:	764	676	xxxxx	617	594	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
UpstreamAdj:	1.00	1.00	xxxxx	1.00	1.00	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
Potent Cap.:	764	676	xxxxx	617	594	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
Move Cap.:	764	676	xxxxx	614	592	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx

Two-Stage Gap Acceptance - Stage Two Module:

InitCfltVol:	417	417	xxxxx	300	292	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
UpstreamSat:	0	0	xxxxx	0	0	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
UpstreamAdj:	1.00	1.00	xxxxx	1.00	1.00	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
Cnflict Vol:	417	417	xxxxx	300	292	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
InitPotCap:	669	594	xxxxx	713	675	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
UpstreamAdj:	1.00	1.00	xxxxx	1.00	1.00	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
Potent Cap.:	669	594	xxxxx	713	675	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
Move Cap.:	666	592	xxxxx	694	675	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 SE Fleming/SE Palmquist

Average Delay (sec/veh): 3.9 Worst Case Level Of Service: C[17.5]

Street Name:	SE Fleming Ave						SE Palmquist Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 0	1	0	1 0 0	1	0	1 0 0	1	0	1 0 0	1	0
Volume Module: >> Count Date: 8 Dec 2005 << 7:15 - 8:15 a.m.												
Base Vol:	95	0	75	0	0	0	0	150	115	130	240	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.16	1.00	1.00	1.16	1.00
Initial Bse:	95	0	75	0	0	0	0	174	115	130	278	0
Added Vol:	5	0	4	0	0	0	0	32	1	1	9	0
In Process:	-35	0	-20	0	0	0	0	1	-65	-20	3	0
Initial Fut:	65	0	59	0	0	0	0	207	51	111	290	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	81	0	74	0	0	0	0	259	64	139	363	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	81	0	74	0	0	0	0	259	64	139	363	0
Critical Gap Module:												
Critical Gp:	6.4	6.5	6.2	7.1	6.5	6.2	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	931	931	291	968	963	363	xxxx	xxxx	xxxxx	323	xxxx	xxxxx
Potent Cap.:	296	267	749	235	258	686	xxxx	xxxx	xxxxx	1226	xxxx	xxxxx
Move Cap.:	271	237	749	194	228	686	xxxx	xxxx	xxxxx	1226	xxxx	xxxxx
Volume/Cap:	0.30	0.00	0.10	0.00	0.00	0.00	xxxx	xxxx	xxxx	0.11	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	1.2	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.4	xxxx	xxxxx
Control Del:	23.9	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.3	xxxx	xxxxx
LOS by Move:	C	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	749	xxxx	xxxx	0	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	0.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	10.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	B	*	*	*	*	*	*	*	*	*
ApproachDel:	17.5			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	C			*			*			*		

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Future Volume Alternative

Intersection #4 SE Fleming/SE Palmquist

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	2%			0%			8%			4%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												
Upstream Signals:												
Link Index:							#68			#18		
Dist(miles):							0.000			0.000		
Speed (mph):							0.00			0.00		
SignalIndex:							#1			#6		
Cycle Time:							0 secs			0 secs		
InitVolume:							0	0		0	0	
Saturation:							0	0		0	0	
ArrivalType:							0	0		0	0	
G/C:							0.00	0.00		0.00	0.00	
*** Computation 1: Time for Queue to Clear at Each Upstream Intersection												
P:							0.000	0.000		0.000	0.000	
gq1:							0.00	0.00		0.00	0.00	
gq2:							0.00	0.00		0.00	0.00	
gq:							0.00	0.00		0.00	0.00	
*** Computation 2: Time Intersection Blocked Because of Upstream Platoons												
alpha:							0.000			0.000		
beta:							0.000			0.000		
ta (secs):							0.000			0.000		
F:							0.000			0.000		
f:							0.000	0.000		0.000	0.000	
vcmax:							0	0		0	0	
vcg:							0	0		0	0	
vcmin:							0	0		0	0	
tp:							0.0	0.0		0.0	0.0	
p:							0.000			0.000		
*** Computation 3: Platoon Event Periods												
pdom/psubo:							0.000/0.000/Unconstrained					
*** Computation 4: Conflicting Flows During Each Unblocked Period												
InitCnflVol:	931	931	291	968	963	363	0	xxxxx	xxxxx	323	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
ConflictVol:	931	931	291	968	963	363	0	xxxxx	xxxxx	323	xxxxx	xxxxx
*** Computation 5: Capactiy for Subject Movement During Unblocked Period												
InitPotCap:	296	267	749	235	258	686	900	xxxxx	xxxxx	1226	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
PotentCap:	296	267	749	235	258	686	900	xxxxx	xxxxx	1226	xxxxx	xxxxx

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 SE Palmblad Rd/SE Palmquist Rd

Average Delay (sec/veh): 6.1 Worst Case Level Of Service: C[20.5]

Street Name:	SE Palmblad Rd						SE Palmquist Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0	0	0	0 0	1	0	0 1	0	0
Volume Module: >> Count Date: 8 Dec 2005 << 7:15 - 8:15 a.m.												
Base Vol:	120	0	107	0	0	0	0	187	54	36	201	0
Growth Adj:	1.00 1.00	1.00	1.00 1.00	1.00			1.00	1.16	1.00	1.00	1.16	1.00
Initial Bse:	120	0	107	0	0	0	0	217	54	36	233	0
Added Vol:	1	0	0	0	0	0	0	32	2	0	10	0
In Process:	-17	0	8	0	0	0	0	-10	-9	4	0	0
Initial Fut:	104	0	115	0	0	0	0	239	47	40	243	0
User Adj:	1.00 1.00	1.00	1.00 1.00	1.00			1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80 0.80	0.80	0.80 0.80	0.80			0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	130	0	144	0	0	0	0	299	59	50	304	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	130	0	144	0	0	0	0	299	59	50	304	0
Critical Gap Module:												
Critical Gp:	6.4 6.5		6.2 xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		4.1	xxxx	xxxxx
FollowUpTim:	3.5 4.0		3.3 xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx		2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	732 732		328 xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		357	xxxx	xxxxx
Potent Cap.:	390 350		716 xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		1196	xxxx	xxxxx
Move Cap.:	377 334		716 xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx		1196	xxxx	xxxxx
Volume/Cap:	0.34 0.00	0.20	xxxx xxxx	xxxx	xxxx	xxxx	xxxx	xxxx		0.04	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx xxxx	xxxxx	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx			0.1	xxxx	xxxxx
Control Del:	xxxxx xxxx	xxxxx	xxxxx xxxx	xxxxx	xxxx	xxxx	xxxxx			8.1	xxxx	xxxxx
LOS by Move:	* *	*	* *	*	*	*	*			A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx 502	xxxxx	xxxx xxxx	xxxxx	xxxx	xxxx	xxxxx			xxxx	xxxx	xxxxx
SharedQueue:	xxxxx 3.2	xxxxx	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx			0.1	xxxx	xxxxx
Shrd ConDel:	xxxxx 20.5	xxxxx	xxxxx xxxx	xxxxx	xxxxx	xxxx	xxxxx			8.1	xxxx	xxxxx
Shared LOS:	* C	*	* *	*	*	*	*			A	*	*
ApproachDel:	20.5		xxxxxx		xxxxxx					xxxxxx		
ApproachLOS:	C		*		*					*		

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Future Volume Alternative

Intersection #5 SE Palmblad Rd/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	1%			0%			3%			3%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												
Upstream Signals:												
Link Index:							#68			#18		
Dist(miles):							0.000			0.000		
Speed (mph):							0.00			0.00		
SignalIndex:							#1			#6		
Cycle Time:							0 secs			0 secs		
InitVolume:							0	0		0	0	
Saturation:							0	0		0	0	
ArrivalType:							0	0		0	0	
G/C:							0.00	0.00		0.00	0.00	
*** Computation 1: Time for Queue to Clear at Each Upstream Intersection												
P:							0.000	0.000		0.000	0.000	
gq1:							0.00	0.00		0.00	0.00	
gq2:							0.00	0.00		0.00	0.00	
gq:							0.00	0.00		0.00	0.00	
*** Computation 2: Time Intersection Blocked Because of Upstream Platoons												
alpha:								0.000			0.000	
beta:								0.000			0.000	
ta (secs):								0.000			0.000	
F:								0.000			0.000	
f:							0.000	0.000		0.000	0.000	
vcmax:							0	0		0	0	
vcg:							0	0		0	0	
vcmin:							0	0		0	0	
tp:							0.0	0.0		0.0	0.0	
p:								0.000			0.000	
*** Computation 3: Platoon Event Periods												
pdom/psubo:								0.000/0.000/Unconstrained				
*** Computation 4: Conflicting Flows During Each Unblocked Period												
InitCnflVol:	732	732	328	804	761	304	0	xxxxx	xxxxx	357	xxxxx	xxxxx
UpstreamAdj:	1.00 1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx	
ConflictVol:	732	732	328	804	761	304	0	xxxxx	xxxxx	357	xxxxx	xxxxx
*** Computation 5: Capactiy for Subject Movement During Unblocked Period												
InitPotCap:	390	350	716	304	337	741	900	xxxxx	xxxxx	1196	xxxxx	xxxxx
UpstreamAdj:	1.00 1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx	
PotentCap:	390	350	716	304	337	741	900	xxxxx	xxxxx	1196	xxxxx	xxxxx

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 US 26/SE Palmquist Rd

Cycle (sec):	100	Critical Vol./Cap.(X):	0.748	
Loss Time (sec):	16 (Y+R=4.0 sec)	Average Delay (sec/veh):	29.8	
Optimal Cycle:	76	Level Of Service:	C	

Street Name:	US 26/Mount Hood Hwy						SE Palmquist Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ignore			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 2	0 1	1	0 2	0 1	1	0 0	1 0	2	0 1	0 1
Volume Module: >> Count Date: 16 Feb 2006 << 7:15 - 8:15 a.m.												
Base Vol:	30	1070	125	75	585	60	105	185	40	55	155	140
Growth Adj:	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
Initial Bse:	35	1241	145	87	679	70	122	215	46	64	180	162
Added Vol:	4	0	0	0	0	2	7	13	13	0	4	0
In Process:	1	0	0	0	0	3	8	0	-10	0	0	0
Initial Fut:	40	1241	145	87	679	75	137	228	49	64	184	162
User Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.00	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	42	1320	0	93	722	79	146	242	53	68	196	173
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	42	1320	0	93	722	79	146	242	53	68	196	173
PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	42	1320	0	93	722	79	146	242	53	68	196	173
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.92	0.92	1.00	0.88	0.88	0.79	0.87	0.89	0.89	0.91	0.99	0.84
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	0.82	0.18	2.00	1.00	1.00
Final Sat.:	1753	3505	1900	1671	3343	1495	1655	1393	302	3468	1882	1600
Capacity Analysis Module:												
Vol/Sat:	0.02	0.38	0.00	0.06	0.22	0.05	0.09	0.17	0.17	0.02	0.10	0.11
Crit Moves:		****		****			****					****
Green/Cycle:	0.06	0.50	0.00	0.07	0.52	0.52	0.12	0.24	0.24	0.03	0.14	0.14
Volume/Cap:	0.42	0.75	0.00	0.75	0.42	0.10	0.75	0.74	0.74	0.74	0.72	0.75
Delay/Veh:	48.2	21.6	0.0	67.3	14.9	12.2	57.4	42.5	42.5	75.0	49.8	53.6
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	48.2	21.6	0.0	67.3	14.9	12.2	57.4	42.5	42.5	75.0	49.8	53.6
LOS by Move:	D	C	A	E	B	B	E	D	D	E	D	D
HCM2kAvgQ:	2	18	0	4	7	1	6	10	10	2	7	7

Note: Queue reported is the number of cars per lane.

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Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Operations Method
Future Volume Alternative

Intersection #6 US 26/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound						West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
HCM Ops Adjusted Lane Utilization Module:																				
Lanes:	1	0	2	0	1	1	0	2	0	1	1	0	0	1	0	2	0	1	0	1
Lane Group:	L		T		R	L		T		R	L		RT		RT	L		T		R
#LnsInGrps:	1		2		1	1		2		1	1		1		1	2		1		1
HCM Ops Input Saturation Adj Module:																				
Lane Width:	12		12		12	12		12		12	12		12		12	12		12		12
CrosswalkWid	8					8					8					8				
% Hev Veh:	3					8					8					3				
Grade:	0%					0%					+2%					-4%				
Parking/Hr:	No					No					No					No				
Bus Stp/Hr:	0					0					0					0				
Area Type:	< < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >																			
Cnft Ped/Hr:	0					0					0					0				
ExclusiveRT:	Include					Include					Include					Include				
% RT Prtct:	0					0					0					0				
HCM Ops f(lt) Adj Case Module:																				
f(lt) Case:	1	xxxx	xxxx			1	xxxx	xxxx			1	xxxx	xxxx			1	xxxx	xxxx		
HCM Ops Saturation Adj Module:																				
Ln Wid Adj:	1.00	1.00	xxxxx			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00		
Hev Veh Adj:	0.97	0.97	xxxxx			0.93	0.93	0.93			0.93	0.93	0.93			0.97	0.97	0.97		
Grade Adj:	1.00	1.00	xxxxx			1.00	1.00	1.00			0.99	0.99	0.99			1.02	1.02	1.02		
Parking Adj:	xxxx	xxxx	xxxxx			xxxx	xxxx	1.00			xxxx	1.00	1.00			xxxx	xxxx	1.00		
Bus Stp Adj:	xxxx	xxxx	xxxxx			xxxx	xxxx	1.00			xxxx	1.00	1.00			xxxx	xxxx	1.00		
Area Adj:	1.00	1.00	xxxxx			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00		
RT Adj:	xxxx	xxxx	xxxxx			xxxx	xxxx	0.85			xxxx	0.97	0.97			xxxx	xxxx	0.85		
LT Adj:	0.95	xxxx	xxxxx			0.95	xxxx	xxxxx			0.95	xxxx	xxxxx			0.95	xxxx	xxxxx		
PedBike Adj:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00		
HCM Sat Adj:	0.92	0.97	1.00			0.88	0.93	0.79			0.87	0.89	0.89			0.94	0.99	0.84		
Usr Sat Adj:	1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00			1.00	1.00	1.00		
MLF Sat Adj:	1.00	0.95	1.00			1.00	0.95	1.00			1.00	1.00	1.00			0.97	1.00	1.00		
Fnl Sat Adj:	0.92	0.92	1.00			0.88	0.88	0.79			0.87	0.89	0.89			0.91	0.99	0.84		
Delay Adjustment Factor Module:																				
Coordinated:	< < < < < < < < < < < < < < < No > > > > > > > > > > > > > > >																			
Signal Type:	< < < < < < < < < < < < < Actuated > > > > > > > > > > > > >																			
DelAdjFctr:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

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Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report (HCM2000 Queue Method)
2000 HCM Operations Method
Future Volume Alternative

Intersection #6 US 26/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Green/Cycle:	0.06	0.50	0.00	0.07	0.52	0.52	0.12	0.24	0.24	0.03	0.14	0.14
ArrivalType:		3			3			3			3	
ProgFactor:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1:	1.1	15.4	0.0	2.5	6.5	1.1	3.9	7.6	7.6	1.0	5.2	4.6
UpstreamVC:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UpstreamAdj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EarlyArrAdj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q2:	0.7	2.7	0.0	2.0	0.7	0.1	2.2	2.4	2.4	1.5	2.1	2.3
HCM2KQueue:	1.8	18.1	0.0	4.5	7.2	1.2	6.1	10.0	10.0	2.4	7.3	6.9
70th%Factor:	1.20	1.16	1.20	1.19	1.18	1.20	1.19	1.18	1.18	1.19	1.18	1.18
70th%HCM2kQ:	2.1	21.0	0.0	5.3	8.5	1.5	7.2	11.7	11.7	2.9	8.6	8.1
85th%Factor:	1.58	1.46	1.60	1.56	1.54	1.59	1.54	1.52	1.52	1.58	1.54	1.54
85th%HCM2kQ:	2.8	26.5	0.0	7.0	11.0	2.0	9.4	15.1	15.1	3.8	11.2	10.6
90th%Factor:	1.77	1.56	1.80	1.72	1.68	1.78	1.69	1.64	1.64	1.75	1.68	1.68
90th%HCM2kQ:	3.2	28.2	0.0	7.7	12.0	2.2	10.3	16.4	16.4	4.2	12.2	11.6
95th%Factor:	2.04	1.72	2.10	1.97	1.90	2.06	1.93	1.85	1.85	2.02	1.90	1.91
95th%HCM2kQ:	3.7	31.1	0.0	8.8	13.6	2.5	11.8	18.4	18.4	4.9	13.8	13.1
98th%Factor:	2.57	1.95	2.70	2.41	2.28	2.61	2.33	2.16	2.16	2.53	2.27	2.29
98th%HCM2kQ:	4.6	35.2	0.0	10.8	16.3	3.2	14.2	21.6	21.6	6.1	16.5	15.7

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Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #19 SE Fleming/HS Driveway

Average Delay (sec/veh): 0.6 Worst Case Level Of Service: B[11.2]

Street Name:	SE Fleming Ave						High School Driveway					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1	0	0 1	0	1	0	0 1	0	1	0	0	0 1! 0
Volume Module: 7:15 - 8:15 a.m.												
Base Vol:	0	170	0	15	230	0	0	0	0	1	0	1
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	170	0	15	230	0	0	0	0	1	0	1
Added Vol:	0	4	0	0	1	1	4	0	0	0	0	0
In Process:	0	-55	0	0	-85	0	0	0	0	0	0	0
Initial Fut:	0	119	0	15	146	1	4	0	0	1	0	1
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	0	149	0	19	183	1	5	0	0	1	0	1
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	149	0	19	183	1	5	0	0	1	0	1
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	7.1	xxxx	xxxxx	7.6	7.0	6.7
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	3.5	xxxx	xxxxx	4.0	4.5	3.8
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	149	xxxx	xxxxx	370	xxxx	xxxxx	369	370	149
Potent Cap.:	xxxx	xxxx	xxxxx	1427	xxxx	xxxxx	590	xxxx	xxxxx	508	491	786
Move Cap.:	xxxx	xxxx	xxxxx	1427	xxxx	xxxxx	583	xxxx	xxxxx	503	484	786
Volume/Cap:	xxxx	xxxx	xxxx	0.01	xxxx	xxxx	0.01	xxxx	xxxx	0.00	0.00	0.00
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx	0.0	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	7.6	xxxx	xxxxx	11.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	B	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	613	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.0	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	10.9	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	B	*
ApproachDel:	xxxxxx			xxxxxx			11.2			10.9		
ApproachLOS:	*			*			B			B		

Note: Queue reported is the number of cars per lane.

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Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Future Volume Alternative

Intersection #19 SE Fleming/HS Driveway

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:		4%			3%			0%			50%	
Grade:		0%			0%			0%			0%	
Peds/Hour:		0			0			0			0	

Pedestrian Walk Speed: 4.00 feet/sec

LaneWidth:	12 feet	12 feet	12 feet	12 feet

Time Period: 0.25 hour

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #20 SE Fleming/Main East Dwy

Average Delay (sec/veh): 1.7 Worst Case Level Of Service: A[9.5]

Street Name:	SE Fleming Ave						Main East Driveway					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 1	0	0	0	0	0 1	0	0	1! 0	0	0	0 0 0
Volume Module: 7:15 - 8:15 a.m.												
Base Vol:	0	170	0	0	230	0	0	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	170	0	0	230	0	0	0	0	0	0	0
Added Vol:	0	2	0	0	0	1	2	0	0	0	0	0
In Process:	40	-55	0	0	-85	0	0	0	25	0	0	0
Initial Fut:	40	117	0	0	145	1	2	0	25	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	50	146	0	0	181	1	3	0	31	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	50	146	0	0	181	1	3	0	31	0	0	0
Critical Gap Module:												
Critical Gp:	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	6.4	6.5	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	3.5	4.0	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	183	xxxx	xxxxx	xxxx	xxxx	xxxxx	428	428	182	xxxx	xxxx	xxxxx
Potent Cap.:	1381	xxxx	xxxxx	xxxx	xxxx	xxxxx	587	522	866	xxxx	xxxx	xxxxx
Move Cap.:	1381	xxxx	xxxxx	xxxx	xxxx	xxxxx	571	503	866	xxxx	xxxx	xxxxx
Volume/Cap:	0.04	xxxx	xxxx	xxxx	xxxx	xxxx	0.00	0.00	0.04	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.1	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	A	*	*	*	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	834	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	9.5	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	A	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			9.5			xxxxxx		
ApproachLOS:	*			*			A			*		

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Future Volume Alternative

Intersection #20 SE Fleming/Main East Dwy

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	4%			3%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		

Pedestrian Walk Speed: 4.00 feet/sec

LaneWidth:	12 feet	12 feet	12 feet	12 feet

Time Period: 0.25 hour

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #21 Fleming/North Elem School Dwy

Average Delay (sec/veh): 1.1 Worst Case Level Of Service: B[10.7]

Street Name:	SE Fleming Ave						North Elem School Dwy					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1	0	0	1 0 1	0	0	0 0 0	0	0	0 0 1!	0	0
Volume Module: 7:15 - 8:15 a.m.												
Base Vol:	0	160	0	30	200	0	0	0	0	2	0	10
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	160	0	30	200	0	0	0	0	2	0	10
Added Vol:	0	2	0	0	0	0	0	0	0	0	0	0
In Process:	0	-15	0	0	-60	0	0	0	0	0	0	0
Initial Fut:	0	147	0	30	140	0	0	0	0	2	0	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	0	184	0	38	175	0	0	0	0	3	0	13
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	184	0	38	175	0	0	0	0	3	0	13
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	7.1	7.2	6.9
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	4.6	3.9
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	184	xxxx	xxxxx	xxxx	xxxx	xxxxx	434	434	184
Potent Cap.:	xxxx	xxxx	xxxxx	1379	xxxx	xxxxx	xxxx	xxxx	xxxxx	470	426	711
Move Cap.:	xxxx	xxxx	xxxxx	1379	xxxx	xxxxx	xxxx	xxxx	xxxxx	461	414	711
Volume/Cap:	xxxx	xxxx	xxxx	0.03	xxxx	xxxx	xxxx	xxxx	xxxx	0.01	0.00	0.02
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	0.1	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	7.7	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	652	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	0.1	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	10.7	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	B	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			10.7		
ApproachLOS:	*			*			*			B		

Note: Queue reported is the number of cars per lane.

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wsam                        Fri Mar 23, 2007 08:21:53                Page 20-1
------------------------------------------------------------------------------
               Kittelson & Associates, Inc.  --  Project #7670
                   Brickworks Village  --  Gresham, Oregon
          2008 Total Traffic Conditions  --  Weekday AM Peak Hour
------------------------------------------------------------------------------
                  Level Of Service Detailed Computation Report
                          2000 HCM Unsignalized Method
                            Future Volume Alternative
******************************************************************************
Intersection #21 Fleming/North Elem School Dwy
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
-----------|---------------|---------------|---------------|---------------|
HevVeh:             1%              4%              0%              70%
Grade:              0%              0%              0%               0%
Peds/Hour:          0               0               0                0
Pedestrian Walk Speed: 4.00 feet/sec
LaneWidth:       12 feet         12 feet         12 feet         12 feet
Time Period: 0.25 hour
```



```
wsam                        Fri Mar 23, 2007 08:21:53                Page 21-1
------------------------------------------------------------------------------
               Kittelson & Associates, Inc.  --  Project #7670
                   Brickworks Village  --  Gresham, Oregon
          2008 Total Traffic Conditions  --  Weekday AM Peak Hour
------------------------------------------------------------------------------
                     Level Of Service Computation Report
              2000 HCM Unsignalized Method (Future Volume Alternative)
******************************************************************************
Intersection #23 Fleming/Middle Elem School Dwy
******************************************************************************
Average Delay (sec/veh):      5.1       Worst Case Level Of Service: A[  9.3]
******************************************************************************
Street Name:          SE Fleming Ave                Middle Elem School Dwy
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
-----------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Stop Sign        Stop Sign
Rights:           Include          Include          Include          Include
Lanes:       0  0  1  0  0    1  0  1  0  0    0  0  0  0  0    0  0  1! 0  0
-----------|---------------||---------------||---------------||---------------|
Volume Module: 7:15 - 8:15 a.m.
Base Vol:       0   10     0    20  180     0     0    0     0     0    0   150
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:    0   10     0    20  180     0     0    0     0     0    0   150
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
In Process:     0    2     0     0  -60     0     0    0     0    20    0   -20
Initial Fut:    0   12     0    20  120     0     0    0     0    20    0   130
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     0.80 0.80  0.80  0.80 0.80  0.80  0.80 0.80  0.80  0.80 0.80  0.80
PHF Volume:     0   15     0    25  150     0     0    0     0    25    0   163
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Final Vol.:     0   15     0    25  150     0     0    0     0    25    0   163
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx   4.1 xxxx xxxxx xxxxx xxxx xxxxx   6.4  6.5   6.2
FollowUpTim:xxxxx xxxx xxxxx   2.2 xxxx xxxxx xxxxx xxxx xxxxx   3.5  4.0   3.3
-----------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx    15 xxxx xxxxx  xxxx xxxx xxxxx   215  215    15
Potent Cap.: xxxx xxxx xxxxx  1609 xxxx xxxxx  xxxx xxxx xxxxx   778  686  1070
Move Cap.:   xxxx xxxx xxxxx  1609 xxxx xxxxx  xxxx xxxx xxxxx   769  676  1070
Volume/Cap:  xxxx xxxx  xxxx  0.02 xxxx  xxxx  xxxx xxxx  xxxx  0.03 0.00  0.15
-----------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx   0.0 xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx   7.3 xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
LOS by Move:   *    *     *     A    *     *     *    *     *     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx 1017 xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  0.7 xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx  9.3 xxxxx
Shared LOS:    *    *     *     *    *     *     *    *     *     *    A     *
ApproachDel:    xxxxxx           xxxxxx           xxxxxx             9.3
ApproachLOS:         *                *                *              A
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************
```

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Future Volume Alternative

Intersection #23 Fleming/Middle Elem School Dwy

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	1%			1%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		

Pedestrian Walk Speed: 4.00 feet/sec

LaneWidth:	12 feet	12 feet	12 feet	12 feet

Time Period: 0.25 hour

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #24 Fleming/South Elem School Dwy

Average Delay (sec/veh): 4.4 Worst Case Level Of Service: A[8.5]

Street Name:	SE Fleming Ave						South Elem School Dwy					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 1 0			1 0 1 0 0			0 0 0 0 0			0 0 0 0 1		
Volume Module: 7:15 - 8:15 a.m.												
Base Vol:	0	1	0	175	5	0	0	0	0	0	0	10
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	1	0	175	5	0	0	0	0	0	0	10
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
In Process:	0	5	60	-60	20	0	0	0	0	0	0	0
Initial Fut:	0	6	60	115	25	0	0	0	0	0	0	10
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
PHF Volume:	0	8	75	144	31	0	0	0	0	0	0	13
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	0	8	75	144	31	0	0	0	0	0	0	13
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.2
FollowUpTim:	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	83	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	45
Potent Cap.:	xxxx	xxxx	xxxxx	1521	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1031
Move Cap.:	xxxx	xxxx	xxxxx	1521	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1031
Volume/Cap:	xxxx	xxxx	xxxx	0.09	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.01
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	0.0
Control Del:	xxxxx	xxxx	xxxxx	7.6	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	8.5
LOS by Move:	*	*	*	A	*	*	*	*	*	*	*	A
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			xxxxxx			8.5		
ApproachLOS:	*			*			*			A		

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday AM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Future Volume Alternative

Intersection #24 Fleming/South Elem School Dwy

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	1%			1%			0%			0%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												

Ordinance No. 07-1148
Attachment 7

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday PM Peak Hour

Scenario Report

Scenario:	wspm
Command:	wspm
Volume:	wspm
Geometry:	wspm
Impact Fee:	Default Impact Fee
Trip Generation:	wspm
Trip Distribution:	ws
Paths:	pm
Routes:	Default Routes
Configuration:	wspm

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday PM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 SE Hogan Ave/SE Palmquist Rd	B	18.7	0.643	C	29.6	0.912	+10.893 D/V
# 2 West Site Driveway/SE Palmquis	A	0.0	0.000	D	27.0	0.000	+26.974 D/V
# 3 Mid-Block Site Driveway/SE Pal	A	0.0	0.000	B	14.3	0.000	+14.297 D/V
# 4 SE Fleming/SE Palmquist	B	15.0	0.000	F	52.1	0.000	+37.100 D/V
# 5 SE Palmblad Rd/SE Palmquist Rd	C	20.0	0.000	D	28.9	0.000	+ 8.890 D/V
# 6 US 26/SE Palmquist Rd	C	32.0	0.683	C	34.8	0.731	+ 2.767 D/V

Traffix 7.8.0115 (c) 2007 Dowling Assoc. Licensed to KITTELSON, PORTLAND

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Cycle (sec):	70	Critical Vol./Cap.(X):	0.912	
Loss Time (sec):	16 (Y+R=4.0 sec)	Average Delay (sec/veh):	29.6	
Optimal Cycle:	96	Level Of Service:	C	

Street Name:	SE Hogan Ave								SE Palmquist Rd								
Approach:	North Bound				South Bound				East Bound				West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Prot+Permit				Prot+Permit				Prot+Permit				Prot+Permit				
Rights:	Include				Include				Include				Include				
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0		
Lanes:	1	0	1	0	1	1	0	1	0	1	1	0	0	1	0	1	0	0	1	0
Volume Module: >> Count Date: 15 Mar 2007 << 4:45 - 5:45 p.m.																	
Base Vol:	14	405	147		115	321	83		59	92	34		118	99	127		
Growth Adj:	1.02	1.02	1.02		1.02	1.02	1.02		1.02	1.02	1.02		1.02	1.02	1.02		
Initial Bse:	14	413	150		117	327	85		60	94	35		120	101	130		
Added Vol:	0	0	9		27	0	0		0	14	0		5	8	15		
In Process:	0	0	8		129	0	0		0	54	0		6	46	105		
Initial Fut:	14	413	167		273	327	85		60	162	35		131	155	250		
User Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		
PHF Adj:	0.93	0.93	0.93		0.93	0.93	0.93		0.93	0.93	0.93		0.93	0.93	0.93		
PHF Volume:	15	444	180		294	352	91		65	174	37		141	167	268		
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0		
Reduced Vol:	15	444	180		294	352	91		65	174	37		141	167	268		
PCE Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		
MLF Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		
Final Vol.:	15	444	180		294	352	91		65	174	37		141	167	268		
Saturation Flow Module:																	
Sat/Lane:	1900	1900	1900		1900	1900	1900		1900	1900	1900		1900	1900	1900		
Adjustment:	0.91	0.96	0.82		0.93	0.98	0.83		0.94	0.96	0.96		0.93	0.89	0.89		
Lanes:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	0.82	0.18		1.00	0.38	0.62		
Final Sat.:	1734	1825	1551		1769	1862	1583		1787	1509	323		1769	647	1042		
Capacity Analysis Module:																	
Vol/Sat:	0.01	0.24	0.12		0.17	0.19	0.06		0.04	0.12	0.12		0.08	0.26	0.26		
Crit Moves:		****			****				****					****			
Green/Cycle:	0.29	0.27	0.27		0.51	0.43	0.43		0.23	0.19	0.19		0.38	0.28	0.28		
Volume/Cap:	0.05	0.91	0.43		0.69	0.44	0.13		0.36	0.61	0.61		0.36	0.91	0.91		
Delay/Veh:	18.0	46.2	22.0		17.4	14.5	12.2		23.0	29.0	29.0		15.7	45.9	45.9		
User DelAdj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		
AdjDel/Veh:	18.0	46.2	22.0		17.4	14.5	12.2		23.0	29.0	29.0		15.7	45.9	45.9		
LOS by Move:	B	D	C		B	B	B		C	C	C		B	D	D		
HCM2kAvgQ:	0	14	4		6	6	1		2	5	5		3	13	13		

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday PM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Operations Method
Future Volume Alternative

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
HCM Ops Adjusted Lane Utilization Module:																
Lanes:	1	0 1	0 1		1	0 1	0 1		1	0 0	1 0		1	0 0	1 0	
Lane Group:	L	T	R		L	T	R		L	RT	RT		L	RT	RT	
#LnsInGrps:	1	1	1		1	1	1		1	1	1		1	1	1	
HCM Ops Input Saturation Adj Module:																
Lane Width:	12	12	12		12	12	12		12	12	12		12	12	12	
CrosswalkWid		8				8				8				8		
% Hev Veh:		2				2				1				2		
Grade:		+4%				0%				0%				0%		
Parking/Hr:		No				No				No				No		
Bus Stp/Hr:		0				0				0				0		
Area Type:	< < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >															
Cnft Ped/Hr:		0				0				0				0		
ExclusiveRT:		Include				Include				Include				Include		
% RT Prtct:		0				0				0				0		
HCM Ops f(lt) Adj Case Module:																
f(lt) Case:		1 xxxx	xxxx			1 xxxx	xxxx			1 xxxx	xxxx			1 xxxx	xxxx	
HCM Ops Saturation Adj Module:																
Ln Wid Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Hev Veh Adj:	0.98	0.98	0.98		0.98	0.98	0.98		0.99	0.99	0.99		0.98	0.98	0.98	
Grade Adj:	0.98	0.98	0.98		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Parking Adj:	xxxx	xxxx	1.00		xxxx	xxxx	1.00		xxxx	1.00	1.00		xxxx	1.00	1.00	
Bus Stp Adj:	xxxx	xxxx	1.00		xxxx	xxxx	1.00		xxxx	1.00	1.00		xxxx	1.00	1.00	
Area Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
RT Adj:	xxxx	xxxx	0.85		xxxx	xxxx	0.85		xxxx	0.97	0.97		xxxx	0.91	0.91	
LT Adj:	0.95	xxxx	xxxxx		0.95	xxxx	xxxxx		0.95	xxxx	xxxxx		0.95	xxxx	xxxxx	
PedBike Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
HCM Sat Adj:	0.91	0.96	0.82		0.93	0.98	0.83		0.94	0.96	0.96		0.93	0.89	0.89	
Usr Sat Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
MLF Sat Adj:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	
Fnl Sat Adj:	0.91	0.96	0.82		0.93	0.98	0.83		0.94	0.96	0.96		0.93	0.89	0.89	
Delay Adjustment Factor Module:																
PrtPermCase:		1				1				1				1		
Coordinated:	< < < < < < < < < < < < < < < No > > > > > > > > > > > > > > >															
Signal Type:	< < < < < < < < < < < < < Actuated > > > > > > > > > > > > > > >															
DelAdjFctr:	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday PM Peak Hour

Level Of Service Detailed Computation Report (Dual Phase Control)
2000 HCM Operations Method
Future Volume Alternative

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L2 -	L1 -	T	L2 -	L1 -	T	L2 -	L1 -	T	L2 -	L1 -	T
Control:	Prot+Permit			Prot+Permit			Prot+Permit			Prot+Permit		
HCM Ops f(rt) and f(lt) Adj Case Module:												
f(rt) Case:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	5	xxxx	xxxx	5
f(lt) Case:	2	1	xxxx	2	1	xxxx	2	1	xxxx	2	1	xxxx
HCM Ops Saturation Adj Module:												
Ln Wid Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hev Veh Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.99	0.99	0.99	0.98	0.98	0.98
Grade Adj:	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	xxxx	xxxx	1.00
Bus Stp Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	xxxx	xxxx	1.00
Area Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RT Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	0.97	xxxx	xxxx	0.91
LT Adj:	0.55	0.95	xxxxx	0.18	0.95	xxxxx	0.30	0.95	xxxxx	0.35	0.95	xxxxx
HCM Sat Adj:	0.53	0.91	0.96	0.17	0.93	0.98	0.30	0.94	0.96	0.34	0.93	0.89
Usr Sat Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Sat Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fnl Sat Adj:	0.53	0.91	0.96	0.17	0.93	0.98	0.30	0.94	0.96	0.34	0.93	0.89
Volume Module:												
Volume:	0	15	444	0	294	352	0	65	174	0	141	167
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.53	0.91	0.96	0.17	0.93	0.98	0.30	0.94	0.96	0.34	0.93	0.89
Lanes:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.82	1.00	1.00	0.38
Final Sat.:	998	1734	1825	328	1769	1862	564	1787	1509	651	1769	647
Capacity Analysis Module:												
Vol/Sat:	0.00	0.01	0.24	0.00	0.17	0.19	0.00	0.04	0.12	0.00	0.08	0.26
Crit Moves:			****		****			****				****
Green/Cycle:	0.27	0.02	0.27	0.32	0.18	0.43	0.19	0.04	0.19	0.25	0.13	0.28
Volume/Cap:	0.00	0.45	0.91	0.00	0.91	0.44	0.00	0.91	0.61	0.00	0.61	0.91

Note: L2 = Permitted Left, L1 = Protected Left, T = Thru

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2008 Total Traffic Conditions -- Weekday PM Peak Hour

Level Of Service Detailed Computation Report (Permitted Left Turn Sat Adj)
2000 HCM Operations Method
Future Volume Alternative

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Approach:	North	South	East	West
Cycle Length, C:	70	70	70	70
Actual Green Time Per Lane Group, G:	20.10	35.45	16.11	26.55
Effective Green Time Per Lane Group, g:	18.69	22.69	13.33	17.33
Opposing Effective Green Time, go:	30.04	18.69	19.77	13.33
Number Of Opposing Lanes, No:	1	1	1	1
Number Of Lanes In Lane Group, N:	1	1	1	1
Adjusted Left-Turn Flow Rate, Vlt:	15	294	65	141
Proportion of Left Turns in Lane Group, Plt:	1.00	1.00	1.00	1.00
Proportion of Left Turns in Opp Flow, Plto:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Left Turns Per Cycle, LTC:	0.30	5.71	1.26	2.75
Adjusted Opposing Flow Rate, Vo:	352	444	435	211
Opposing Flow Per Lane Per Cycle, Volc:	6.84	8.63	8.46	4.10
Opposing Platoon Ratio, Rpo:	1.00	1.00	1.00	1.00
Lost Time Per Phase, tl:	4.00	0.00	4.00	0.00
Eff grn until arrival of left-turn car, gf:	0.00	0.00	0.00	0.00
Opposing Queue Ratio, qro:	0.57	0.73	0.72	0.81
Eff grn blocked by opposing queue, gq:	0.00	16.80	5.56	7.53
Eff grn while left turns filter thru, gu:	18.69	5.89	7.77	9.80
Max opposing cars arriving during gq-gf, n:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Proportion of Opposing Thru & RT cars, ptho:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Left-turn Saturation Factor, fs:	0.66	0.60	0.60	0.74
Proportion of Left Turns in Shared Lane, pl:	1.00	1.00	1.00	1.00
Through-car Equivalents, el1:	1.83	1.99	1.97	1.62
Single Lane Through-car Equivalents, el2:	xxxxxx	xxxxxx	xxxxxx	xxxxxx
Minimum Left Turn Adjustment Factor, fmin:	0.21	0.18	0.30	0.23
Single Lane Left Turn Adjustment Factor, fm:	0.55	0.18	0.30	0.35
Left Turn Adjustment Factor, flt:	0.55	0.18	0.30	0.35

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday PM Peak Hour

Level Of Service Detailed Computation Report (HCM2000 Queue Method)
2000 HCM Operations Method
Future Volume Alternative

Intersection #1 SE Hogan Ave/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Green/Cycle:	0.02	0.27	0.27	0.18	0.43	0.43	0.04	0.19	0.19	0.13	0.28	0.28
ArrivalType:		3			3			3			3	
ProgFactor:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1:	0.2	8.4	2.9	4.3	4.8	1.1	1.1	3.8	3.8	2.0	8.2	8.2
UpstreamVC:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UpstreamAdj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EarlyArrAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q2:	0.1	5.2	0.7	2.0	0.8	0.2	0.5	1.4	1.4	0.5	5.2	5.2
HCM2KQueue:	0.3	13.6	3.6	6.3	5.6	1.2	1.6	5.2	5.2	2.5	13.4	13.4
70th%Factor:	1.20	1.17	1.19	1.19	1.19	1.20	1.20	1.19	1.19	1.19	1.17	1.17
70th%HCM2kQ:	0.3	15.9	4.3	7.4	6.6	1.5	1.9	6.2	6.2	3.0	15.7	15.7
85th%Factor:	1.60	1.49	1.57	1.54	1.55	1.59	1.58	1.55	1.55	1.58	1.49	1.49
85th%HCM2kQ:	0.4	20.3	5.7	9.7	8.7	1.9	2.5	8.0	8.0	4.0	20.0	20.0
90th%Factor:	1.79	1.60	1.73	1.69	1.70	1.78	1.77	1.71	1.71	1.75	1.60	1.60
90th%HCM2kQ:	0.5	21.8	6.3	10.6	9.5	2.2	2.8	8.9	8.9	4.4	21.5	21.5
95th%Factor:	2.09	1.78	1.99	1.92	1.94	2.06	2.05	1.95	1.95	2.02	1.79	1.79
95th%HCM2kQ:	0.6	24.2	7.2	12.1	10.9	2.5	3.3	10.1	10.1	5.1	23.9	23.9
98th%Factor:	2.68	2.05	2.46	2.32	2.35	2.61	2.58	2.37	2.37	2.52	2.06	2.06
98th%HCM2kQ:	0.7	27.9	8.9	14.5	13.2	3.2	4.1	12.3	12.3	6.4	27.5	27.5

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #2 West Site Driveway/SE Palmquist Rd

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: D[27.0]

Street Name:	West Site Driveway						SE Palmquist Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 0	0	1	0 0	0	0	0 0	0	1 0	1 0	1	0 0
Volume Module: >> Count Date: 15 Mar 2007 << 4:40 - 5:40 p.m.												
Base Vol:	0	0	0	0	0	0	0	400	0	0	325	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.02	1.00	1.00	1.02	1.00
Initial Bse:	0	0	0	0	0	0	0	408	0	0	332	0
Added Vol:	22	0	2	0	0	0	0	10	40	4	6	0
In Process:	10	0	0	0	0	0	0	191	0	0	147	0
Initial Fut:	32	0	2	0	0	0	0	609	40	4	485	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	36	0	2	0	0	0	0	677	44	4	538	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	36	0	2	0	0	0	0	677	44	4	538	0
Critical Gap Module:												
Critical Gp:	6.4	xxxx	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	xxxx	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1246	xxxx	701	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	721	xxxx	xxxxx
Potent Cap.:	194	xxxx	442	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	876	xxxx	xxxxx
Move Cap.:	193	xxxx	441	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	876	xxxx	xxxxx
Volume/Cap:	0.18	xxxx	0.01	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.01	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	0.7	xxxx	0.0	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx
Control Del:	27.8	xxxx	13.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.1	xxxx	xxxxx
LOS by Move:	D	*	B	*	*	*	*	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	27.0			xxxxxx			xxxxxx			xxxxxx		
ApproachLOS:	D			*			*			*		

Note: Queue reported is the number of cars per lane.

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Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday PM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Future Volume Alternative

Intersection #2 West Site Driveway/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			1%			3%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			2		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												
Upstream Signals:												
Link Index:							#68			#18		
Dist(miles):							0.000			0.000		
Speed (mph):							0.00			0.00		
SignalIndex:							#1			#6		
Cycle Time:							0 secs			0 secs		
InitVolume:	0	0	0	0	0	0	0	0	0	0	0	0
Saturation:	0	0	0	0	0	0	0	0	0	0	0	0
ArrivalType:	0	0	0	0	0	0	0	0	0	0	0	0
G/C:	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
*** Computation 1: Time for Queue to Clear at Each Upstream Intersection												
P:	0.000	0.000		0.000	0.000		0.000	0.000		0.000	0.000	
gq1:	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
gq2:	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
gq:	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
*** Computation 2: Time Intersection Blocked Because of Upstream Platoons												
alpha:							0.000			0.000		
beta:							0.000			0.000		
ta (secs):							0.000			0.000		
F:							0.000			0.000		
f:	0.000	0.000		0.000	0.000		0.000	0.000		0.000	0.000	
vcmax:	0	0		0	0		0	0		0	0	
vcg:	0	0		0	0		0	0		0	0	
vcmin:	0	0		0	0		0	0		0	0	
tp:	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
p:							0.000			0.000		
*** Computation 3: Platoon Event Periods												
pdom/psubo:							0.000/0.000/Unconstrained					
*** Computation 4: Conflicting Flows During Each Unblocked Period												
InitCnflVol:	1246	1246	701	1249	1268	538	0	xxxxx	xxxxx	721	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
ConflictVol:	1246	1246	701	1249	1268	538	0	xxxxx	xxxxx	721	xxxxx	xxxxx
*** Computation 5: Capactiy for Subject Movement During Unblocked Period												
InitPotCap:	194	175	442	151	170	547	900	xxxxx	xxxxx	876	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
PotentCap:	194	175	442	151	170	547	900	xxxxx	xxxxx	876	xxxxx	xxxxx

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #3 Mid-Block Site Driveway/SE Palmquist Rd

Average Delay (sec/veh): 0.2 Worst Case Level Of Service: B[14.3]

Street Name:	Mid-BlockSite Driveway						SE Palmquist Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0	0	1! 0	0	0	0	0	0	0	1	0	1	0	0	1	0	1	0	0
Volume Module: >> Count Date: 15 Mar 2007 <<																			
Base Vol:	0	0	0	0	0	0	0	400	0	0	325	0							
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.02	1.00	1.00	1.02	1.00							
Initial Bse:	0	0	0	0	0	0	0	408	0	0	332	0							
Added Vol:	3	0	4	0	0	0	0	7	5	8	7	0							
In Process:	0	0	0	0	0	0	0	191	0	0	147	0							
Initial Fut:	3	0	4	0	0	0	0	606	5	8	486	0							
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00							
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90							
PHF Volume:	3	0	4	0	0	0	0	673	6	9	539	0							
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0							
Final Vol.:	3	0	4	0	0	0	0	673	6	9	539	0							
Critical Gap Module:																			
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx							
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx							
Capacity Module:																			
Cnflict Vol:	1233	1233	676	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	679	xxxx	xxxxx							
Potent Cap.:	197	178	457	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	909	xxxx	xxxxx							
Move Cap.:	196	177	457	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	909	xxxx	xxxxx							
Total Cap:	335	300	xxxxx	283	297	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx							
Volume/Cap:	0.01	0.00	0.01	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.01	xxxx	xxxx							
Level Of Service Module:																			
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.0	xxxx	xxxxx							
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	9.0	xxxx	xxxxx							
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*							
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT							
Shared Cap.:	xxxx	395	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx							
SharedQueue:	xxxxx	0.1	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx							
Shrd ConDel:	xxxxx	14.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx							
Shared LOS:	*	B	*	*	*	*	*	*	*	*	*	*							
ApproachDel:	14.3			xxxxxx			xxxxxx			xxxxxx									
ApproachLOS:	B			*			*			*									

Note: Queue reported is the number of cars per lane.

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Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Future Volume Alternative

Intersection #3 Mid-Block Site Driveway/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	0%			0%			1%			3%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												
Upstream Signals:												
Link Index:							#68			#18		
Dist(miles):							0.000			0.000		
Speed (mph):							0.00			0.00		
SignalIndex:							#1			#6		
Cycle Time:							0 secs			0 secs		
InitVolume:							0	0		0	0	
Saturation:							0	0		0	0	
ArrivalType:							0	0		0	0	
G/C:							0.00	0.00		0.00	0.00	
*** Computation 1: Time for Queue to Clear at Each Upstream Intersection												
P:							0.000	0.000		0.000	0.000	
gq1:							0.00	0.00		0.00	0.00	
gq2:							0.00	0.00		0.00	0.00	
gq:							0.00	0.00		0.00	0.00	
*** Computation 2: Time Intersection Blocked Because of Upstream Platoons												
alpha:							0.000			0.000		
beta:							0.000			0.000		
ta (secs):							0.000			0.000		
F:							0.000			0.000		
f:							0.000	0.000		0.000	0.000	
vcmax:							0	0		0	0	
vcg:							0	0		0	0	
vcmin:							0	0		0	0	
tp:							0.0	0.0		0.0	0.0	
p:							0.000			0.000		
*** Computation 3: Platoon Event Periods												
pdom/psubo:							0.000/0.000/Unconstrained					
*** Computation 4: Conflicting Flows During Each Unblocked Period												
InitCnflVol:	1233	1233	676	1236	1236	539	0	xxxxx	xxxxx	679	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
ConflictVol:	1233	1233	676	1236	1236	539	0	xxxxx	xxxxx	679	xxxxx	xxxxx
*** Computation 5: Capactiy for Subject Movement During Unblocked Period												
InitPotCap:	197	178	457	155	178	546	900	xxxxx	xxxxx	909	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
PotentCap:	197	178	457	155	178	546	900	xxxxx	xxxxx	909	xxxxx	xxxxx

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Two-Stage Gap Acceptance [Median Type: TWLTL][Median Storage: 1 car]

Two-Stage Gap Acceptance - Stage One Module:												
InitCfltVol:	676	676	xxxxx	557	557	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
UpstreamSat:	0	0	xxxxx	0	0	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
UpstreamAdj:	1.00	1.00	xxxxx	1.00	1.00	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
Cnflict Vol:	676	676	xxxxx	557	557	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
InitPotCap:	509	456	xxxxx	518	515	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
UpstreamAdj:	1.00	1.00	xxxxx	1.00	1.00	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
Potent Cap.:	509	456	xxxxx	518	515	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
Move Cap.:	509	456	xxxxx	513	510	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx

Two-Stage Gap Acceptance - Stage Two Module:												
InitCfltVol:	557	557	xxxxx	678	679	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
UpstreamSat:	0	0	xxxxx	0	0	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
UpstreamAdj:	1.00	1.00	xxxxx	1.00	1.00	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
Cnflict Vol:	557	557	xxxxx	678	679	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
InitPotCap:	578	515	xxxxx	445	454	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
UpstreamAdj:	1.00	1.00	xxxxx	1.00	1.00	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
Potent Cap.:	578	515	xxxxx	445	454	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx
Move Cap.:	572	510	xxxxx	441	454	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx

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Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #4 SE Fleming/SE Palmquist

Average Delay (sec/veh): 6.2 Worst Case Level Of Service: F[52.1]

Street Name:	SE Fleming Ave						SE Palmquist Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	1 0 0	1	0	1 0 0	1	0	1 0 0	1	0	1 0 0	1	0
Volume Module: >> Count Date: 15 Mar 2007 << 4:30 - 5:30 p.m.												
Base Vol:	26	0	14	0	0	0	0	366	31	15	299	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.02	1.00	1.00	1.02	1.00
Initial Bse:	26	0	14	0	0	0	0	373	31	15	305	0
Added Vol:	3	0	15	0	0	0	0	6	5	26	11	0
In Process:	0	0	0	22	0	133	158	18	15	0	14	26
Initial Fut:	29	0	29	22	0	133	158	397	51	41	330	26
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
PHF Volume:	34	0	34	26	0	155	184	462	59	48	384	30
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	34	0	34	26	0	155	184	462	59	48	384	30
Critical Gap Module:												
Critical Gp:	7.1	6.5	6.2	7.1	6.5	6.2	4.1	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	3.5	4.0	3.3	2.2	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1431	1368	494	1372	1383	399	414	xxxx	xxxxx	521	xxxx	xxxxx
Potent Cap.:	112	146	574	124	145	655	1150	xxxx	xxxxx	1040	xxxx	xxxxx
Move Cap.:	72	117	573	99	116	655	1150	xxxx	xxxxx	1040	xxxx	xxxxx
Volume/Cap:	0.47	0.00	0.06	0.26	0.00	0.24	0.16	xxxx	xxxx	0.05	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	1.9	xxxx	xxxxx	0.9	xxxx	xxxxx	0.6	xxxx	xxxxx	0.1	xxxx	xxxxx
Control Del:	92.5	xxxx	xxxxx	53.5	xxxx	xxxxx	8.7	xxxx	xxxxx	8.6	xxxx	xxxxx
LOS by Move:	F	*	*	F	*	*	A	*	*	A	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	573	xxxx	xxxx	655	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	0.2	xxxxx	xxxx	0.9	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	11.7	xxxxx	xxxx	12.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	B	*	*	B	*	*	*	*	*	*
ApproachDel:	52.1			18.1			xxxxxx			xxxxxx		
ApproachLOS:	F			C			*			*		

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday PM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Future Volume Alternative

Intersection #4 SE Fleming/SE Palmquist

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	3%			0%			1%			3%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			2		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												
Upstream Signals:												
Link Index:							#68			#18		
Dist(miles):							0.000			0.000		
Speed (mph):							0.00			0.00		
SignalIndex:							#1			#6		
Cycle Time:							0 secs			0 secs		
InitVolume:							0	0	0	0		
Saturation:							0	0	0	0		
ArrivalType:							0	0	0	0		
G/C:							0.00	0.00	0.00	0.00		
*** Computation 1: Time for Queue to Clear at Each Upstream Intersection												
P:							0.000	0.000	0.000	0.000		
gq1:							0.00	0.00	0.00	0.00		
gq2:							0.00	0.00	0.00	0.00		
gq:							0.00	0.00	0.00	0.00		
*** Computation 2: Time Intersection Blocked Because of Upstream Platoons												
alpha:							0.000			0.000		
beta:							0.000			0.000		
ta (secs):							0.000			0.000		
F:							0.000			0.000		
f:							0.000	0.000	0.000	0.000		
vcmax:							0	0	0	0		
vcg:							0	0	0	0		
vcmin:							0	0	0	0		
tp:							0.0	0.0	0.0	0.0		
p:							0.000			0.000		
*** Computation 3: Platoon Event Periods												
pdom/psubo:							0.000/0.000/Unconstrained					
*** Computation 4: Conflicting Flows During Each Unblocked Period												
InitCnflVol:	1431	1368	494	1372	1383	399	414	xxxxx	xxxxx	521	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
ConflictVol:	1431	1368	494	1372	1383	399	414	xxxxx	xxxxx	521	xxxxx	xxxxx
*** Computation 5: Capactiy for Subject Movement During Unblocked Period												
InitPotCap:	112	146	574	124	145	655	1150	xxxxx	xxxxx	1040	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
PotentCap:	112	146	574	124	145	655	1150	xxxxx	xxxxx	1040	xxxxx	xxxxx

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday PM Peak Hour

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #5 SE Palmblad Rd/SE Palmquist Rd

Average Delay (sec/veh): 5.6 Worst Case Level Of Service: D[28.9]

Street Name:	SE Palmblad Rd						SE Palmquist Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Stop Sign			Stop Sign			Uncontrolled			Uncontrolled		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 1!	0	0	0 0	0	0	0 0	1	0	0 1	0	0
Volume Module: >> Count Date: 8 Dec 2005 << 4:30 - 5:30 p.m.												
Base Vol:	90	0	70	0	0	0	0	275	95	85	260	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.06	1.00	1.00	1.06	1.00
Initial Bse:	90	0	70	0	0	0	0	292	95	85	276	0
Added Vol:	2	0	0	0	0	0	0	19	1	0	34	0
In Process:	7	0	7	0	0	0	0	31	7	14	38	0
Initial Fut:	99	0	77	0	0	0	0	342	103	99	348	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
PHF Volume:	106	0	83	0	0	0	0	367	111	106	374	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	106	0	83	0	0	0	0	367	111	106	374	0
Critical Gap Module:												
Critical Gp:	6.4	6.5	6.2	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	4.1	xxxx	xxxxx
FollowUpTim:	3.5	4.0	3.3	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	2.2	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	1009	1009	423	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	478	xxxx	xxxxx
Potent Cap.:	266	240	631	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1079	xxxx	xxxxx
Move Cap.:	245	215	631	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	1079	xxxx	xxxxx
Volume/Cap:	0.43	0.00	0.13	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.10	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	0.3	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.7	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	*	A	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	334	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	3.3	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	0.3	xxxx	xxxxx
Shrd ConDel:	xxxxx	28.9	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	8.7	xxxx	xxxxx
Shared LOS:	*	D	*	*	*	*	*	*	*	A	*	*
ApproachDel:		28.9			xxxxxx			xxxxxx			xxxxxx	
ApproachLOS:		D			*			*			*	

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday PM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Unsignalized Method
Future Volume Alternative

Intersection #5 SE Palmblad Rd/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
HevVeh:	2%			0%			1%			3%		
Grade:	0%			0%			0%			0%		
Peds/Hour:	0			0			0			0		
Pedestrian Walk Speed: 4.00 feet/sec												
LaneWidth:	12 feet			12 feet			12 feet			12 feet		
Time Period: 0.25 hour												
Upstream Signals:												
Link Index:							#68			#18		
Dist(miles):							0.000			0.000		
Speed (mph):							0.00			0.00		
SignalIndex:							#1			#6		
Cycle Time:							0 secs			0 secs		
InitVolume:							0	0	0	0	0	0
Saturation:							0	0	0	0	0	0
ArrivalType:							0	0	0	0	0	0
G/C:							0.00	0.00	0.00	0.00		
*** Computation 1: Time for Queue to Clear at Each Upstream Intersection												
P:							0.000	0.000	0.000	0.000		
gq1:							0.00	0.00	0.00	0.00		
gq2:							0.00	0.00	0.00	0.00		
gq:							0.00	0.00	0.00	0.00		
*** Computation 2: Time Intersection Blocked Because of Upstream Platoons												
alpha:								0.000			0.000	
beta:								0.000			0.000	
ta (secs):								0.000			0.000	
F:								0.000			0.000	
f:							0.000	0.000	0.000	0.000		
vcmax:							0	0	0	0	0	0
vcg:							0	0	0	0	0	0
vcmin:							0	0	0	0	0	0
tp:							0.0	0.0	0.0	0.0		
p:								0.000			0.000	
*** Computation 3: Platoon Event Periods												
pdom/psubo:								0.000/0.000/Unconstrained				
*** Computation 4: Conflicting Flows During Each Unblocked Period												
InitCnflVol:	1009	1009	423	1051	1065	374	0	xxxxx	xxxxx	478	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
ConflictVol:	1009	1009	423	1051	1065	374	0	xxxxx	xxxxx	478	xxxxx	xxxxx
*** Computation 5: Capactiy for Subject Movement During Unblocked Period												
InitPotCap:	266	240	631	207	225	677	900	xxxxx	xxxxx	1079	xxxxx	xxxxx
UpstreamAdj:	1.00	1.000	1.000	1.00	1.000	1.000	1.00	x.xxx	x.xxx	1.00	x.xxx	x.xxx
PotentCap:	266	240	631	207	225	677	900	xxxxx	xxxxx	1079	xxxxx	xxxxx

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #6 US 26/SE Palmquist Rd

Cycle (sec): 120 Critical Vol./Cap.(X): 0.731
Loss Time (sec): 16 (Y+R=4.0 sec) Average Delay (sec/veh): 34.8
Optimal Cycle: 77 Level Of Service: C

Street Name:	US 26/Mount Hood Hwy						SE Palmquist Rd					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ignore			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1	0 2	0 1	1	0 2	0 1	1	0 0	1 0	2	0 1	0 1
Volume Module: >> Count Date: 15 Mar 2007 << 4:30 - 5:30 p.m.												
Base Vol:	50	890	136	79	1142	101	89	189	50	224	202	111
Growth Adj:	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
Initial Bse:	51	908	139	81	1165	103	91	193	51	228	206	113
Added Vol:	13	0	0	0	0	7	4	8	8	0	13	0
In Process:	13	0	0	0	0	17	11	21	6	0	25	0
Initial Fut:	77	908	139	81	1165	127	106	222	65	228	244	113
User Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.94	0.94	0.00	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
PHF Volume:	82	966	0	86	1239	135	113	236	69	243	260	120
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	82	966	0	86	1239	135	113	236	69	243	260	120
PCE Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	82	966	0	86	1239	135	113	236	69	243	260	120
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.93	0.93	1.00	0.93	0.93	0.83	0.94	0.96	0.96	0.93	1.01	0.86
Lanes:	1.00	2.00	1.00	1.00	2.00	1.00	1.00	0.77	0.23	2.00	1.00	1.00
Final Sat.:	1769	3538	1900	1769	3538	1583	1787	1405	412	3536	1919	1631
Capacity Analysis Module:												
Vol/Sat:	0.05	0.27	0.00	0.05	0.35	0.09	0.06	0.17	0.17	0.07	0.14	0.07
Crit Moves:	****				****			****		****		
Green/Cycle:	0.06	0.46	0.00	0.08	0.48	0.48	0.10	0.23	0.23	0.09	0.22	0.22
Volume/Cap:	0.73	0.59	0.00	0.59	0.73	0.18	0.61	0.73	0.73	0.73	0.61	0.33
Delay/Veh:	76.7	24.6	0.0	59.6	26.7	17.9	57.5	49.2	49.2	60.9	44.7	39.9
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	76.7	24.6	0.0	59.6	26.7	17.9	57.5	49.2	49.2	60.9	44.7	39.9
LOS by Move:	E	C	A	E	C	B	E	D	D	E	D	D
HCM2kAvgQ:	5	14	0	4	20	3	5	12	12	6	9	4

Note: Queue reported is the number of cars per lane.

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday PM Peak Hour

Level Of Service Detailed Computation Report
2000 HCM Operations Method
Future Volume Alternative

Intersection #6 US 26/SE Palmquist Rd

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	-	T	- R	L	-	T	- R	L	-	T	- R	L	-	T	- R
HCM Ops Adjusted Lane Utilization Module:																
Lanes:	1	0	2	0 1	1	0	2	0 1	1	0	0	1 0	2	0	1	0 1
Lane Group:	L		T	R	L		T	R	L		RT	RT	L		T	R
#LnsInGrps:	1		2	1	1		2	1	1		1	1	2		1	1
HCM Ops Input Saturation Adj Module:																
Lane Width:	12		12	12	12		12	12	12		12	12	12		12	12
CrosswalkWid	8				8				8				8			
% Hev Veh:	2				2				0				1			
Grade:	0%				0%				+2%				-4%			
Parking/Hr:	No				No				No				No			
Bus Stp/Hr:	0				0				0				0			
Area Type:	< < < < < < < < < < < < < < < Other > > > > > > > > > > > > > > >															
Cnft Ped/Hr:	0				0				0				0			
ExclusiveRT:	Include				Include				Include				Include			
% RT Prtct:	0				0				0				0			
HCM Ops f(lt) Adj Case Module:																
f(lt) Case:	1	xxxx	xxxx		1	xxxx	xxxx		1	xxxx	xxxx		1	xxxx	xxxx	
HCM Ops Saturation Adj Module:																
Ln Wid Adj:	1.00	1.00	xxxxx	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hev Veh Adj:	0.98	0.98	xxxxx	0.98	0.98	0.98	1.00	1.00	1.00	1.00	0.99	0.99	0.98	0.99	0.99	0.99
Grade Adj:	1.00	1.00	xxxxx	1.00	1.00	1.00	0.99	0.99	0.99	1.02	1.02	1.02	1.02	1.02	1.02	1.02
Parking Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	xxxx	1.00	1.00	xxxx	xxxx	1.00	xxxx	xxxx	1.00	1.00
Bus Stp Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	1.00	xxxx	1.00	1.00	xxxx	xxxx	1.00	xxxx	xxxx	1.00	1.00
Area Adj:	1.00	1.00	xxxxx	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
RT Adj:	xxxx	xxxx	xxxxx	xxxx	xxxx	0.85	xxxx	0.97	0.97	xxxx	xxxx	0.85	xxxx	xxxx	0.85	0.85
LT Adj:	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx	0.95	xxxx	xxxxx	xxxxx
PedBike Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
HCM Sat Adj:	0.93	0.98	1.00	0.93	0.98	0.83	0.94	0.96	0.96	0.96	1.01	0.86	0.93	0.98	1.00	0.86
Usr Sat Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Sat Adj:	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00	1.00	1.00	1.00	1.00
Fnl Sat Adj:	0.93	0.93	1.00	0.93	0.93	0.83	0.94	0.96	0.96	0.93	1.01	0.86	0.93	0.98	1.00	0.86
Delay Adjustment Factor Module:																
Coordinated:	< < < < < < < < < < < < < < < No > > > > > > > > > > > > > > >															
Signal Type:	< < < < < < < < < < < < < Actuated > > > > > > > > > > > > >															
DelAdjFctr:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Kittelson & Associates, Inc. -- Project #7670
Brickworks Village -- Gresham, Oregon
2008 Total Traffic Conditions -- Weekday PM Peak Hour

Level Of Service Detailed Computation Report (HCM2000 Queue Method)
2000 HCM Operations Method
Future Volume Alternative

Intersection #6 US 26/SE Palmquist Rd

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Green/Cycle:	0.06	0.46	0.00	0.08	0.48	0.48	0.10	0.23	0.23	0.09	0.22	0.22
ArrivalType:		3			3			3			3	
ProgFactor:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1:	2.7	12.6	0.0	2.8	17.4	2.6	3.6	9.4	9.4	4.1	7.8	3.4
UpstreamVC:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UpstreamAdj:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EarlyArrAdj:	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q2:	1.8	1.4	0.0	1.2	2.5	0.2	1.4	2.3	2.3	2.0	1.5	0.5
HCM2KQueue:	4.5	14.0	0.0	4.0	19.9	2.8	5.0	11.7	11.7	6.1	9.3	3.9
70th%Factor:	1.19	1.17	1.20	1.19	1.16	1.19	1.19	1.17	1.17	1.19	1.18	1.19
70th%HCM2kQ:	5.4	16.4	0.0	4.8	23.1	3.3	5.9	13.8	13.8	7.2	10.9	4.6
85th%Factor:	1.56	1.49	1.60	1.56	1.45	1.57	1.55	1.50	1.50	1.55	1.52	1.56
85th%HCM2kQ:	7.0	20.8	0.0	6.3	29.0	4.4	7.7	17.6	17.6	9.4	14.1	6.1
90th%Factor:	1.72	1.60	1.80	1.73	1.55	1.75	1.71	1.62	1.62	1.70	1.65	1.73
90th%HCM2kQ:	7.8	22.3	0.0	6.9	30.8	4.9	8.5	19.0	19.0	10.3	15.3	6.7
95th%Factor:	1.97	1.78	2.10	1.98	1.70	2.01	1.96	1.81	1.81	1.93	1.86	1.98
95th%HCM2kQ:	8.9	24.8	0.0	7.9	33.8	5.6	9.7	21.3	21.3	11.7	17.2	7.7
98th%Factor:	2.41	2.04	2.70	2.44	1.92	2.51	2.38	2.11	2.11	2.33	2.19	2.44
98th%HCM2kQ:	10.9	28.5	0.0	9.7	38.2	7.0	11.8	24.7	24.7	14.1	20.3	9.5

Appendix D
Crash Data

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SE Palmquist Road at SE Hogan Avenue in Gresham
1-1-2001 through 12-31-2005

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2005														
TURNING MOVEMENTS	0	1	2	3	0	1	0	2	1	2	1	3	0	0
2005 TOTAL	0	1	2	3	0	1	0	2	1	2	1	3	0	0
YEAR: 2004														
REAR-END	0	1	0	1	0	1	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	0	1	0	1	1	0	0
2004 TOTAL	0	2	0	2	0	2	0	1	1	1	1	2	0	0
YEAR: 2002														
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2002 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR: 2001														
REAR-END	0	0	1	1	0	0	0	1	0	0	1	1	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	1	0	1	0	1	1	0	0
2001 TOTAL	0	1	1	2	0	1	1	1	1	0	2	2	0	0
FINAL TOTAL	0	4	4	8	0	4	1	5	3	4	4	8	0	0

Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

CITY OF GRESHAM, MULTNOMAH COUNTY
SE Palmquist Road at SE Hogan Avenue in Gresham
1-1-2001 through 12-31-2005

Ordinance No. 07-1148
Attachment 7

SER# / INVEST	SPED	ALC	DRUGS	SCHL	WORK	DATE / DAY / TIME	CLASS / DIST FROM	CITY STREET / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFF-RD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / VEH TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN EVENT	CAUSE
07969	N	N	N			07/21/2004	17	HOGAN (242ND)	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE	STRGHT										07
NONE						Wed	0	PALMQUIST RD	E		STOP SIGN	N	DRY	REAR		PRVTE	E W									000	00
						8A			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	65	F	OR-Y		026	000	07
																							OR<25				
															02	NONE	STOP										
																PRVTE	E W									011	00
																PSNGR CAR		01	DRVR	INJC	43	M	OR-Y		000	000	00
																							OR<25				
15155	N	N	N			12/25/2005	16	HOGAN (242ND)	INTER	CROSS	N	N	RAIN	ANGL-OTH	01	NONE 0	TURN-L										08,02
NO RPT						Sun	0	PALMQUIST RD	CN		TRF SIGNAL	N	WET	TURN		PRVTE	E S									000	00
						7P			03	0		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	21	M	OR-Y		004,028	000	00,08,02
																							OR<25				
															02	NONE 0	STRGHT										
																PRVTE	W E									000	00
																PSNGR CAR		01	DRVR	NONE	34	M	OR-Y		000	000	00
																							OR<25				
																		02	PSNG	NO<5	01	M			000	000	00
00879	N	N	N			01/31/2004	14	HOGAN (242ND)	INTER	CROSS	N	N	RAIN	O-1TURN	01	NONE 0	TURN-L										02
NONE						Sat	0	PALMQUIST RD	CN		UNKNOWN	N	WET	TURN		PRVTE	N E									000	00
						5P			04	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	19	M	OR-Y		004	000	02
																							OR<25				
															02	NONE 0	STRGHT										
																PRVTE	S N									000	00
																PSNGR CAR		01	DRVR	INJC	71	F	OR-Y		000	000	00
																							OR<25				
00836	N	N	N			01/22/2005	14	HOGAN (242ND)	INTER	CROSS	N	N	CLR	O-1TURN	01	NONE 0	TURN-L										02
NONE						Sat	0	PALMQUIST RD	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	N E									000	00
						11A			04	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	62	M	OR-Y		004	000	02
																							OR<25				
															02	NONE 0	STRGHT										
																PRVTE	S N									000	00
																PSNGR CAR		01	DRVR	NONE	53	F	OR-Y		000	000	00
																							OR<25				
01579	N	N	N			02/09/2005	14	HOGAN (242ND)	INTER	CROSS	N	N	CLR	O-1TURN	01	NONE 0	TURN-L										02
CITY						Wed	0	PALMQUIST RD	CN		UNKNOWN	N	DRY	TURN		PRVTE	N E									000	00
						12P			04	0		N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	63	M	OR-Y		004	000	02
																							OR<25				
															02	NONE 0	STRGHT										
																PRVTE	S N									000	00
																PSNGR CAR		01	DRVR	NONE	57	M	OR-Y		000	000	00
																							OR<25				
02505	N	N	N	N	N	02/12/2001	16	NE HOGAN AVE	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										07
NONE						Mon	0	SE PALMQUIST RD	N		STOP SIGN	N	DRY	REAR		PRVTE	N S									000	
						6P			06	0		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	22	F	OR-Y		016		07
																							OR<25				

CITY OF GRESHAM, MULTNOMAH COUNTY
SE Palmquist Road at SE Hogan Avenue in Gresham
1-1-2001 through 12-31-2005

Ordinance No. 07-1148
Attachment 7

SER# / INVEST	SPED	ALC	DRUGS	SCHL	WORK	DATE / DAY / TIME	CLASS / DIST FROM	CITY STREET / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF- / CONTL	OFF-RD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / VEH TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN EVENT	CAUSE
															02	NONE 0 PRVTE PSNGR CAR	STOP N S	01	DRVR	NONE	18	F	OR-Y OR<25		000	012	
19338 CITY	N	N	N	N	N	11/03/2002 Sun 3P	14 0	NE HOGAN AVE SE PALMQUIST RD	INTER CN 01	CROSS 0	N TRF SIGNAL	N N N	CLR DRY DAY	O-1TURN TURN PDO	01	NONE 0 PRVTE PSNGR CAR	TURN-L S W	01	DRVR	NONE	39	F	OR-Y OR<25		004	000	10 10
															02	NONE 0 PRVTE PSNGR CAR	STRGHT N S	01	DRVR	NONE	45	M	OR-Y OR<25		000	000	
04400 CITY	N	N	N	N	N	03/14/2001 Wed 6A	16 0	NE HOGAN AVE SE PALMQUIST RD	INTER CN 04	CROSS 0	N TRF SIGNAL	N N N	CLR WET DLIT	O-1TURN TURN INJ	01	NONE 0 PRVTE TRUCK	TURN-L N E	01	DRVR	NONE	34	M	OTH-Y N-RES		004	000	08 08
															02	NONE 0 PRVTE PSNGR CAR	STRGHT S N	01	DRVR	INJB	23	F	OR-Y OR<25		000	000	

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SE Palmquist Road at SE Palmblad Road in Gresham
1-1-2001 through 12-31-2005

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2005														
REAR-END	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2005 TOTAL	0	1	0	1	0	1	0	1	0	1	0	1	0	0
FINAL TOTAL	0	1	0	1	0	1	0	1	0	1	0	1	0	0

Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

CITY OF GRESHAM, MULTNOMAH COUNTY
SE Palmquist Road at SE Palmblad Road in Gresham
1-1-2001 through 12-31-2005

Ordinance No. 07-1148
Attachment 7

SER# / INVEST	SPED	ALC	DRUGS	SCHL	WORK	DATE / DAY / TIME	CLASS / DIST FROM	CITY STREET / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFF-RD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / VEH TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN EVENT	CAUSE
07650	N	N	N			07/08/2005	17	PALMBLAD RD	INTER	3-LEG	N	N	CLR	S-1STOP	01	NONE 0	STRGHT									07
NO RPT						Fri	0	PALMQUIST RD	E		STOP SIGN	N	DRY	REAR		PRVTE	E W									000	00
						6P			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	30	M	OR-Y		026	000	07
																							OR<25				
															02	NONE 0	STOP									
																PRVTE	E W									012	00
																PSNGR CAR		01	DRVR	INJB	30	F	OR-Y		000	000	00
																							OR<25				

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

SE Palmquist Road at Mt Hood Hwy #26 (Route 26, US 26) in Gresham
1-1-2001 through 12-31-2005

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2005														
ANGLE	0	1	0	1	0	2	1	0	1	1	0	1	0	0
REAR-END	0	1	0	1	0	1	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2005 TOTAL	0	2	1	3	0	3	1	2	1	3	0	3	0	0
YEAR: 2004														
ANGLE	0	2	0	2	0	2	0	2	0	1	1	2	0	0
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	0	1	1	0	1	0	0
REAR-END	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2004 TOTAL	0	2	2	4	0	2	0	3	1	3	1	4	0	0
YEAR: 2003														
ANGLE	0	1	0	1	0	3	0	0	1	0	1	1	0	0
REAR-END	0	2	0	2	0	2	0	2	0	2	0	2	0	0
2003 TOTAL	0	3	0	3	0	5	0	2	1	2	1	3	0	0
YEAR: 2002														
ANGLE	0	2	0	2	0	3	0	1	1	1	1	2	0	0
REAR-END	0	1	1	2	0	2	0	1	1	1	1	2	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	0	1	1	0	1	0	0
2002 TOTAL	0	4	1	5	0	6	0	2	3	3	2	5	0	0
YEAR: 2001														
ANGLE	0	0	1	1	0	0	0	1	0	0	1	1	0	0
FIXED / OTHER OBJECT	0	0	1	1	0	0	0	1	0	1	0	1	0	1
REAR-END	0	0	1	1	0	0	1	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	0	0	0	1	0	1	0	0
2001 TOTAL	0	0	4	4	0	0	1	3	0	3	1	4	0	1
FINAL TOTAL	0	11	8	19	0	16	2	12	6	14	5	19	0	1

Note: Legislative changes to DMV's vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.

026 MT. HOOD Ordinance No. 07-1148
Attachment 7

SE Palmquist Road at Mt Hood Hwy #26 (Route 26, US 26) in Gresham
1-1-2001 through 12-31-2005

SER# / INVEST	SPEED	ALC	DRUGS	SCHL	WORK	DATE / DAY / TIME	COUNTY / CITY / URBAN AREA	RD# / COMPNT / MLG / MILEPNT	FC / TYP	CONN # / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CNTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / VEH TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
11933	N	N	N			10/20/2004	MULTNOMAH	1	14		INTER	CROSS	N	N	RAIN	FIX OBJ	01	NONE 0	TURN-L										079	01,27
CITY						Wed	GRESHAM	0	0	MT HOOD HY	E		UNKNOWN	N	WET	FIX		PRVTE	N E									000	079	00
						8A	PORTLAND UA	14.75		PALMQUIST RD	05	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	24	M	OR-Y		047	017		01
																									OR<25					
18263	N	N	N	N	N	10/03/2001	MULTNOMAH	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
NONE						Wed	GRESHAM	0	0	MT HOOD HY	S		UNKNOWN	N	DRY	REAR		PRVTE	S N									000		
						3P	PORTLAND UA	14.75		SE PALMQUIST RD	06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	60	F	OR-Y		026			07
																									OR<25					
																	02	NONE 0	STOP											
																		PRVTE	S N									011		
																		BOBTAIL		01	DRVR	NONE	29	M	OR-Y		000			
																									OR<25					
13447	N	N	N	N	N	08/03/2002	MULTNOMAH	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
NONE						Sat	GRESHAM	0	0	MT HOOD HY	S		TRF SIGNAL	N	DRY	REAR		PRVTE	S N									000		
						1P	PORTLAND UA	14.75		SE PALMQUIST RD	06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	28	F	OR-Y		026			07
																									OR<25					
																	02	NONE 0	STOP											
																		PRVTE	S N									011		
																		PSNGR CAR		01	DRVR	NONE	51	M	OR-Y		000			
																									OR<25					
14807	Y	N	N			09/08/2003	MULTNOMAH	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											01,07
NONE						Mon	GRESHAM	0	0	MT HOOD HY	S		TRF SIGNAL	N	DRY	REAR		PRVTE	S N									000		00
						6P	PORTLAND UA	14.75		PALMQUIST RD	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	50	F	OR-Y		026	000		01
																									OR<25					
																	02	NONE 0	STOP											
																		PRVTE	S N									011		00
																		PSNGR CAR		01	DRVR	INJC	37	F	OR-Y		000	000		00
																									OR<25					
22628	N	N	N	N	N	12/17/2002	MULTNOMAH	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
NO RPT						Tue	GRESHAM	0	0	MT HOOD HY	W		TRF SIGNAL	N	WET	REAR		PRVTE	W E									000		
						5P	PORTLAND UA	14.75		SE PALMQUIST RD	06	0		N	DARK	INJ		PSNGR CAR		01	DRVR	NONE	57	M	OR-Y		026			07
																									OR<25					
																	02	NONE 0	STOP											
																		PRVTE	W E									011		
																		PSNGR CAR		01	DRVR	INJB	62	F	OR-Y		000			
																									OR<25					
																				02	PSNG	INJB	68	M						
17119	N	N	N			10/15/2003	MULTNOMAH	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
NONE						Wed	GRESHAM	0	0	MT HOOD HY	W		TRF SIGNAL	N	DRY	REAR		PRVTE	W E									000		00
						3P	PORTLAND UA	14.75		PALMQUIST RD	06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	44	M	OR-Y		026	000		07
																									OR>25					

026 MT. HOOD Ordinance No. 07-1148
Attachment 7

SE Palmquist Road at Mt Hood Hwy #26 (Route 26, US 26) in Gresham
1-1-2001 through 12-31-2005

SER# / INVEST	SPEED	ALC	DRUGS	SCHL	WORK	DATE / DAY / TIME	COUNTY / CITY / URBAN AREA	RD# / COMPNT / MLG / MILEPNT	FC / TYP	CONN # / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CNTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / VEH TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN EVENT	CAUSE
																	02	NONE 0 PRVTE PSNGR CAR	STOP W E						OR-Y OR>25		011 000	00 00
01170 CITY	N	N	N			02/08/2004 Sun 12A	MULTNOMAH GRESHAM PORTLAND UA	1 14 0 0 14.75		 MT HOOD HY PALMQUIST RD	INTER CN 01	CROSS 0	N TRF SIGNAL	N N N	CLR DRY DLIT	ANGL-OTH ANGL INJ	01	NONE PRVTE PSNGR CAR	STRGHT N S	01	DRVR	INJC	28	M	OR-Y OR<25		000	000	04 00 00
																	02	NONE PRVTE PSNGR CAR	STRGHT E W	01	DRVR	NONE	20	M	OR-Y OR>25		020	000 025	00 04
17990 CITY	N	N	N	N	N	09/29/2001 Sat 2A	MULTNOMAH GRESHAM PORTLAND UA	1 14 0 0 14.75		 MT HOOD HY SE PALMQUIST RD	INTER CN 02	CROSS 0	N TRF SIGNAL	N N N	CLR DRY DARK	ANGL-OTH ANGL PDO	01	NONE 0 PRVTE PSNGR CAR	STRGHT E W	01	DRVR	NONE	17	M	OR-Y OR<25		020	000	04 04
																	02	NONE 0 PRVTE PSNGR CAR	STRGHT S N	01	DRVR	NONE	22	M	OR-Y OR<25		000	000	
16670 CITY	N	N	N	N	N	09/22/2002 Sun 10P	MULTNOMAH GRESHAM PORTLAND UA	1 14 0 0 14.75		 MT HOOD HY SE PALMQUIST RD	INTER CN 02	CROSS 0	N TRF SIGNAL	N N N	CLR DRY DLIT	ANGL-OTH ANGL INJ	01	NONE 0 PRVTE PSNGR CAR	STRGHT S N	01	DRVR	INJC	42	F	OR-Y OR<25		000	000	04 00
																	02	NONE 0 PRVTE PSNGR CAR	STRGHT E W	01	DRVR	NONE	00	M	UNK UNK		020	000	04
05433 CITY	N	N	N			05/16/2005 Mon 4P	MULTNOMAH PORTLAND UA	1 14 0 0 14.75		 	INTER CN 02	CROSS 0	N TRF SIGNAL	N N N	CLD WET DAY	ANGL-OTH ANGL INJ	01	NONE 1 PRVTE TRUCK	STRGHT S N	01	DRVR	NONE	24	M	OTH-Y OR<25		047,020	000 017	01,04 00 01,04
																	02	NONE 0 PRVTE PSNGR CAR	STRGHT E W	01	DRVR	INJB	18	F	OR-Y OR<25		000	000 000	00 00
																				02	PSNG	INJB	18	M			000	000	00
04052 CITY	N	N	N	N	N	03/06/2002 Wed 6P	MULTNOMAH GRESHAM PORTLAND UA	1 14 0 0 14.75		 MT HOOD HY SE PALMQUIST RD	INTER CN 03	CROSS 0	N TRF SIGNAL	N N N	RAIN WET DAY	ANGL-OTH ANGL INJ	01	NONE 0 PRVTE PSNGR CAR	STRGHT N S	01	DRVR	NONE	52	F	OR-Y OR<25		020	000	04 04

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Attachment 7

SE Palmquist Road at Mt Hood Hwy #26 (Route 26, US 26) in Gresham
1-1-2001 through 12-31-2005

SER# / INVEST	SPEED	ALC	DRUGS	SCHL	WORK	DATE / DAY / TIME	COUNTY / CITY / URBAN AREA	RD# / COMPNT / MLG / MILEPNT	FC / TYP	CONN # / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CNTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / VEH TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN	EVENT	CAUSE
																	02	NONE 0 PRVTE PSNGR CAR	STRGHT W E						OR-Y OR<25		000		
																				02	PSNG	INJC	14	F						
16198 NO RPT	N	N	N	N	N	09/17/2002 Tue 8A	MULTNOMAH GRESHAM PORTLAND UA	1 14 0 0 14.75		MT HOOD HY SE PALMQUIST RD	INTER CN 03	CROSS 0	N TRF SIGNAL	N N N	RAIN WET DAY	O-1TURN TURN INJ	01	NONE 0 PRVTE PSNGR CAR	STRGHT W E	01	DRVR	INJB	68	F	OR-Y OR<25		000	000		08
																	02	NONE 0 PRVTE PSNGR CAR	TURN-L E N	01	DRVR	NONE	17	F	OR-Y OR<25		000 004			08
00657 NONE	N	N	N			01/18/2005 Tue 3P	MULTNOMAH GRESHAM PORTLAND UA	1 14 0 0 14.75		MT HOOD HY PALMQUIST RD	INTER CN 03	CROSS 0	N TRF SIGNAL	N N N	CLR DRY DAY	O-1TURN TURN PDO	01	NONE 0 PRVTE PSNGR CAR	STRGHT W E	01	DRVR	NONE	45	F	OR-Y OR<25		020	000 000		04,02 00 04
																	02	NONE 0 PRVTE PSNGR CAR	TURN-L E S	01	DRVR	NONE	25	M	OR-Y OR<25		004,028	000 000		00 02
11496 NO RPT	Y	N	N	N	N	06/22/2001 Fri 12P	MULTNOMAH GRESHAM PORTLAND UA	1 14 0 0 14.75		MT HOOD HY SE PALMQUIST RD	INTER CN 04	CROSS 0	N UNKNOWN	Y N N	CLR DRY DAY	FIX OBJ FIX PDO	01	NONE 0 PRVTE PSNGR CAR	STRGHT W E	01	DRVR	NONE	46	M	OR-Y OR<25		047	007	092,079 079 092	26,01 01 26,01
04860 CITY	N	N	N	N	N	03/24/2003 Mon 4A	MULTNOMAH GRESHAM PORTLAND UA	1 14 0 0 14.75		MT HOOD HY SE PALMQUIST RD	INTER CN 04	CROSS 0	N TRF SIGNAL	N N N	FOG WET DARK	ANGL-OTH ANGL INJ	01	NONE PRVTE PSNGR CAR	STRGHT W E	01	DRVR	INJC	24	F	OR-Y OR<25		000	000 000		04 00 00
																				02	PSNG	INJC	36	M			000	000		00
																	02	NONE PRVTE PSNGR CAR	STRGHT S N	01	DRVR	INJB	56	M	OR-Y OR>25		020	000 000		00 04

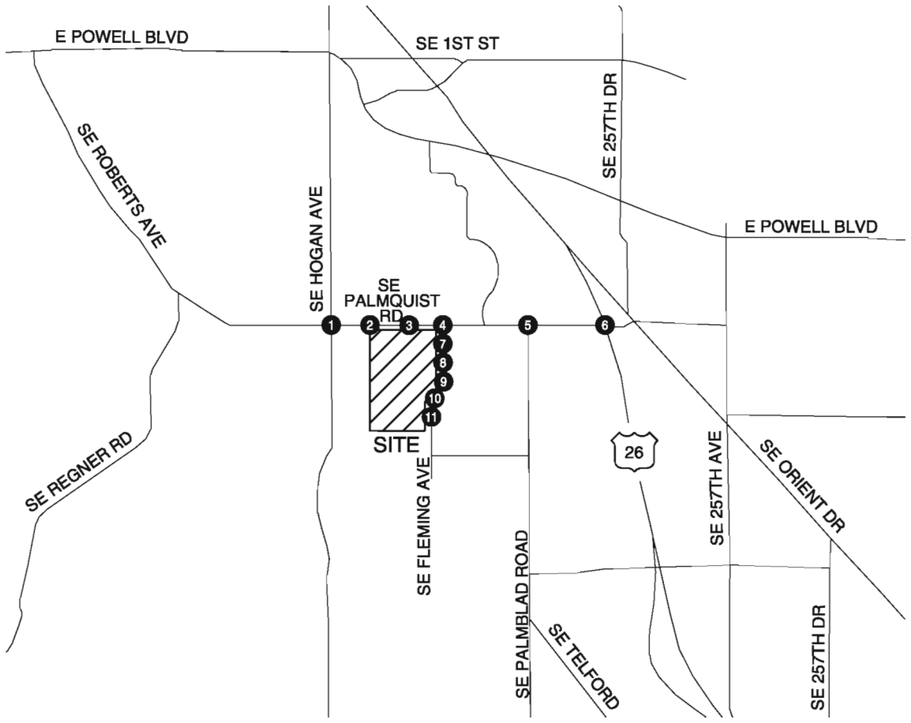
CITY OF GRESHAM, MULTNOMAH COUNTY SE Palmquist Road at Mt Hood Hwy #26 (Route 26, US 26) in Gresham

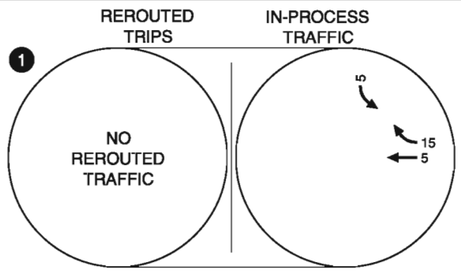
Ordinance No. 07-1148
Attachment 7

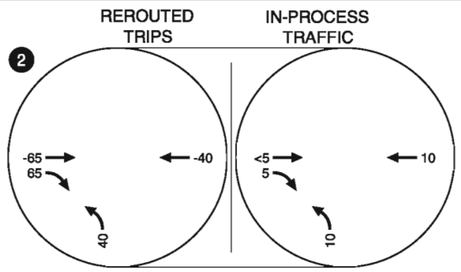
1-1-2001 through 12-31-2005

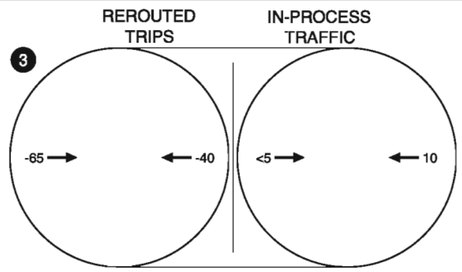
SER# / INVEST	SPED	ALC	DRUGS	SCHL	WORK	DATE / DAY / TIME	CLASS / DIST FROM	CITY STREET / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYP (MEDIAN) / LEGS (#LANES)	INT-REL / TRAF-CONTL	OFF-RD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH TYP / COLL TYP / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / VEH TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS RES	PED LOC	ERROR	ACTN EVENT	CAUSE
06055	N	N	N			06/06/2004	14	MT HOOD HY	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										07
NONE						Sun	0	PALMQUIST RD	E		TRF SIGNAL	N	DRY	REAR		PRVTE	E W									000	00
						6P			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	30	M	OR-Y		026	000	07
																							OR<25				
															02	NONE 0	STOP										
																PRVTE	E W									011	00
																PSNGR CAR		01	DRVR	NONE	18	M	OR-Y		000	000	00
																							OR>25				
03662	N	N	N			04/05/2005	17	MT HOOD HY	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										07
NONE						Tue	0	PALMQUIST RD	E		UNKNOWN	N	DRY	REAR		PRVTE	E W									000	00
						4P			06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	58	M	OR-Y		026	000	07
																							OR<25				
															02	NONE 0	STOP										
																PRVTE	E W									011 013	00
																PSNGR CAR		01	DRVR	NONE	27	F	OR-Y		000	000	00
																							OR<25				
															03	NONE 0	STOP										
																PRVTE	E W									011	00
																PSNGR CAR		01	DRVR	INJC	17	F	OR-Y		000	000	00
																							OR<25				
04214	N	N	N			04/22/2004	14	MT HOOD HY	INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT										04
CITY						Thu	0	PALMQUIST RD	CN		TRF SIGNAL	N	DRY	ANGL		PRVTE	S N									000	00
						6P			02	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	49	M	OR-Y		020	000	04
																							OR<25				
															02	NONE 0	STRGHT										
																PRVTE	E W									000	00
																PSNGR CAR		01	DRVR	INJA	40	M	OR-Y		000	000	00
																							OR<25				
18713	N	N	N	N	N	10/08/2001	19	MT HOOD HY	INTER	CROSS	N	N	UNK	ANGL-OTH	01	NONE 0	TURN-R										02
CITY						Mon	0	SE PALMQUIST RD	W		UNKNOWN	N	UNK	TURN		PRVTE	N W									000	
						9A			06	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	M	UNK		028		02
																							UNK				
															02	NONE 0	STRGHT										
																PRVTE	E W									000	
																PSNGR CAR		01	DRVR	NONE	78	M	OR-Y		000		
																							OR<25				

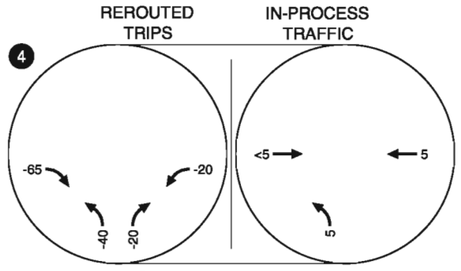
Appendix E
Re-Routed and In-Process Traffic

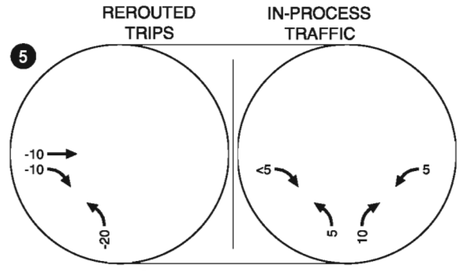


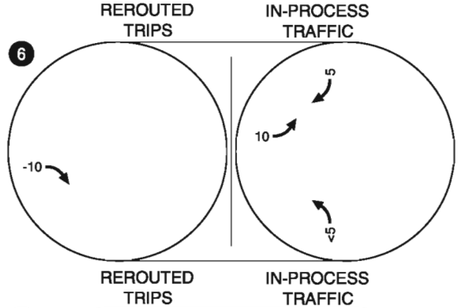


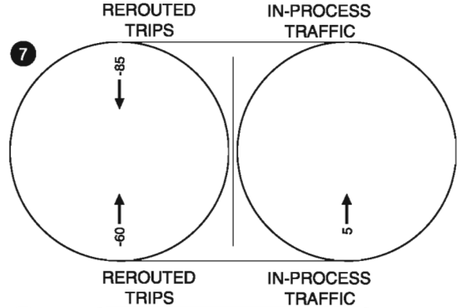


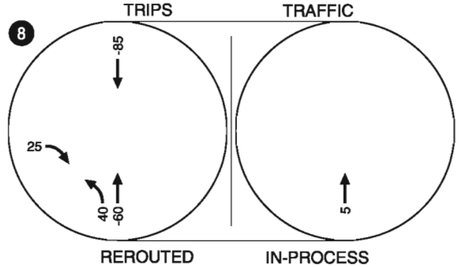


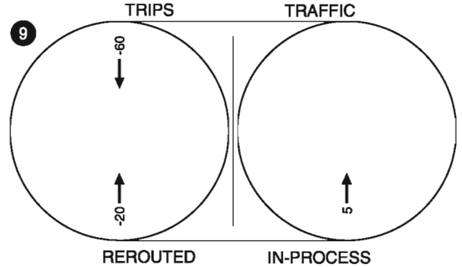


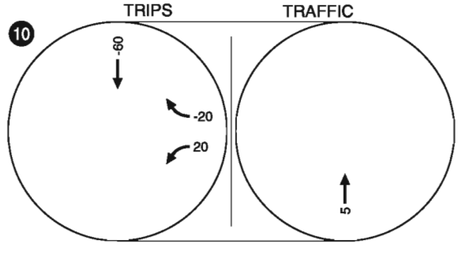


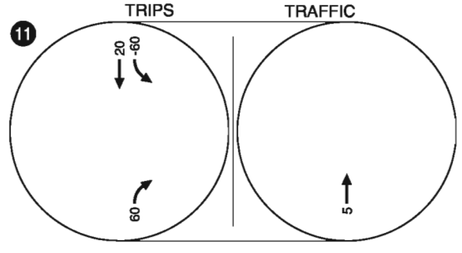












(NO SCALE)

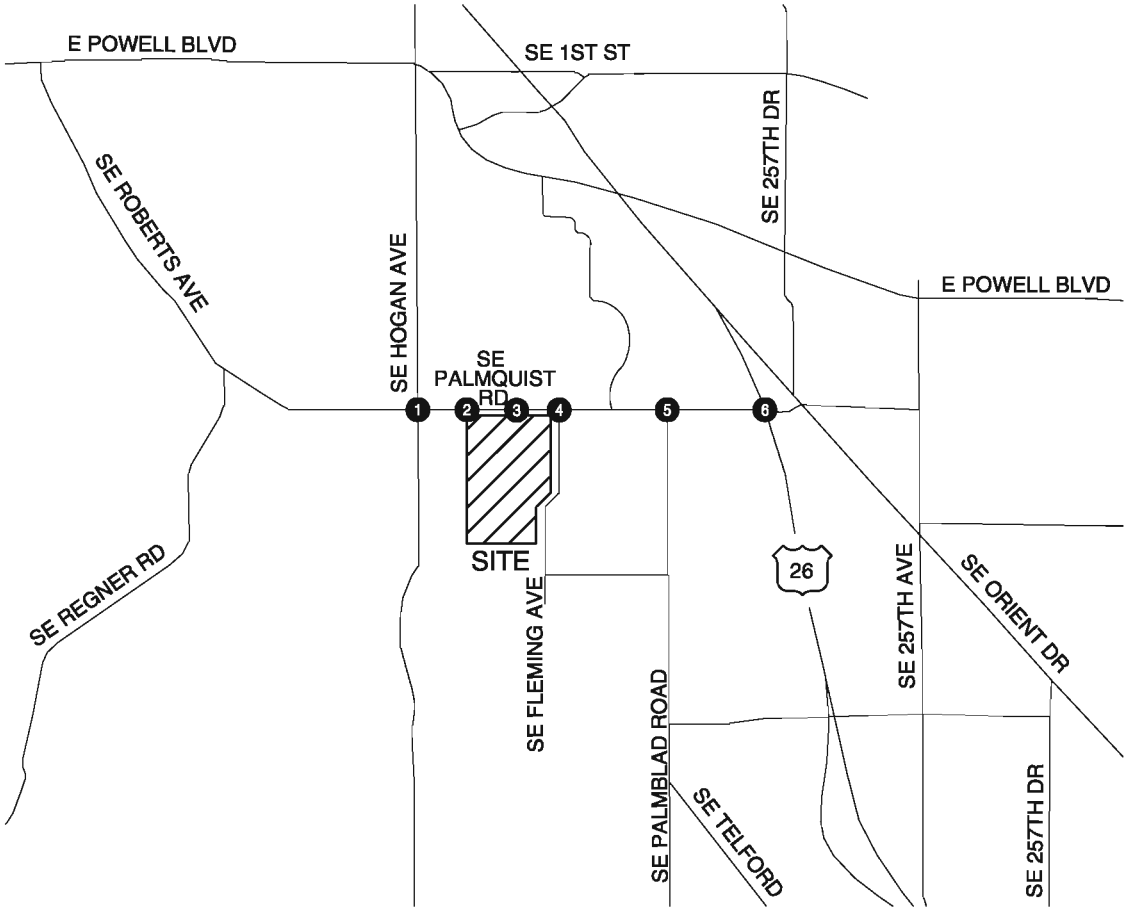
REROUTED AND IN-PROCESS TRIPS
WEEKDAY AM PEAK HOUR
GRESHAM, OREGON

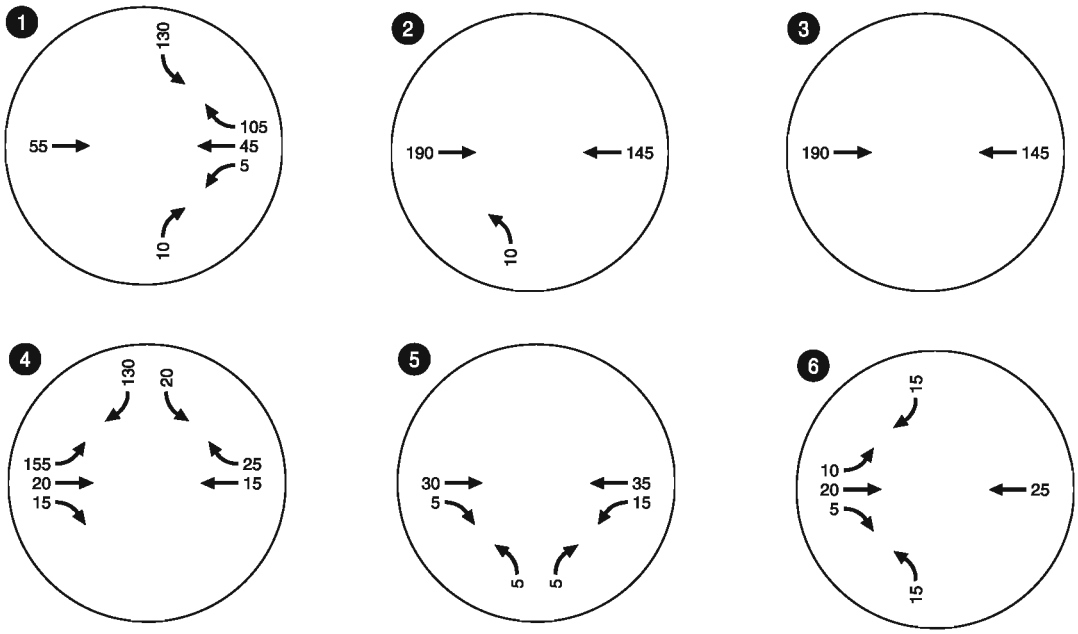
FIGURE **E1**

H:\projfile\17670 - Brickworks Village TIA\dwgs\figs\17670FIGS.dwg Mar 23, 2007 - 9:45am - aooms Layout Tab: FIG E1

Ordinance No. 07-1148
Attachment 7

(NO SCALE)





IN-PROCESS TRIPS
WEEKDAY PM PEAK HOUR
GRESHAM, OR

FIGURE **E2**

H:\projfile\7670 - Brickworks Village TIA\dwgs\figs\7670FIGS.dwg Mar 23, 2007 - 9:45am - aooms Layout Tab: FIG E2

Appendix F
Queuing Analysis Worksheets

Ordinance No. 07-1148
Attachment 7

SIGNALIZED QUEUE ANALYSIS

Project Name: Brickworks Village
Project Number: 7670
Analyst: AWO
Date: 3/23/2007
Filename: H:\projfile\7670 - Brickworks Village TIA\excel\[Unsig Queue AM.xls]Intersection Summary

KITTELSON & ASSOCIATES, INC.
610 SW Alder, Suite 700
Portland, Oregon 97205
(503) 228-5230
Fax: (503) 273-8169

Intersection: SE Palmquist Road/SE Hogan Avenue
Conditions (yr, alt., etc.): 2008 Total Traffic Weekday AM Peak Hour

GENERAL INPUT PARAMETERS:

Cycle Length:	70	sec
Confidence Level (C.L.):	95%	
Storage length/vehicle:	25	feet

	APPROACH/MOVEMENT							
	#1	#2	#3	#4	#5	#6	#7	#8
	NBLT	NBTH	SBLT[1]	SBTH	EBLT	EBTH/RT	WBLT[1]	WBTH/RT
INPUT PARAMETERS:								
Volume (pre-PHF) (vph):	16	403	65	226	79	87	89	273
G/C for movement:	0.03	0.35	0.09	0.42	0.07	0.12	0.13	0.25
Number of lanes:	1	1	1	1	1	1	1	1
CALCULATIONS:								
Length of red interval (sec):	67.9	45.5	63.7	40.6	65.1	61.6	60.9	52.5
Average total queue (veh):	0.3	5.1	1.2	2.5	1.4	1.5	1.5	4.0
Maximum total queue (veh):	**1**	**9**	**3**	**5**	**4**	**4**	**4**	**8**
Total queue length (feet):	25	225	75	125	100	100	100	200
Required storage/lane (feet):	**25**	**225**	**75**	**125**	**100**	**100**	**100**	**200**
PERMITTED LEFT TURNS:								
Opposing volume (pre-PHF):								
Opposing sat. flow rate:								
CALCULATIONS:								
Opposing flow ratio (Yo):								
Unblocked G/C:								
Effective red interval (sec):								
Average total queue (veh):								
Maximum total queue (veh):								
Total queue length (feet):								
Required storage/lane (feet):								

[1] Protected/Permitted left-turns; assumed 1 vehicles/cycle proceed during the permitted phase.

METHODOLOGY AND FORMULAS USED:

Length of red interval = (1 - G/C) * Cycle length

Average queue/lane = Volume * Red Interval / 3600

Maximum queue: Random arrival/Constant service
Random arrivals behave according to a Poisson distribution.
There is a probability equal to the confidence level desired (e.g. 95%)
that the queue formed during each red interval will be less than
or equal to the maximum queue.

(Prob. of arrivals = N) = (Red Interval)^N * exp(-N) / N! (the Poisson distribution)
(Prob. of arrivals >= N) = 1 - Sum of probabilities for vehicles 0, 1, ..., N-1
Max N: Highest N such that the sum of probabilities > (1 - confidence level)

Queue length = Maximum queue * Storage length per vehicle

Required storage per lane = Queue length / Number of lanes, rounded
up to the next highest whole vehicle

Opposing flow ratio Yo = opposing volume vo / opposing sat. flow rate sop

Unblocked G/C (gu/C) = (g/C - Yo)/(1-Yo)

Project Name:	Brickworks Village
Project #:	7670
Analysis Scenario:	2008 Total Traffic Weekday AM Peak Hour
Analysis Period:	0.25 (peak 15 minute analysis)
Analyst:	AWO
Date:	March 23, 2007

V = flow rate for movement
C = capacity of movement
Q = 95th percentile queue (veh)
S = storage need (ft)

# of Int:	3
Veh. Length (ft):	25

* Queue length calculated using Equation (17-37) presented in *Highway Capacity Manual 2000*.

		NB LT	NB TH/RT	NB LT/RT	WB LT								
West Site Driveway/SE Palmquist Road	**V**	83	14		4								
	C	386	727		1185								
	Q	**0.8**	**0.1**		**0.0**								
	S	**25**	**25**		**25**								
Mid-Block Site Driveway/SE Palmquist Road	**V**			27	5								
	C			649	1259								
	Q			**0.1**	**0.0**								
	S			**25**	**25**								
SE Fleming Avenue/SE Palmquist Road	**V**	65	59		111								
	C	271	749		1226								
	Q	**0.9**	**0.3**		**0.3**								
	S	**25**	**25**		**25**								

Ordinance No. 07-1148
Attachment 7

SIGNALIZED QUEUE ANALYSIS

Project Name: Brickworks Village
Project Number: 7670
Analyst: AWO
Date: 3/23/2007
Filename: H:\projfile\7670 - Brickworks Village TIA\excel\[Unsig Queue AM.xls]Intersection Summary

KITTELSON & ASSOCIATES, INC.
610 SW Alder, Suite 700
Portland, Oregon 97205
(503) 228-5230
Fax: (503) 273-8169

Intersection: SE Palmquist Road/US 26-Mount Hood Highway
Conditions (yr, alt., etc.): 2008 Total Traffic Weekday AM Peak Hour

GENERAL INPUT PARAMETERS:

Cycle Length:	100	sec
Confidence Level (C.L.):	95%	
Storage length/vehicle:	25	feet

	APPROACH/MOVEMENT							
	#1	#2	#3	#4	#5	#6	#7	#8
	EBLT	EBTH/RT						
INPUT PARAMETERS:								
Volume (pre-PHF) (vph):	137	277						
G/C for movement:	0.12	0.24						
Number of lanes:	1	1						
CALCULATIONS:								
Length of red interval (sec):	88.0	76.0						
Average total queue (veh):	3.3	5.8						
Maximum total queue (veh):	**7**	**10**						
Total queue length (feet):	175	250						
Required storage/lane (feet):	**175**	**250**						
PERMITTED LEFT TURNS:								
Opposing volume (pre-PHF):								
Opposing sat. flow rate:								
CALCULATIONS:								
Opposing flow ratio (Yo):								
Unblocked G/C:								
Effective red interval (sec):								
Average total queue (veh):								
Maximum total queue (veh):								
Total queue length (feet):								
Required storage/lane (feet):								

METHODOLOGY AND FORMULAS USED:

Length of red interval = (1 - G/C) * Cycle length

Average queue/lane = Volume * Red Interval / 3600

Maximum queue: Random arrival/Constant service
Random arrivals behave according to a Poisson distribution.
There is a probability equal to the confidence level desired (e.g. 95%) that the queue formed during each red interval will be less than or equal to the maximum queue.

(Prob. of arrivals = N) = (Red Interval)^N * exp(-N) / N! (the Poisson distribution)
(Prob. of arrivals >= N) = 1 - Sum of probabilities for vehicles 0, 1, ..., N-1
Max N: Highest N such that the sum of probabilities > (1 - confidence level)

Queue length = Maximum queue * Storage length per vehicle

Required storage per lane = Queue length / Number of lanes, rounded up to the next highest whole vehicle

Opposing flow ratio Yo = opposing volume vo / opposing sat. flow rate sop

Unblocked G/C (gu/C) = (g/C - Yo)/(1-Yo)

Ordinance No. 07-1148
Attachment 7

SIGNALIZED QUEUE ANALYSIS

Project Name: Brickworks Village
Project Number: 7670
Analyst: AWO
Date: 3/23/2007
Filename: H:\projfile\7670 - Brickworks Village TIA\excel\[Unsig Queue AM.xls]Intersection Summary

KITTELSON & ASSOCIATES, INC.
610 SW Alder, Suite 700
Portland, Oregon 97205
(503) 228-5230
Fax: (503) 273-8169

Intersection: SE Palmquist Road/SE Hogan Avenue
Conditions (yr, alt., etc.): 2008 Total Traffic Weekday PM Peak Hour

GENERAL INPUT PARAMETERS:

Cycle Length:	70	sec
Confidence Level (C.L.):	95%	
Storage length/vehicle:	25	feet

	APPROACH/MOVEMENT							
	#1	#2	#3	#4	#5	#6	#7	#8
	NBLT	NBTH	SBLT[1]	SBTH	EBLT	EBTH/RT	WBLT[2]	WBTH/RT
INPUT PARAMETERS:								
Volume (pre-PHF) (vph):	14	413	171	327	60	197	104	405
G/C for movement:	0.02	0.27	0.08	0.43	0.04	0.19	0.10	0.28
Number of lanes:	1	1	1	1	1	1	1	1
CALCULATIONS:								
Length of red interval (sec):	68.6	51.1	64.4	39.9	67.2	56.7	63.0	50.4
Average total queue (veh):	0.3	5.9	3.1	3.6	1.1	3.1	1.8	5.7
Maximum total queue (veh):	**1**	**10**	**6**	**7**	**3**	**6**	**4**	**10**
Total queue length (feet):	25	250	150	175	75	150	100	250
Required storage/lane (feet):	**25**	**250**	**150**	**175**	**75**	**150**	**100**	**250**
PERMITTED LEFT TURNS:								
Opposing volume (pre-PHF):								
Opposing sat. flow rate:								
CALCULATIONS:								
Opposing flow ratio (Yo):								
Unblocked G/C:								
Effective red interval (sec):								
Average total queue (veh):								
Maximum total queue (veh):								
Total queue length (feet):								
Required storage/lane (feet):								

[1] Protected/Permitted left-turns; assumed 2 vehicles/cycle proceed during the permitted phase.

[2] Protected/Permitted left-turns; assumed 1 vehicles/cycle proceed during the permitted phase.

METHODOLOGY AND FORMULAS USED:

Length of red interval = (1 - G/C) * Cycle length

Average queue/lane = Volume * Red Interval / 3600

Maximum queue: Random arrival/Constant service
Random arrivals behave according to a Poisson distribution.
There is a probability equal to the confidence level desired (e.g. 95%) that the queue formed during each red interval will be less than or equal to the maximum queue.

(Prob. of arrivals = N) = (Red Interval)^N * exp(-N) / N! (the Poisson distribution)
(Prob. of arrivals >= N) = 1 - Sum of probabilities for vehicles 0, 1, ..., N-1

Queue length = Maximum queue * Storage length per vehicle

Required storage per lane = Queue length / Number of lanes, rounded up to the next highest whole vehicle

Opposing flow ratio Yo = opposing volume vo / opposing sat. flow rate sop

Unblocked G/C (gu/C) = (g/C - Yo)/(1-Yo)

Project Name:	Brickworks Village
Project #:	7670
Analysis Scenario:	2008 Total Traffic Weekday PM Peak Hour
Analysis Period:	0.25 (peak 15 minute analysis)
Analyst:	AWO
Date:	March 23, 2007

V = flow rate for movement
C = capacity of movement
Q = 95th percentile queue (veh)
S = storage need (ft)

# of Int:	3
Veh. Length (ft):	25

* Queue length calculated using Equation (17-37) presented in *Highway Capacity Manual 2000*.

		NB LT	NB TH/RT	NB LT/RT	WB LT								
West Site Driveway/SE Palmquist Road	V	32	2		4								
	C	193	441		876								
	Q	0.6	0.0		0.0								
	S	25	25		25								
Mid-Block Site Driveway/SE Palmquist Road	V			7	8								
	C			395	909								
	Q			0.1	0.0								
	S			25	25								
SE Fleming Avenue/SE Palmquist Road	V	29	29		41								
	C	72	573		1040								
	Q	1.6	0.2		0.1								
	S	50	25		25								

Ordinance No. 07-1148
Attachment 7

SIGNALIZED QUEUE ANALYSIS

Project Name: Brickworks Village
Project Number: 7670
Analyst: AWO
Date: 3/23/2007
Filename: H:\projfile\7670 - Brickworks Village TIA\excel\[Unsig Queue AM.xls]Intersection Summary

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Fax: (503) 273-8169

Intersection: SE Palmquist Road/US 26-Mount Hood Highway
Conditions (yr, alt., etc.): 2008 Total Traffic Weekday PM Peak Hour

GENERAL INPUT PARAMETERS:

Cycle Length:	120	sec
Confidence Level (C.L.):	95%	
Storage length/vehicle:	25	feet

	APPROACH/MOVEMENT							
	#1	#2	#3	#4	#5	#6	#7	#8
	EBLT	EBTH/RT						
INPUT PARAMETERS:								
Volume (pre-PHF) (vph):	106	287						
G/C for movement:	0.10	0.23						
Number of lanes:	1	1						
CALCULATIONS:								
Length of red interval (sec):	108.0	92.4						
Average total queue (veh):	3.2	7.4						
Maximum total queue (veh):	**6**	**12**						
Total queue length (feet):	150	300						
Required storage/lane (feet):	**150**	**300**						
PERMITTED LEFT TURNS:								
Opposing volume (pre-PHF):								
Opposing sat. flow rate:								
CALCULATIONS:								
Opposing flow ratio (Yo):								
Unblocked G/C:								
Effective red interval (sec):								
Average total queue (veh):								
Maximum total queue (veh):								
Total queue length (feet):								
Required storage/lane (feet):								

METHODOLOGY AND FORMULAS USED:

Length of red interval = (1 - G/C) * Cycle length

Average queue/lane = Volume * Red Interval / 3600

Maximum queue: Random arrival/Constant service
Random arrivals behave according to a Poisson distribution.
There is a probability equal to the confidence level desired (e.g. 95%) that the queue formed during each red interval will be less than or equal to the maximum queue.

(Prob. of arrivals = N) = (Red Interval)^N * exp(-N) / N! (the Poisson distribution)
(Prob. of arrivals >= N) = 1 - Sum of probabilities for vehicles 0, 1, ..., N-1
Max N: Highest N such that the sum of probabilities > (1 - confidence level)

Queue length = Maximum queue * Storage length per vehicle

Required storage per lane = Queue length / Number of lanes, rounded up to the next highest whole vehicle

Opposing flow ratio Yo = opposing volume vo / opposing sat. flow rate sop

Unblocked G/C (gu/C) = (g/C - Yo)/(1-Yo)

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING
610 SW Alder Street, Suite 700, Portland, OR 97205 P 503.228.5230 F 503.273.8169

MEMORANDUM

Date: May 17, 2007 Project #: 7670
To: Ty Wyman
Dunn Carney Allen Higgins & Tongue LLP

From: Chris Brehmer, P.E.
Project: Brickworks Village
Subject: Title 4 Map Amendment/Traffic Impacts

This memorandum is intended to address your question inquiring as to whether the proposed Brickworks Village Project would reduce off-peak performance on Major Roadway Routes and Roadway Collectors as shown on Metro's 2004 Regional Transportation Plan and the 1999 Oregon Highway Plan.

The transportation impacts of the proposed Brickworks Village project are documented in our March 2007 Transportation Impact Analysis report prepared for the development. The March 2007 report documented that all of the study intersections (intersections that were required to be studied by the City of Gresham and the Oregon Department of Transportation (ODOT)) operated acceptably upon build-out of the proposed residential development. No mitigations were required on ODOT facilities or along SE Hogan Avenue to meet the 1999 Oregon Highway Plan operating standards.

Given that weekday a.m. and p.m. peak hour operating standards were met at the study intersections, we believe that it can be reasonably concluded that the study intersections will operate acceptably during off-peak periods.

I hope this information adequately addresses your need for documentation on this subject. Please let me know if there is any additional data or analyses that might be required.

Attachment 9
Ordinance No. 07-1148

M E M O R A N D U M

600 Northeast Grand Avenue | Portland, Oregon 97232-2736
(tel) 503-797-1700 | (fax) 503-797-1797

METRO

DATE: June 14, 2007

TO: Ray Valone, Principal Regional Planner and Ted Reid, Assistant Regional Planner

FROM: Joshua Naramore, Assistant Transportation Planner

SUBJECT: Proposed Brickworks Title 4 Map Amendment

* * * * * * *

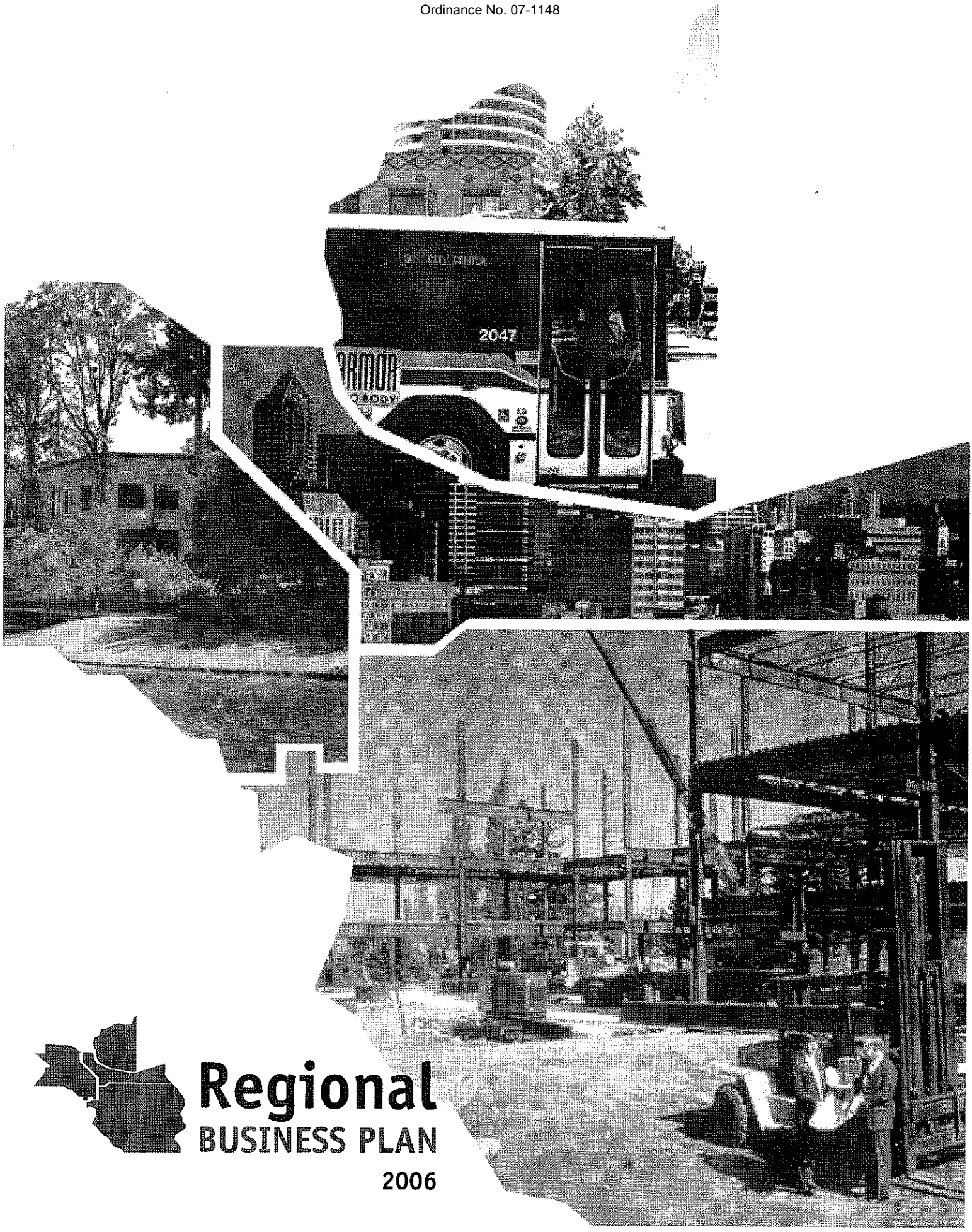
The City of Gresham is requesting an amendment to the Employment and Industrial Areas Map subject to Title 4: Industrial and Other Employment Areas. Metro Code 3.07.450 (C)(4) requires proposed map amendments to demonstrate that uses will not reduce off peak performance on Major Roadway Routes and Roadway Connectors shown on the 2004 Regional Freight System Map in the Regional Transportation Plan (RTP) or exceed volume-to-capacity ratios on Table 7 of the 1999 Oregon Highway Plan (OHP) for state highways. Proposed map amendments that would fall below RTP standards or exceed OHP volume-to-capacity ratios may be allowed if mitigation action is taken that will restore performance to RTP and OHP standards within two years after approval of uses.

The proposed amendment is located at the intersection of SE Hogan and SE Palmquist in the City of Gresham. SE Hogan Road is shown on the 2004 RTP Regional Freight System Map as a roadway connector and nearby US 26 is listed as a main roadway route. In the City of Gresham's supporting documentation for the Brickworks map amendment included a transportation impact analysis that was commissioned by the Willamette Builders Group and completed by Kittelson and Associates.

The daily traffic counts that were collected demonstrate that the PM peak hour is the highest traffic period on both freight routes (US 26 and Hogan Road), with a typical decline in traffic counts outside of this period. Therefore, sufficient information has been provided to determine that adequate capacity exists during off-peak periods such that the proposed revision will not adversely affect freight mobility during these periods. Based on this information, staff recommends approval of the proposed Brickworks Title 4 Map Amendment.

Attachment 10

Ordinance No. 07-1148



Regional BUSINESS PLAN

2006

Letter from Regional Business Plan Steering Committee Chair

Four counties. Two states. Many cities. Each with its own unique features, interests and challenges. The Portland-metropolitan area is rich in diversity; yet, at the same time, in economic terms, we are one region.

We know that economic vitality in Hillsboro's high tech hubs helps stimulate development in Clark County; that business expansion in Clackamas County drives job development in Portland; that East Multnomah County's vibrant nursery industry brings new dollars to the metro region.

In our increasingly global economy, the world sees us as one region. This first Regional Business Plan attempts to describe that economic region and, for the first time, bring all the diverse corners together to plan and build a strong and sustainable regional economy that yields family wage jobs for all of our residents.

Modeled after the very successful Oregon Business Plan, the Regional Business Plan is the result of a partnership among the many business organizations that support our region, as well as a strong and ongoing dialogue with our public leadership. The plan provides a common framework for business and government to work together in the effort to meet the challenge of global economic competitiveness and create quality jobs across the entirety of this unique region.

And, like the Oregon Business Plan, the Regional Business Plan lays out specific action-oriented initiatives that the framers believe are crucial to building a strong and sustainable regional economy.

As we move ahead, maintaining the partnerships we created as we wrote this plan will be critical to our ability to achieve each initiative.

This first Regional Business Plan is just the beginning. It is, in fact, a work in progress. In the months and years ahead, we look forward to continuing to build on the success of this first plan, and working with our partners, create a strong and vital regional economy positioned to compete successfully in the global economy.

Mark S. Dodson

Mark S. Dodson

President and CEO, NW Natural
Chairman, Regional Business Plan Steering Committee

Mark S. Dodson

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Writing/Design:

- Joseph Cortright, *Economist, Impresa, Inc.*
- Marion Haynes, *Portland Business Alliance*
- Katie Mongue, *Portland Business Alliance*
- Duke Shepard, *Portland Business Alliance*

1. Vision Statement

Our vision:

A metropolitan economy that is built upon sustainability, innovation, openness and individualism.

Four core values summarize our vision for our region's economic future.

1. **Sustainability:** We view sustainability as a unique regional asset for business competitiveness in the global economy. For decades, our region's unparalleled livability has been a major attractor of people, talent, and commitment to our communities. We build businesses that grow and prosper, while also enhancing the region's unique character.
2. **Innovation:** We welcome the future, because we are creating it. We continually invent new ways to make our businesses, our communities and our world a better place. Whether it's the fastest computer chips, best athletic shoes or finest tasting beer, our companies compete by generating world-class ideas, products and services. We value creativity in the arts and in industry, and the quality of our businesses and economy are built on new ideas.
3. **Openness:** We embrace new people, new ideas, new products and new processes. Our growing diversity makes our community and our economy stronger, more competitive, more creative and more interesting for all of us.
4. **Individualism:** We march to the beat of a different drummer, whether it's an obsession with outdoor recreation, reading more books, or drinking better beer and coffee. We're independent thinkers, explorers and entrepreneurs. We are not a pale imitation of some other place. We know our uniqueness is part of who we are.

We believe a widely shared prosperity is vitally interconnected with every other part of our vision for the Portland-Vancouver region's future. Thinking up new and better ways to achieve sustainability, innovate a wide range of new ideas, welcome newcomers and build upon our distinctiveness will promote our prosperity.

The focus of our business plan is on jobs and the economy, but we must also pay attention to all of these core values to build a vibrant, successful economy. Our vision is to do each of these things well in order to have an economy that competes at the high end of the global marketplace by being a leader in a number of traded-sector industry clusters. Already, we are the world leader for the design and manufacture of semiconductors, the leading center of sports apparel and footwear, a world-class designer and manufacturer of heavy trucks and railcars, a center for metals manufacturing, and a market leader in specialty foods, wines and microbreweries. We will build on these existing strengths and develop new ones, like our best-in-class concentration of open source software efforts.

The focus of our business plan is on jobs and the economy, but we must also pay attention to all of these core values to build a vibrant, successful economy.

2. Concepts of Regions in the Global Economy

KEY INSIGHTS:

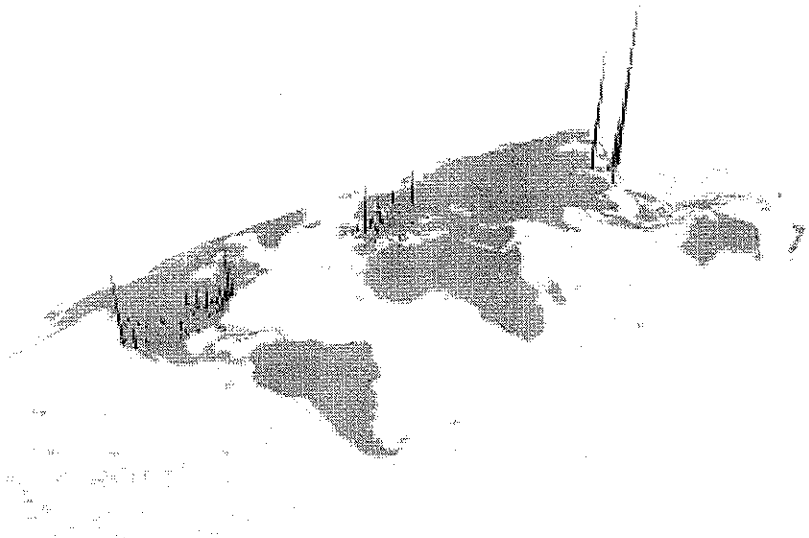
- *Regions matter more in a global economy*
- *The Portland-Vancouver region is competing against other similar regions around the world*
- *The ability to create new ideas in the region is crucial*
- *We need to organize an ongoing, public/private effort to address our economy*

At first glance, it might appear that regions are an anachronism in a global economy. Now that trade and telecommunications span the globe, there's a widespread perception that almost any economic activity can happen anywhere. But while the world is getting smaller and more closely integrated, there are still important economic differences from place to place. And paradoxically, local differences, like those found in metropolitan regions, are becoming more important.

In fact, the world is best thought of as a collection of competing metropolitan economies. Leading edge economic activity is actually tightly clustered in a few metropolitan areas around the world. Bangalore, not all of India, is a major center for information technology. China's high tech exporting is dominated by Shenzen, a special economic zone near Hong Kong. Tel Aviv and Helsinki are key centers for technology innovation.

The primary reason regions matter is that each region around the globe still has its own distinctive set of knowledge and expertise. Some activities are simple and routine and can be carried out anywhere. But a wide range of inventive, creative, innovative and customer-centered activity and knowledge is centered in just a few places in the world.

The world isn't entirely flat, as Thomas Friedman's popular book argues. Instead, it's flat and spiky. Consider the distribution of patent activity worldwide, a good rough indicator of the concentration of the production of new ideas.



The process of creating skills and the important influences on the rate of improvement and innovation are intensely local. Paradoxically, then, more open global competition makes the home base more, not less, important.

- Michael Porter,
Harvard University, 1990

The traditional view of economic competition has been that nations compete against other nations, that states compete against other states, or that individual companies compete against other companies. However, there is a growing recognition among economists, business strategists and geographers that crucial competition is between different metropolitan areas and their ability to nurture successful industry clusters. In the past several years, scholars have increasingly come to emphasize the key role that location plays in economic growth.

Not only has the scale of competition changed, but the basis of competition has changed as well. A few decades ago, when our region competed chiefly in the domestic U.S. economy, we were a place of roughly average costs. Like the rest of the U.S., we had a huge advantage in education, technology and experience. But in today's global economy, the rest of the world has made startling progress: Today, there are more English-speakers outside native-English speaking countries than inside. A majority of the world's population will complete secondary school, and the U.S. accounts for only about 12 percent of the world's college students. Hundreds of millions of people around the world have the kind of basic skills they need to have a modern economic system.

So, in this new world, how does our region compete and prosper?

The short answer is that we don't do it by standing still. Routine mass production of every kind — from sewing shirts, to assembling electronic gadgets, to processing checks to basic computer tech support — can be done almost as easily and much more cheaply in locations outside the U.S.

But many kinds of activities can only be done close at hand. The innovative, the creative activities, those that involve teamwork and close interaction with clients or customers, can't easily be outsourced. Businesses that focus on developing new ideas, products and processes — whether it's designing new athletic shoes or the next generation of semiconductors, improving the fuel efficiency of heavy trucks or the style and functionality of a new cell phone — depend on talent and creativity.

Because regions are the new building blocks of this global economy, many of the most important decisions will have to be undertaken at a regional level. While much of the heavy lifting will be done in the private sector, government plays a key role in setting the conditions for success in a knowledge-based entrepreneurial economy.

Regions around the world have developed public/private partnerships to coordinate economic strategy at a regional level. These efforts deal explicitly with issues of positioning, vision and assessment. They promote dialogue and collaboration, but don't dictate to participating partners. A key objective of the Regional Business Plan process is to engage the region's public and private leaders in an ongoing dialogue about what it will take for this region to have a vibrant economy in the years ahead.

ELEMENTS OF AN EFFECTIVE REGION

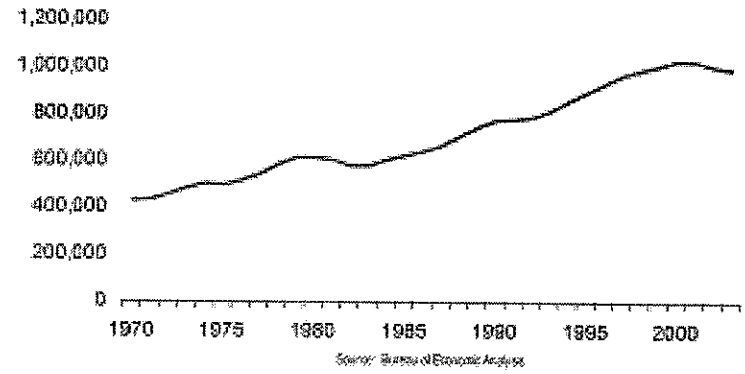
- A shared economic vision
- Strong leadership
- An over-arching organization for economic development
- Broad-based collaboration
- Rigorous analysis, and clear action steps
- Strategies for dealing with economic transitions

Source: U.S. Council on Competitiveness

Regions around the world have developed public/ private partnerships to coordinate economic strategy at a regional level.

Innovation and adaptability are the keys to prosperity.

The Long Term Growth Trend for Metro Portland

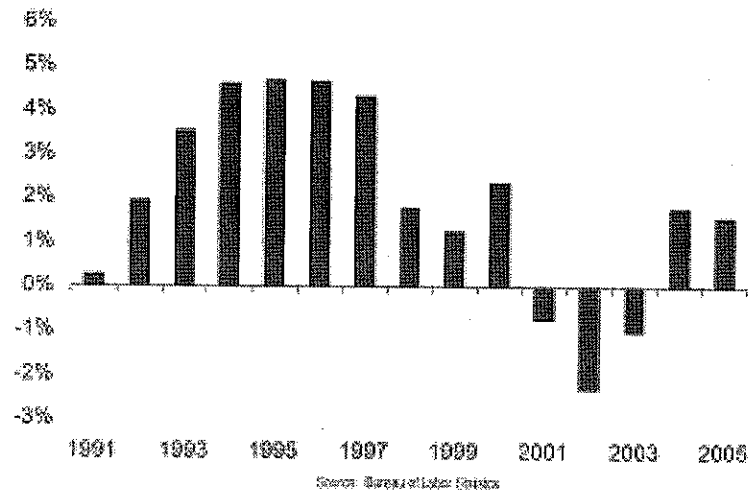


Recent Performance: Emerging from a Recession

After record-breaking economic growth in the 1990s, the entire U.S. economy experienced a significant recession starting in 2001, and metropolitan Portland-Vancouver was no exception. We recorded year-over-year declines in employment in 2001, 2002 and 2003, but in 2004, and again in 2005, we resumed positive employment growth.

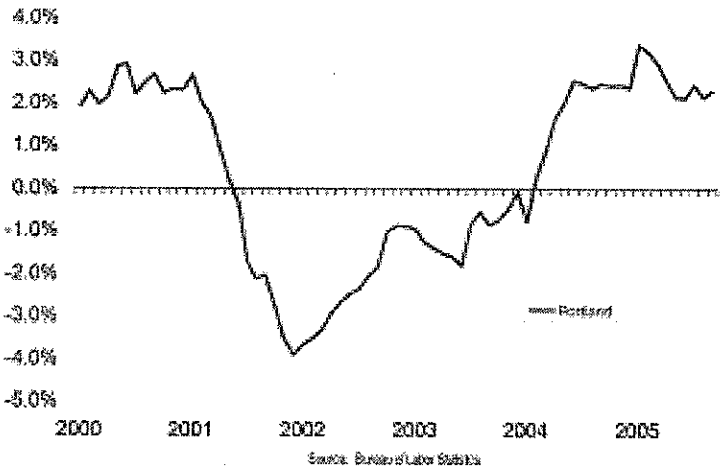
The mid-1990s were a period of exceptional economic growth in the region. Between 1992 and 1997, job growth averaged more than 4 percent per year — an economic boom. Growth slowed somewhat in the late 1990s, but more importantly, the metropolitan area went 17 years — from 1983 to 2000 — without a year-over-year decline in overall employment.

Our Economic Path Since 1990



Starting in 2001, however, the popping of the stock market bubble, the dramatic decline in business investment and the slowing of the national economy all had a dramatic impact on the metropolitan economy. With the region's heavy concentration in durable goods industries — things like computers, heavy trucks, machinery and wood products — metropolitan Portland-Vancouver suffered more from this recession than the typical U.S. metropolitan area. The bottom of the slump came in 2002, when jobs declined about 2 percent from the previous year. But since then, the economy has been improving. Since early 2004, regional employment has been expanding at better than a 2 percent year-over-year rate.

Metro Portland Economy in Growth Mode



As a result, the region's stubbornly high unemployment rate, which led the nation in many months and peaked at nearly 9 percent in 2002, has started to come down, and is now much closer to the national average. (In contrast, through much of the 1990s, as the region's economy boomed, metropolitan Portland-Vancouver's unemployment rate was at or below the national average.)

One worrying sign of the severity of this most recent recession was the decline in the region's relative per capita income. During the boom of the mid-1990s, income grew faster in metropolitan Portland-Vancouver than in the rest of the nation, and by 1997 average incomes were about 9 percent higher in the region than nationally. The recession took its toll on average incomes, which in 2003 were only about 2 percent higher than the national average. (Per capita income data are reported with a long lag, and these 2003 data do not reflect the relatively stronger performance of the metropolitan economy in the past two years.)

INNOVATOR PROFILE

nLIGHT

Business name: nLight

Location: Vancouver

Owners/Founders: Scott Keeney, Mark DeVito, Jason Farmer, Scott Karlsen; VC funded

Years in business: 5

Product(s): High Power Semiconductor Lasers

Employees: 105

Where are the markets for your products and how important are local customers for what you produce? Industrial, defense, medical and consumer applications. Most products exported.

What does your company do to differentiate itself and its products from those of its competitors? Higher performance products.

How has your business changed in the last 2-5 years? We were a small start-up working on card tables in Seattle five years ago. Two years ago we were one of the 500+ VC funded companies that saw their market disappear in the telecom downturn.

Key innovations in your company? Our competitive advantage comes through a wide range of novel processes, designs and material structures — however our fundamental advantage comes through our world-class team.

Key breakthrough or turning point in the business: Our key breakthrough came through refocusing the company after the telecom meltdown. Our survival was due to the skills and tenacity of our team.

What's the biggest challenge facing your business? Competition from China is both a challenge and an opportunity.

Can you describe how metro Portland works as a base from which to compete? The semiconductor cluster in Oregon and SW Washington is strong and has helped support our growth.

Read more at
www.regionalbusinessplan.com

INNOVATOR PROFILE

KRYPTIQ

Business name: Kryptiq Corporation

Location: Hillsboro

Owners/Founders: Luis Machuca, Kurt Koehler, Murali Karamchedu, Jeff Sponaugle;VC funded

Years in business: 4

Product(s): Connectivity software for health care

Employees: 90

Where are the markets for your products and how important are local customers for what you produce? Local customers – Providence Health System and Kaiser Permanente – have been key to our success.

What does your company do to differentiate itself and its products? Kryptiq's focus on a single vertical market – health care – allows us to serve the entire health care value chain: providers, health plans and patients.

How has your business changed in the last 2-5 years? Four years ago, Kryptiq's initial product was secure email for health care. Today, we have a suite of 10 products.

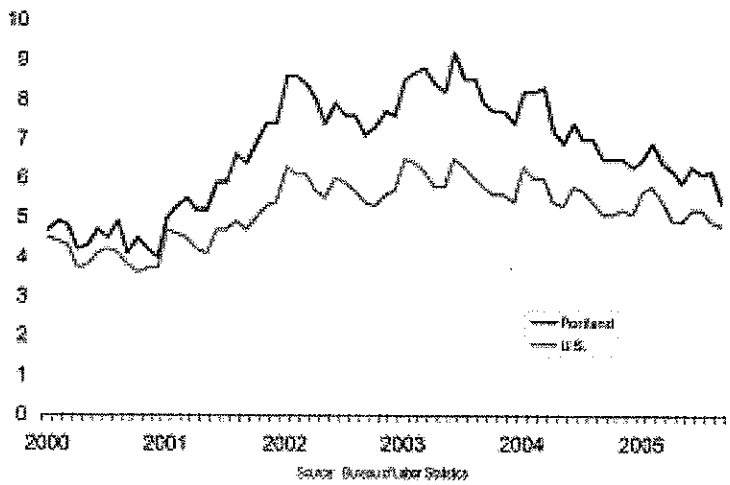
Key innovations in your company? Product innovations include ClinicalMessenger™, secure messaging software, Guardian™ Contract Manager, a modular end-to-end contract management solution, and CareManager™ disease management software for providers serving chronically ill patients.

What's the biggest challenge facing your business? The health care market is full of multiple stakeholders with competing agendas, complicated by the fact that IT benefits do not often accrue directly to the purchasers.

Can you describe how metro Portland works as a base from which to compete? Portland metro has provided Kryptiq with an excellent base from which to compete. Hillsboro and Washington County have been extremely supportive.

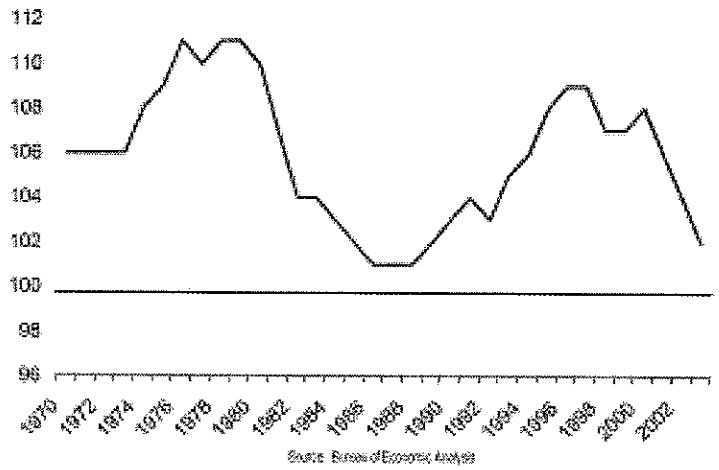
Read more at
www.regionalbusinessplan.com

Unemployment Rate Trending Down



The sluggish economic performance we experienced between 2001 and 2004 reminds us that success and prosperity will not be easy or automatic. Dozens of other metropolitan areas around the U.S. and, increasingly, around the world want what we want, and are competing hard to get it. The time has come for our region to think hard about its economic future, and deliberately build an economy that will prosper in the face of this growing competition.

Per Capita Income Just Above US Average



It's easy to forget that economies don't stand still. The icons of economic progress in one era are often transformed into the eerie monuments of a time gone by. In the 1960s, no tour of the region's economy would have been complete without a visit to the massive Alcoa aluminum smelter in Vancouver or the similar Reynolds plant in Troutdale — both are now shuttered. In the 1980s, we took great pride in attracting Japanese manufacturing giants NEC to

Hillsboro and Fujitsu to Gresham; both have since left the region. In the case of Fujitsu, its facility was purchased by Microchip, an innovative producer of micro controllers better positioned to compete in the global economy due to specialization. Likewise, even after Portland gave birth to a national micro-brewing revolution, the city's venerable Blitz-Weinhard Brewery was closed and redeveloped as a vibrant mixed residential and commercial site that anchors the Central City's trendiest neighborhood, the Pearl. In an economy based on ideas, continuous reinvention is the only path to prosperity.

A key part of our economic strategy has to be assuring an atmosphere where we can adapt and transform ourselves. Are we open to the new pioneers and the pioneering new ideas that can enable us to be prosperous in the decades ahead?

The Importance of the Traded Sector

In this region, as in every regional economy, certain industries play a decisive role in shaping future economic growth. Economists call these industries the "traded sector" of the region's economy. The traded sector consists of businesses that sell their goods and services to customers outside the region, bringing in new income that gets re-spent locally, prompting growth through a multiplier effect.

Most of the businesses in our metropolitan economy are the same kind of businesses one sees everywhere — hospitals, grocery stores, banks, beauty salons, gas stations, dry cleaners, doctor's offices and coffee shops. These businesses, and their workers, are part of what we call the "local" sector of the economy, because they exist primarily or exclusively to serve the needs of the local population.

The non-traded sector of the economy, including health care, retailing, consumer services and most government jobs play an important role in the local economy. It is important that we provide such services efficiently and effectively, because they help support the traded sector and facilitate the local quality of life. The non-traded sector will also continue to provide the bulk of employment opportunities in the region in the years ahead. But unlike the traded sector, we can't grow the overall regional economy by selling more of these inherently local services to ourselves.

About a quarter to a third of the region's employment and economic activity is part of the traded sector. The traded sector includes most manufacturing activities, but increasingly, many services are being sold nationally and internationally. Unlike local sector firms, these traded sector businesses depend not only the size of the local market, but on their ability to compete against firms in other states and nations. Consequently, unlike local businesses that collectively can grow only as fast as the local market, traded sector businesses can grow much more quickly or more slowly than the local market, depending on how successfully they compete against businesses in other places. It is this growth that ultimately drives the entire regional economy.

INNOVATOR PROFILE

NAUTILUS Inc

Business name: Nautilus, Inc. (NYSE:NLS)

Location: Vancouver

Owners/Founders: Nautilus, Inc.

Years in business: 19 (founded 1986)

Product(s): A complete line of innovative health and fitness products

Employees: 1,400; operations in Washington, Oregon and other locations around the world.

Where are the markets for your products and how important are local customers for what you produce? Nautilus, Inc. promotes its products through a variety of sales channels including direct marketing, retail, commercial, Internet, catalog and international distributors.

What does your company do to differentiate itself and its products from those of its competitors? Strong brands, a fast pace of innovation, and a presence across all channels where people shop and exercise.

How has your business changed in the last 2-5 years? We have transformed our company from one that relies upon a single product in a single channel into one that relies on multiple brands, multiple products, multiple models and multiple sales channels.

Key innovations in your company? New products account for about 30 percent of Nautilus net sales each year.

Key breakthrough or turning point in the business: Moving from a single brand, product and channel, to multiple brands, products and channels.

What's the biggest challenge facing your business? Educating more people on how they can achieve a fit and healthy lifestyle.

Can you describe how metro Portland works as a base from which to compete? Vancouver is our world headquarters. It is a great place to live and work, making it easy to attract and keep world-class talent.

Read more at
www.regionalbusinessplan.com

Metropolitan Portland-Vancouver's Industry Clusters

The traded sector of our regional economy — those businesses that sell their goods and services in national and international markets — are not a random collection of businesses. Most of our traded sector businesses are part of one of the region's industry clusters — groups of similar or related businesses that tap a common pool of worker skills, utilize similar technologies, sell to similar customers or often act as suppliers to one another. These industry clusters are the key building blocks of the regional economy. Firms in these clusters succeed not simply because of their own resources, but because they draw competitive advantage from being located in a place that has a strong base of workers and suppliers, and specialized knowledge that can help them succeed in the national and international market.

Economists, geographers and business strategists are increasingly coming to appreciate the central role that regions play in the competitive processes that produce economic growth. Our booming economy in the 1990s was driven by the success of a wide range of clusters, like the very visible rapid growth of the high technology industry, to smaller and less visible elements of success, including a diverse metals and machinery cluster that grew at an annual rate of nearly 3 percent, the nation's leading concentration of microbreweries, steadily expanding nursery trade, and more.

Growth in these industry clusters triggers direct and indirect changes in other parts of the regional economy. The obvious effect of growth is the direct employment impact of new hiring at the firms that are growing and in the construction sector of the economy. Less obvious and harder to track is the residual impact on other parts of the economy. For example, while high tech companies are growing and increasing their payrolls, they are also increasing their purchases of wiring, electronic components, metal cases, plastic injection molded parts, chemicals, wholesaling and shipping, engineering and legal services, banking, advertising and everything else.

Far from being the exception, the clustering of industries in particular metropolitan areas or regions is the norm, across industries. Specialized clusters with the largest impact on the Portland-Vancouver regional economy include:

- **High technology.** Metropolitan Portland-Vancouver's largest traded-sector industry cluster is high technology, including firms that produce electronics, computers, instruments and software. The core of this cluster is firms producing electronic devices. The industry has experienced a strong economic cycle since the national economic peak in 2001, and, while we suffered a powerful downturn, overall the decline in electronics manufacturing in our region has been about half of the decline experienced by the industry nationally.
- **Metals, machinery and transportation equipment.** The metals, machinery and transportation equipment industry consists of firms that produce primary and fabricated metals, tools, a variety of non-electrical industrial machinery, and transportation equipment.

- **Apparel and sporting goods.** The Portland-Vancouver region is home to one of the nation's largest concentrations of firms involved in the design, marketing and distribution of sports apparel. The industry is led by Nike, and also includes Adidas America, Columbia Sportswear and many others. All of these firms manufacture and distribute their products, on a global basis. Important related industries include advertising and public relations and logistics services.
- **Creative services.** Creative services consist of advertising, public relations, film and video, and some related multi-media software production. The industry is composed mainly of smaller firms and many independent, freelance entrepreneurs. Closely related industries include printing and publishing, commercial photography, theatrical production and broadcasting.
- **Food processing.** The region's food processors involve a wide range of activities including the packing and processing operations associated with locally grown produce, a relatively large-scale production. The region has a significant concentration of microbreweries and wineries. Much of the growth in the food processing industry has been in the specialty food, organic and natural food sector. Related and supporting industries include the region's farmer's markets, restaurants and specialty grocery stores.
- **Forest products.** The region's forest products industry consists of firms that manufacture paper and other forest products. This industry is strongly connected to the Pacific Northwest's forest resource base. The region is a center for distribution of wood products produced in the Portland area and elsewhere in the state. There are a number of firms in the region that produce machinery used in the forest products industry. Forest products manufacturing employment has been declining over most of the past three decades.
- **Nursery products.** The largest single segment of the region's agricultural sector is the production and sale of nursery products. The region is home to one of the nation's largest concentration of commercial nurseries producing trees and shrubs for commercial and residential landscaping. Important supporting industries include providers of agricultural services and equipment, plastics (for containers and labels), and transportation services. The industry is composed primarily of a large number of very small firms.
- **Distribution and logistics.** Included in this industry are operations involving trucks, trailers, containers, intermodal transport, warehousing, distribution centers, reloading facilities, ocean-going vessels, barges and air carriers — all of which are components of the complex supply chain network that is fundamental to the movement and distribution of goods for manufacturing, processing, wholesale and retail sectors. Distribution

INNOVATOR PROFILE

Business name: Open Source Development Labs

Owners/Founders: OSDL is a nonprofit organization founded by IBM, HP, CA, Intel and NEC.

Location: Beaverton

Years in business: 5

Product(s): OSDL is a global industry consortium dedicated to accelerating the growth and adoption of Linux and open source software.

Employees: 40+

Where are the markets for your products and how important are local customers for what you produce? Linux and open source software is used by businesses, government and educational institutions throughout the world.

What does your company do to differentiate itself and its products from those of its competitors? OSDL provides a neutral location where vendors, end users and developers come together to discuss technical, legal and business challenges.

How has your business changed in the last 2-5 years? Research firm IDC recently predicted that Linux on servers, desktop and packaged software will reach more than $40 billion by 2009. OSDL has grown from 20 members to more than 70.

Key innovations in your company? OSDL is unique as a vendor-neutral organization bringing diverse groups together to achieve shared goals. OSDL recently launched its Patent Commons Project web site, www.patentcommons.org.

What's the biggest challenge facing your business? The IT industry is a very competitive market. The development of open standards is of great importance.

Can you describe how metro Portland works as a base from which to compete? The Open Technology Business Center and Portland State University's Business Accelerator bring talent, ideas and capital together to support open technology growth.

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and logistics experienced significant growth between 1990 and 2002 and is forecasted to grow in the future. Because of this supply chain role, distribution and logistics provides an important support function to other industry clusters, providing critical and competitive transportation services.

- **Emerging clusters.** In addition to the established industry clusters that can easily be identified in today's employment data, we know that there are a number of promising emerging industry clusters which may become mainstays of the region's economy in the years ahead. The metropolitan region is extending its expertise in semiconductors and software to provide the basis for two emerging clusters: open source technology and nanotechnology. The Open Source Development Lab, supported by major firms in the region and throughout the world, is a global leader in the development and distribution of open source software. ONAMI, the Oregon Nanoscience and Microtechnologies Institute helps support the collaborative development and commercialization of new products and processes, drawing substantially on the knowledge in the region. In addition, the region is the center of activity for a wide range of businesses developing and marketing new products, technologies and services in the areas of sustainability and healthcare. The expansion of these and other emerging clusters will be a key focus of the business plan.

Cluster Employment and Wages, Portland-Vancouver Metropolitan Region, 2004

Cluster	Average Employment	Number of establishments	Total wages	Average annual wages
Traded-sector cluster				
High technology	54,960	2,253	$3,990,127,643	$72,601
Metals, machinery, and transportation equipment	37,780	1,263	$1,792,468,923	$47,444
Forest products	12,576	549	$627,594,183	$49,906
Food processing	10,847	324	$410,110,770	$37,807
Creative services	9,260	1,192	$420,861,543	$45,451
Apparel and sporting goods	8,694	171	$687,325,998	$79,058
Nursery products	6,450	300	$144,801,864	$22,449
*Partially traded-sector clusters**				
Professional and business services	75,236	7,091	$2,666,006,698	$35,435
Food services and accommodations	67,922	4,352	$963,997,906	$14,193
Total	**874,220**	**63,883**	**$33,953,046,124**	**$38,838**

Source: ES-202 data from the Washington and Oregon

*Note: These industry clusters are primarily local, but certain portions of them are traded-sector. More analysis is needed to determine which how much of the employment listed in Table 3-2 can be considered to be in traded-sector industries.

4. The Strategy

KEY INSIGHTS:

- *Strategy is about being different*
- *We should work to develop and build on our existing strengths and specializations*
- *The Oregon Business Plan's "Four P" framework organizes our strategy*
- *The public and private sector each have critical roles to play*

Strategy is About Being Different

The essential element of any strategy is differentiation. Strategy isn't about simply being efficient or cheap; it's about making choices. Strategies necessarily involve trade-offs between competing attributes, that no one competitor can excel in every possible aspect of competition. Consequently businesses and regions have to choose those areas in which they are going to be exceptional and recognize that in other areas their performance might only be acceptable.

Many of our strengths emerge from our technology and our commercial knowledge. As we've noted, the region is a world leader in some things, like the design and production of semiconductors. But other kinds of economically valuable knowledge are more widely dispersed, embedded in the collective knowledge of the region's consumers and citizens.

Strategy isn't about simply being efficient or cheap; it's about making choices.

What Makes This Region Different: Developing Our Distinctiveness

A big part of distinctiveness is industrial specialization — being very good at developing, designing and producing the kinds of products that we specialize in (semiconductors, athletic gear, open source software, trucks, microbrews). We've clearly built up a unique base of knowledge and skills in these areas, and many others. But another key part is the distinctiveness of our region as a place to live.

Innovation isn't just about new products and new technologies. People in this region have been pioneering innovators in every aspect of their lives. The million or so people who get up and go to work every day in this region are not simply hard-working employees and entrepreneurs; they are also homeowners, consumers, hobbyists, parents and citizens. As the old Oregon tourism slogan goes: Things Look Different Here. Our penchant for individuality and experimentation has produced a place that is different in many important respects.

Part of the distinctiveness we simply inherited: our special landscape set in a verdant valley just a short trip from both the Pacific Ocean and Cascade Mountains. We've worked to be good stewards of these extraordinary assets through public policy, business choices and personal commitment. Increasingly, though, what makes our metropolitan area distinctive is our community, our built environment and the way people choose to live here.

There's good evidence that the attitudes, beliefs and behaviors of the metro area's citizens differ from those of other Americans. We're more likely to engage in almost every form of outdoor recreation — from hiking, hunting, camping and fishing to cycling, running and golf — than the typical American. We're avid readers, and support more bookstores than most large metropolitan areas (and watch less television, too). Market research data show that we drink more coffee and more kinds of beer and wine, and have more restaurants per capita than all but two other large U.S. cities (San Francisco and Seattle). We lead the nation in women-owned businesses. There's a vibrant arts and cultural scene throughout the region.

Metropolitan Portland-Vancouver is open to new ideas about how to do things. There is a pervasive spirit of innovation here, one that is a foundation, we believe, for our ability to compete in a global, knowledge economy.

Public and Private Sector Roles

Both the public and the private sectors have critical roles to play in assuring the health of our regional economy. The principal objective of the Regional Business Plan is to provide a means and a forum for developing a widely shared understanding of our economic challenges and opportunities, to outline the steps we need to take to advance the region's economy and to meet periodically to assess our progress.

A regional business plan is necessarily founded on cooperation. Our private sector includes tens of thousands of independent businesses. The public sector is nearly as diffuse, with four counties, two states, dozens of cities, and important state and federal agencies and policies that influence our economy.

The private sector — the region's businesses, entrepreneurs and workers — is at the heart of our economy. They have a critical role to play in the business plan. Their competitive success in the global economy is central to the vision of our business plan. We need businesses and workers to innovate constantly, to collaborate in appropriate efforts to develop their industry clusters. We also need them to help educate all of us about the challenges and successes they are experiencing. And we need them as active participants in the business plan process.

Similarly, the public sector has a vital role and a strong stake in a vibrant regional economy. At the most basic level, the tax revenues to support public services in the region depend on the underlying health of the regional economy. High quality, reliable and efficient public services — including police and fire protection, transportation infrastructure, strong education institutions, cost effective entrepreneurial environment, and a clear and predictable regulatory system — provide a basis for all kinds of economic activity. Like the private sector, the public sector constantly needs to think about change and innovation: How do we adapt to a changing economic environment? And how can we do a better job of providing the public services and a good quality of life on which our economic competitiveness depends?

The Four Ps: Our Strategic Framework

Our strategy is based on four interlocking elements: Pioneering innovation, People, Place, and Productivity. Because people have to think up and use these valuable new ideas that will drive our economy, being smart is an imperative. Not only do we have to educate the people who live here, and do so to an ever-rising standard of excellence, but we must also be a place that attracts talented people from around the world to be a part of our knowledge economy. The quality of place that makes metro Portland-Vancouver a special place to live is essential to retaining and attracting the talented people on which cutting edge companies and successful economies depend.

The Region's Competitive Position

The success of the region's traded-sector relies on innovation, talent and entrepreneurship. The quality of life in the region helps to attract and retain the people who can drive successful innovation. Within this context, this section focuses on the four Ps that lead to regional economic success: Pioneering innovation, Productivity, People and Place.

This section assesses the region's economic competitiveness relative to the other 50 largest metropolitan areas in the United States (metropolitan areas with a population of a million or more as of the 2000 Census).

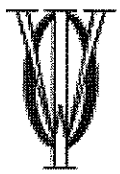
1. Pioneering innovation

The Portland-Vancouver metropolitan region is a highly innovative region. In 1999, the region ranked 28th among U.S. metropolitan areas in the total level of patents issued by the Patent and Trademark Office. By 2003, it ranked fifth. Over the past two decades, patenting in the Portland-Vancouver metropolitan area has increased by 6 percent per year, compared to 2 percent in the nation. This acceleration was especially rapid during the 1990s. Generally, high technology firms have been more prolific patent holders than other firms.

One likely reason for the increase in patent activity in the metropolitan area has been the accelerating levels of research and development spending. Statewide, industrial R&D spending has been increasing more than two-and-a-half times faster than it has nationally.

Venture capital is a critical ingredient in starting a new business. The metropolitan region has seen different phases of venture capital investment. During the mid-1980s, investment in Oregon peaked at about $82.7 million. Until 1996, the region's high tech community experienced a severe drought in venture funding. Only with the beginning of the dot com investment boom in the late 1990s have levels of venture capital investments in the region increased (1999: $482 million, 2000: $1,034 million). In the wake of the recent recession, our region is currently behind in generating and matching necessary venture capital with the needs of our economy.

INNOVATOR PROFILE



Business name: Oregon Iron Works, Inc. (OIW)

Owner: Terry Aarnio

Years in business: Founded in 1944, current ownership since late-1970s

Location: Clackamas; satellite facility in Vancouver

Product(s): Steel bridge girders, hydroelectric systems and hardware, nuclear containment and process equipment, maritime craft, streetcars, specialty equipment and materials.

Employees: 300+

Where are the markets for your products and how important are local customers for what you produce? Products for federal, state and local governments and product delivery throughout the continental U.S. as well as internationally. Local businesses and suppliers are critical.

What does your company do to differentiate itself and its products from those of its competitors? Stringent quality control requirements (including nuclear standards), accurate earned value management reporting systems, and system integration.

How has your business changed in the last 2-5 years? Advanced capability to acquire more technical work. This leveraged OIW's metals fabrication and boat building competencies and integrated complex systems requirements.

Key innovations in your company? OIW has a number of patents related to its SEALION technology.

What's the biggest challenge facing your business? Identifying which new areas of business to pursue and investing in them now. Maintaining a technically capable, adaptable workforce.

Can you describe how metro Portland works as a base from which to compete? Metro Portland provides access to a variety of transportation nodes, which allows us to compete globally as well as nationally.

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2. People

The region is continuing to attract new people. The Portland-Vancouver metropolitan area has grown faster than the national average, resulting primarily from migration. Between 1990 and 2004, the Portland-Vancouver metropolitan region grew 3 percent on an average annual basis. This rate was faster than the averages of Washington, Oregon and the nation.

The Portland-Vancouver region has been especially attractive to talented young migrants. Between 1990 and 2000, the region ranked eighth among the 50 largest metropolitan areas in the rate of increase in its 25- to 34-year-old population. The region also ranked fourth among the nation's 50 largest metropolitan areas in the increase in the number of college-educated 25- to 34-year-olds.

Metropolitan Portland-Vancouver's level of college attainment is higher than the national average: 36 percent of the region's adult population (those aged 25 and over) have a four-year college degree or higher level of education, compared to about 30 percent of the U.S. population.

We have a wealth of higher educational institutions in the region. Two large public universities (Portland State University, Washington State University - Vancouver) and a major medical research institution (Oregon Health & Science University/OGI), a growing presence by the University of Oregon and Oregon State University, diverse and accessible community colleges throughout the region, and an array of smaller private colleges with nationally recognized strengths.

About 27 percent of the region's 18- to 24-year-old population is enrolled in colleges and universities, placing the region at a rank of 42 among the 50 largest metropolitan areas in the share of population in this age group enrolled in college.

Our public K-12 education system has historically compared favorably to that of other U.S. metropolitan areas, and statewide education standards have helped ensure high quality. The region's residents remain loyal to their public schools, but funding issues continue to be a concern for the region's Oregon-based school districts.

Compared to other metropolitan areas, the region does not perform well in measures of higher education access and quality. The Portland-Vancouver metropolitan area has a smaller higher education infrastructure compared to other large metropolitan areas in the United States. About 27 percent of the region's 18- to 24-year-old population is enrolled in colleges and universities, placing the region at a rank of 42 among the 50 largest metropolitan areas in the share of population in this age group enrolled in college.

While we have persistently high unemployment, we paradoxically face a labor shortage in those jobs that require high-level skills — blue collar and white collar, degreed and non-degreed. This shortage will be exacerbated with retirement of the baby boom generation and employers throughout the region report insufficient skill sets from among the products of our region's public education system.

3. Place

The Portland-Vancouver region is widely recognized as having an exceptional quality of life. In an international ranking of cities for quality of life by Mercer Human Resources, Portland ranked fifth among all U.S. cities. In another study, the region averages a rank of 22 in 10 different indicators of quality of life: affordable housing, cost of living, home ownership, air and water quality, mobility and traffic congestion, recreation and leisure, crime, school quality, health insurance coverage and health care access.

The Portland-Vancouver region ranks very high in measures of environmental quality. Beacon Hill Institute reports that the metropolitan area ranked third best of the nation's 50 largest metropolitan areas for the fewest number of days with high levels of ozone. Cleveland State University reported that the Portland-Vancouver metropolitan area ranked second among 36 similarly sized metropolitan areas nationally in its composite measure of air quality, a weighted index considering number of days with good air quality and various degrees of unhealthful air quality, and 27th for a combined measure of air and water quality.

4. Productivity

To measure the region's productivity, we examine the impact of infrastructure, the cost of doing business and tax structure on productivity.

The transportation network is important to the Portland-Vancouver metropolitan region because it is relatively isolated from most major markets. Major interstate highways, public transit, intercity and freight rail, an international airport, and water transportation serve the region.

Average commute times in the region are shorter than in most other large metropolitan areas in the United States. According to the 2000 Census, average journey to work times in the region were 24.3 minutes, placing it at a rank of 37 among the nation's 50 largest metropolitan areas in average commute times (i.e. 36 other metropolitan areas had longer average commuting times). However, as our congestion grows, commute times are longer and the costs to our economy are increasing.

The region has an extensive public transit system. Metropolitan Portland-Vancouver's residents report that they are among the nation's best served by transit, and a majority report that they are at least occasional users of the transit system. According to the American Housing Survey, 76 percent of the region's population report that they live in neighborhoods served by transit, and 57 percent of this population report that they are weekly (25 percent) or occasional (32 percent) users of the transit system.

INNOVATOR PROFILE

Business name: Terra Nova Nurseries, Inc.

Owners/Founders: Dan Heims, Ken Brown

Location: Tigard, Canby

Years in business: 13

Product(s): New perennial plants from tissue culture

Employees: 57

Where are the markets for your products and how important are local customers for what you produce? Worldwide, but primarily U.S. and Canada. Local customers are a small percentage of our sales.

What does your company do to differentiate itself and its products from those of its competitors? Our breeding innovations provide 60+ new varieties to North American horticulture each year. We carry over 200 plant patents in the U.S. and Europe, now applying for patent coverage in Japan.

How has your business changed in the last 2-5 years? Strong, but controlled growth. Improvement of our facilities and establishment of foreign labs to handle the increased demand that our own facilities can't handle.

Key innovations in your company? We've created profiles for over 500 plants, allowing us to export formulas and techniques for worldwide multiplication of our plants. Terra Nova was the first nursery to include a CD with their catalog; last year we introduced a companion DVD.

Key breakthrough or turning point in the business: Once we were able to scale our production, sales team and facilities to meet customer demand, our profits increased.

What's the biggest challenge facing your business? Piracy from foreign labs, maintaining customer support and quality with expansion.

Can you describe how metro Portland works as a base from which to compete? Airport and transportation availability, horticultural support in the Canby area, labor availability and banks that understand the nursery business.

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Portland International Airport has nonstop air service to Europe, Mexico and Asia. With two major ports, the region is the 28th largest port in the United States, measured by total volume of freight moved by water in 2003, and the 15th largest port in the nation measured by container volume.

In many areas, local residents and businesses are leaders in the adoption of advancing communications technologies. According to the Beacon Hill Institute, Portland-Vancouver ranks 18th among the nation's 50 largest metropolitan areas in the number of broadband access lines per capita. The region is reported to rank fifth in the nation in Internet household adoption, with 76 percent of households connected. Another study ranks the region fifth for wireless Internet adoption.

Portland-Vancouver is ranked 10th among the 50 largest metropolitan areas in the rate at which businesses deployed enhanced uses of the Internet (requiring complex technical support or third party servicing).

Costs of doing business in the Portland-Vancouver region are roughly comparable to those of most other U.S. cities. Cleveland State University's Center for Economic Development ranked 33 of the nation's largest metropolitan areas according to Economy.com's index of business costs. The Portland-Vancouver region ranked 13th lowest in business costs, with costs about 5 percent lower than the national average.

Tax Foundation rankings for business in the U.S. determine Oregon and Washington to be relatively business friendly. Tax Foundation uses an index composed of five tax system components: the corporate income tax, the individual income tax, the sales or gross receipts tax, the unemployment insurance tax and the state's fiscal balance. On this scale, Oregon ranks 10th among 50 states (i.e. most have a less beneficial business climate). Washington ranks slightly better at ninth. Both states rank in the top quarter of states for lowest corporate tax burden.

Personal income taxes are relatively more burdensome. A 2004 study completed by the government of the District of Columbia compared major U.S. cities according to the tax burden placed on families in various income brackets. The region ranked high on this list; in 2003, the region had either the fifth or sixth highest tax burden in every income category studied. The Tax Foundation ranks Oregon 43rd among the 50 states for individual income tax burden, while Washington (which has no state income tax) ranks first.

According to the 2004 Small Business Survival Index published by the Small Business & Entrepreneurship Council, Oregon's capital gains tax, with a 9 percent top rate (though effective rates vary) puts the state, and much of the region, near the bottom of all states with one of the most burdensome capital gains taxes. With no capital gains tax, Washington ranks at the other end of the spectrum. Conversely, Oregon ranks best in the measure of sales, gross receipts and excise taxes, while Washington — with both sales and gross receipts (B&O) tax — ranks at the bottom.

Because the region includes many different jurisdictions, tax burden can vary greatly within the region. For example, the City of Portland and Multnomah County charge business and personal income taxes experienced no where else in the region, or the two states. The result is a higher cost of business, particularly for small business serving local customers, and residents living in those jurisdictions.

The differing tax environments between the two states and within the region create a complex set of challenges and choices for businesses, with costs varying depending on the size, type and market of the business.

INNOVATOR PROFILE

Business name: Multi-Tek, Inc.

Owners/ Founders: Sara and John Overpeck

Location: Gresham

Years in business: 10

Product(s): Wire harnesses, cable assemblies, sub-assemblies

Employees: 13

Where are the markets for your products and how important are local customers for what you produce? The U.S. is Multi-Tek, Inc.'s largest market. Also currently export to China, Puerto Rico, the Philippines, Malaysia, and Canada.

What does your company do to differentiate itself and its products from those of its competitors? We are ISO 9001:2000 certified, currently undergoing a company-wide Continuous Improvement Plan with the Manufacturing Technical Assistance Production Program sponsored by the U.S. Navy.

How has your business changed in the last 2-5 years? Multi-Tek, Inc. has developed an in-house software application to design, track, test and confirm all manufacturing steps and procedures from purchasing to shipping. We have been certified as a woman-owned minority small business.

Key innovations in your company? Our Cable Tracker database.

Key breakthrough or turning point in the business: Multi-Tek, Inc. is experiencing its biggest breakthrough with investments in leading edge technology and assistance from MTAPP.

What's the biggest challenge facing your business? The cycles of the electronics industry. We are now seeking to develop our other markets – aerospace, military contracts – to counteract this cycle.

Can you describe how metro Portland works as a base from which to compete? As an electronics hub with many manufacturers, it is well suited for a cable assembly manufacturer.

Read more at
www.regionalbusinessplan.com

5. Building the Plan – Process, Partners and Initiatives

PARTNERS

The following partner organizations hosted and sponsored local forums to develop the Regional Business Plan:

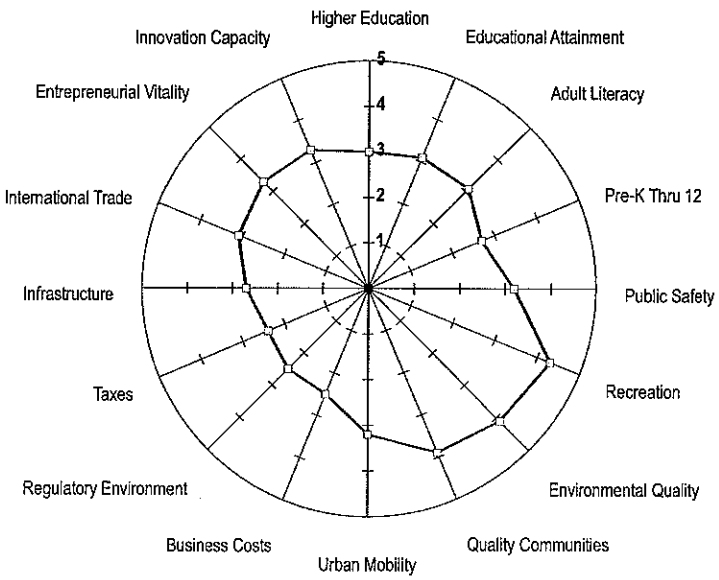
- Beaverton Chamber of Commerce
- Hillsboro Chamber of Commerce
- Columbia River Economic Development Council
- Identity Clark County
- Oregon Association of Minority Entrepreneurs
- East Metro Economic Alliance
- Gresham Area Chamber of Commerce
- West Columbia Gorge Chamber of Commerce
- North Clackamas Chamber of Commerce
- Clackamas County Business Alliance
- Hispanic Metropolitan Chamber of Commerce
- Alliance of Portland Neighborhood Business Associations
- Portland Business Alliance
- East Portland Chamber of Commerce
- Wilsonville Chamber of Commerce

This first Regional Business Plan was developed based on work undertaken on three separate but intersecting paths:

- Business leaders were surveyed through local business forums hosted by chambers of commerce and business alliances, to identify issues and opportunities.
- Public leaders were consulted through a series of interviews and meetings.
- Issue specific task forces investigated four critical areas (education, freight mobility, land use, economic development/cluster competitiveness) to identify and recommend early Regional Business Plan initiatives.

The Regional Business Plan has been developed though a partnership among more than a dozen local business organizations and the Oregon Business Council. Modeled after the Oregon Business Plan, the Regional Business Plan is designed to be a business-driven economic prosperity plan.

The first critical step in the process was determining business leader priorities and concerns. More than a dozen meetings, mostly hosted by local chamber and business associations, were held across the region, and participants were asked to rate the region's performance on a scale based on the Four Ps: People, Place, Productivity and Pioneering innovation. A composite diagram of the findings from these local forums is below.



To view each location's individual response, go to www.regionalbusinessplan.com/perspectives

Remarkably, the results of this exercise varied little from location to location:

- Respondents ranked the region high in terms of Place, particularly in the areas of recreation, environmental quality and quality of life.
- To a somewhat lesser degree, respondents also ranked the region high in the area of Pioneering innovation.
- Responses were mixed in terms of People, with many respondents raising concerns about the quality of education at all levels.
- Respondents ranked the region lowest in the area of Productivity, with concerns about the region's regulatory environment and business costs.

Many common themes emerged during discussions among business leaders:

Education and workforce challenges are top concern

With almost no differentiation among industry, business size or location, workforce challenges were the single biggest issue raised by the forum participants. These concerns were combined with concerns about the educational quality and product of the region's K-20 system. Some specific issues:

- A small landscape contractor in Hillsboro worked unsuccessfully for a year to find and hire a qualified concrete finisher and, ultimately, created its own training program to fulfill the need.
- Many employers, from a variety of industries, voiced frustration about the skill level of workers they did hire. As one Clackamas County manufacturer said, "All I need is someone who can read, communicate, do basic math, pass a drug test and know that electricity is dangerous."
- Many employers were concerned about the large number of jobs that will become vacant as baby boomers retire, and few or no replacement workers are developed.
- The region suffers from an inadequate supply of scientific and technical degreed workers at the Bachelor's, Master's and Ph.D. levels.
- School funding issues are impacting the region's ability to compete for workers. Respondents recognized that sound educational institutions are an important element of a successful economic development strategy.

INNOVATOR PROFILE

Business name:
FeatherLite Enterprises LLC

Owners/Founders: Bruce Feathers

Location: NE Portland

Years in business: 7

Product(s): Gloves, safety shoes, equipment and disposables, office supplies, audio & web-based conferencing, soda beverages & bottled water, corporate identity & promotional items, risk management services, software engineering

Employees: 4 full, 2 part-time

Where are the markets for your products and how important are local customers for what you produce? Local and national businesses including Providence, McDonald's, Microsoft and Nike.

What does your company do to differentiate itself and its products from those of its competitors? We offer a broad product selection, national coverage, flexible computer systems design and customized electronic commerce.

How has your business changed in the last 2-5 years? Expanded product and service offerings, e-commerce, accessing and growing regional and national markets for products and services.

Key innovations in your company? Building community investment into the business model to contribute to the revitalization, development and stability of inner-city people and community.

Key breakthrough or turning point in the business: Development of national accounts in the late 1990s led to a diversified product line and new markets.

What's the biggest challenge facing your business? Getting a seat at the contracting table; equity capital.

Can you describe how metro Portland works as a base from which to compete? A good place to operate a business from a livability standpoint, however, we need more help with business tax relief and other ways to attract and maintain viable businesses in the city limits.

Read more at
www.regionalbusinessplan.com

INNOVATOR PROFILE

PLATT

Business name: Platt Electric Supply, Inc.

Owners/Founders: Harvey Platt, Jay Platt (founded by Issadore & Morrie Platt in 1953)

Location: Beaverton

Years in business: 52

Product(s): Products and services for the electrical construction, commercial, industrial, utility, digital surveillance, and datacomm markets.

Employees: 950

Where are the markets for your products and how important are local customers for what you produce? Eighty-four Platt Locations in six western states, with a dominant market local position.

What does your company do to differentiate itself and its products from those of its competitors? Intensely customer service focused (i.e. 24-hour delivery from Beaverton to any site in six states) with competitive prices.

How has your business changed in the last 2-5 years? Aggressive investments in IT. Platt is a completely paperless operation, pursuing continuous improvement and new efficiencies through applied technology.

Key innovations in your company? Twenty-four hour turnaround for any demand, regardless of location; in-house training program (Platt U); online tools for employees, vendors and suppliers to meet all needs.

What's the biggest challenge facing your business? Finding good people, some challenges finding real estate for new branches.

Can you describe how metro Portland works as a base from which to compete? Platt has a dominant market share in this region, providing a strong base.

Read more at
www.regionalbusinessplan.com

Transportation is costing the region more time and more money

Respondents recognized that transportation bottlenecks, particularly as they impact the movement of freight, have a detrimental impact on the region's economy. Specific findings:

- Congestion during peak traffic times is causing real changes in business practices and productivity. Exacerbating the problem is the expansion of "peak traffic" times from an hour in the morning and the evening to two or more hours in the morning and the evening.
- Increasing freight bottlenecks are causing greater and more costly delays for goods, both incoming and outgoing, particularly impacting the region's manufacturing, nursery and production industries.
- The region has tremendous transportation assets, including the ports, the airports and the freeways (when they are not congested).

The region benefits from a high quality of life

Respondents view the region's well-known quality of life as a valuable asset.

- The region's high standard of living benefits business in the effort to attract and retain workers.
- The region's quality of life is an important factor in the region's important tourism and hospitality industry.

The region values innovation and a strong entrepreneurial spirit

The Portland region is a great place to start and grow business, particularly small businesses, in both the traded and local sectors. But the perception varies from community to community within the region.

- Portland and Multnomah County are perceived to be less conducive to entrepreneurial efforts because of the local regulatory and tax structures. Differences in political values also play a role.
- There is growing recognition of the important role of the arts, both as an economic driver, attractor of talent, and an important ingredient in the "quality of life."
- Increasing diversity is a major priority and asset, across the region, particularly in the development of opportunities for minority populations in business ownership and management.

Business leaders want to participate in economic development

Businesses understand the value of traded-sector "clusters," and, in fact, work naturally as clusters across the region.

- Businesses appreciate the economic development partnership with government.
- Business leaders feel the private sector can contribute to economic development by adding expertise not available in government.
- Business leaders see retention and expansion of small business as a primary value.

Innovation is a constant

Leaders of large and small businesses, in both the traded and local sectors, reported that they have had to recreate their business functions to stay relevant in the global marketplace.

- Many businesses said they are not performing the same functions, or providing the same products, or working the same way, they did even just five years ago.

Health care costs are a great concern

Health care costs are a growing burden for all businesses.

- The burden is especially great for small businesses.
- There is little belief the problem can be solved regionally.

6. Public Leader Partnerships

The following public sector leaders provided their insights and perspectives into the development of the Regional Business Plan:

- Charles Becker, *Mayor, City of Gresham*
- Jim Bernard, *Mayor, City of Milwaukie*
- David Bragdon, *President, Metro Regional Government*
- Tom Brian, *Chair, Washington County Board of Commissioners*
- Craig Dirksen, *Mayor, City of Tigard*
- Gene Grant, *Mayor, City of Happy Valley*
- Judy Hammerstad, *Mayor, City of Lake Oswego*
- Tom Hughes, *Mayor, City of Hillsboro*
- Richard Kidd, *Mayor, City of Forest Grove*
- Diane Linn, *Chair, Multnomah County Board of Commissioners*
- Linda Malone, *Mayor, City of Sandy*
- Keith Mays, *Mayor, City of Sherwood*
- Betty Sue Morris, *Chair, Clark County Board of Commissioners*
- Alice Norris, *Mayor, Oregon City*
- Lou Ogden, *Mayor, City of Tualatin*
- Royce Pollard, *Mayor, City of Vancouver*
- Tom Potter, *Mayor, City of Portland*
- Martha Schrader, *Chair, Clackamas County Board of Commissioners*
- Nabiel Shawa, *City Administrator, City of Washougal*

Modeled after the Oregon Business Plan, the Regional Business Plan was designed to establish a business-driven vision of the region's economy, and a set of initiatives the region's business leaders could pursue together to build infrastructure that supports a sound regional economy and family wage jobs.

At the same time, however, business leaders interviewed for this effort agreed that partnerships with public leaders across the region were a critical element to business success and economic vitality. The region has a rich history of public/private partnerships that helped nourish some of our leading public institutions. The framers of the Regional Business Plan view the public/private partnerships as an important element of the long-term success of this effort.

As the plan was developed, a series of meetings and interviews with elected leaders across the region were held to hear their views of the strengths, weaknesses and opportunities in the region's economy. Like the business leaders, the public sector leaders recognized that communities in the region, although diverse in many ways, are linked economically, and regional strategies that build upon our strengths will improve the ability of the region to be successful in the global marketplace.

Common themes heard from the public sector leaders:

Education is the top concern and the top priority

Many elected leaders cited education and workforce as the issues they hear most frequently from business – both businesses already operating in their communities and those considering locating there.

- There is a widespread concern about the instability of school funding in the Oregon communities, particularly as many schools face growing and more diverse student populations.
- Notably, schools in Vancouver and Clark County are recognized as having fewer challenges, and serve as an economic development asset.
- Community colleges were cited as an asset, and there was hope that the region's four community colleges would work more closely together.
- Workforce readiness for jobs that do not require a four-year degree is a key concern.

Traded-sector industry success is the key driver in a successful economy

Public sector leaders value the role of traded-sector industries in the local economy, although the view varies depending upon the concentration of traded-sector jobs in each community.

- Public leaders point out that there must be recognition that some communities benefit less directly from traded-sector jobs in some clusters.
- Traded sector success requires a healthy small business environment for local entrepreneurs.
- To be successful as a region, every community must share in the success of the economic development strategy.

Downtowns and central cities are important

Regardless of size, every community values its central city, and most community leaders recognized the importance that Portland's downtown plays in the overall regional economy.

- Aggressive downtown redevelopment is occurring throughout the region, and should be part of our economic development strategy.
- Small businesses play a particularly key role in the health of our downtowns.

Infrastructure needs are nearly endless

Infrastructure needs are great and funding is limited for communities in both Oregon and Washington.

- The Urban Growth Boundary (UGB) complicates infrastructure planning in Oregon.
- As the UGB has expanded, there has been inadequate funding for infrastructure, resulting in some potential lost opportunities for economic growth.

Housing affordability is a growing challenge

Housing price increases over the last few years has increased public leader concerns about housing affordability.

- Workforce housing is a particular concern.

Transportation planning and funding practices need to be re-examined

Transportation is a concern on both sides of the Columbia River, and public leaders recognize that freight mobility is a key consideration.

- New funding strategies should be examined, including some that tie costs to demand, such as congestion pricing and tolls.
- The existing transportation infrastructure is over capacity.
- In Oregon, the JPACT model for transportation planning should be re-examined.

"Green" practices are widely embraced

Public sector leaders applaud the growing application of green building and business practices in the region, and view this field as an area of opportunity.

- Sustainable practices are a growing priority both in government and in the private sector in communities of all sizes.

Tourism is a key component of the region's economy

Public sector leaders across the region cited the importance of tourism to their local economy.

- Tourism is particularly important to businesses located in the central cities, and it has a major impact on small businesses.
- Tourism is largely driven by the region's natural assets and strong livability.
- Tourism is also tied to some of our traded-sector industries.

The health care industry is a major contributor of new jobs

While not primarily a traded sector, the health care industry has been a major contributor of new jobs in many of the region's communities.

- Local public leaders see the health care industry as a major local asset.
- Local leaders see crossover from healthcare into bioscience, medical equipment and medical devices as future business and job creation opportunities.

7. The Initiatives

The strength and success of the Oregon Business Plan lies in its straightforward, action-oriented approach. Each year, the Plan lays out a set of measurable, action-oriented initiatives addressing specific issues identified as important in creating a strong and sustainable state economy.

The Regional Business Plan has been designed along the same principles. At the beginning of the planning process, the Steering Committee identified four key areas that required immediate, region-wide attention. Those areas were:

- Education K-20
- Freight Mobility
- Land Availability
- Economic Development/Cluster Competitiveness

The Steering Committee recognized that this was not an all-inclusive list. Many businesses raised concerns related to taxation and regulatory environment, issues that clearly need region-wide study. The Steering Committee, however, determined that, for the first year, initiatives would focus on the initial four areas. In the months and years ahead, additional focus would be placed on other issues, including taxation and regulation, which critically impact economic prosperity and job development.

Task forces were appointed to look into each of these issue areas in depth, and recommend action-based initiatives. The task forces spent several months gathering data and reviewing existing programs. Following is a summary of the task force reports, including their action initiatives. Full copies of the task force reports are available at www.regionalbusinessplan.com/initiatives.

At the end of 2006, the Regional Business Plan Steering Committee will report on progress made toward each of these initiatives.

INNOVATOR PROFILE

Celilo Group MEDIA

Business name: Celilo Group Media, Inc.

Owners/Founders: Nik Blosser, President; Tom Koehler, Owner

Location: SE Portland

Years in business: 6

Product(s): Monthly business magazine *Sustainable Industries Journal*; affiliated print, on-line publications; annual healthy living resource guide/coupon books; green marketing consulting services.

Employees: 19

Where are the markets for your products and how important are local customers for what you produce? Chinook Book appeals to the "healthy lifestyle" consumer. Business publications and services appeal to businesses in sustainable industries – green building, clean energy, recycling markets and organic food. The local customer base was critical to getting our business started and on a sound footing.

What does your company do to differentiate itself and its products from those of its competitors? We focus on healthy lifestyle (Chinook Book) and sustainable business enterprise. We strive for transparency, authenticity and integrity in our writing and journalistic reporting.

How has your business changed in the last 2-5 years? We have grown substantially; opened offices in Seattle and St. Paul, Minnesota. We have worked on improving our internal sales and staffing systems to prepare for further expansion.

Key innovations in your company? An understanding of both healthy lifestyle consumers and sustainable businesses and their needs.

What's the biggest challenge facing your business? Financing for expansion.

Can you describe how metro Portland works as a base from which to compete? For targeting healthy lifestyle consumers and sustainable businesses across the U.S., there is no better locational "brand" to be associated with than Portland.

Read more at **www.regionalbusinessplan.com**

EDUCATION WORKFORCE TASK FORCE ROSTER

- Judy Peppler, *Qwest - Chair*
- Diana Daggett, *Intel*
- Eileen Drake, *PCC Structurals*
- June Chrisman, *Providence Health Systems*
- Carol Morse, *Portland General Electric*
- Duncan Wyse, *Oregon Business Council*
- Gregg Kantor, *NW Natural*
- Bill Scott, *Flexcar*
- Diane Vines, *Oregon Science and Technology Partnership*
- Jim Francesconi, *Haglund, Kelley, Horngren, Jones, Wilder LLP*

Staff: Duke Shepard, *Portland Business Alliance*

Education/Workforce

Globalization requires a much tighter linkage between education and business than ever before. While this is more obvious in traditional, high technology positions, it is equally true across most other sectors of the economy. Our current education system is not structured or funded to meet this challenge.

To be successful, the region must create stronger connections between its educational systems, especially its high schools, and the workforce needs of the future. We must make high school a place where learning is an applied portion of a continuum on the way to quality jobs and lifelong learning. Our education delivery system can and must be more relevant and better connected to the economy, providing better student options.

Also, we must be a region that produces the newest and best ideas, innovations, products and businesses. Our region has substantial and improving public higher education assets: Oregon Health & Science University/Oregon Graduate Institute, Portland State University, Washington State University – Vancouver and a growing regional presence by the University of Oregon and Oregon State University. If we are to compete successfully, the role of our public higher education institutions as fundamental economic drivers must be treated as a top priority by both the private and public sectors.

Underlying each level of education, particularly on the Oregon side of the four-county region, is the issue of funding. There is currently a great deal of activity occurring at the state (Oregon), regional and local levels in examining and testing options to better fund our K-12 education system. A duplicative or competing effort to determine a solution within the Regional Business Plan would be neither useful nor productive. Likewise, no specific, viable, consensus-funding proposal emerged in the time this task force conducted its work.

The task force focused on two specific areas to improve the connection between regional workforce needs and the education systems, and recommended action initiatives for each:

1. Prepare students to meet the workforce demands of the region's leading traded-sector industry clusters.

Initiatives:

✓ Develop a "clearinghouse" to more efficiently and productively link businesses to schools and improve communication, coordination and collaboration among business and education.

✓ Support and promote major structural high school reforms and innovations that create relevance, set high skill standards, provide options for students, and connect to the workforce needs of the region's employers, particularly those in the traded sectors. Examples include E3's Small Schools Project, the Center for Advanced Learning, Sabin-Schellenberg Center.

- ✓ Support and proactively assist districts in re-thinking and re-structuring the junior and senior years for better seamlessness and relevance between graduation, the workforce and post-secondary education.
  - Develop career-focused specializations among high schools to provide choice and options for students, with internship opportunities with the region's businesses.
- ✓ Provide 500 teacher, counselor and administrator internships across the region in the next two years with particular focus on internships in traded sector industry companies.
- ✓ Pursue co-location strategies between local school districts and community colleges during expansion; better use of existing facilities among schools, districts, and community colleges.
- ✓ Encourage and support Entrepreneurial Education programs at community colleges, universities and community organizations. These are programs that teach entrepreneurs the skills required to start and grow thriving business enterprises that create jobs for the region.
- ✓ Support the work of the Chalkboard Project in building consensus solutions to improve schools and address statewide issues that impact local districts, including stable and adequate funding.

2. Increase traded-sector research and commercialization capacity at the region's public institutions of higher education.

Initiatives:

- ✓ Increase the traded-sector research and commercialization capacity at the region's public institutions of higher education – OHSU/OGI, PSU, and WSU-Vancouver. This requires expansion of graduate programs, close interaction between industry and academia on innovative ideas and products, and support from industry in attracting the leading students and faculty to our institutions.
- ✓ Promote and support Portland Community College's Center for Business and Industry and Clark Community College's Corporate and Community Education facility.
- ✓ Establish the Center for Manufacturing and Infrastructure Engineering as proposed by the Manufacturing 21 Coalition.
- ✓ Work with the Partners for Diversity on programs and initiatives to increase opportunities for ethnic minorities and improve the overall diversity of the region's workforce to more closely reflect the population.

TRANSPORTATION/
FREIGHT MOBILITY
TASK FORCE ROSTER

- John McKibbin, *Vancouver Chamber – Chair*
- Ann Gardner, *Schnitzer Investment Corp.*
- Gary Eichman, *Oregon Transfer*
- Grant Armbruster, *Columbia Sportswear*
- Jeanine Wright, *CH2M Hill*
- John Aguirre, *Oregon Association of Nurseries*
- Jonathan Schlueter, *Westside Economic Alliance*
- Lee Johnson, *Jet Delivery*
- Monica Isbell, *Starboard Alliance*
- Sorin Garber, *Garber Consulting*
- Susie Lahsene, *Port of Portland*

Staff: Marion Haynes, *Portland Business Alliance*

Freight Mobility

The movement of goods is critical to the region's economy and quality of life. At some point, everything we buy, sell and consume begins and ends as freight that must make its way through our regional transportation system, from the first points of production, to the distribution centers, to the retail outlets and to the customers. The efficient and reliable movement of freight keeps our economy strong and consumer costs down.

The efficient operation of our regional freight transportation network, however, is being threatened. Increases in traffic congestion and freight tonnage, as well as freight transportation investments made by competing regions, are undermining our region's ability to compete globally. Unless we act now to preserve and enhance our existing freight transportation network, our region will suffer economically, impacting our quality of life.

A recently completed study, "The Cost of Congestion to the Portland Economy," found that our region's economy is highly dependent on efficient and reliable transportation connections and that increasing congestion is negatively impacting the region's competiveness. Failure to invest adequately in transporation improvements results in potential losses of $844 million annually and 6,500 jobs by year 2025. Additional investments in transportation infrastructure generate a return of $2 of every dollar spent.

There is no silver bullet for strengthening the region's multi-modal freight transportation infrastructure. Efforts must be made over several years to expand and enhance the capacity of rail, water, air and truck modes. As a starting point, the task force recommends the following action steps for the region:

- ✓ Convene a private sector Freight Mobility Coalition to advocate for transportation projects and funding to improve business competitiveness.
- ✓ Develop transportation policies and projects that support business needs and the region's economic development objectives.
- ✓ Ensure the transportation funding process includes business-supported and business-needed transportation investments. Consideration should be given to the following criteria:
  - Economic return on public investment (i.e. benefit/cost analysis of primary and secondary benefits or growth in gross domestic product);
  - Jobs produced (and saved) in the region's key traded-sector industries by investments in transportation;
  - Ensure investments in transportation strengthen the region's multi-modal network, connections to domestic and international markets, and leverages private sector investment;
  - Relationship to the region's economic development objectives;
  - Provide more direct connections between industrial land uses and freight transportation system.

Land Use

Business decisions about where to locate are being made on highly compressed timelines. Traded sector businesses are typically highly mobile and can locate anywhere in the world. They can and will choose to locate in the Portland/Vancouver region based on our ability to support their needs.

But in the region, on the Oregon side in particular, land-use laws adopted in the early 1970s often drive decisions that do not meet the current needs of the region's growing economy. An adequate inventory of land suitable for the expansion of new and existing businesses is a critical element of a competitive regional economic development strategy. The consequences of failing to provide adequate supply are real: The Regional Industrial Lands Study, which focused on the lack of short-term industrial land, found that about one-half of the potential job growth in the study area could be "leaked" to other regions because of a lack of land-supply.

There are a number of issues in the land use system that should be addressed. Grouped into three categories they are:

- Policy/process
- Infrastructure
- Land supply

The following initiatives address those issues.

Initiatives:

✓ Enact policy changes that will enable land use decisions to be responsive to market factors and promote a healthy economy.

- Initiate rulemaking to provide for subregional analysis and implement those rules during the 2007 UGB expansion process.
- Initiate amendments to ORS 197.298[1] to revise hierarchy in order to balance the needs of all employment sectors.
- Within the 2040 Plan Update, develop a 50-year supply of urban and rural reserves for use when the market justifies. Require comprehensive planning for urban reserves to occur that includes a schedule for annexation before bringing lands into the UGB.

[1] ORS 197.298 currently provides that land must be included within a UGB according to the following priorities: (a) land that is designated urban reserves; (b) land adjacent to an urban growth boundary that is identified as an exception area or nonresource land. Second priority may include resource land that is completely surrounded by exception areas unless such resource land is high-value farmland; (c) land designated as marginal land; (d) land designated in an acknowledged comprehensive plan for agriculture or forestry, or both. Land of a lower priority may be added to the UGB if land of a higher priority cannot accommodate the identified land needs.

LAND USE TASK FORCE ROSTER

- Steve Clark, *Community Newspapers – Chair*
- Beverly Bookin, *The Bookin Group*
- Cindy Catto
- Corky Collier, *Columbia Corridor Association*
- Darin Hirte, *Brockamp Jaeger*
- Dave Robertson, *Portland General Electric*
- Ed Trompke, *Jordan Schrader*
- Hiroshi Morihara, *Persimmon Group*
- Jerry Olson, *Olson Engineering*
- Jonathan Williams, *Intel*
- Lise Glancy, *Port of Portland*
- Mark Clemons, *Group MacKenzie*
- Peter Finley Fry, *AICP*

Staff: Marion Haynes, *Portland Business Alliance*
Cindy Catto

- Link Goal 14, Urbanization, Goal 9, Economic Development, and Goal 11, Public Facilities and Services, in a more explicit manner to ensure UGB expansions support the achievement of regional economic development objectives.
- Ensure that the 2040 Update includes a market sensitive look at the need and location for industrial land.

✓ Enact process changes that will accelerate decision-making and provide flexibility in the land use system.

- Streamline judicial review of UGB decisions so that resolution of expansion areas occurs in a more timely fashion. Options may include, but are not limited to, changing the standard of review to clearly erroneous, limiting standing, and adopting elements of the Energy Facilities Siting Council model.
- Change UGB expansion process from five-year periodic review to allow for scenario planning, which would identify a number of potential future outcomes and allow for a streamlined, market-based approach to UGB expansions.

✓ Prioritize infrastructure improvements that support regional economic development strategies both inside the UGB and within expansion areas.

- Develop and have local and regional jurisdictions utilize a decision-making matrix to guide investments to ensure infrastructure (transportation, utilities, etc.) has adequate capacity to serve industrial and employment land.

✓ Identify funding mechanisms for planning so that regional UGB expansion areas can be put to productive use in a timely manner.

- Explore regional funding strategies, such as tax increment, windfall taxes in expansion areas, and local pooled funds through IGAs.

✓ Ensure adequate infrastructure capacity to serve employment land needs throughout the region.

- Allocate existing resources to address the priorities identified in the decision-making matrix to meet the region's economic development objectives. Evaluate needed infrastructure to accommodate the region's economic development objectives and identify missing elements.
- Expand existing private, local, regional, state and federal funding for infrastructure.

✓ Ensure a competitive, development-ready supply of land that supports

regional economic development objectives.

- Certify 100 sites over five acres as "shovel ready" for traded sector businesses by December 2007.
- Develop and/or strengthen industrial sanctuaries, particularly in areas where location or transportation features are irreplaceable, such as the Portland Harbor and freeway interchanges.
- Create a real-time inventory of industrial sites that can be updated on a continuous basis; the City of Portland's Industrial Districts Atlas may provide guidance on the types of information that should be included.

✓ Implement policies and programs to promote redevelopment and the use of land within the UGB.

- Expand the use of the Oregon Department of Environmental Quality's (DEQ) Prospective Purchaser Agreements (PPA), which limit liability for good faith brownfields purchasers, and better integrate the DEQ's PPA program with the Environmental Protection Agency's (EPA) PPA program.
- Implement recommendations in the Brownfield/Greenfield Development Cost Comparison Study, with a priority on public assistance for risk reduction and site characterization assistance.
- Develop tools and implement programs to assist with the industrial redevelopment of key sites.

ECONOMIC DEVELOPMENT/CLUSTER COMPETITIVENESS TASK FORCE ROSTER

- Randy Miller, *The Moore Company – Chair*
- Joe D'Alessandro, *Portland Oregon Visitors Association*
- Jim Mark, *Melvin Mark Properties*
- Donald L. Krahmer, Jr., *Schwabe, Williamson, Wyatt, PC*
- Marty Brantley, *Private Investor/Former Director, Oregon Economic and Community Development Department*
- Mark Rosenbaum, *Rosenbaum Financial*
- Craig Wessel, *Portland Business Journal*
- Andy MacRitchie, *PacifiCorp*
- Roger Qualman, *Norris, Beggs, Simpson (Vancouver)*
- Scott Langley, *Ashforth Pacific*

Staff: Charlie Allcock, *Portland General Electric*
Duke Shepard, *Portland Business Alliance*

Economic Development/Cluster Competitiveness

Do we want to be the best in the nation when it comes to the work of retaining, expanding, starting and recruiting traded sector businesses?

While there is excellent economic development work occurring throughout the region, much of it in the public sector, there is more we can do to be the best and most innovative in meeting the economic development challenges presented by a global economy. This requires an increased level of private sector leadership and resources, and improved economic development partnerships with the public sector.

The region should adopt three economic development priorities. In order, they are:

1. We must focus on retention and expansion of existing traded sector businesses in the region. We must recognize that the greatest share of future job growth will come from businesses, large and small, already located in the region. Particular focus must be placed on retention of anchor businesses in clusters, because they create momentum for start-up and spin-off opportunities.
2. A strong entrepreneurial environment for small businesses, start-up businesses and spin-offs from existing clusters should be fostered. We must be a great region for starting, growing and expanding a business.
3. Recruitment efforts must focus on traded sector businesses not already in the region. Recruitment and marketing are the areas with the least resourced and organized private sector activity. The region is still perceived as relatively unfriendly to business at the national level. An aggressive recruitment and marketing campaign is necessary to conquer this perception.

The following initiatives should be considered a starting point for discussion on how we can more effectively create family-wage jobs and support economic growth in the region.

Initiatives:

✓ Build public sector awareness of regional business needs and support business retention through direct contact with regional business leaders.

- Encourage and assist elected officials in the region to visit one traded sector business every month, to learn about specific business and industry needs, gain insight into the business environment and industry trends, and to align public sector actions and resources to strengthen the region's traded sector businesses.
- Public and private representatives of the region's economic development agencies and interests should develop an annual coordinated retention and expansion work plan targeting specific clusters and companies.

- ✓ Representatives of the region's public-sector economic development agencies, with support and assistance from the private sector, should strive to visit every traded sector business in the region at least once a year.
- ✓ Develop targeted regional cluster-based innovation strategies and initiatives with the Oregon Innovation Council, Oregon Business Council Oregon Clusters Project, and SW Washington High-Tech Council.
- ✓ Capitalize and promote University Venture Seed Funds at Oregon University System institutions and Oregon Health & Science University, as established by Oregon Senate Bill 853 and explore access to similar resources in Washington.
- ✓ Support Oregon Investment Fund initiatives to bring additional venture capital presence to Oregon and the Portland-Vancouver region. Foster increased private sector regional industry partnerships and collaboration with the regional and national venture capital community to encourage increased corporate innovation and technology commercialization in targeted areas.
- ✓ Support micro lending and small business funding programs designed to fund start up business ventures in the Portland-Vancouver area.
- ✓ Establish stronger ties to Pacific Northwest National Labs in Richland, WA to support additional innovation and technology commercialization and collaboration.
- ✓ Seek coordinated federal funding strategies that support targeted cluster development.
- ✓ Form a privately-funded and privately-led regional economic development entity dedicated to traded sector marketing and recruitment.
    - Appoint a Planning Board to design and initiate creation of the private entity, including definition of partnerships with public sector agencies engaged in economic development.
    - Draft Mission: Assist leading edge, innovative, traded-sector companies and entrepreneurs in the region, the nation and around the world in choosing the metropolitan Portland region as the place to grow, start and locate their business.
    - This entity will coordinate closely and work collaboratively with the public and private sector economic development professionals and programs across the region including the Portland Development Commission. In order to add value, all of our regional efforts must be highly organized and well executed through collaborative partnerships and leveraging of resources.

8. Next Steps

As with the Oregon Business Plan, the real test of this regional effort will be its success in implementing the initiatives listed within it. This effort will require growing and sustaining the partnerships that brought this initial plan together, and building new partnerships between business and government that are tailored to meeting the priorities of the region.

At the end of 2006, we will publish a report on our progress toward implementing each of the initiatives.

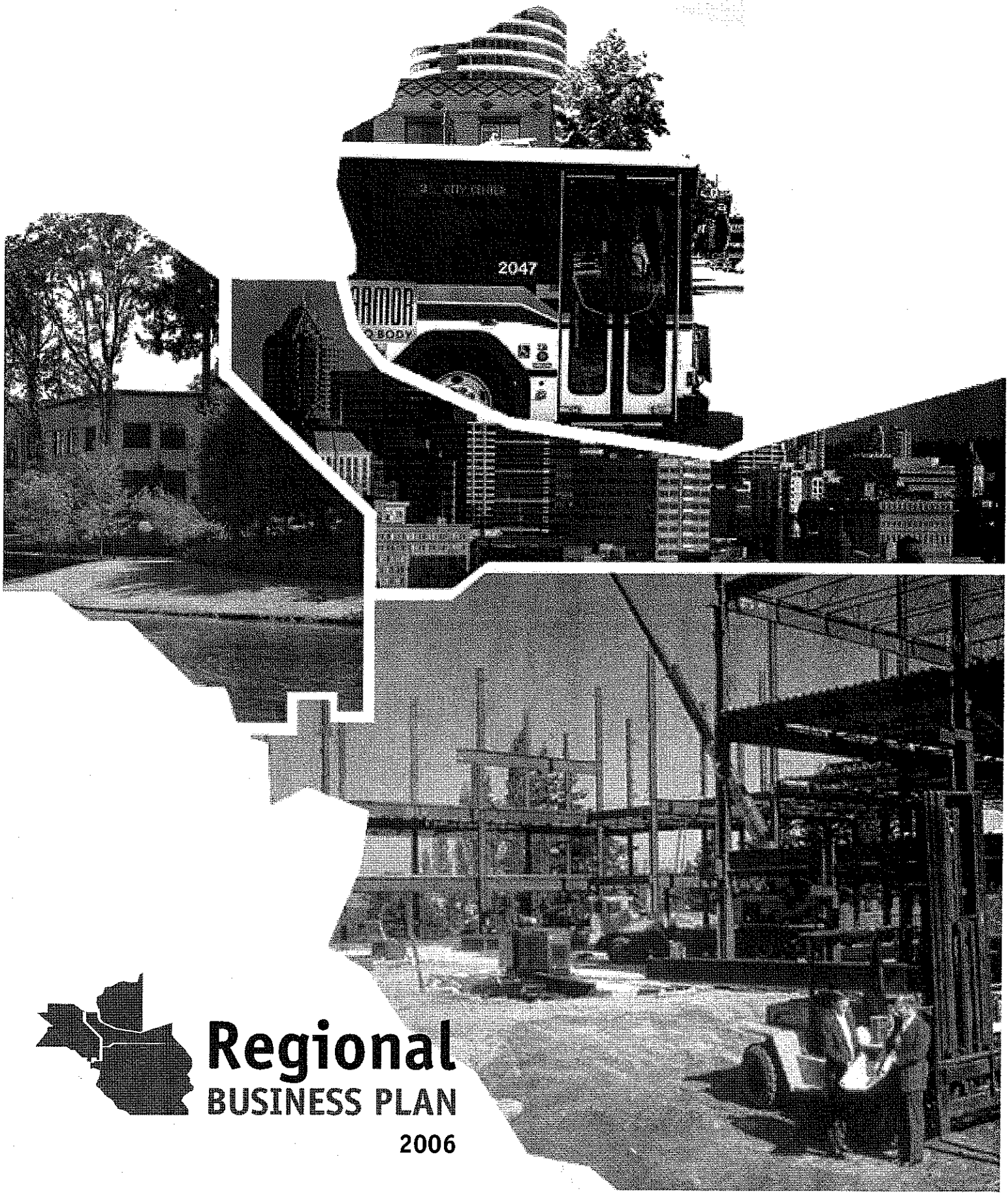
While this first round of initiatives must now be implemented, the next phase of the business plan must also begin. Already identified, prioritized, and placed on the drawing board for the next phase of the Regional Business Plan are initiatives focused on: Regional Branding; Access to Capital; Regulation; Taxes and Fees; Regional Cluster-Based Innovation Strategies. As task forces are formed behind these initiative areas, business leaders from across the region will lead the way in developing the action plans for improved regional prosperity.

Reports to Reference

- Westside Economic Strategy
  www.westside-alliance.org/westside-story-2/Westside_Econ_Study-2.pdf
- CEDS Document
  www.portlandregion4biz.com/ceds/ceds-report-final_8-1-05.pdf
- Young and Restless Study
  www.restlessyoung.com
- Oregon Business Plan
  www.oregobusinessplan.org
- Portland Economic Development Strategy
  www.pdc.us/programs/ed/strategy/index.html

Exhibit J

Ordinance No. 07-1148
Attachment 10.1



Regional BUSINESS PLAN

2006

Letter from Regional Business Plan Steering Committee Chair

Four counties. Two states. Many cities. Each with its own unique features, interests and challenges. The Portland-metropolitan area is rich in diversity; yet, at the same time, in economic terms, we are one region.

We know that economic vitality in Hillsboro's high tech hubs helps stimulate development in Clark County; that business expansion in Clackamas County drives job development in Portland; that East Multnomah County's vibrant nursery industry brings new dollars to the metro region.

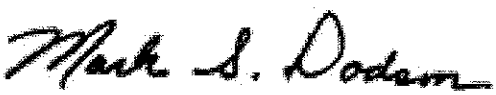
In our increasingly global economy, the world sees us as one region. This first Regional Business Plan attempts to describe that economic region and, for the first time, bring all the diverse corners together to plan and build a strong and sustainable regional economy that yields family wage jobs for all of our residents.

Modeled after the very successful Oregon Business Plan, the Regional Business Plan is the result of a partnership among the many business organizations that support our region, as well as a strong and ongoing dialogue with our public leadership. The plan provides a common framework for business and government to work together in the effort to meet the challenge of global economic competitiveness and create quality jobs across the entirety of this unique region.

And, like the Oregon Business Plan, the Regional Business Plan lays out specific action-oriented initiatives that the framers believe are crucial to building a strong and sustainable regional economy.

As we move ahead, maintaining the partnerships we created as we wrote this plan will be critical to our ability to achieve each initiative.

This first Regional Business Plan is just the beginning. It is, in fact, a work in progress. In the months and years ahead, we look forward to continuing to build on the success of this first plan, and working with our partners, create a strong and vital regional economy positioned to compete successfully in the global economy.



Mark S. Dodson

President and CEO, NW Natural
Chairman, Regional Business Plan Steering Committee

Mark S. Dodson

Steering Committee and partners

PARTNERS

- African American Chamber of Commerce
- Alliance of Portland Neighborhood Business Associations
- American Electronics Association, Oregon Council
- Associated General Contractors
- Beaverton Chamber of Commerce
- Clackamas County Business Alliance
- Columbia Corridor Association
- Columbia River Economic Development Council
- East Metro Economic Alliance
- East Portland Chamber of Commerce
- Greater Vancouver Chamber of Commerce
- Gresham Area Chamber of Commerce
- Hillsboro Chamber of Commerce
- Hispanic Metropolitan Chamber of Commerce
- Identity Clark County
- North Clackamas County Chamber of Commerce
- Oregon Association of Minority Entrepreneurs
- Oregon Association of Nurseries
- Portland Business Alliance
- West Columbia Gorge Chamber of Commerce
- Westside Economic Alliance
- Wilsonville Chamber of Commerce

The Regional Business Plan is overseen by a steering committee of business leaders from across the region.

Mark Dodson, *NW Natural* (Chair)
Jackie Babicky, *Babicky Performance Partners*
Sam Brooks, *S. Brooks and Associates*
Gary Cardwell, *NW Container Services*
Gale Castillo, *Hispanic Metropolitan Chamber of Commerce*
Matt Chapman, *Centrisoft Corporation*
Steve Clark, *Community Newspapers/Portland Tribune*
Diana Daggett, *Intel*
Joe D'Alessandro, *Portland Oregon Visitors Association*
Robert DeKoning, *Routeware*
Peggy Fowler, *Portland General Electric*
Mark Ganz, *The Regence Group*
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Writing/Design:
- Joseph Cortright, *Economist, Impresa, Inc.*
- Marion Haynes, *Portland Business Alliance*
- Katie Mongue, *Portland Business Alliance*
- Duke Shepard, *Portland Business Alliance*

1. Vision Statement

Our vision:

A metropolitan economy that is built upon sustainability, innovation, openness and individualism.

Four core values summarize our vision for our region's economic future.

1. **Sustainability:** We view sustainability as a unique regional asset for business competitiveness in the global economy. For decades, our region's unparalleled livability has been a major attractor of people, talent, and commitment to our communities. We build businesses that grow and prosper, while also enhancing the region's unique character.

2. **Innovation:** We welcome the future, because we are creating it. We continually invent new ways to make our businesses, our communities and our world a better place. Whether it's the fastest computer chips, best athletic shoes or finest tasting beer, our companies compete by generating world-class ideas, products and services. We value creativity in the arts and in industry, and the quality of our businesses and economy are built on new ideas.

3. **Openness:** We embrace new people, new ideas, new products and new processes. Our growing diversity makes our community and our economy stronger, more competitive, more creative and more interesting for all of us.

4. **Individualism:** We march to the beat of a different drummer, whether it's an obsession with outdoor recreation, reading more books, or drinking better beer and coffee. We're independent thinkers, explorers and entrepreneurs. We are not a pale imitation of some other place. We know our uniqueness is part of who we are.

We believe a widely shared prosperity is vitally interconnected with every other part of our vision for the Portland-Vancouver region's future. Thinking up new and better ways to achieve sustainability, innovate a wide range of new ideas, welcome newcomers and build upon our distinctiveness will promote our prosperity.

The focus of our business plan is on jobs and the economy, but we must also pay attention to all of these core values to build a vibrant, successful economy. Our vision is to do each of these things well in order to have an economy that competes at the high end of the global marketplace by being a leader in a number of traded-sector industry clusters. Already, we are the world leader for the design and manufacture of semiconductors, the leading center of sports apparel and footwear, a world-class designer and manufacturer of heavy trucks and railcars, a center for metals manufacturing, and a market leader in specialty foods, wines and microbreweries. We will build on these existing strengths and develop new ones, like our best-in-class concentration of open source software efforts.

The focus of our business plan is on jobs and the economy, but we must also pay attention to all of these core values to build a vibrant, successful economy.

2. Concepts of Regions in the Global Economy

KEY INSIGHTS:

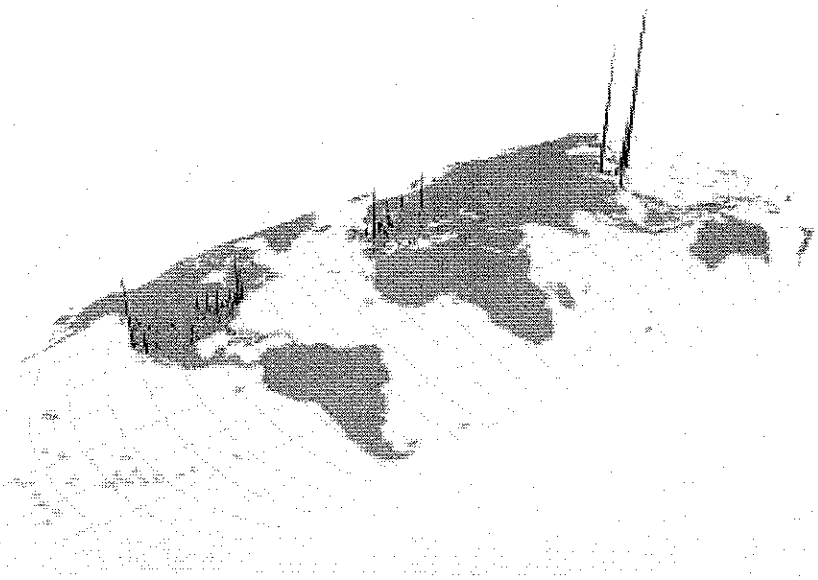
- *Regions matter more in a global economy*
- *The Portland-Vancouver region is competing against other similar regions around the world*
- *The ability to create new ideas in the region is crucial*
- *We need to organize an ongoing, public/private effort to address our economy*

At first glance, it might appear that regions are an anachronism in a global economy. Now that trade and telecommunications span the globe, there's a widespread perception that almost any economic activity can happen anywhere. But while the world is getting smaller and more closely integrated, there are still important economic differences from place to place. And paradoxically, local differences, like those found in metropolitan regions, are becoming more important.

In fact, the world is best thought of as a collection of competing metropolitan economies. Leading edge economic activity is actually tightly clustered in a few metropolitan areas around the world. Bangalore, not all of India, is a major center for information technology. China's high tech exporting is dominated by Shenzen, a special economic zone near Hong Kong. Tel Aviv and Helsinki are key centers for technology innovation.

The primary reason regions matter is that each region around the globe still has its own distinctive set of knowledge and expertise. Some activities are simple and routine and can be carried out anywhere. But a wide range of inventive, creative, innovative and customer-centered activity and knowledge is centered in just a few places in the world.

The world isn't entirely flat, as Thomas Friedman's popular book argues. Instead, it's flat and spiky. Consider the distribution of patent activity worldwide, a good rough indicator of the concentration of the production of new ideas.



The process of creating skills and the important influences on the rate of improvement and innovation are intensely local. Paradoxically, then, more open global competition makes the home base more, not less, important.

- Michael Porter,
Harvard University, 1990

The traditional view of economic competition has been that nations compete against other nations, that states compete against other states, or that individual companies compete against other companies. However, there is a growing recognition among economists, business strategists and geographers that crucial competition is between different metropolitan areas and their ability to nurture successful industry clusters. In the past several years, scholars have increasingly come to emphasize the key role that location plays in economic growth.

Not only has the scale of competition changed, but the basis of competition has changed as well. A few decades ago, when our region competed chiefly in the domestic U.S. economy, we were a place of roughly average costs. Like the rest of the U.S., we had a huge advantage in education, technology and experience. But in today's global economy, the rest of the world has made startling progress: Today, there are more English-speakers outside native-English speaking countries than inside. A majority of the world's population will complete secondary school, and the U.S. accounts for only about 12 percent of the world's college students. Hundreds of millions of people around the world have the kind of basic skills they need to have a modern economic system.

So, in this new world, how does our region compete and prosper?

The short answer is that we don't do it by standing still. Routine mass production of every kind — from sewing shirts, to assembling electronic gadgets, to processing checks to basic computer tech support — can be done almost as easily and much more cheaply in locations outside the U.S.

But many kinds of activities can only be done close at hand. The innovative, the creative activities, those that involve teamwork and close interaction with clients or customers, can't easily be outsourced. Businesses that focus on developing new ideas, products and processes — whether it's designing new athletic shoes or the next generation of semiconductors, improving the fuel efficiency of heavy trucks or the style and functionality of a new cell phone — depend on talent and creativity.

Because regions are the new building blocks of this global economy, many of the most important decisions will have to be undertaken at a regional level. While much of the heavy lifting will be done in the private sector, government plays a key role in setting the conditions for success in a knowledge-based entrepreneurial economy.

Regions around the world have developed public/private partnerships to coordinate economic strategy at a regional level. These efforts deal explicitly with issues of positioning, vision and assessment. They promote dialogue and collaboration, but don't dictate to participating partners. A key objective of the Regional Business Plan process is to engage the region's public and private leaders in an ongoing dialogue about what it will take for this region to have a vibrant economy in the years ahead.

ELEMENTS OF AN EFFECTIVE REGION

- A shared economic vision
- Strong leadership
- An over-arching organization for economic development
- Broad-based collaboration
- Rigorous analysis, and clear action steps
- Strategies for dealing with economic transitions

Source: U.S. Council on Competitiveness

Regions around the world have developed public/ private partnerships to coordinate economic strategy at a regional level.

3. Our Region

KEY INSIGHTS:

- *We have a sizable, vibrant regional economy*
- *We've transformed ourselves from a resource economy to a knowledge economy*
- *Our economy is resilient, with an ability to grow out of a recession*
- *The long term is our challenge; we have to be adaptable to be successful*
- *The traded sector is our economic foundation*
- *Industry clusters drive our regional economy*

Economic Setting

Metropolitan Portland-Vancouver is the nation's 25th largest metro economy and has doubled in size since 1975.

For federal measurement purposes, the metropolitan economy encompasses six counties in two states: Multnomah, Clackamas, Washington, Columbia and Yamhill counties in Oregon, and Clark County Washington. The federal government ranks the Portland-Vancouver-Beaverton Metropolitan Statistical Area as the nation's 25th largest metropolitan area. The region has a population of roughly 2 million, and more than a million people are employed in the region. The gross metropolitan product — the total value of all of the goods and services we produce — is roughly $80 billion, an economy equal in size to that of the Czech Republic. Total output in the region expanded from $38.7 billion in 1992 to $76.9 billion in 2002, an annual rate of increase of 7.1 percent per year over the decade; The Portland-Vancouver region was the 10th fastest growing of the nation's 50 largest metropolitan areas during this decade.

The long-term trajectory of our region's economy has been one of steady growth. Measured by total employment, the size of our economy has more than doubled since 1975, from 500,000 jobs to more than a million. Likewise, income and population have increased substantially over that same time period.

Our shared regional economy cuts across city, county and state boundary lines. Workers commute to jobs throughout the region; shoppers patronize stores and businesses everywhere. Major firms are located throughout the region — metals and machinery firms in Clackamas, Portland, Tualatin and Vancouver; high tech firms in Hillsboro, Gresham, Wilsonville and Camas; apparel and sporting goods firms in Portland, Beaverton and Vancouver. All of these businesses tap a common economic infrastructure, environment and, most importantly, workforce. Even with commuting, 97 percent of the people who work in the metropolitan area also live here. All these critical connections mean that, while we have many communities, neighborhoods and political jurisdictions, we share one big regional economy. The economic fate of every part of the region is intertwined with that of the whole — and a recent Federal Reserve Bank study of metropolitan economic performance nationally confirms that cities and suburbs all sink and swim together.

Our Roots: Metropolitan Portland-Vancouver's Economic History

We've transformed our economy from resource-dependent to knowledge-driven.

While we've seen substantial growth over the past few decades, the economy we have today is not simply a larger version of the economy we had 20 or even 10 years ago. Our economy has changed in fundamental ways. Understanding those changes, and realizing that they are still in the process of unfolding, is critical to developing a strategy for the future of our region's economy.

For most of its history, our region's economy could fairly be described as an extension of the physical landscape. Portland was originally established and grew as a result of industries driven by abundant natural resources: the lumber and wood products economy, and the agricultural produce of the Willamette Valley. The region's primacy as a regional port was decided by the Columbia River drainage, and, later, hydropower that helped fuel a new round of industrial growth tied closely to our natural resource advantage.

Just a few decades ago, it was fair to characterize metropolitan Portland-Vancouver as the hub of a resource-based, commodity-producing economy. The state was the nation's largest producer of lumber and plywood, its economic fate rising and falling with interest rates and the housing market. Commodity crops, especially wheat, dominated the state's agriculture output. The largest segment of the metals industry was commodity producers of aluminum, dependent directly on cheap hydropower.

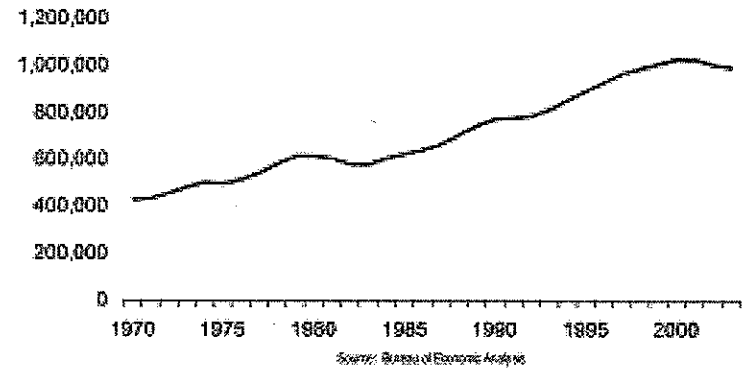
Over the past two decades, however, we've witnessed a startling transformation of the region's economic base. Today, high technology, particularly semiconductors, display systems and software are the region's leading industry. We've added entirely new industries — such as sporting goods, apparel and creative services. We've also totally remade or reinvented the region's traditional resource-based industries. Oregon's leading agricultural crop now is nursery products, a $700 million industry centered in Clackamas, Multnomah, and Washington counties; the region's metal workers compete based on sophisticated proprietary designs and engineering rather than on cheap power; and the wood products industry has retooled to produce a diverse range of value-added wood products.

And, if anything, the raw economic data understate the extent to which we're a knowledge-driven economy. Everyone knows, for example, that Intel has large, multi-billion-dollar microchip factories in the region; less well known is that this is the company's global center for developing new Pentium processors and ever more sophisticated manufacturing techniques. Intel gets more patents for the work it does in Hillsboro than from the rest of its research operations worldwide.

As a beginning point, it's helpful to take stock of our regional economy and to see how it compares to the rest of the country, and to retrace the steps that it has followed in the past few years.

Innovation and adaptability are the keys to prosperity.

The Long Term Growth Trend for Metro Portland

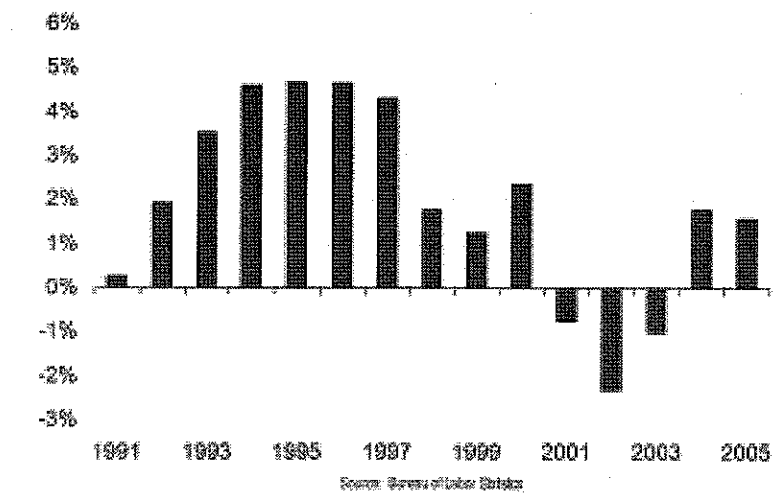


Recent Performance: Emerging from a Recession

After record-breaking economic growth in the 1990s, the entire U.S. economy experienced a significant recession starting in 2001, and metropolitan Portland-Vancouver was no exception. We recorded year-over-year declines in employment in 2001, 2002 and 2003, but in 2004, and again in 2005, we resumed positive employment growth.

The mid-1990s were a period of exceptional economic growth in the region. Between 1992 and 1997, job growth averaged more than 4 percent per year — an economic boom. Growth slowed somewhat in the late 1990s, but more importantly, the metropolitan area went 17 years — from 1983 to 2000 — without a year-over-year decline in overall employment.

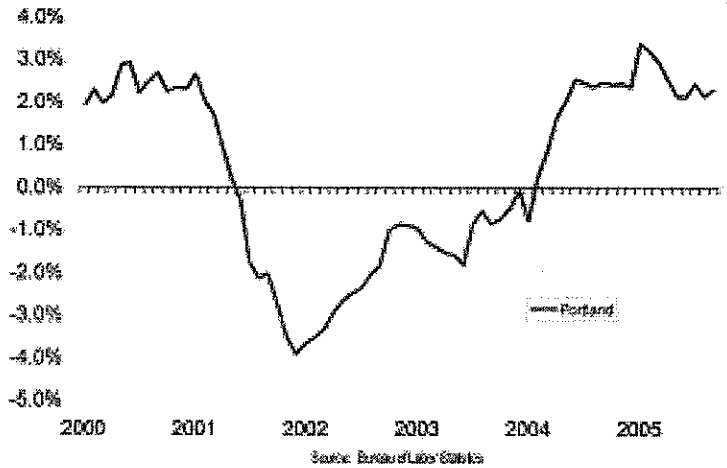
Our Economic Path Since 1990



Starting in 2001, however, the popping of the stock market bubble, the dramatic decline in business investment and the slowing of the national economy all had a dramatic impact on the metropolitan economy. With the region's heavy concentration in durable goods industries — things like computers, heavy trucks, machinery and wood products — metropolitan Portland-Vancouver suffered more from this recession than the typical U.S. metropolitan area. The bottom of the slump came in 2002, when jobs declined about 2 percent from the previous year. But since then, the economy has been improving. Since early 2004, regional employment has been expanding at better than a 2 percent year-over-year rate.

Metro Portland Economy in Growth Mode

Year over year percentage change in Wage & Salary Employment, Metropolitan Portland



Source: Bureau of Labor Statistics

As a result, the region's stubbornly high unemployment rate, which led the nation in many months and peaked at nearly 9 percent in 2002, has started to come down, and is now much closer to the national average. (In contrast, through much of the 1990s, as the region's economy boomed, metropolitan Portland-Vancouver's unemployment rate was at or below the national average.)

One worrying sign of the severity of this most recent recession was the decline in the region's relative per capita income. During the boom of the mid-1990s, income grew faster in metropolitan Portland-Vancouver than in the rest of the nation, and by 1997 average incomes were about 9 percent higher in the region than nationally. The recession took its toll on average incomes, which in 2003 were only about 2 percent higher than the national average. (Per capita income data are reported with a long lag, and these 2003 data do not reflect the relatively stronger performance of the metropolitan economy in the past two years.)

INNOVATOR PROFILE

nLIGHT

Business name: nLight

Location: Vancouver

Owners/Founders: Scott Keeney, Mark DeVito, Jason Farmer, Scott Karlsen; VC funded

Years in business: 5

Product(s): High Power Semiconductor Lasers

Employees: 105

Where are the markets for your products and how important are local customers for what you produce? Industrial, defense, medical and consumer applications. Most products exported.

What does your company do to differentiate itself and its products from those of its competitors? Higher performance products.

How has your business changed in the last 2-5 years? We were a small start-up working on card tables in Seattle five years ago. Two years ago we were one of the 500+ VC funded companies that saw their market disappear in the telecom downturn.

Key innovations in your company? Our competitive advantage comes through a wide range of novel processes, designs and material structures — however our fundamental advantage comes through our world-class team.

Key breakthrough or turning point in the business: Our key breakthrough came through refocusing the company after the telecom meltdown. Our survival was due to the skills and tenacity of our team.

What's the biggest challenge facing your business? Competition from China is both a challenge and an opportunity.

Can you describe how metro Portland works as a base from which to compete? The semiconductor cluster in Oregon and SW Washington is strong and has helped support our growth.

Read more at
www.regionalbusinessplan.com

INNOVATOR PROFILE

KRYPTIQ

Business name: Kryptiq Corporation

Location: Hillsboro

Owners/Founders: Luis Machuca, Kurt Koehler, Murali Karamchedu, Jeff Sponaugle;VC funded

Years in business: 4

Product(s): Connectivity software for health care

Employees: 90

Where are the markets for your products and how important are local customers for what you produce? Local customers – Providence Health System and Kaiser Permanente – have been key to our success.

What does your company do to differentiate itself and its products? Kryptiq's focus on a single vertical market – health care – allows us to serve the entire health care value chain: providers, health plans and patients.

How has your business changed in the last 2-5 years? Four years ago, Kryptiq's initial product was secure email for health care. Today, we have a suite of 10 products.

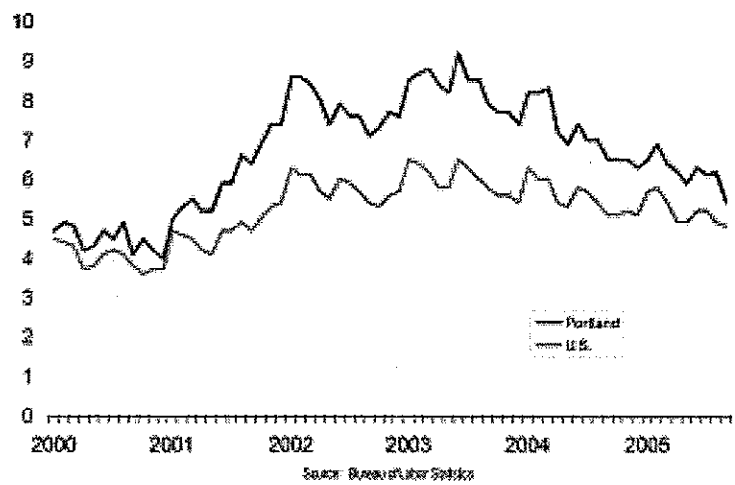
Key innovations in your company? Product innovations include ClinicalMessenger™, secure messaging software, Guardian™ Contract Manager, a modular end-to-end contract management solution, and CareManager™ disease management software for providers serving chronically ill patients.

What's the biggest challenge facing your business? The health care market is full of multiple stakeholders with competing agendas, complicated by the fact that IT benefits do not often accrue directly to the purchasers.

Can you describe how metro Portland works as a base from which to compete? Portland metro has provided Kryptiq with an excellent base from which to compete. Hillsboro and Washington County have been extremely supportive.

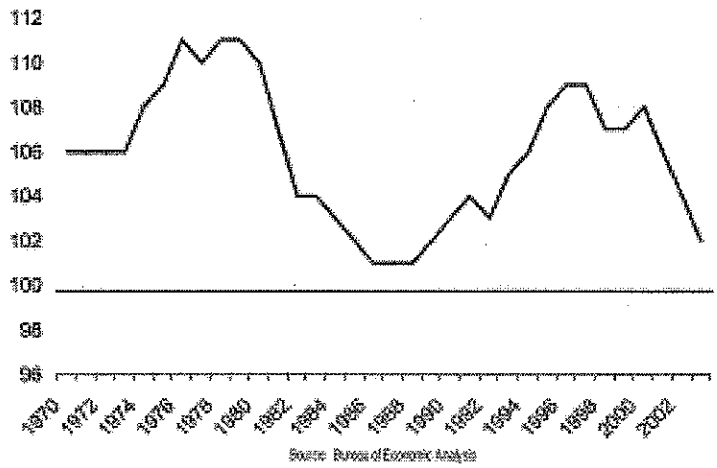
Read more at
www.regionalbusinessplan.com

Unemployment Rate Trending Down



The sluggish economic performance we experienced between 2001 and 2004 reminds us that success and prosperity will not be easy or automatic. Dozens of other metropolitan areas around the U.S. and, increasingly, around the world want what we want, and are competing hard to get it. The time has come for our region to think hard about its economic future, and deliberately build an economy that will prosper in the face of this growing competition.

Per Capita Income Just Above US Average



It's easy to forget that economies don't stand still. The icons of economic progress in one era are often transformed into the eerie monuments of a time gone by. In the 1960s, no tour of the region's economy would have been complete without a visit to the massive Alcoa aluminum smelter in Vancouver or the similar Reynolds plant in Troutdale — both are now shuttered. In the 1980s, we took great pride in attracting Japanese manufacturing giants NEC to

Hillsboro and Fujitsu to Gresham; both have since left the region. In the case of Fujitsu, its facility was purchased by Microchip, an innovative producer of micro controllers better positioned to compete in the global economy due to specialization. Likewise, even after Portland gave birth to a national micro-brewing revolution, the city's venerable Blitz-Weinhard Brewery was closed and redeveloped as a vibrant mixed residential and commercial site that anchors the Central City's trendiest neighborhood, the Pearl. In an economy based on ideas, continuous reinvention is the only path to prosperity.

A key part of our economic strategy has to be assuring an atmosphere where we can adapt and transform ourselves. Are we open to the new pioneers and the pioneering new ideas that can enable us to be prosperous in the decades ahead?

The Importance of the Traded Sector

In this region, as in every regional economy, certain industries play a decisive role in shaping future economic growth. Economists call these industries the "traded sector" of the region's economy. The traded sector consists of businesses that sell their goods and services to customers outside the region, bringing in new income that gets re-spent locally, prompting growth through a multiplier effect.

Most of the businesses in our metropolitan economy are the same kind of businesses one sees everywhere — hospitals, grocery stores, banks, beauty salons, gas stations, dry cleaners, doctor's offices and coffee shops. These businesses, and their workers, are part of what we call the "local" sector of the economy, because they exist primarily or exclusively to serve the needs of the local population.

The non-traded sector of the economy, including health care, retailing, consumer services and most government jobs play an important role in the local economy. It is important that we provide such services efficiently and effectively, because they help support the traded sector and facilitate the local quality of life. The non-traded sector will also continue to provide the bulk of employment opportunities in the region in the years ahead. But unlike the traded sector, we can't grow the overall regional economy by selling more of these inherently local services to ourselves.

About a quarter to a third of the region's employment and economic activity is part of the traded sector. The traded sector includes most manufacturing activities, but increasingly, many services are being sold nationally and internationally. Unlike local sector firms, these traded sector businesses depend not only the size of the local market, but on their ability to compete against firms in other states and nations. Consequently, unlike local businesses that collectively can grow only as fast as the local market, traded sector businesses can grow much more quickly or more slowly than the local market, depending on how successfully they compete against businesses in other places. It is this growth that ultimately drives the entire regional economy.

INNOVATOR PROFILE

NAUTILUS Inc

Business name: Nautilus, Inc. (NYSE:NLS)

Location: Vancouver

Owners/Founders: Nautilus, Inc.

Years in business: 19 (founded 1986)

Product(s): A complete line of innovative health and fitness products

Employees: 1,400; operations in Washington, Oregon and other locations around the world.

Where are the markets for your products and how important are local customers for what you produce? Nautilus, Inc. promotes its products through a variety of sales channels including direct marketing, retail, commercial, Internet, catalog and international distributors.

What does your company do to differentiate itself and its products from those of its competitors? Strong brands, a fast pace of innovation, and a presence across all channels where people shop and exercise.

How has your business changed in the last 2-5 years? We have transformed our company from one that relies upon a single product in a single channel into one that relies on multiple brands, multiple products, multiple models and multiple sales channels.

Key innovations in your company? New products account for about 30 percent of Nautilus net sales each year.

Key breakthrough or turning point in the business: Moving from a single brand, product and channel, to multiple brands, products and channels.

What's the biggest challenge facing your business? Educating more people on how they can achieve a fit and healthy lifestyle.

Can you describe how metro Portland works as a base from which to compete? Vancouver is our world headquarters. It is a great place to live and work, making it easy to attract and keep world-class talent.

Read more at
www.regionalbusinessplan.com

Metropolitan Portland-Vancouver's Industry Clusters

The traded sector of our regional economy — those businesses that sell their goods and services in national and international markets — are not a random collection of businesses. Most of our traded sector businesses are part of one of the region's industry clusters — groups of similar or related businesses that tap a common pool of worker skills, utilize similar technologies, sell to similar customers or often act as suppliers to one another. These industry clusters are the key building blocks of the regional economy. Firms in these clusters succeed not simply because of their own resources, but because they draw competitive advantage from being located in a place that has a strong base of workers and suppliers, and specialized knowledge that can help them succeed in the national and international market.

Economists, geographers and business strategists are increasingly coming to appreciate the central role that regions play in the competitive processes that produce economic growth. Our booming economy in the 1990s was driven by the success of a wide range of clusters, like the very visible rapid growth of the high technology industry, to smaller and less visible elements of success, including a diverse metals and machinery cluster that grew at an annual rate of nearly 3 percent, the nation's leading concentration of microbreweries, steadily expanding nursery trade, and more.

Growth in these industry clusters triggers direct and indirect changes in other parts of the regional economy. The obvious effect of growth is the direct employment impact of new hiring at the firms that are growing and in the construction sector of the economy. Less obvious and harder to track is the residual impact on other parts of the economy. For example, while high tech companies are growing and increasing their payrolls, they are also increasing their purchases of wiring, electronic components, metal cases, plastic injection molded parts, chemicals, wholesaling and shipping, engineering and legal services, banking, advertising and everything else.

Far from being the exception, the clustering of industries in particular metropolitan areas or regions is the norm, across industries. Specialized clusters with the largest impact on the Portland-Vancouver regional economy include:

- **High technology.** Metropolitan Portland-Vancouver's largest traded-sector industry cluster is high technology, including firms that produce electronics, computers, instruments and software. The core of this cluster is firms producing electronic devices. The industry has experienced a strong economic cycle since the national economic peak in 2001, and, while we suffered a powerful downturn, overall the decline in electronics manufacturing in our region has been about half of the decline experienced by the industry nationally.
- **Metals, machinery and transportation equipment.** The metals, machinery and transportation equipment industry consists of firms that produce primary and fabricated metals, tools, a variety of non-electrical industrial machinery, and transportation equipment.

- **Apparel and sporting goods.** The Portland-Vancouver region is home to one of the nation's largest concentrations of firms involved in the design, marketing and distribution of sports apparel. The industry is led by Nike, and also includes Adidas America, Columbia Sportswear and many others. All of these firms manufacture and distribute their products, on a global basis. Important related industries include advertising and public relations and logistics services.

- **Creative services.** Creative services consist of advertising, public relations, film and video, and some related multi-media software production. The industry is composed mainly of smaller firms and many independent, freelance entrepreneurs. Closely related industries include printing and publishing, commercial photography, theatrical production and broadcasting.

- **Food processing.** The region's food processors involve a wide range of activities including the packing and processing operations associated with locally grown produce, a relatively large-scale production. The region has a significant concentration of microbreweries and wineries. Much of the growth in the food processing industry has been in the specialty food, organic and natural food sector. Related and supporting industries include the region's farmer's markets, restaurants and specialty grocery stores.

- **Forest products.** The region's forest products industry consists of firms that manufacture paper and other forest products. This industry is strongly connected to the Pacific Northwest's forest resource base. The region is a center for distribution of wood products produced in the Portland area and elsewhere in the state. There are a number of firms in the region that produce machinery used in the forest products industry. Forest products manufacturing employment has been declining over most of the past three decades.

- **Nursery products.** The largest single segment of the region's agricultural sector is the production and sale of nursery products. The region is home to one of the nation's largest concentration of commercial nurseries producing trees and shrubs for commercial and residential landscaping. Important supporting industries include providers of agricultural services and equipment, plastics (for containers and labels), and transportation services. The industry is composed primarily of a large number of very small firms.

- **Distribution and logistics.** Included in this industry are operations involving trucks, trailers, containers, intermodal transport, warehousing, distribution centers, reloading facilities, ocean-going vessels, barges and air carriers — all of which are components of the complex supply chain network that is fundamental to the movement and distribution of goods for manufacturing, processing, wholesale and retail sectors. Distribution

INNOVATOR PROFILE

Business name: Open Source Development Labs

Owners/Founders: OSDL is a nonprofit organization founded by IBM, HP, CA, Intel and NEC.

Location: Beaverton

Years in business: 5

Product(s): OSDL is a global industry consortium dedicated to accelerating the growth and adoption of Linux and open source software.

Employees: 40+

Where are the markets for your products and how important are local customers for what you produce? Linux and open source software is used by businesses, government and educational institutions throughout the world.

What does your company do to differentiate itself and its products from those of its competitors? OSDL provides a neutral location where vendors, end users and developers come together to discuss technical, legal and business challenges.

How has your business changed in the last 2-5 years? Research firm IDC recently predicted that Linux on servers, desktop and packaged software will reach more than $40 billion by 2009. OSDL has grown from 20 members to more than 70.

Key innovations in your company? OSDL is unique as a vendor-neutral organization bringing diverse groups together to achieve shared goals. OSDL recently launched its Patent Commons Project web site, www.patentcommons.org.

What's the biggest challenge facing your business? The IT industry is a very competitive market. The development of open standards is of great importance.

Can you describe how metro Portland works as a base from which to compete? The Open Technology Business Center and Portland State University's Business Accelerator bring talent, ideas and capital together to support open technology growth.

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and logistics experienced significant growth between 1990 and 2002 and is forecasted to grow in the future. Because of this supply chain role, distribution and logistics provides an important support function to other industry clusters, providing critical and competitive transportation services.

- **Emerging clusters.** In addition to the established industry clusters that can easily be identified in today's employment data, we know that there are a number of promising emerging industry clusters which may become mainstays of the region's economy in the years ahead. The metropolitan region is extending its expertise in semiconductors and software to provide the basis for two emerging clusters: open source technology and nanotechnology. The Open Source Development Lab, supported by major firms in the region and throughout the world, is a global leader in the development and distribution of open source software. ONAMI, the Oregon Nanoscience and Microtechnologies Institute helps support the collaborative development and commercialization of new products and processes, drawing substantially on the knowledge in the region. In addition, the region is the center of activity for a wide range of businesses developing and marketing new products, technologies and services in the areas of sustainability and healthcare. The expansion of these and other emerging clusters will be a key focus of the business plan.

Cluster Employment and Wages, Portland-Vancouver Metropolitan Region, 2004

Cluster	Average Employment	Number of establishments	Total wages	Average annual wages
Traded-sector cluster				
High technology	54,960	2,253	$3,990,127,643	$72,601
Metals, machinery, and transportation equipment	37,780	1,263	$1,792,468,923	$47,444
Forest products	12,576	549	$627,594,183	$49,906
Food processing	10,847	324	$410,110,770	$37,807
Creative services	9,260	1,192	$420,861,543	$45,451
Apparel and sporting goods	8,694	171	$687,325,998	$79,058
Nursery products	6,450	300	$144,801,864	$22,449
*Partially traded-sector clusters**				
Professional and business services	75,236	7,091	$2,666,006,698	$35,435
Food services and accommodations	67,922	4,352	$963,997,906	$14,193
Total	**874,220**	**63,883**	**$33,953,046,124**	**$38,838**

Source: ES-202 data from the Washington and Oregon

*Note: These industry clusters are primarily local, but certain portions of them are traded-sector. More analysis is needed to determine which how much of the employment listed in Table 3-2 can be considered to be in traded-sector industries.

4. The Strategy

KEY INSIGHTS:

- *Strategy is about being different*
- *We should work to develop and build on our existing strengths and specializations*
- *The Oregon Business Plan's "Four P" framework organizes our strategy*
- *The public and private sector each have critical roles to play*

Strategy is About Being Different

The essential element of any strategy is differentiation. Strategy isn't about simply being efficient or cheap; it's about making choices. Strategies necessarily involve trade-offs between competing attributes, that no one competitor can excel in every possible aspect of competition. Consequently businesses and regions have to choose those areas in which they are going to be exceptional and recognize that in other areas their performance might only be acceptable.

Many of our strengths emerge from our technology and our commercial knowledge. As we've noted, the region is a world leader in some things, like the design and production of semiconductors. But other kinds of economically valuable knowledge are more widely dispersed, embedded in the collective knowledge of the region's consumers and citizens.

Strategy isn't about simply being efficient or cheap; it's about making choices.

What Makes This Region Different: Developing Our Distinctiveness

A big part of distinctiveness is industrial specialization — being very good at developing, designing and producing the kinds of products that we specialize in (semiconductors, athletic gear, open source software, trucks, microbrews). We've clearly built up a unique base of knowledge and skills in these areas, and many others. But another key part is the distinctiveness of our region as a place to live.

Innovation isn't just about new products and new technologies. People in this region have been pioneering innovators in every aspect of their lives. The million or so people who get up and go to work every day in this region are not simply hard-working employees and entrepreneurs; they are also homeowners, consumers, hobbyists, parents and citizens. As the old Oregon tourism slogan goes: Things Look Different Here. Our penchant for individuality and experimentation has produced a place that is different in many important respects.

Part of the distinctiveness we simply inherited: our special landscape set in a verdant valley just a short trip from both the Pacific Ocean and Cascade Mountains. We've worked to be good stewards of these extraordinary assets through public policy, business choices and personal commitment. Increasingly, though, what makes our metropolitan area distinctive is our community, our built environment and the way people choose to live here.

There's good evidence that the attitudes, beliefs and behaviors of the metro area's citizens differ from those of other Americans. We're more likely to engage in almost every form of outdoor recreation — from hiking, hunting, camping and fishing to cycling, running and golf — than the typical American. We're avid readers, and support more bookstores than most large metropolitan areas (and watch less television, too). Market research data show that we drink more coffee and more kinds of beer and wine, and have more restaurants per capita than all but two other large U.S. cities (San Francisco and Seattle). We lead the nation in women-owned businesses. There's a vibrant arts and cultural scene throughout the region.

Metropolitan Portland-Vancouver is open to new ideas about how to do things. There is a pervasive spirit of innovation here, one that is a foundation, we believe, for our ability to compete in a global, knowledge economy.

Public and Private Sector Roles

Both the public and the private sectors have critical roles to play in assuring the health of our regional economy. The principal objective of the Regional Business Plan is to provide a means and a forum for developing a widely shared understanding of our economic challenges and opportunities, to outline the steps we need to take to advance the region's economy and to meet periodically to assess our progress.

A regional business plan is necessarily founded on cooperation. Our private sector includes tens of thousands of independent businesses. The public sector is nearly as diffuse, with four counties, two states, dozens of cities, and important state and federal agencies and policies that influence our economy.

The private sector — the region's businesses, entrepreneurs and workers — is at the heart of our economy. They have a critical role to play in the business plan. Their competitive success in the global economy is central to the vision of our business plan. We need businesses and workers to innovate constantly, to collaborate in appropriate efforts to develop their industry clusters. We also need them to help educate all of us about the challenges and successes they are experiencing. And we need them as active participants in the business plan process.

Similarly, the public sector has a vital role and a strong stake in a vibrant regional economy. At the most basic level, the tax revenues to support public services in the region depend on the underlying health of the regional economy. High quality, reliable and efficient public services — including police and fire protection, transportation infrastructure, strong education institutions, cost effective entrepreneurial environment, and a clear and predictable regulatory system — provide a basis for all kinds of economic activity. Like the private sector, the public sector constantly needs to think about change and innovation: How do we adapt to a changing economic environment? And how can we do a better job of providing the public services and a good quality of life on which our economic competitiveness depends?

The Four Ps: Our Strategic Framework

Our strategy is based on four interlocking elements: Pioneering innovation, People, Place, and Productivity. Because people have to think up and use these valuable new ideas that will drive our economy, being smart is an imperative. Not only do we have to educate the people who live here, and do so to an ever-rising standard of excellence, but we must also be a place that attracts talented people from around the world to be a part of our knowledge economy. The quality of place that makes metro Portland-Vancouver a special place to live is essential to retaining and attracting the talented people on which cutting edge companies and successful economies depend.

The Region's Competitive Position

The success of the region's traded-sector relies on innovation, talent and entrepreneurship. The quality of life in the region helps to attract and retain the people who can drive successful innovation. Within this context, this section focuses on the four Ps that lead to regional economic success: Pioneering innovation, Productivity, People and Place.

This section assesses the region's economic competitiveness relative to the other 50 largest metropolitan areas in the United States (metropolitan areas with a population of a million or more as of the 2000 Census).

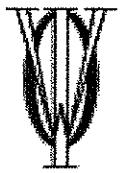
1. Pioneering innovation

The Portland-Vancouver metropolitan region is a highly innovative region. In 1999, the region ranked 28th among U.S. metropolitan areas in the total level of patents issued by the Patent and Trademark Office. By 2003, it ranked fifth. Over the past two decades, patenting in the Portland-Vancouver metropolitan area has increased by 6 percent per year, compared to 2 percent in the nation. This acceleration was especially rapid during the 1990s. Generally, high technology firms have been more prolific patent holders than other firms.

One likely reason for the increase in patent activity in the metropolitan area has been the accelerating levels of research and development spending. Statewide, industrial R&D spending has been increasing more than two-and-a-half times faster than it has nationally.

Venture capital is a critical ingredient in starting a new business. The metropolitan region has seen different phases of venture capital investment. During the mid-1980s, investment in Oregon peaked at about $82.7 million. Until 1996, the region's high tech community experienced a severe drought in venture funding. Only with the beginning of the dot com investment boom in the late 1990s have levels of venture capital investments in the region increased (1999: $482 million, 2000: $1,034 million). In the wake of the recent recession, our region is currently behind in generating and matching necessary venture capital with the needs of our economy.

INNOVATOR PROFILE



Business name: Oregon Iron Works, Inc. (OIW)

Owner: Terry Aarnio

Years in business: Founded in 1944, current ownership since late-1970s

Location: Clackamas; satellite facility in Vancouver

Product(s): Steel bridge girders, hydroelectric systems and hardware, nuclear containment and process equipment, maritime craft, streetcars, specialty equipment and materials.

Employees: 300+

Where are the markets for your products and how important are local customers for what you produce? Products for federal, state and local governments and product delivery throughout the continental U.S. as well as internationally. Local businesses and suppliers are critical.

What does your company do to differentiate itself and its products from those of its competitors? Stringent quality control requirements (including nuclear standards), accurate earned value management reporting systems, and system integration.

How has your business changed in the last 2-5 years? Advanced capability to acquire more technical work. This leveraged OIW's metals fabrication and boat building competencies and integrated complex systems requirements.

Key innovations in your company? OIW has a number of patents related to its SEALION technology.

What's the biggest challenge facing your business? Identifying which new areas of business to pursue and investing in them now. Maintaining a technically capable, adaptable workforce.

Can you describe how metro Portland works as a base from which to compete? Metro Portland provides access to a variety of transportation nodes, which allows us to compete globally as well as nationally.

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www.regionalbusinessplan.com

2. People

The region is continuing to attract new people. The Portland-Vancouver metropolitan area has grown faster than the national average, resulting primarily from migration. Between 1990 and 2004, the Portland-Vancouver metropolitan region grew 3 percent on an average annual basis. This rate was faster than the averages of Washington, Oregon and the nation.

The Portland-Vancouver region has been especially attractive to talented young migrants. Between 1990 and 2000, the region ranked eighth among the 50 largest metropolitan areas in the rate of increase in its 25- to 34-year-old population. The region also ranked fourth among the nation's 50 largest metropolitan areas in the increase in the number of college-educated 25- to 34-year-olds.

Metropolitan Portland-Vancouver's level of college attainment is higher than the national average: 36 percent of the region's adult population (those aged 25 and over) have a four-year college degree or higher level of education, compared to about 30 percent of the U.S. population.

We have a wealth of higher educational institutions in the region. Two large public universities (Portland State University, Washington State University - Vancouver) and a major medical research institution (Oregon Health & Science University/OGI), a growing presence by the University of Oregon and Oregon State University, diverse and accessible community colleges throughout the region, and an array of smaller private colleges with nationally recognized strengths.

About 27 percent of the region's 18- to 24-year-old population is enrolled in colleges and universities, placing the region at a rank of 42 among the 50 largest metropolitan areas in the share of population in this age group enrolled in college.

Our public K-12 education system has historically compared favorably to that of other U.S. metropolitan areas, and statewide education standards have helped ensure high quality. The region's residents remain loyal to their public schools, but funding issues continue to be a concern for the region's Oregon-based school districts.

Compared to other metropolitan areas, the region does not perform well in measures of higher education access and quality. The Portland-Vancouver metropolitan area has a smaller higher education infrastructure compared to other large metropolitan areas in the United States. About 27 percent of the region's 18- to 24-year-old population is enrolled in colleges and universities, placing the region at a rank of 42 among the 50 largest metropolitan areas in the share of population in this age group enrolled in college.

While we have persistently high unemployment, we paradoxically face a labor shortage in those jobs that require high-level skills — blue collar and white collar, degreed and non-degreed. This shortage will be exacerbated with retirement of the baby boom generation and employers throughout the region report insufficient skill sets from among the products of our region's public education system.

3. Place

The Portland-Vancouver region is widely recognized as having an exceptional quality of life. In an international ranking of cities for quality of life by Mercer Human Resources, Portland ranked fifth among all U.S. cities. In another study, the region averages a rank of 22 in 10 different indicators of quality of life: affordable housing, cost of living, home ownership, air and water quality, mobility and traffic congestion, recreation and leisure, crime, school quality, health insurance coverage and health care access.

The Portland-Vancouver region ranks very high in measures of environmental quality. Beacon Hill Institute reports that the metropolitan area ranked third best of the nation's 50 largest metropolitan areas for the fewest number of days with high levels of ozone. Cleveland State University reported that the Portland-Vancouver metropolitan area ranked second among 36 similarly sized metropolitan areas nationally in its composite measure of air quality, a weighted index considering number of days with good air quality and various degrees of unhealthful air quality, and 27th for a combined measure of air and water quality.

4. Productivity

To measure the region's productivity, we examine the impact of infrastructure, the cost of doing business and tax structure on productivity.

The transportation network is important to the Portland-Vancouver metropolitan region because it is relatively isolated from most major markets. Major interstate highways, public transit, intercity and freight rail, an international airport, and water transportation serve the region.

Average commute times in the region are shorter than in most other large metropolitan areas in the United States. According to the 2000 Census, average journey to work times in the region were 24.3 minutes, placing it at a rank of 37 among the nation's 50 largest metropolitan areas in average commute times (i.e. 36 other metropolitan areas had longer average commuting times). However, as our congestion grows, commute times are longer and the costs to our economy are increasing.

The region has an extensive public transit system. Metropolitan Portland-Vancouver's residents report that they are among the nation's best served by transit, and a majority report that they are at least occasional users of the transit system. According to the American Housing Survey, 76 percent of the region's population report that they live in neighborhoods served by transit, and 57 percent of this population report that they are weekly (25 percent) or occasional (32 percent) users of the transit system.

INNOVATOR PROFILE

Business name: Terra Nova Nurseries, Inc.

Owners/Founders: Dan Heims, Ken Brown

Location: Tigard, Canby

Years in business: 13

Product(s): New perennial plants from tissue culture

Employees: 57

Where are the markets for your products and how important are local customers for what you produce? Worldwide, but primarily U.S. and Canada. Local customers are a small percentage of our sales.

What does your company do to differentiate itself and its products from those of its competitors? Our breeding innovations provide 60+ new varieties to North American horticulture each year. We carry over 200 plant patents in the U.S. and Europe, now applying for patent coverage in Japan.

How has your business changed in the last 2-5 years? Strong, but controlled growth. Improvement of our facilities and establishment of foreign labs to handle the increased demand that our own facilities can't handle.

Key innovations in your company? We've created profiles for over 500 plants, allowing us to export formulas and techniques for worldwide multiplication of our plants. Terra Nova was the first nursery to include a CD with their catalog; last year we introduced a companion DVD.

Key breakthrough or turning point in the business: Once we were able to scale our production, sales team and facilities to meet customer demand, our profits increased.

What's the biggest challenge facing your business? Piracy from foreign labs, maintaining customer support and quality with expansion.

Can you describe how metro Portland works as a base from which to compete? Airport and transportation availability, horticultural support in the Canby area, labor availability and banks that understand the nursery business.

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Portland International Airport has nonstop air service to Europe, Mexico and Asia. With two major ports, the region is the 28th largest port in the United States, measured by total volume of freight moved by water in 2003, and the 15th largest port in the nation measured by container volume.

In many areas, local residents and businesses are leaders in the adoption of advancing communications technologies. According to the Beacon Hill Institute, Portland-Vancouver ranks 18th among the nation's 50 largest metropolitan areas in the number of broadband access lines per capita. The region is reported to rank fifth in the nation in Internet household adoption, with 76 percent of households connected. Another study ranks the region fifth for wireless Internet adoption.

Portland-Vancouver is ranked 10th among the 50 largest metropolitan areas in the rate at which businesses deployed enhanced uses of the Internet (requiring complex technical support or third party servicing).

Costs of doing business in the Portland-Vancouver region are roughly comparable to those of most other U.S. cities. Cleveland State University's Center for Economic Development ranked 33 of the nation's largest metropolitan areas according to Economy.com's index of business costs. The Portland-Vancouver region ranked 13th lowest in business costs, with costs about 5 percent lower than the national average.

Tax Foundation rankings for business in the U.S. determine Oregon and Washington to be relatively business friendly. Tax Foundation uses an index composed of five tax system components: the corporate income tax, the individual income tax, the sales or gross receipts tax, the unemployment insurance tax and the state's fiscal balance. On this scale, Oregon ranks 10th among 50 states (i.e. most have a less beneficial business climate). Washington ranks slightly better at ninth. Both states rank in the top quarter of states for lowest corporate tax burden.

Personal income taxes are relatively more burdensome. A 2004 study completed by the government of the District of Columbia compared major U.S. cities according to the tax burden placed on families in various income brackets. The region ranked high on this list; in 2003, the region had either the fifth or sixth highest tax burden in every income category studied. The Tax Foundation ranks Oregon 43rd among the 50 states for individual income tax burden, while Washington (which has no state income tax) ranks first.

According to the 2004 Small Business Survival Index published by the Small Business & Entrepreneurship Council, Oregon's capital gains tax, with a 9 percent top rate (though effective rates vary) puts the state, and much of the region, near the bottom of all states with one of the most burdensome capital gains taxes. With no capital gains tax, Washington ranks at the other end of the spectrum. Conversely, Oregon ranks best in the measure of sales, gross receipts and excise taxes, while Washington — with both sales and gross receipts (B&O) tax — ranks at the bottom.

Because the region includes many different jurisdictions, tax burden can vary greatly within the region. For example, the City of Portland and Multnomah County charge business and personal income taxes experienced no where else in the region, or the two states. The result is a higher cost of business, particularly for small business serving local customers, and residents living in those jurisdictions.

The differing tax environments between the two states and within the region create a complex set of challenges and choices for businesses, with costs varying depending on the size, type and market of the business.

INNOVATOR PROFILE

Business name: Multi-Tek, Inc.

Owners/ Founders: Sara and John Overpeck

Location: Gresham

Years in business: 10

Product(s): Wire harnesses, cable assemblies, sub-assemblies

Employees: 13

Where are the markets for your products and how important are local customers for what you produce? The U.S. is Multi-Tek, Inc.'s largest market. Also currently export to China, Puerto Rico, the Philippines, Malaysia, and Canada.

What does your company do to differentiate itself and its products from those of its competitors? We are ISO 9001:2000 certified, currently undergoing a company-wide Continuous Improvement Plan with the Manufacturing Technical Assistance Production Program sponsored by the U.S. Navy.

How has your business changed in the last 2-5 years? Multi-Tek, Inc. has developed an in-house software application to design, track, test and confirm all manufacturing steps and procedures from purchasing to shipping. We have been certified as a woman-owned minority small business.

Key innovations in your company? Our Cable Tracker database.

Key breakthrough or turning point in the business: Multi-Tek, Inc. is experiencing its biggest breakthrough with investments in leading edge technology and assistance from MTAPP.

What's the biggest challenge facing your business? The cycles of the electronics industry. We are now seeking to develop our other markets – aerospace, military contracts – to counteract this cycle.

Can you describe how metro Portland works as a base from which to compete? As an electronics hub with many manufacturers, it is well suited for a cable assembly manufacturer.

Read more at
www.regionalbusinessplan.com

5. Building the Plan – Process, Partners and Initiatives

PARTNERS

The following partner organizations hosted and sponsored local forums to develop the Regional Business Plan:

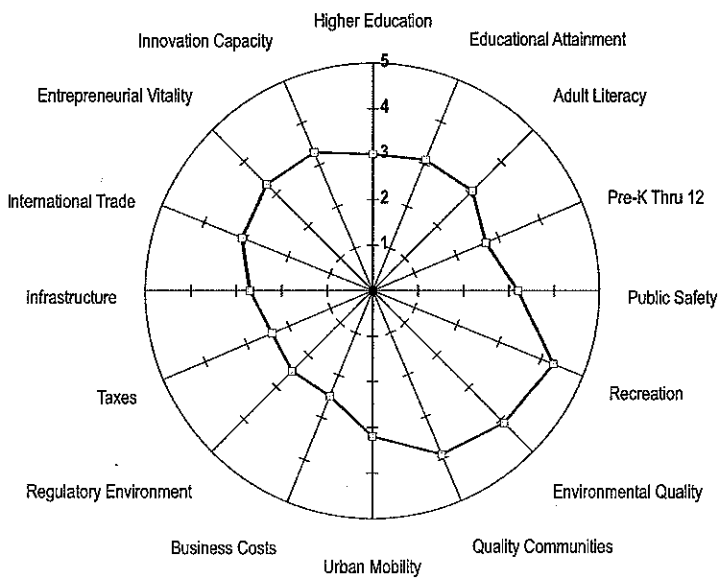
- Beaverton Chamber of Commerce
- Hillsboro Chamber of Commerce
- Columbia River Economic Development Council
- Identity Clark County
- Oregon Association of Minority Entrepreneurs
- East Metro Economic Alliance
- Gresham Area Chamber of Commerce
- West Columbia Gorge Chamber of Commerce
- North Clackamas Chamber of Commerce
- Clackamas County Business Alliance
- Hispanic Metropolitan Chamber of Commerce
- Alliance of Portland Neighborhood Business Associations
- Portland Business Alliance
- East Portland Chamber of Commerce
- Wilsonville Chamber of Commerce

This first Regional Business Plan was developed based on work undertaken on three separate but intersecting paths:

- Business leaders were surveyed through local business forums hosted by chambers of commerce and business alliances, to identify issues and opportunities.
- Public leaders were consulted through a series of interviews and meetings.
- Issue specific task forces investigated four critical areas (education, freight mobility, land use, economic development/cluster competitiveness) to identify and recommend early Regional Business Plan initiatives.

The Regional Business Plan has been developed though a partnership among more than a dozen local business organizations and the Oregon Business Council. Modeled after the Oregon Business Plan, the Regional Business Plan is designed to be a business-driven economic prosperity plan.

The first critical step in the process was determining business leader priorities and concerns. More than a dozen meetings, mostly hosted by local chamber and business associations, were held across the region, and participants were asked to rate the region's performance on a scale based on the Four Ps: People, Place, Productivity and Pioneering innovation. A composite diagram of the findings from these local forums is below.



To view each location's individual response, go to www.regionalbusinessplan.com/perspectives

Remarkably, the results of this exercise varied little from location to location:

- Respondents ranked the region high in terms of Place, particularly in the areas of recreation, environmental quality and quality of life.
- To a somewhat lesser degree, respondents also ranked the region high in the area of Pioneering innovation.
- Responses were mixed in terms of People, with many respondents raising concerns about the quality of education at all levels.
- Respondents ranked the region lowest in the area of Productivity, with concerns about the region's regulatory environment and business costs.

Many common themes emerged during discussions among business leaders:

Education and workforce challenges are top concern

With almost no differentiation among industry, business size or location, workforce challenges were the single biggest issue raised by the forum participants. These concerns were combined with concerns about the educational quality and product of the region's K-20 system. Some specific issues:

- A small landscape contractor in Hillsboro worked unsuccessfully for a year to find and hire a qualified concrete finisher and, ultimately, created its own training program to fulfill the need.
- Many employers, from a variety of industries, voiced frustration about the skill level of workers they did hire. As one Clackamas County manufacturer said, "All I need is someone who can read, communicate, do basic math, pass a drug test and know that electricity is dangerous."
- Many employers were concerned about the large number of jobs that will become vacant as baby boomers retire, and few or no replacement workers are developed.
- The region suffers from an inadequate supply of scientific and technical degreed workers at the Bachelor's, Master's and Ph.D. levels.
- School funding issues are impacting the region's ability to compete for workers. Respondents recognized that sound educational institutions are an important element of a successful economic development strategy.

INNOVATOR PROFILE

Business name: FeatherLite Enterprises LLC

Owners/Founders: Bruce Feathers

Location: NE Portland

Years in business: 7

Product(s): Gloves, safety shoes, equipment and disposables, office supplies, audio & web-based conferencing, soda beverages & bottled water, corporate identity & promotional items, risk management services, software engineering

Employees: 4 full, 2 part-time

Where are the markets for your products and how important are local customers for what you produce? Local and national businesses including Providence, McDonald's, Microsoft and Nike.

What does your company do to differentiate itself and its products from those of its competitors? We offer a broad product selection, national coverage, flexible computer systems design and customized electronic commerce.

How has your business changed in the last 2-5 years? Expanded product and service offerings, e-commerce, accessing and growing regional and national markets for products and services.

Key innovations in your company? Building community investment into the business model to contribute to the revitalization, development and stability of inner-city people and community.

Key breakthrough or turning point in the business: Development of national accounts in the late 1990s led to a diversified product line and new markets.

What's the biggest challenge facing your business? Getting a seat at the contracting table; equity capital.

Can you describe how metro Portland works as a base from which to compete? A good place to operate a business from a livability standpoint, however, we need more help with business tax relief and other ways to attract and maintain viable businesses in the city limits.

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INNOVATOR PROFILE

Business name: Platt Electric Supply, Inc.

Owners/Founders: Harvey Platt, Jay Platt (founded by Issadore & Morrie Platt in 1953)

Location: Beaverton

Years in business: 52

Product(s): Products and services for the electrical construction, commercial, industrial, utility, digital surveillance, and datacomm markets.

Employees: 950

Where are the markets for your products and how important are local customers for what you produce? Eighty-four Platt Locations in six western states, with a dominant market local position.

What does your company do to differentiate itself and its products from those of its competitors? Intensely customer service focused (i.e. 24-hour delivery from Beaverton to any site in six states) with competitive prices.

How has your business changed in the last 2-5 years? Aggressive investments in IT. Platt is a completely paperless operation, pursuing continuous improvement and new efficiencies through applied technology.

Key innovations in your company? Twenty-four hour turnaround for any demand, regardless of location; in-house training program (Platt U); online tools for employees, vendors and suppliers to meet all needs.

What's the biggest challenge facing your business? Finding good people, some challenges finding real estate for new branches.

Can you describe how metro Portland works as a base from which to compete? Platt has a dominant market share in this region, providing a strong base.

Read more at
www.regionalbusinessplan.com

Transportation is costing the region more time and more money

Respondents recognized that transportation bottlenecks, particularly as they impact the movement of freight, have a detrimental impact on the region's economy. Specific findings:

- Congestion during peak traffic times is causing real changes in business practices and productivity. Exacerbating the problem is the expansion of "peak traffic" times from an hour in the morning and the evening to two or more hours in the morning and the evening.
- Increasing freight bottlenecks are causing greater and more costly delays for goods, both incoming and outgoing, particularly impacting the region's manufacturing, nursery and production industries.
- The region has tremendous transportation assets, including the ports, the airports and the freeways (when they are not congested).

The region benefits from a high quality of life

Respondents view the region's well-known quality of life as a valuable asset.

- The region's high standard of living benefits business in the effort to attract and retain workers.
- The region's quality of life is an important factor in the region's important tourism and hospitality industry.

The region values innovation and a strong entrepreneurial spirit

The Portland region is a great place to start and grow business, particularly small businesses, in both the traded and local sectors. But the perception varies from community to community within the region.

- Portland and Multnomah County are perceived to be less conducive to entrepreneurial efforts because of the local regulatory and tax structures. Differences in political values also play a role.
- There is growing recognition of the important role of the arts, both as an economic driver, attractor of talent, and an important ingredient in the "quality of life."
- Increasing diversity is a major priority and asset, across the region, particularly in the development of opportunities for minority populations in business ownership and management.

Business leaders want to participate in economic development

Businesses understand the value of traded-sector "clusters," and, in fact, work naturally as clusters across the region.

- Businesses appreciate the economic development partnership with government.
- Business leaders feel the private sector can contribute to economic development by adding expertise not available in government.
- Business leaders see retention and expansion of small business as a primary value.

Innovation is a constant

Leaders of large and small businesses, in both the traded and local sectors, reported that they have had to recreate their business functions to stay relevant in the global marketplace.

- Many businesses said they are not performing the same functions, or providing the same products, or working the same way, they did even just five years ago.

Health care costs are a great concern

Health care costs are a growing burden for all businesses.

- The burden is especially great for small businesses.
- There is little belief the problem can be solved regionally.

6. Public Leader Partnerships

The following public sector leaders provided their insights and perspectives into the development of the Regional Business Plan:

- Charles Becker, *Mayor, City of Gresham*
- Jim Bernard, *Mayor, City of Milwaukie*
- David Bragdon, *President, Metro Regional Government*
- Tom Brian, *Chair, Washington County Board of Commissioners*
- Craig Dirksen, *Mayor, City of Tigard*
- Gene Grant, *Mayor, City of Happy Valley*
- Judy Hammerstad, *Mayor, City of Lake Oswego*
- Tom Hughes, *Mayor, City of Hillsboro*
- Richard Kidd, *Mayor, City of Forest Grove*
- Diane Linn, *Chair, Multnomah County Board of Commissioners*
- Linda Malone, *Mayor, City of Sandy*
- Keith Mays, *Mayor, City of Sherwood*
- Betty Sue Morris, *Chair, Clark County Board of Commissioners*
- Alice Norris, *Mayor, Oregon City*
- Lou Ogden, *Mayor, City of Tualatin*
- Royce Pollard, *Mayor, City of Vancouver*
- Tom Potter, *Mayor, City of Portland*
- Martha Schrader, *Chair, Clackamas County Board of Commissioners*
- Nabiel Shawa, *City Administrator, City of Washougal*

Modeled after the Oregon Business Plan, the Regional Business Plan was designed to establish a business-driven vision of the region's economy, and a set of initiatives the region's business leaders could pursue together to build infrastructure that supports a sound regional economy and family wage jobs.

At the same time, however, business leaders interviewed for this effort agreed that partnerships with public leaders across the region were a critical element to business success and economic vitality. The region has a rich history of public/private partnerships that helped nourish some of our leading public institutions. The framers of the Regional Business Plan view the public/private partnerships as an important element of the long-term success of this effort.

As the plan was developed, a series of meetings and interviews with elected leaders across the region were held to hear their views of the strengths, weaknesses and opportunities in the region's economy. Like the business leaders, the public sector leaders recognized that communities in the region, although diverse in many ways, are linked economically, and regional strategies that build upon our strengths will improve the ability of the region to be successful in the global marketplace.

Common themes heard from the public sector leaders:

Education is the top concern and the top priority

Many elected leaders cited education and workforce as the issues they hear most frequently from business – both businesses already operating in their communities and those considering locating there.

- There is a widespread concern about the instability of school funding in the Oregon communities, particularly as many schools face growing and more diverse student populations.
- Notably, schools in Vancouver and Clark County are recognized as having fewer challenges, and serve as an economic development asset.
- Community colleges were cited as an asset, and there was hope that the region's four community colleges would work more closely together.
- Workforce readiness for jobs that do not require a four-year degree is a key concern.

Traded-sector industry success is the key driver in a successful economy

Public sector leaders value the role of traded-sector industries in the local economy, although the view varies depending upon the concentration of traded-sector jobs in each community.

- Public leaders point out that there must be recognition that some communities benefit less directly from traded-sector jobs in some clusters.
- Traded sector success requires a healthy small business environment for local entrepreneurs.
- To be successful as a region, every community must share in the success of the economic development strategy.

Downtowns and central cities are important

Regardless of size, every community values its central city, and most community leaders recognized the importance that Portland's downtown plays in the overall regional economy.

- Aggressive downtown redevelopment is occurring throughout the region, and should be part of our economic development strategy.
- Small businesses play a particularly key role in the health of our downtowns.

Infrastructure needs are nearly endless

Infrastructure needs are great and funding is limited for communities in both Oregon and Washington.

- The Urban Growth Boundary (UGB) complicates infrastructure planning in Oregon.
- As the UGB has expanded, there has been inadequate funding for infrastructure, resulting in some potential lost opportunities for economic growth.

Housing affordability is a growing challenge

Housing price increases over the last few years has increased public leader concerns about housing affordability.

- Workforce housing is a particular concern.

Transportation planning and funding practices need to be re-examined

Transportation is a concern on both sides of the Columbia River, and public leaders recognize that freight mobility is a key consideration.

- New funding strategies should be examined, including some that tie costs to demand, such as congestion pricing and tolls.
- The existing transportation infrastructure is over capacity.
- In Oregon, the JPACT model for transportation planning should be re-examined.

"Green" practices are widely embraced

Public sector leaders applaud the growing application of green building and business practices in the region, and view this field as an area of opportunity.

- Sustainable practices are a growing priority both in government and in the private sector in communities of all sizes.

Tourism is a key component of the region's economy

Public sector leaders across the region cited the importance of tourism to their local economy.

- Tourism is particularly important to businesses located in the central cities, and it has a major impact on small businesses.
- Tourism is largely driven by the region's natural assets and strong livability.
- Tourism is also tied to some of our traded-sector industries.

The health care industry is a major contributor of new jobs

While not primarily a traded sector, the health care industry has been a major contributor of new jobs in many of the region's communities.

- Local public leaders see the health care industry as a major local asset.
- Local leaders see crossover from healthcare into bioscience, medical equipment and medical devices as future business and job creation opportunities.

7. The Initiatives

The strength and success of the Oregon Business Plan lies in its straightforward, action-oriented approach. Each year, the Plan lays out a set of measurable, action-oriented initiatives addressing specific issues identified as important in creating a strong and sustainable state economy.

The Regional Business Plan has been designed along the same principles. At the beginning of the planning process, the Steering Committee identified four key areas that required immediate, region-wide attention. Those areas were:

- Education K-20
- Freight Mobility
- Land Availability
- Economic Development/Cluster Competitiveness

The Steering Committee recognized that this was not an all-inclusive list. Many businesses raised concerns related to taxation and regulatory environment, issues that clearly need region-wide study. The Steering Committee, however, determined that, for the first year, initiatives would focus on the initial four areas. In the months and years ahead, additional focus would be placed on other issues, including taxation and regulation, which critically impact economic prosperity and job development.

Task forces were appointed to look into each of these issue areas in depth, and recommend action-based initiatives. The task forces spent several months gathering data and reviewing existing programs. Following is a summary of the task force reports, including their action initiatives. Full copies of the task force reports are available at www.regionalbusinessplan.com/initiatives.

At the end of 2006, the Regional Business Plan Steering Committee will report on progress made toward each of these initiatives.

INNOVATOR PROFILE

Business name: Celilo Group Media, Inc.

Owners/Founders: Nik Blosser, President; Tom Koehler, Owner

Location: SE Portland

Years in business: 6

Product(s): Monthly business magazine *Sustainable Industries Journal*; affiliated print, on-line publications; annual healthy living resource guide/coupon books; green marketing consulting services.

Employees: 19

Where are the markets for your products and how important are local customers for what you produce? Chinook Book appeals to the "healthy lifestyle" consumer. Business publications and services appeal to businesses in sustainable industries – green building, clean energy, recycling markets and organic food. The local customer base was critical to getting our business started and on a sound footing.

What does your company do to differentiate itself and its products from those of its competitors? We focus on healthy lifestyle (Chinook Book) and sustainable business enterprise. We strive for transparency, authenticity and integrity in our writing and journalistic reporting.

How has your business changed in the last 2-5 years? We have grown substantially; opened offices in Seattle and St. Paul, Minnesota. We have worked on improving our internal sales and staffing systems to prepare for further expansion.

Key innovations in your company? An understanding of both healthy lifestyle consumers and sustainable businesses and their needs.

What's the biggest challenge facing your business? Financing for expansion.

Can you describe how metro Portland works as a base from which to compete? For targeting healthy lifestyle consumers and sustainable businesses across the U.S., there is no better locational "brand" to be associated with than Portland.

Read more at **www.regionalbusinessplan.com**

EDUCATION WORKFORCE TASK FORCE ROSTER

- Judy Peppler, *Qwest - Chair*
- Diana Daggett, *Intel*
- Eileen Drake, *PCC Structurals*
- June Chrisman, *Providence Health Systems*
- Carol Morse, *Portland General Electric*
- Duncan Wyse, *Oregon Business Council*
- Gregg Kantor, *NW Natural*
- Bill Scott, *Flexcar*
- Diane Vines, *Oregon Science and Technology Partnership*
- Jim Francesconi, *Haglund, Kelley, Horngren, Jones, Wilder LLP*

Staff: Duke Shepard, *Portland Business Alliance*

Education/Workforce

Globalization requires a much tighter linkage between education and business than ever before. While this is more obvious in traditional, high technology positions, it is equally true across most other sectors of the economy. Our current education system is not structured or funded to meet this challenge.

To be successful, the region must create stronger connections between its educational systems, especially its high schools, and the workforce needs of the future. We must make high school a place where learning is an applied portion of a continuum on the way to quality jobs and lifelong learning. Our education delivery system can and must be more relevant and better connected to the economy, providing better student options.

Also, we must be a region that produces the newest and best ideas, innovations, products and businesses. Our region has substantial and improving public higher education assets: Oregon Health & Science University/Oregon Graduate Institute, Portland State University, Washington State University – Vancouver and a growing regional presence by the University of Oregon and Oregon State University. If we are to compete successfully, the role of our public higher education institutions as fundamental economic drivers must be treated as a top priority by both the private and public sectors.

Underlying each level of education, particularly on the Oregon side of the four-county region, is the issue of funding. There is currently a great deal of activity occurring at the state (Oregon), regional and local levels in examining and testing options to better fund our K-12 education system. A duplicative or competing effort to determine a solution within the Regional Business Plan would be neither useful nor productive. Likewise, no specific, viable, consensus-funding proposal emerged in the time this task force conducted its work.

The task force focused on two specific areas to improve the connection between regional workforce needs and the education systems, and recommended action initiatives for each:

1. **Prepare students to meet the workforce demands of the region's leading traded-sector industry clusters.**

   Initiatives:

   ✓ Develop a "clearinghouse" to more efficiently and productively link businesses to schools and improve communication, coordination and collaboration among business and education.

   ✓ Support and promote major structural high school reforms and innovations that create relevance, set high skill standards, provide options for students, and connect to the workforce needs of the region's employers, particularly those in the traded sectors. Examples include E3's Small Schools Project, the Center for Advanced Learning, Sabin-Schellenberg Center.

- ✓ Support and proactively assist districts in re-thinking and re-structuring the junior and senior years for better seamlessness and relevance between graduation, the workforce and post-secondary education.
  - Develop career-focused specializations among high schools to provide choice and options for students, with internship opportunities with the region's businesses.
- ✓ Provide 500 teacher, counselor and administrator internships across the region in the next two years with particular focus on internships in traded sector industry companies.
- ✓ Pursue co-location strategies between local school districts and community colleges during expansion; better use of existing facilities among schools, districts, and community colleges.
- ✓ Encourage and support Entrepreneurial Education programs at community colleges, universities and community organizations. These are programs that teach entrepreneurs the skills required to start and grow thriving business enterprises that create jobs for the region.
- ✓ Support the work of the Chalkboard Project in building consensus solutions to improve schools and address statewide issues that impact local districts, including stable and adequate funding.

2. Increase traded-sector research and commercialization capacity at the region's public institutions of higher education.

Initiatives:

- ✓ Increase the traded-sector research and commercialization capacity at the region's public institutions of higher education – OHSU/OGI, PSU, and WSU-Vancouver. This requires expansion of graduate programs, close interaction between industry and academia on innovative ideas and products, and support from industry in attracting the leading students and faculty to our institutions.
- ✓ Promote and support Portland Community College's Center for Business and Industry and Clark Community College's Corporate and Community Education facility.
- ✓ Establish the Center for Manufacturing and Infrastructure Engineering as proposed by the Manufacturing 21 Coalition.
- ✓ Work with the Partners for Diversity on programs and initiatives to increase opportunities for ethnic minorities and improve the overall diversity of the region's workforce to more closely reflect the population.

TRANSPORTATION/ FREIGHT MOBILITY TASK FORCE ROSTER

- John McKibbin, *Vancouver Chamber – Chair*
- Ann Gardner, *Schnitzer Investment Corp.*
- Gary Eichman, *Oregon Transfer*
- Grant Armbruster, *Columbia Sportswear*
- Jeanine Wright, *CH2M Hill*
- John Aguirre, *Oregon Association of Nurseries*
- Jonathan Schlueter, *Westside Economic Alliance*
- Lee Johnson, *Jet Delivery*
- Monica Isbell, *Starboard Alliance*
- Sorin Garber, *Garber Consulting*
- Susie Lahsene, *Port of Portland*

Staff: Marion Haynes, *Portland Business Alliance*

Freight Mobility

The movement of goods is critical to the region's economy and quality of life. At some point, everything we buy, sell and consume begins and ends as freight that must make its way through our regional transportation system, from the first points of production, to the distribution centers, to the retail outlets and to the customers. The efficient and reliable movement of freight keeps our economy strong and consumer costs down.

The efficient operation of our regional freight transportation network, however, is being threatened. Increases in traffic congestion and freight tonnage, as well as freight transportation investments made by competing regions, are undermining our region's ability to compete globally. Unless we act now to preserve and enhance our existing freight transportation network, our region will suffer economically, impacting our quality of life.

A recently completed study, "The Cost of Congestion to the Portland Economy," found that our region's economy is highly dependent on efficient and reliable transportation connections and that increasing congestion is negatively impacting the region's competiveness. Failure to invest adequately in transporation improvements results in potential losses of $844 million annually and 6,500 jobs by year 2025. Additional investments in transportation infrastructure generate a return of $2 of every dollar spent.

There is no silver bullet for strengthening the region's multi-modal freight transportation infrastructure. Efforts must be made over several years to expand and enhance the capacity of rail, water, air and truck modes. As a starting point, the task force recommends the following action steps for the region:

- ✓ Convene a private sector Freight Mobility Coalition to advocate for transportation projects and funding to improve business competitiveness.
- ✓ Develop transportation policies and projects that support business needs and the region's economic development objectives.
- ✓ Ensure the transportation funding process includes business-supported and business-needed transportation investments. Consideration should be given to the following criteria:
  - Economic return on public investment (i.e. benefit/cost analysis of primary and secondary benefits or growth in gross domestic product);
  - Jobs produced (and saved) in the region's key traded-sector industries by investments in transportation;
  - Ensure investments in transportation strengthen the region's multi-modal network, connections to domestic and international markets, and leverages private sector investment;
  - Relationship to the region's economic development objectives;
  - Provide more direct connections between industrial land uses and freight transportation system.

Land Use

Business decisions about where to locate are being made on highly compressed timelines. Traded sector businesses are typically highly mobile and can locate anywhere in the world. They can and will choose to locate in the Portland/Vancouver region based on our ability to support their needs.

But in the region, on the Oregon side in particular, land-use laws adopted in the early 1970s often drive decisions that do not meet the current needs of the region's growing economy. An adequate inventory of land suitable for the expansion of new and existing businesses is a critical element of a competitive regional economic development strategy. The consequences of failing to provide adequate supply are real: The Regional Industrial Lands Study, which focused on the lack of short-term industrial land, found that about one-half of the potential job growth in the study area could be "leaked" to other regions because of a lack of land-supply.

There are a number of issues in the land use system that should be addressed. Grouped into three categories they are:

- Policy/process
- Infrastructure
- Land supply

The following initiatives address those issues.

Initiatives:

✓ Enact policy changes that will enable land use decisions to be responsive to market factors and promote a healthy economy.

- Initiate rulemaking to provide for subregional analysis and implement those rules during the 2007 UGB expansion process.
- Initiate amendments to ORS 197.298[1] to revise hierarchy in order to balance the needs of all employment sectors.
- Within the 2040 Plan Update, develop a 50-year supply of urban and rural reserves for use when the market justifies. Require comprehensive planning for urban reserves to occur that includes a schedule for annexation before bringing lands into the UGB.

[1] ORS 197.298 currently provides that land must be included within a UGB according to the following priorities: (a) land that is designated urban reserves; (b) land adjacent to an urban growth boundary that is identified as an exception area or nonresource land. Second priority may include resource land that is completely surrounded by exception areas unless such resource land is high-value farmland; (c) land designated as marginal land; (d) land designated in an acknowledged comprehensive plan for agriculture or forestry, or both. Land of a lower priority may be added to the UGB if land of a higher priority cannot accommodate the identified land needs.

LAND USE TASK FORCE ROSTER

- Steve Clark, *Community Newspapers – Chair*
- Beverly Bookin, *The Bookin Group*
- Cindy Catto
- Corky Collier, *Columbia Corridor Association*
- Darin Hirte, *Brockamp Jaeger*
- Dave Robertson, *Portland General Electric*
- Ed Trompke, *Jordan Schrader*
- Hiroshi Morihara, *Persimmon Group*
- Jerry Olson, *Olson Engineering*
- Jonathan Williams, *Intel*
- Lise Glancy, *Port of Portland*
- Mark Clemons, *Group MacKenzie*
- Peter Finley Fry, *AICP*

Staff: Marion Haynes, *Portland Business Alliance*
Cindy Catto

- Link Goal 14, Urbanization, Goal 9, Economic Development, and Goal 11, Public Facilities and Services, in a more explicit manner to ensure UGB expansions support the achievement of regional economic development objectives.
- Ensure that the 2040 Update includes a market sensitive look at the need and location for industrial land.

✓ Enact process changes that will accelerate decision-making and provide flexibility in the land use system.

- Streamline judicial review of UGB decisions so that resolution of expansion areas occurs in a more timely fashion. Options may include, but are not limited to, changing the standard of review to clearly erroneous, limiting standing, and adopting elements of the Energy Facilities Siting Council model.
- Change UGB expansion process from five-year periodic review to allow for scenario planning, which would identify a number of potential future outcomes and allow for a streamlined, market-based approach to UGB expansions.

✓ Prioritize infrastructure improvements that support regional economic development strategies both inside the UGB and within expansion areas.

- Develop and have local and regional jurisdictions utilize a decision-making matrix to guide investments to ensure infrastructure (transportation, utilities, etc.) has adequate capacity to serve industrial and employment land.

✓ Identify funding mechanisms for planning so that regional UGB expansion areas can be put to productive use in a timely manner.

- Explore regional funding strategies, such as tax increment, windfall taxes in expansion areas, and local pooled funds through IGAs.

✓ Ensure adequate infrastructure capacity to serve employment land needs throughout the region.

- Allocate existing resources to address the priorities identified in the decision-making matrix to meet the region's economic development objectives. Evaluate needed infrastructure to accommodate the region's economic development objectives and identify missing elements.
- Expand existing private, local, regional, state and federal funding for infrastructure.

✓ Ensure a competitive, development-ready supply of land that supports

regional economic development objectives.

- Certify 100 sites over five acres as "shovel ready" for traded sector businesses by December 2007.
- Develop and/or strengthen industrial sanctuaries, particularly in areas where location or transportation features are irreplaceable, such as the Portland Harbor and freeway interchanges.
- Create a real-time inventory of industrial sites that can be updated on a continuous basis; the City of Portland's Industrial Districts Atlas may provide guidance on the types of information that should be included.

✓ Implement policies and programs to promote redevelopment and the use of land within the UGB.

- Expand the use of the Oregon Department of Environmental Quality's (DEQ) Prospective Purchaser Agreements (PPA), which limit liability for good faith brownfields purchasers, and better integrate the DEQ's PPA program with the Environmental Protection Agency's (EPA) PPA program.
- Implement recommendations in the Brownfield/Greenfield Development Cost Comparison Study, with a priority on public assistance for risk reduction and site characterization assistance.
- Develop tools and implement programs to assist with the industrial redevelopment of key sites.

ECONOMIC DEVELOPMENT/CLUSTER COMPETITIVENESS TASK FORCE ROSTER

- Randy Miller, *The Moore Company – Chair*
- Joe D'Alessandro, *Portland Oregon Visitors Association*
- Jim Mark, *Melvin Mark Properties*
- Donald L. Krahmer, Jr., *Schwabe, Williamson, Wyatt, PC*
- Marty Brantley, *Private Investor/Former Director, Oregon Economic and Community Development Department*
- Mark Rosenbaum, *Rosenbaum Financial*
- Craig Wessel, *Portland Business Journal*
- Andy MacRitchie, *PacifiCorp*
- Roger Qualman, *Norris, Beggs, Simpson (Vancouver)*
- Scott Langley, *Ashforth Pacific*

Staff: Charlie Allcock, *Portland General Electric*
Duke Shepard, *Portland Business Alliance*

Economic Development/Cluster Competitiveness

Do we want to be the best in the nation when it comes to the work of retaining, expanding, starting and recruiting traded sector businesses?

While there is excellent economic development work occurring throughout the region, much of it in the public sector, there is more we can do to be the best and most innovative in meeting the economic development challenges presented by a global economy. This requires an increased level of private sector leadership and resources, and improved economic development partnerships with the public sector.

The region should adopt three economic development priorities. In order, they are:

1. We must focus on retention and expansion of existing traded sector businesses in the region. We must recognize that the greatest share of future job growth will come from businesses, large and small, already located in the region. Particular focus must be placed on retention of anchor businesses in clusters, because they create momentum for start-up and spin-off opportunities.
2. A strong entrepreneurial environment for small businesses, start-up businesses and spin-offs from existing clusters should be fostered. We must be a great region for starting, growing and expanding a business.
3. Recruitment efforts must focus on traded sector businesses not already in the region. Recruitment and marketing are the areas with the least resourced and organized private sector activity. The region is still perceived as relatively unfriendly to business at the national level. An aggressive recruitment and marketing campaign is necessary to conquer this perception.

The following initiatives should be considered a starting point for discussion on how we can more effectively create family-wage jobs and support economic growth in the region.

Initiatives:

✓ Build public sector awareness of regional business needs and support business retention through direct contact with regional business leaders.

- Encourage and assist elected officials in the region to visit one traded sector business every month, to learn about specific business and industry needs, gain insight into the business environment and industry trends, and to align public sector actions and resources to strengthen the region's traded sector businesses.
- Public and private representatives of the region's economic development agencies and interests should develop an annual coordinated retention and expansion work plan targeting specific clusters and companies.

- ✓ Representatives of the region's public-sector economic development agencies, with support and assistance from the private sector, should strive to visit every traded sector business in the region at least once a year.
- ✓ Develop targeted regional cluster-based innovation strategies and initiatives with the Oregon Innovation Council, Oregon Business Council Oregon Clusters Project, and SW Washington High-Tech Council.
- ✓ Capitalize and promote University Venture Seed Funds at Oregon University System institutions and Oregon Health & Science University, as established by Oregon Senate Bill 853 and explore access to similar resources in Washington.
- ✓ Support Oregon Investment Fund initiatives to bring additional venture capital presence to Oregon and the Portland-Vancouver region. Foster increased private sector regional industry partnerships and collaboration with the regional and national venture capital community to encourage increased corporate innovation and technology commercialization in targeted areas.
- ✓ Support micro lending and small business funding programs designed to fund start up business ventures in the Portland-Vancouver area.
- ✓ Establish stronger ties to Pacific Northwest National Labs in Richland, WA to support additional innovation and technology commercialization and collaboration.
- ✓ Seek coordinated federal funding strategies that support targeted cluster development.
- ✓ Form a privately-funded and privately-led regional economic development entity dedicated to traded sector marketing and recruitment.
    - Appoint a Planning Board to design and initiate creation of the private entity, including definition of partnerships with public sector agencies engaged in economic development.
    - Draft Mission: Assist leading edge, innovative, traded-sector companies and entrepreneurs in the region, the nation and around the world in choosing the metropolitan Portland region as the place to grow, start and locate their business.
    - This entity will coordinate closely and work collaboratively with the public and private sector economic development professionals and programs across the region including the Portland Development Commission. In order to add value, all of our regional efforts must be highly organized and well executed through collaborative partnerships and leveraging of resources.

8. Next Steps

As with the Oregon Business Plan, the real test of this regional effort will be its success in implementing the initiatives listed within it. This effort will require growing and sustaining the partnerships that brought this initial plan together, and building new partnerships between business and government that are tailored to meeting the priorities of the region.

At the end of 2006, we will publish a report on our progress toward implementing each of the initiatives.

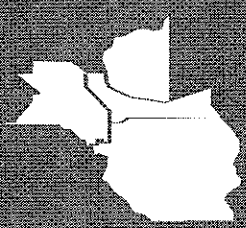
While this first round of initiatives must now be implemented, the next phase of the business plan must also begin. Already identified, prioritized, and placed on the drawing board for the next phase of the Regional Business Plan are initiatives focused on: Regional Branding; Access to Capital; Regulation; Taxes and Fees; Regional Cluster-Based Innovation Strategies. As task forces are formed behind these initiative areas, business leaders from across the region will lead the way in developing the action plans for improved regional prosperity.

Reports to Reference

- Westside Economic Strategy
  www.westside-alliance.org/westside-story-2/Westside_Econ_Study-2.pdf
- CEDS Document
  www.portlandregion4biz.com/ceds/ceds-report-final_8-1-05.pdf
- Young and Restless Study
  www.restlessyoung.com
- Oregon Business Plan
  www.oregobusinessplan.org
- Portland Economic Development Strategy
  www.pdc.us/programs/ed/strategy/index.html

Exhibit J

Ordinance No. 07-1148
Attachment No. 2



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KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING
610 SW Alder Street, Suite 700, Portland, OR 97205 P 503.228.5230 F 503.273.8169

MEMORANDUM

Date: June 12, 2007 Project #: 7670

To: Anthony J. Butzek, PE, PTOE
Metro
600 NE Grand Avenue
Portland, OR 97232-2736

cc: Ty Wyman, Dunn Carney Allen Higgins & Tongue LLP
Jonathan David, City of Gresham

From: Chris Brehmer, P.E. and Andrew Ooms

Project: Brickworks Village

Subject: Title 4 Map Amendment/Traffic Impacts Supplemental Information

This memorandum documents that the proposed Brickworks Village Project does not reduce off-peak performance on Major Roadway Routes and Roadway Collectors as shown on Metro's 2004 Regional Transportation Plan (RTP) and the 1999 Oregon Highway Plan (OHP) below the applicable RTP and OHP operations standards.

The transportation impacts of the proposed Brickworks Village project are documented in the March 2007 Transportation Impact Analysis report prepared by Kittelson & Associates, Inc. for the development. The March 2007 report documented that all of the study intersections (intersections that were required to be studied by the City of Gresham and the Oregon Department of Transportation (ODOT)) operated acceptably upon build-out of the proposed residential development. No mitigations were required on ODOT facilities or along SE Hogan Avenue to meet the 1999 Oregon Highway Plan operating standards.

In accordance with a Metro staff request, 72-hour traffic volume tube counts were conducted on SE Hogan Avenue (north and south of SE Palmquist Road) and on US 26 (south of SE Palmquist Road) over three weekdays in June 2007. These volumes were used to create daily traffic profiles, which established that the existing traffic volumes on these roadway facilities are highest during the during the weekday evening peak period (4:00 – 6:00 p.m.). The daily volume profiles for the three count locations are shown in Exhibits 1, 2, and 3. The traffic volume tube counts are included in Attachment A.

Exhibit 1

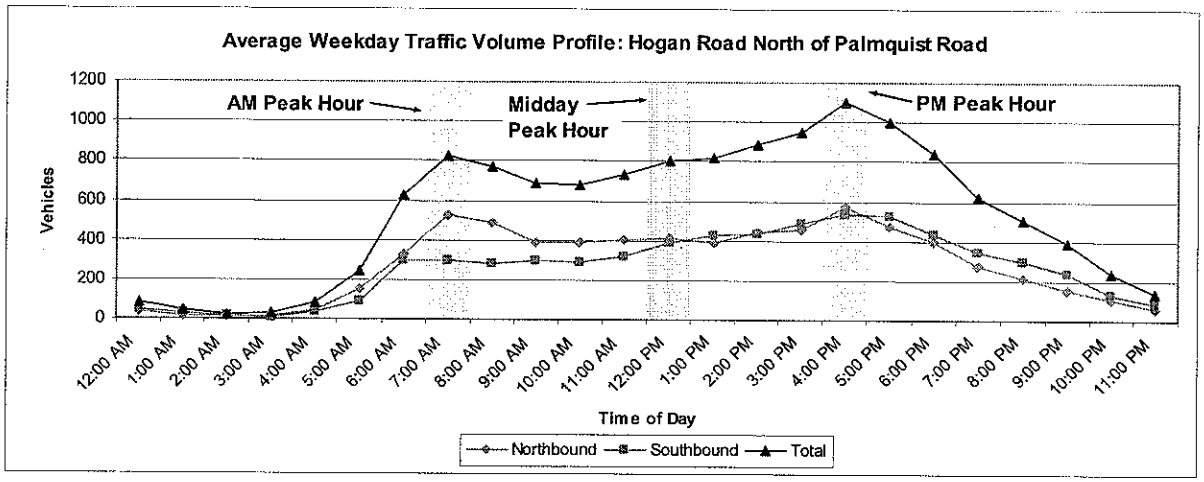


Exhibit 2

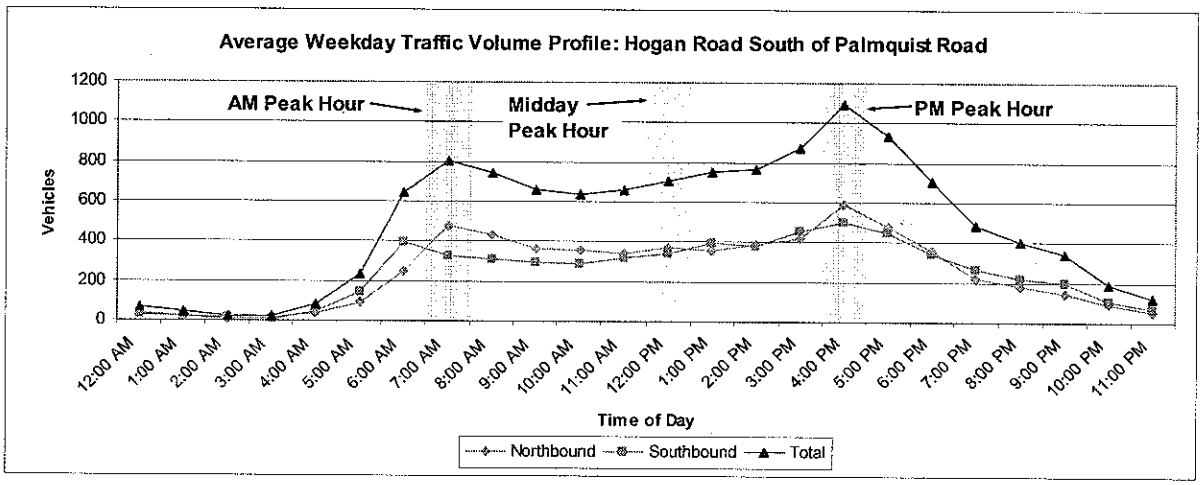
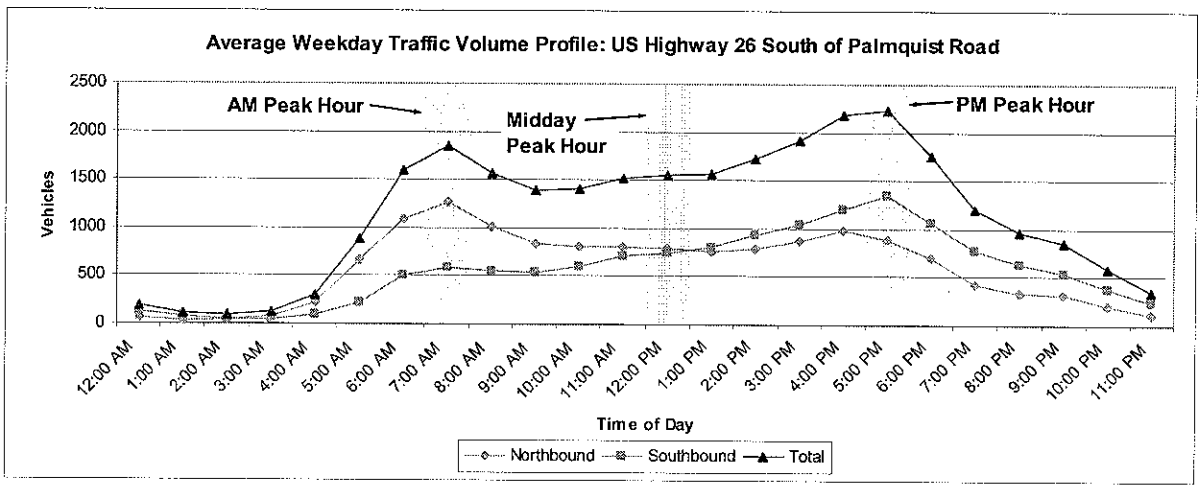


Exhibit 3



As indicated in the three exhibits, the weekday p.m. peak hour is the period during which the highest levels of travel demand occur at each traffic count location. The roadway volume profiles establish that total traffic volumes on SE Hogan Road and US 26 are lower during the off-peak periods as compared to the weekday p.m. peak hour. Given that weekday p.m. peak hour operating standards were met at the study intersections (as documented in the March 2007 Transportation Impact Analysis Report), we believe that it can be reasonably concluded that the study intersections will operate acceptably during off-peak periods.

We trust that this information adequately addresses your need for documentation on this subject.

ATTACHMENTS

Attachment A: Traffic Volume Tube Counts

Attachment A

Traffic Volume Tube Counts

LOCATION: SE Hogan Road Northbound 300 feet north of Palmquist

QC JOB #: 10261303

DIRECTION: NB CITY: Gresham STATE: Oregon

Start Time	Mon 4-Jun-07	Tue 5-Jun-07	Wed 6-Jun-07	Thu 7-Jun-07	Fri 8-Jun-07	Average Weekday Hourly Traffic	Sat 9-Jun-07	Sun 10-Jun-07	Average Week Hourly Traffic	Average Week Profile
12:00 AM		38	39	37	42	39	57	63	46	
01:00		20	16	19	25	20	39	26	24	
02:00		16	9	12	16	13	33	33	19	
03:00		15	19	19	16	17	18	21	18	
04:00		53	46	49	51	49	26	18	40	
05:00		153	166	145	148	153	62	34	118	
06:00		346	314	327	309	324	121	58	245	
07:00		**543**	**536**	**514**	**477**	**517**	195	116	**396**	
08:00		520	502	443	434	474	272	210	396	
09:00		400	374	398	372	386	343	329	369	
10:00		412	392	355	354	378	**399**	**334**	374	
11:00		426	386	409	389	402	374	332	386	
12:00 PM		414	412	409	399	408	**399**	**409**	407	
01:00		346	454	374	398	393	356	365	382	
02:00		497	440	397	438	443	361	338	411	
03:00	485	458	458	449	461	462	393	365	438	
04:00	**595**	**617**	**594**	**506**	**535**	**569**	375	404	**518**	
05:00	500	472	515	424	458	473	354	379	443	
06:00	435	414	415	369	414	409	351	285	383	
07:00	223	267	302	251	303	269	237	215	256	
08:00	193	206	210	220	295	224	202	201	218	
09:00	154	153	164	153	221	169	181	131	165	
10:00	92	88	114	121	163	115	130	90	114	
11:00	56	55	53	64	84	62	114	54	68	
Day Total	2733	6929	6930	6464	6802	6768	5392	4810	6234	
% Weekday Average	40.4%	102.4%	102.4%	95.5%	100.5%					
% Week Average	43.8%	111.2%	111.2%	103.7%	109.1%	108.6%	86.5%	77.2%		
AM Peak		7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	10:00 AM	10:00 AM	7:00 AM	
Volume		543	536	514	477	517	399	334	396	
PM Peak	4:00 PM	4:00 PM	4:00 PM	4:00 PM	4:00 PM	4:00 PM	12:00 PM	12:00 PM	4:00 PM	
Volume	595	617	594	506	535	569	399	409	518	

Counter Comments: Metro is requiring a 72-hour count (Tuesday-Thursday)

Report generated on 6/12/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

LOCATION: SE Hogan Road Northbound 300 feet north of Palmquist

QC JOB #: 10261303

DIRECTION: NB CITY: Gresham STATE: Oregon

Start Time	Mon 11-Jun-07	Tue	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM	37					37			37	
01:00	18					18			18	
02:00	8					8			8	
03:00	17					17			17	
04:00	41					41			41	
05:00	165					165			165	
06:00	301					301			301	
07:00	**500**					**500**			**500**	
08:00	437					437			437	
09:00	361					361			361	
10:00	334					334			334	
11:00	370					370			370	
12:00 PM	**361**					**361**			**361**	
01:00										
02:00										
03:00										
04:00										
05:00										
06:00										
07:00										
08:00										
09:00										
10:00										
11:00										
Day Total	2950					2950			2950	
% Weekday Average	100.0%									
% Week Average	100.0%					100.0%				
AM Peak	7:00 AM					7:00 AM			7:00 AM	
Volume	500					500			500	
PM Peak	12:00 PM					12:00 PM			12:00 PM	
Volume	361					361			361	

Counter Comments: Metro is requiring a 72-hour count (Tuesday-Thursday)

Attachment 11

Ordinance No. 07-1148

SUMMARY - Volume Data (Weekend)

LOCATION: SE Hogan Road Northbound 300 feet north of Palmquist
QC JOB #: 10261303
DIRECTION: NB CITY: Gresham STATE: Oregon DATE: Jun 9 2007 12:00AM - Jun 10 2007 11:59PM

Start Time	Sat	Sun	Avg Weekend Hourly Traffic	Average Weekend Profile
12:00 AM	57	63	60	
01:00	39	26	32	
02:00	33	33	33	
03:00	18	21	19	
04:00	26	18	22	
05:00	62	34	48	
06:00	121	58	89	
07:00	195	116	155	
08:00	272	210	241	
09:00	343	329	336	
10:00	**399**	**334**	**366**	
11:00	374	332	353	
12:00 PM	**399**	**409**	**404**	
01:00	356	365	360	
02:00	361	338	349	
03:00	393	365	379	
04:00	375	404	389	
05:00	354	379	366	
06:00	351	285	318	
07:00	237	215	226	
08:00	202	201	201	
09:00	181	131	156	
10:00	130	90	110	
11:00	114	54	84	
Day Total	5392	4810	5096	
% Weekday Average				
% Week Average	105.8%	94.4%		
AM Peak Volume	10:00 AM 399	10:00 AM 334	10:00 AM 366	
PM Peak Volume	12:00 PM 399	12:00 PM 409	12:00 PM 404	

Counter Comments: Metro is requiring a 72-hour count (Tuesday-Thursday)

Report generated on 6/12/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Attachment 11
Ordinance No. 07-1148

LOCATION: SE Hogan Road Southbound 300 feet north of Palmquist

QC JOB #: 10261304

DIRECTION: SB CITY: Gresham STATE: Oregon

Start Time	Mon 4-Jun-07	Tue 5-Jun-07	Wed 6-Jun-07	Thu 7-Jun-07	Fri 8-Jun-07	Average Weekday Hourly Traffic	Sat 9-Jun-07	Sun 10-Jun-07	Average Week Hourly Traffic	Average Week Profile
12:00 AM		37	52	42	66	49	95	86	63	
01:00		25	23	35	34	29	54	36	34	
02:00		15	13	15	30	18	30	44	24	
03:00		13	10	6	12	10	13	18	12	
04:00		35	35	39	33	35	20	20	30	
05:00		97	95	84	87	90	55	37	75	
06:00		293	305	298	284	295	95	37	218	
07:00		**311**	279	295	268	288	132	63	224	
08:00		301	286	270	312	292	186	115	245	
09:00		294	294	307	291	296	272	216	279	
10:00		297	291	291	**338**	304	290	**280**	297	
11:00		310	**348**	**312**	330	**325**	**355**	280	**322**	
12:00 PM		368	396	399	372	383	347	**413**	382	
01:00		416	433	440	428	429	391	377	414	
02:00		443	433	442	467	446	374	375	422	
03:00	478	498	508	461	540	497	**448**	365	471	
04:00	**559**	496	**554**	**546**	521	535	424	403	**500**	
05:00	551	**534**	535	514	**557**	**538**	356	377	489	
06:00	450	457	438	423	541	461	317	326	421	
07:00	294	364	345	323	355	336	281	272	319	
08:00	278	257	323	305	288	290	230	223	272	
09:00	214	228	213	266	270	238	201	163	222	
10:00	100	131	134	134	226	145	152	126	143	
11:00	75	71	75	105	126	90	102	64	88	
Day Total	2999	6291	6418	6352	6776	6419	5220	4716	5966	
% Weekday Average	46.7%	98.0%	100.0%	99.0%	105.6%					
% Week Average	50.3%	105.5%	107.6%	106.5%	113.6%	107.6%	87.5%	79.0%		
AM Peak		7:00 AM	11:00 AM	11:00 AM	10:00 AM	11:00 AM	11:00 AM	10:00 AM	11:00 AM	
Volume		311	348	312	338	325	355	280	322	
PM Peak	4:00 PM	5:00 PM	4:00 PM	4:00 PM	5:00 PM	5:00 PM	3:00 PM	12:00 PM	4:00 PM	
Volume	559	534	554	546	557	538	448	413	500	

Counter Comments: Metro is requiring a 72-hour count (Tuesday-Thursday)

Report generated on 6/12/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Attachment 11
Ordinance No. 07-1148

LOCATION: SE Hogan Road Southbound 300 feet north of Palmquist

QC JOB #: 10261304

DIRECTION: SB CITY: Gresham STATE: Oregon

Start Time	Mon 11-Jun-07	Tue	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM	45					45			45	
01:00	25					25			25	
02:00	23					23			23	
03:00	6					6			6	
04:00	35					35			35	
05:00	91					91			91	
06:00	283					283			283	
07:00	267					267			267	
08:00	290					290			290	
09:00	**304**					**304**			**304**	
10:00	297					297			297	
11:00	303					303			303	
12:00 PM	**324**					**324**			**324**	
01:00										
02:00										
03:00										
04:00										
05:00										
06:00										
07:00										
08:00										
09:00										
10:00										
11:00										
Day Total	2293					2293			2293	
% Weekday Average	100.0%									
% Week Average	100.0%					100.0%				
AM Peak	9:00 AM					9:00 AM			9:00 AM	
Volume	304					304			304	
PM Peak	12:00 PM					12:00 PM			12:00 PM	
Volume	324					324			324	

Counter Comments: Metro is requiring a 72-hour count (Tuesday-Thursday)

Report generated on 6/12/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

SUMMARY - Volume Data (Weekend)

LOCATION: SE Hogan Road Southbound 300 feet north of Palmquist — QC JOB #: 10261304

DIRECTION: SB — CITY: Gresham — STATE: Oregon — DATE: Jun 9 2007 12:00AM - Jun 10 2007 11:59PM

Start Time	Sat	Sun	Avg Weekend Hourly Traffic	Average Weekend Profile
12:00 AM	95	86	90	
01:00	54	36	45	
02:00	30	44	37	
03:00	13	18	15	
04:00	20	20	20	
05:00	55	37	46	
06:00	95	37	66	
07:00	132	63	97	
08:00	186	115	150	
09:00	272	216	244	
10:00	290	**280**	285	
11:00	**355**	280	**317**	
12:00 PM	347	**413**	380	
01:00	391	377	384	
02:00	374	375	374	
03:00	**448**	365	406	
04:00	424	403	**413**	
05:00	356	377	366	
06:00	317	326	321	
07:00	281	272	276	
08:00	230	223	226	
09:00	201	163	182	
10:00	152	126	139	
11:00	102	64	83	
Day Total	5220	4716	4962	
% Weekday Average				
% Week Average	105.2%	95.0%		
AM Peak Volume	11:00 AM 355	10:00 AM 280	11:00 AM 317	
PM Peak Volume	3:00 PM 448	12:00 PM 413	4:00 PM 413	

Counter Comments: Metro is requiring a 72-hour count (Tuesday-Thursday)

Report generated on 6/12/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Attachment 11
Ordinance No. 07-1148

Type of report: Tube Count - Volume Data

LOCATION: SE Hogan Road Northbound 300 feet north of Palmquist

QC JOB #: 10261303

DIRECTION: NB CITY: Gresham STATE: Oregon

Start Time	Mon 4-Jun-07	Tue 5-Jun-07	Wed 6-Jun-07	Thu 7-Jun-07	Fri 8-Jun-07	Average Weekday Hourly Traffic	Sat 9-Jun-07	Sun 10-Jun-07	Average Week Hourly Traffic	Average Week Profile
12:00 AM		38	39	37	42	39	57	63	46	
01:00		20	16	19	25	20	39	26	24	
02:00		16	9	12	16	13	33	33	19	
03:00		15	19	19	16	17	18	21	18	
04:00		53	46	49	51	49	26	18	40	
05:00		153	166	145	148	153	62	34	118	
06:00		346	314	327	309	324	121	58	245	
07:00		**543**	**536**	**514**	**477**	**517**	195	116	**396**	
08:00		520	502	443	434	474	272	210	396	
09:00		400	374	398	372	386	343	329	369	
10:00		412	392	355	354	378	**399**	**334**	374	
11:00		426	386	409	389	402	374	332	386	
12:00 PM		414	412	409	399	408	**399**	**409**	407	
01:00		346	454	374	398	393	356	365	382	
02:00		497	440	397	438	443	361	338	411	
03:00	485	458	458	449	461	462	393	365	438	
04:00	**595**	**617**	**594**	**506**	**535**	**569**	375	404	**518**	
05:00	500	472	515	424	458	473	354	379	443	
06:00	435	414	415	369	414	409	351	285	383	
07:00	223	267	302	251	303	269	237	215	256	
08:00	193	206	210	220	295	224	202	201	218	
09:00	154	153	164	153	221	169	181	131	165	
10:00	92	88	114	121	163	115	130	90	114	
11:00	56	55	53	64	84	62	114	54	68	
Day Total	2733	6929	6930	6464	6802	6768	5392	4810	6234	
% Weekday Average	40.4%	102.4%	102.4%	95.5%	100.5%					
% Week Average	43.8%	111.2%	111.2%	103.7%	109.1%	108.6%	86.5%	77.2%		
AM Peak Volume		7:00 AM 543	7:00 AM 536	7:00 AM 514	7:00 AM 477	7:00 AM 517	10:00 AM 399	10:00 AM 334	7:00 AM 396	
PM Peak Volume	4:00 PM 595	4:00 PM 617	4:00 PM 594	4:00 PM 506	4:00 PM 535	4:00 PM 569	12:00 PM 399	12:00 PM 409	4:00 PM 518	

Counter Comments: Metro is requiring a 72-hour count (Tuesday-Thursday)

Report generated on 6/12/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Attachment 11
Ordinance No. 07-1148

LOCATION: SE Hogan Road Northbound 300 feet north of Palmquist

QC JOB #: 10261303

DIRECTION: NB CITY: Gresham STATE: Oregon

Start Time	Mon 11-Jun-07	Tue	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM	37					37			37	
01:00	18					18			18	
02:00	8					8			8	
03:00	17					17			17	
04:00	41					41			41	
05:00	165					165			165	
06:00	301					301			301	
07:00	**500**					**500**			**500**	
08:00	437					437			437	
09:00	361					361			361	
10:00	334					334			334	
11:00	370					370			370	
12:00 PM	**361**					**361**			**361**	
01:00										
02:00										
03:00										
04:00										
05:00										
06:00										
07:00										
08:00										
09:00										
10:00										
11:00										
Day Total	2950					2950			2950	
% Weekday Average	100.0%									
% Week Average	100.0%					100.0%				
AM Peak	7:00 AM					7:00 AM			7:00 AM	
Volume	500					500			500	
PM Peak	12:00 PM					12:00 PM			12:00 PM	
Volume	361					361			361	

Counter Comments: Metro is requiring a 72-hour count (Tuesday-Thursday)

Report generated on 6/12/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Attachment 11
Ordinance No. 07-1148

SUMMARY - Volume Data (Weekend)

LOCATION: SE Hogan Road Northbound 300 feet north of Palmquist
QC JOB #: 10261303
DIRECTION: NB CITY: Gresham STATE: Oregon DATE: Jun 9 2007 12:00AM - Jun 10 2007 11:59PM

Start Time	Sat	Sun	Avg Weekend Hourly Traffic	Average Weekend Profile
12:00 AM	57	63	60	
01:00	39	26	32	
02:00	33	33	33	
03:00	18	21	19	
04:00	26	18	22	
05:00	62	34	48	
06:00	121	58	89	
07:00	195	116	155	
08:00	272	210	241	
09:00	343	329	336	
10:00	**399**	**334**	**366**	
11:00	374	332	353	
12:00 PM	**399**	**409**	**404**	
01:00	356	365	360	
02:00	361	338	349	
03:00	393	365	379	
04:00	375	404	389	
05:00	354	379	366	
06:00	351	285	318	
07:00	237	215	226	
08:00	202	201	201	
09:00	181	131	156	
10:00	130	90	110	
11:00	114	54	84	
Day Total	5392	4810	5096	
% Weekday Average				
% Week Average	105.8%	94.4%		
AM Peak Volume	10:00 AM 399	10:00 AM 334	10:00 AM 366	
PM Peak Volume	12:00 PM 399	12:00 PM 409	12:00 PM 404	

Counter Comments: Metro is requiring a 72-hour count (Tuesday-Thursday)

Report generated on 6/12/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

LOCATION: SE Hogan Road Southbound 300 feet south of Palmquist

QC JOB #: 10261306

DIRECTION: SB CITY: Gresham STATE: Oregon

Start Time	Mon 4-Jun-07	Tue 5-Jun-07	Wed 6-Jun-07	Thu 7-Jun-07	Fri 8-Jun-07	Average Weekday Hourly Traffic	Sat 9-Jun-07	Sun 10-Jun-07	Average Week Hourly Traffic	Average Week Profile
12:00 AM		32	35	27	48	35	82	68	48	
01:00		16	25	30	23	23	42	37	28	
02:00		12	13	18	27	17	26	38	22	
03:00		9	9	5	9	8	12	21	10	
04:00		47	46	44	44	45	27	19	37	
05:00		138	153	132	143	141	73	43	113	
06:00		**416**	**397**	**382**	**381**	**394**	100	41	286	
07:00		334	321	324	303	320	136	74	248	
08:00		315	304	318	306	310	210	114	261	
09:00		299	289	294	267	287	260	174	263	
10:00		285	284	289	316	293	262	243	279	
11:00		292	339	317	310	314	**318**	**259**	**305**	
12:00 PM		324	337	355	339	338	310	**386**	341	
01:00		389	408	387	385	392	329	328	371	
02:00		369	392	380	409	387	323	322	365	
03:00		437	457	466	**531**	472	352	321	427	
04:00	**494**	**501**	**483**	**511**	491	**496**	**354**	336	**452**	
05:00	448	461	460	431	469	453	309	294	410	
06:00	358	342	358	335	438	366	259	262	336	
07:00	225	290	280	235	281	262	222	216	249	
08:00	207	178	239	239	185	209	191	168	201	
09:00	168	193	176	224	234	199	181	156	190	
10:00	80	104	106	99	174	112	126	101	112	
11:00	49	60	61	79	115	72	82	44	70	
Day Total	2029	5843	5972	5921	6228	5945	4586	4065	5424	
% Weekday Average	34.1%	98.3%	100.5%	99.6%	104.8%					
% Week Average	37.4%	107.7%	110.1%	109.2%	114.8%	109.6%	84.5%	74.9%		
AM Peak		6:00 AM	6:00 AM	6:00 AM	6:00 AM	6:00 AM	11:00 AM	11:00 AM	11:00 AM	
Volume		416	397	382	381	394	318	259	305	
PM Peak	4:00 PM	4:00 PM	4:00 PM	4:00 PM	3:00 PM	4:00 PM	4:00 PM	12:00 PM	4:00 PM	
Volume	494	501	483	511	531	496	354	386	452	

Counter Comments: Metro is requiring a 72-hour count (Tuesday-Thursday)

Report generated on 6/12/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Attachment 11
Ordinance No. 07-1148

LOCATION: SE Hogan Road Southbound 300 feet south of Palmquist

QC JOB #: 10261306

DIRECTION: SB CITY: Gresham STATE: Oregon

Start Time	Mon 11-Jun-07	Tue	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM	32					32			32	
01:00	23					23			23	
02:00	14					14			14	
03:00	11					11			11	
04:00	45					45			45	
05:00	142					142			142	
06:00	**378**					**378**			**378**	
07:00	304					304			304	
08:00	309					309			309	
09:00	310					310			310	
10:00	271					271			271	
11:00	281					281			281	
12:00 PM	**315**					**315**			**315**	
01:00										
02:00										
03:00										
04:00										
05:00										
06:00										
07:00										
08:00										
09:00										
10:00										
11:00										
Day Total	2435					2435			2435	
% Weekday Average	100.0%									
% Week Average	100.0%					100.0%				
AM Peak	6:00 AM					6:00 AM			6:00 AM	
Volume	378					378			378	
PM Peak	12:00 PM					12:00 PM			12:00 PM	
Volume	315					315			315	

Counter Comments: Metro is requiring a 72-hour count (Tuesday-Thursday)

SUMMARY - Volume Data (Weekend)

LOCATION: SE Hogan Road Southbound 300 feet south of Palmquist

QC JOB #: 10261306

DIRECTION: SB CITY: Gresham STATE: Oregon DATE: Jun 9 2007 12:00AM - Jun 10 2007 11:59PM

Start Time	Sat	Sun	Avg Weekend Hourly Traffic	Average Weekend Profile
12:00 AM	82	68	75	
01:00	42	37	39	
02:00	26	38	32	
03:00	12	21	16	
04:00	27	19	23	
05:00	73	43	58	
06:00	100	41	70	
07:00	136	74	105	
08:00	210	114	162	
09:00	260	174	217	
10:00	262	243	252	
11:00	**318**	**259**	**288**	
12:00 PM	310	**386**	**348**	
01:00	329	328	328	
02:00	323	322	322	
03:00	352	321	336	
04:00	**354**	336	345	
05:00	309	294	301	
06:00	259	262	260	
07:00	222	216	219	
08:00	191	168	179	
09:00	181	156	168	
10:00	126	101	113	
11:00	82	44	63	
Day Total	4586	4065	4319	
% Weekday Average				
% Week Average	106.2%	94.1%		
AM Peak Volume	11:00 AM 318	11:00 AM 259	11:00 AM 288	
PM Peak Volume	4:00 PM 354	12:00 PM 386	12:00 PM 348	

Counter Comments: Metro is requiring a 72-hour count (Tuesday-Thursday)

Report generated on 6/12/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Attachment 11
Ordinance No. 07-1148

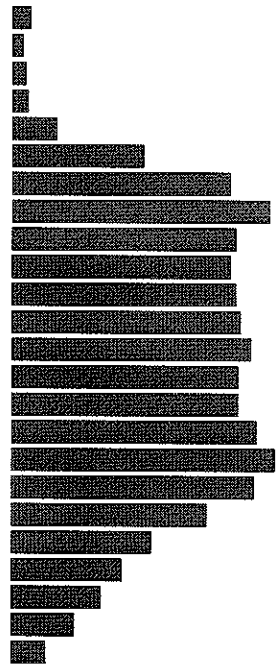
LOCATION: US 26 Northbound 500 feet south of SE Palmquist Road

QC JOB #: 10261301

DIRECTION: NB CITY: Gresham STATE: Oregon

Start Time	Mon 4-Jun-07	Tue 5-Jun-07	Wed 6-Jun-07	Thu 7-Jun-07	Fri 8-Jun-07	Average Weekday Hourly Traffic	Sat 9-Jun-07	Sun 10-Jun-07	Average Week Hourly Traffic
12:00 AM		54	66	59	75	63	104	95	75
01:00		30	41	40	34	36	69	49	43
02:00		51	44	59	50	51	53	31	48
03:00		79	82	85	62	77	61	38	67
04:00		201	233	215	197	211	93	77	169
05:00		647	702	624	579	638	196	130	479
06:00		1098	1098	1071	1028	1073	347	181	803
07:00		**1277**	**1255**	**1266**	**1194**	**1248**	467	227	**947**
08:00		1017	1022	995	890	981	631	371	821
09:00		900	812	823	873	852	752	618	796
10:00		823	750	859	877	827	843	747	816
11:00		797	806	828	840	817	**930**	**825**	837
12:00 PM		768	804	825	937	833	867	**1051**	875
01:00		780	704	788	919	797	846	907	824
02:00		806	788	781	860	808	**879**	870	830
03:00		777	880	954	972	895	858	950	898
04:00		**912**	**1050**	**981**	**1045**	**997**	813	950	**958**
05:00		807	972	864	925	892	786	971	887
06:00	**654**	641	724	705	829	710	695	740	712
07:00	408	449	414	436	749	491	582	572	515
08:00	328	293	340	378	632	394	424	447	406
09:00	248	309	303	323	433	323	356	329	328
10:00	177	203	188	234	298	220	305	241	235
11:00	80	107	113	109	197	121	173	111	127
Day Total	1895	13826	14191	14302	15495	14355	12130	11528	13496
% Weekday Average	13.2%	96.3%	98.9%	99.6%	107.9%				
% Week Average	14.0%	102.5%	105.2%	106.0%	114.8%	106.4%	89.9%	85.4%	
AM Peak		7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	11:00 AM	11:00 AM	7:00 AM
Volume		1277	1255	1266	1194	1248	930	825	947
PM Peak	6:00 PM	4:00 PM	4:00 PM	4:00 PM	4:00 PM	4:00 PM	2:00 PM	12:00 PM	4:00 PM
Volume	654	912	1050	981	1045	997	879	1051	958

Average Week Profile



Counter Comments: Metro is requiring a 72-hour count (Tuesday-Thursday)

LOCATION: US 26 Northbound 500 feet south of SE Palmquist Road

QC JOB #: 10261301

DIRECTION: NB CITY: Gresham STATE: Oregon

Start Time	Mon 11-Jun-07	Tue	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM	63					63			63	
01:00	45					45			45	
02:00	45					45			45	
03:00	76					76			76	
04:00	197					197			197	
05:00	636					636			636	
06:00	1026					1026			1026	
07:00	**1249**					**1249**			**1249**	
08:00	917					917			917	
09:00	778					778			778	
10:00	807					807			807	
11:00	790					790			790	
12:00 PM	773					773			773	
01:00	**775**					**775**			**775**	
02:00										
03:00										
04:00										
05:00										
06:00										
07:00										
08:00										
09:00										
10:00										
11:00										
Day Total	8177					8177			8177	
% Weekday Average	100.0%									
% Week Average	100.0%					100.0%				
AM Peak	7:00 AM					7:00 AM			7:00 AM	
Volume	1249					1249			1249	
PM Peak	1:00 PM					1:00 PM			1:00 PM	
Volume	775					775			775	

Counter Comments: Metro is requiring a 72-hour count (Tuesday-Thursday)

Report generated on 6/12/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

SUMMARY - Volume Data (Weekend)

LOCATION: US 26 Northbound 500 feet south of SE Palmquist Road — QC JOB #: 10261301

DIRECTION: NB — CITY: Gresham — STATE: Oregon — DATE: Jun 9 2007 12:00AM - Jun 10 2007 11:59PM

Start Time	Sat	Sun	Avg Weekend Hourly Traffic	Average Weekend Profile
12:00 AM	104	95	99	
01:00	69	49	59	
02:00	53	31	42	
03:00	61	38	49	
04:00	93	77	85	
05:00	196	130	163	
06:00	347	181	264	
07:00	467	227	347	
08:00	631	371	501	
09:00	752	618	685	
10:00	843	747	795	
11:00	**930**	**825**	**877**	
12:00 PM	867	**1051**	**959**	
01:00	846	907	876	
02:00	**879**	870	874	
03:00	858	950	904	
04:00	813	950	881	
05:00	786	971	878	
06:00	695	740	717	
07:00	582	572	577	
08:00	424	447	435	
09:00	356	329	342	
10:00	305	241	273	
11:00	173	111	142	
Day Total	12130	11528	11824	
% Weekday Average				
% Week Average	102.6%	97.5%		
AM Peak Volume	11:00 AM 930	11:00 AM 825	11:00 AM 877	
PM Peak Volume	2:00 PM 879	12:00 PM 1051	12:00 PM 959	

Counter Comments: Metro is requiring a 72-hour count (Tuesday-Thursday)

Report generated on 6/12/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Attachment 11
Ordinance No. 07-1148

LOCATION: US 26 Southbound 500 feet south of SE Palmquist Road

QC JOB #: 10261302

DIRECTION: SB CITY: Gresham STATE: Oregon

Start Time	Mon 4-Jun-07	Tue 5-Jun-07	Wed 6-Jun-07	Thu 7-Jun-07	Fri 8-Jun-07	Average Weekday Hourly Traffic	Sat 9-Jun-07	Sun 10-Jun-07	Average Week Hourly Traffic	Average Week Profile
12:00 AM		112	138	144	128	130	198	148	144	
01:00		63	68	98	85	78	111	102	87	
02:00		51	43	47	74	53	95	87	66	
03:00		39	53	39	58	47	56	66	51	
04:00		86	87	92	82	86	90	58	82	
05:00		202	220	258	226	226	171	107	197	
06:00		494	496	523	519	508	313	123	411	
07:00		594	580	582	612	592	391	238	499	
08:00		568	553	546	572	559	479	449	527	
09:00		529	524	579	640	568	612	417	550	
10:00		596	591	610	721	629	714	**629**	643	
11:00		**720**	**703**	**714**	**800**	**734**	**766**	629	**722**	
12:00 PM		700	758	775	929	790	821	841	804	
01:00		801	806	797	984	847	887	**909**	864	
02:00		948	933	935	1083	974	**967**	903	961	
03:00		1118	1010	1016	1230	1093	904	842	1020	
04:00		1180	1244	1160	1342	1231	897	848	1111	
05:00	**1302**	**1367**	**1299**	**1373**	**1452**	**1358**	876	750	**1202**	
06:00	978	1073	1049	1060	1254	1082	682	706	971	
07:00	683	748	786	770	890	775	594	609	725	
08:00	558	583	661	655	673	626	483	477	584	
09:00	434	489	616	526	596	532	449	352	494	
10:00	285	313	459	366	447	374	318	241	347	
11:00	173	189	267	240	304	234	269	133	225	
Day Total	4413	13563	13944	13905	15701	14126	12143	10664	13287	
% Weekday Average	31.2%	96.0%	98.7%	98.4%	111.2%					
% Week Average	33.2%	102.1%	104.9%	104.7%	118.2%	106.3%	91.4%	80.3%		
AM Peak Volume		11:00 AM 720	11:00 AM 703	11:00 AM 714	11:00 AM 800	11:00 AM 734	11:00 AM 766	10:00 AM 629	11:00 AM 722	
PM Peak Volume	5:00 PM 1302	5:00 PM 1367	5:00 PM 1299	5:00 PM 1373	5:00 PM 1452	5:00 PM 1358	2:00 PM 967	1:00 PM 909	5:00 PM 1202	

Counter Comments: Metro is requiring a 72-hour count (Tuesday-Thursday)

Report generated on 6/12/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

LOCATION: US 26 Southbound 500 feet south of SE Palmquist Road

QC JOB #: 10261302

DIRECTION: SB CITY: Gresham STATE: Oregon

Start Time	Mon 11-Jun-07	Tue	Wed	Thu	Fri	Average Weekday Hourly Traffic	Sat	Sun	Average Week Hourly Traffic	Average Week Profile
12:00 AM	104					104			104	
01:00	57					57			57	
02:00	46					46			46	
03:00	50					50			50	
04:00	102					102			102	
05:00	213					213			213	
06:00	503					503			503	
07:00	611					611			611	
08:00	616					616			616	
09:00	547					547			547	
10:00	630					630			630	
11:00	**686**					**686**			**686**	
12:00 PM	**685**					**685**			**685**	
01:00										
02:00										
03:00										
04:00										
05:00										
06:00										
07:00										
08:00										
09:00										
10:00										
11:00										
Day Total	4850					4850			4850	
% Weekday Average	100.0%									
% Week Average	100.0%					100.0%				
AM Peak	11:00 AM					11:00 AM			11:00 AM	
Volume	686					686			686	
PM Peak	12:00 PM					12:00 PM			12:00 PM	
Volume	685					685			685	

Counter Comments: Metro is requiring a 72-hour count (Tuesday-Thursday)

Report generated on 6/12/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

SUMMARY - Volume Data (Weekend)

LOCATION: US 26 Southbound 500 feet south of SE Palmquist Road — QC JOB #: 10261302

DIRECTION: SB — CITY: Gresham — STATE: Oregon — DATE: Jun 9 2007 12:00AM - Jun 10 2007 11:59PM

Start Time	Sat	Sun	Avg Weekend Hourly Traffic	Average Weekend Profile
12:00 AM	198	148	173	
01:00	111	102	106	
02:00	95	87	91	
03:00	56	66	61	
04:00	90	58	74	
05:00	171	107	139	
06:00	313	123	218	
07:00	391	238	314	
08:00	479	449	464	
09:00	612	417	514	
10:00	714	**629**	671	
11:00	**766**	629	**697**	
12:00 PM	821	841	831	
01:00	887	**909**	898	
02:00	**967**	903	**935**	
03:00	904	842	873	
04:00	897	848	872	
05:00	876	750	813	
06:00	682	706	694	
07:00	594	609	601	
08:00	483	477	480	
09:00	449	352	400	
10:00	318	241	279	
11:00	269	133	201	
Day Total	12143	10664	11399	
% Weekday Average				
% Week Average	106.5%	93.5%		
AM Peak Volume	11:00 AM 766	10:00 AM 629	11:00 AM 697	
PM Peak Volume	2:00 PM 967	1:00 PM 909	2:00 PM 935	

Counter Comments: Metro is requiring a 72-hour count (Tuesday-Thursday)

Report generated on 6/12/2007

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net)

Attachment 11
Ordinance No. 07-1148

BEFORE THE METRO COUNCIL

FOR THE PURPOSE OF COMMITTING METRO SOUTH AND METRO CENTRAL TRANSFER STATIONS TO ACHIEVE DRY WASTE MATERIAL RECOVERY STANDARDS FOR SPECIFIED LOADS.	)))))	RESOLUTION NO. 07-3802 Introduced by Councilors Kathryn Harrington and Rod Park

WHEREAS, Metro is accountable for meeting state mandated waste recovery goals for the tri-county region; and

WHEREAS, the recovery of additional "dry waste" material generated by the building industry is a key component of achieving the state-mandated waste reduction goal of 64%; and

WHEREAS, Metro regulates private solid waste facilities in the region that accept dry waste; and

WHEREAS, Ordinance 07-1147 would require private solid waste facilities accepting mixed dry waste to ensure processed residual does not contain more than 15% of size-specified cardboard, wood and metal pieces by weight; and

WHEREAS, Metro owns two waste transfer stations that accept dry waste from commercial haulers and the public; and

WHEREAS, Metro has been a leader in implementing sustainable practices at the public facilities; and

WHEREAS, Metro Council desires Metro facilities to meet the standards proposed for private solid waste facilities in Ordinance 07-1147; and

WHEREAS, Metro accepts all types and sizes of incoming dry waste loads from both commercial haulers and independent self-haulers, while private facilities are free to choose which loads to accept or reject.

WHEREAS, this fundamental difference makes mixed dry waste loads received at the public facilities not strictly comparable in volume or composition to loads received at private recovery facilities; and

WHEREAS, for the purpose of comparing recovery performance between public facilities and private facilities, mixed dry waste loads delivered in loose drop boxes and self tipping vehicles at public facilities is most comparable to the types of loads accepted at private facilities; now therefore,

BE IT RESOLVED, the Metro Council directs staff to take appropriate steps to ensure that the contract operator of Metro South and Central transfer stations will consistently meet or exceed the recovery performance and reporting standards described in Ordinance 07-1147 for all dry waste received in loose drop boxes and self-tipping vehicles.

ADOPTED by the Metro Council this _____ day of _____2007.

_____
David Bragdon, Council President

Approved as to Form:

_____
Daniel B. Cooper, Metro Attorney

STAFF REPORT
IN CONSIDERATION OF RESOLUTION NO. 07-3802, FOR THE PURPOSE OF COMMITTING METRO SOUTH AND METRO CENTRAL TRANSFER STATIONS TO ACHIEVE AND REPORT ON DRY WASTE MATERIAL RECOVERY STANDARDS FOR SPECIFIED LOADS.

Date: June 21, 2007 Prepared by: Bryce Jacobson

BACKGROUND

Higher levels of material recovery from commercial sources are essential to achieving the region's 64% state-mandated waste reduction goal. Increased recovery of materials like wood, cardboard and metal from "dry waste" generated by the building industry is a key component of achieving this goal.

In 2003, a stakeholder study group examining options for increasing recovery from this sector recommended that Metro require processing of all construction and demolition debris loads for material recovery before landfilling. Metro Council then directed staff to develop such a program proposal.

Ordinance 07-1147, which establishes this region-wide dry waste recovery program, contains a new performance standard for material recovery applicable to all privately owned facilities receiving unprocessed dry waste. The new standard requires that residual from dry waste processing contain no more than 15% cardboard, wood and metal by weight (size- specified in the ordinance).

Data from 2006 residual assays show that most private facilities are already meeting this recovery standard. Both Metro facilities have also met the standard in most samples taken to date.

As a regional leader in implementing sustainable practices at its facilities, Metro declares its intent, through this resolution, to measure, report, and achieve the same recovery performance standard for private facilities contained in Ordinance 07-1147.

ANALYSIS/INFORMATION

1. **Known Opposition:** There is no known opposition to this resolution.

2. **Legal Antecedents:** ORS 268.317, Metro Code Chapters 5.01, 5.05, and the Metro Charter.

3. **Anticipated Effects:** Contracted operator at Metro's two transfer facilities achieves higher recovery levels for dry waste loads received in loose drop boxes and self-tipping vehicles.

4. **Budget impacts:** No direct impacts on Metro's budget. The resolution highlights the need for Metro staff to work with the Metro facility operator to identify and implement minor process changes and measure dry waste recovery performance at Metro's two transfer stations.

RECOMMENDED ACTION

The Chief Operating Officer recommends Metro Council approve Resolution 07-3802.