Oregon
Theodore R. Kulongoski, Governor

Department of Land Conservation and Development
635 Capitol Street, Suite 150
Salem, OR 97301-2540
(503) 373-0050
Fax (503) 378-5518
www.lcd.state.or.us

NOTICE OF ADOPTED AMENDMENT

April 7, 2008

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

FROM: Mara Ulloa, Plan Amendment Program Specialist

SUBJECT: City of Happy Valley Plan Amendment
DLCD File Number 001-08

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

Appeal Procedures*

DLCD ACKNOWLEDGMENT or DEADLINE TO APPEAL: April 16, 2008

This amendment was submitted to DLCD for review prior to adoption with less than the required 45-day notice. Pursuant to ORS 197.830 (2)(b) only persons who participated in the local government proceedings leading to adoption of the amendment are eligible to appeal this decision to the Land Use Board of Appeals (LUBA).

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

***NOTE:** **THE APPEAL DEADLINE IS BASED UPON THE DATE THE DECISION WAS MAILED BY LOCAL GOVERNMENT. A DECISION MAY HAVE BEEN MAILED TO YOU ON A DIFFERENT DATE THAN IT WAS MAILED TO DLCD. AS A RESULT YOUR APPEAL DEADLINE MAY BE EARLIER THAN THE DATE SPECIFIED ABOVE.**

Cc: Gloria Gardiner, DLCD Urban Planning Specialist
Meg Fernekees, DLCD Regional Representative
Justin Popilek, City Of Happy Valley

<paa> ya

FORM 2 Notice of Adoption

THIS FORM **MUST BE MAILED** TO DLCD
WITHIN 5 WORKING DAYS AFTER THE FINAL DECISION
PER ORS 197.610, OAR CHAPTER 660 - DIVISION 18

Jurisdiction: CITY OF HAPPY VALLEY Local file number: LDO-06-07/CPA-06-07

Date of Adoption: 3/18/08 Date Mailed: 3/24/08

Date original Notice of Proposed Amendment was mailed to DLCD: 1/15/08

- ☐ Comprehensive Plan Text Amendment
- ☐ Land Use Regulation Amendment
- ☐ New Land Use Regulation
- ☒ Comprehensive Plan Map Amendment
- ☒ Zoning Map Amendment
- ☐ Other: _____

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

Zone change request by applicant for three properties totaling 4.46 acres in area from residential low (R-20) to residential medium (R-10)

Describe how the adopted amendment differs from the proposed amendment. If it is the same, write "SAME". If you did not give Notice for the Proposed Amendment, write "N/A".

SAME

Plan Map Changed from: R-20 to: R-10

Zone Map Changed from: R-20 to: R-10

Location: 12E25BC tax lots 100,200 & 300 Acres Involved: 4.46

Specify Density: Previous: Low New: Medium

Applicable Statewide Planning Goals: 1, 2, 5 & 12

Was and Exception Adopted? ☐ YES ☒ NO

DLCD File No.: 001-08 (16640)

Did the Department of Land Conservation and Development receive a Notice of Proposed Amendment.....

Forty-five (45) days prior to first evidentiary hearing?	☒ **Yes**	☐ **No**
If no, do the statewide planning goals apply?	☐ **Yes**	☐ **No**
If no, did Emergency Circumstances require immediate adoption?	☐ **Yes**	☐ **No**

Affected State or Federal Agencies, Local Governments or Special Districts:

Local Contact: Justin Popilek Phone: 503 760 3325 Extension:

Address: 12915 SE King Road City: Happy Valley

Zip Code + 4: 97086 - Email Address: justinp@ci.happy-valley.or.us

ADOPTION SUBMITTAL REQUIREMENTS

This form **must be mailed** to DLCD **within 5 working days after the final decision** per ORS 197.610, OAR Chapter 660 - Division 18.

1. Send this Form and **TWO (2) Copies** of the Adopted Amendment to:

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

2. Submit **TWO (2) copies** the adopted material, if copies are bounded please submit **TWO (2) complete copies** of documents and maps.

3. Please Note: Adopted materials must be sent to DLCD not later than **FIVE (5) working days** following the date of the final decision on the amendment.

4. Submittal of this Notice of Adoption must include the text of the amendment plus adopted findings and supplementary information.

5. The deadline to appeal will not be extended if you submit this notice of adoption within five working days of the final decision. Appeals to LUBA may be filed within **TWENTY-ONE (21) days** of the date, the Notice of Adoption is sent to DLCD.

6. In addition to sending the Notice of Adoption to DLCD, you must notify persons who participated in the local hearing and requested notice of the final decision.

7. **Need More Copies?** You can copy this form on to 8-1/2x11 green paper only; or call the DLCD Office at (503) 373-0050; or Fax your request to:(503) 378-5518; or Email your request to **mara.ulloa@state.or.us** - ATTENTION: PLAN AMENDMENT SPECIALIST.

CITY OF HAPPY VALLEY

ORDINANCE NO. 371

AN ORDINANCE AMENDING OFFICIAL MAP EXHIBIT 11 OF THE CITY OF HAPPY VALLEY LAND DEVELOPMENT ORDINANCE NO. 97, AS AMENDED

THE CITY OF HAPPY VALLEY ORDAINS AS FOLLOWS:

WHEREAS, Application CPA-06-07/LDO-06-07 was a request by Erik and Nancy Gustafsson to amend the Development District Map (Official Map Exhibit 11 of Ordinance 97) by applying the R-10 zone to approximately 4.45 acres of land currentlly zoned R-20. The property is known as Clackamas County Assessor Map No. 1S 2E 25BC Tax Lot 100, 200, and 300.

WHEREAS one hearing was held before the City of Happy Valley Planning Commission on February 26, 2008; and,

WHEREAS, the Planning Commission recommended by a 5-1 vote that said Official Map Exhibit 11 be amended as recommended by the Community Development Department in the staff report dated February 26, 2008; and,

WHEREAS, the City has timely forwarded a copy of the proposed map amendments to the Department of Land Conservation and Development of the State of Oregon; and,

WHEREAS, the City Council of the City of Happy Valley, Oregon, has determined that it is reasonable, necessary and in the public interest to revise the Official Development District Map, Exhibit 11, and approved the Planning Commission's recommendation pursuant to the findings contained in the staff report to the Planning Commission dated February 26, 2008 and the Staff Report to the City Council dated March 18, 2008, at the regular meeting of the City Council on March 18, 2008.

NOW, THEREFORE, it is hereby declared by the City Council of Happy Valley, Oregon, that the City's Land Development Ordinance be amended by substituting a new Exhibit 11 with the Development Districts changed, as set forth as part of Exhibit "A" to this Ordinance and is fully incorporated herein.

BE IT FURTHER declared that this Ordinance shall become effective thirty (30) days after approval by the City Council.

READ for the first time at the regular meeting of the City Council of the City of Happy Valley, Oregon, on March 18, 2008, and adopted by unanimous vote of the members of the City Council of the City of Happy Valley, Oregon.

Rob Wheeler, Mayor

ATTEST:

Marylee Walden, City Recorder

City of Happy Valley

12915 SE KING ROAD, HAPPY VALLEY, OREGON 97086
Telephone (503) 760-3325 ~ Fax (503) 760-9397
Web Site: www.ci.happy-valley.or.us

March 25, 2007

File No. CPA-06-07/LDO-06-07
(Highland Rise Subdivision)

NOTICE OF DECISION

This is official notice of action taken by the Happy Valley City Council at a public hearing on March 18, 2008, with regard to an application by Erik and Nancy Gustafsson for a Comprehensive Plan Map Amendment/Zone Change from Low Density Residential (R-20) to Medium Density Residential (R-10). The subject property is located at 9140, 9142 and 9144 SE 145th Avenue and is further described as Clackamas County Map 12E25BC Tax Lots 100, 200, and 300.

At the public hearing, the City Council formally approved the subject application based upon findings included within the Planning Commission Staff Report dated February 26, 2008, public testimony and deliberations of the City Council, per the included Conditions of Approval.

Copies of the Staff Report and findings from CPA-06-07/LDO-06-07 are available upon request.

This action of the City Council is subject to appeal to the State of Oregon Land Use Board of Appeals. An appeal of this decision must be filed within 21 days of the mailing of this Notice of Decision. City Planning Department staff (503-760-3325) can provide information regarding forms, fees, and the appeal process. Issues, which may provide the basis for an appeal to the Oregon Land Use Board of Appeals, shall be submitted in writing, accompanied by appropriate filing fees, prior to the expiration of the appeal period. Issues shall be raised with sufficient specificity to enable the Oregon Land Use Board of Appeals to respond to the issue. If no appeal is filed by **Thursday, April 17, 2008 at 4:30 p.m.**, this decision shall be deemed final.

Justin Popilek
Assistant Planner

copy: Erik and Nancy Gustafsson, Applicant
Monty Hurley, AKS Engineering (via e-mail)
Chris Goodell, AKS Engineering (via e-mail)

CPA-06-07/LDO-06-07
Conditions of Approval
(Amended at 2-26-08 Planning Commission Meeting)

Administration

1. **That approval of SUB-05-07/V-07-07 shall not occur until and unless CPA-06-07/LDO-06-07 is approved by the City Council.**

2. System Development Charges (SDC's) shall be paid and any credits allowed shall be in accordance with the Ordinance 106 ~~as amended. SDC's for parks and stormwater shall be paid prior to plat approval. Transportation SDC's~~ **and** shall be paid at issuance of building permits. When the building permits are issued for the individual lots, the final amount will be calculated and the builder/homeowner will pay any difference.

3. Each lot is subject to pay the current rates for sanitary and storm drain System Development Charge (SDC). Fees are reviewed annually; the most current fee rate applies. These fees shall be paid prior to issuing the building permit.

4. The developer or his engineer is required to pay a preliminary plan review fee based on the number of lots when submitting the first set of construction plans to the City for review. This fee will be credited toward the total plan review fees.

5. Subject to the City's latest "Public Improvement Guarantee" form which requires financial security of 125% of the City engineer's estimate and a 25% two (2)-year maintenance bond upon completion and acceptance of the improvements.

6. Construction plans shall show all adjacent subdivision names, lot lines and tax lot lines with the tax map and tax lot number noted on each.

7. Construction plan review is subject to these Conditions of Approval.

8. No building permits shall be submitted to the City for review until the plat has been recorded and two copies (22" x 36") and one 8-1/2" x 11" of the recorded plat have been submitted to the City, the City and County have accepted all improvements, mylar "as built" drawings are received by the City and County and a 2-year maintenance bond is in place, along with any performance bonds.

9. Full time inspection by the developer's engineer is required for all street and storm drainage construction.

10. The developer's engineer shall submit an approved tree removal plan and obtain the required tree cutting permits for only those trees necessary to construct the street and utility improvements. A tree planting mitigation plan at a rate of 2:1 is required for any trees removed outside the limits of the infrastructure improvements. Any trees that are to be preserved must be fenced at the drip line for protection prior to construction.

11. The developer's engineer is required to initially submit three sets of construction plans for initial review to the City as well as submitting two sets of plans (including storm detention calculations) to WES and the City's traffic engineer (DKS and Associates). A pre-design/pre-construction meeting is required to be held with the City Engineer prior to submittal of construction plan sets.

12. The property owner shall file a final plat pursuant to ORS 92.050 and shall conform to all provisions contained therein. The recorded plat shall be in substantial conformance with the approved preliminary plat and bear the signature of the Planning Commission Chairman, City Mayor, and City Public Works Director. Two recorded copies of the Plat shall be submitted to the City as verification of recordation prior to the issuance of any building permit.

13. This approval will expire two years from the date of the Notice of Decision and may be extended for a maximum of one additional year pursuant to section 16.16.110.C2.6 of the Land Development Code. Recording in phases will require a Development Agreement with the City. The development agreement shall specify that no time extensions shall be permitted and all phases must be recorded within seven (7) years from the final decision. ~~, including the provision of two additional units for minimum density requirements and the additional open space area, and all necessary improvements.~~

Grading and Erosion Control

14. A storm drainage collection system shall be installed along the south property line of Lots 8 through 14. This storm drainage line shall be designed to collect any roof, foundation, retaining wall and surface water runoff draining to the south from each lot noted above. This storm water collection system shall be placed within a 15 foot wide storm drainage easement running adjacent to the south property line of said lots. This easement shall be assigned to/and maintained by the ~~subdivision HOA~~ **homeowners of Lots 8-14**.

15. The developer's engineer is required to provide a site specific drainage plan to temporarily collect, route, and treat surface water and ground water during each construction phase. The construction plans shall specifically identify how the storm drainage system and erosion sediment control measures will be phased during construction, such that at any time during construction the approved plans shall be capable of providing full erosion and sediment control collection, routing, and treatment of storm water runoff and ground water. No site construction will be allowed to take place if the storm drainage system and erosion sediment control measures are not installed per plan and functioning properly.

16. Since the total disturbed area for this project exceeds 1 acre, an NPDES 1200-C permit will be required for this project. The applicant shall follow the latest requirements from DEQ for NPDES 1200-C permit submittals. A copy of the DEQ permit submittal shall be provided to the City during the City design review phase. A copy of the DEQ approved and signed permit shall be provided to the City prior to holding a pre-construction meeting or commencing any construction activity.

17. All grading activity including tree removal shall be per the current City of Happy Valley Municipal Code. Neither activity shall commence prior to issuance of both a site development permit and tree removal permit by the City.

18. The developer shall have a Geotechnical Engineer Report prepared by a registered engineer or registered geologist/hydro-geologist in the State of Oregon, which outlines the site specific details within the project boundaries. Along with the general construction recommendations, delineating the extent of spring and groundwater activity shall be researched and reported. The report shall detail a plan for dewatering these areas and shall further identify those lots which need specific foundation design.

19. Retaining walls greater than four (4) feet in height shall have a geotechnical engineer provide stamped design calculations and detail drawings required for the retaining wall construction. The retaining wall detail drawings shall include at a minimum; wall profile, wall cross section at highest point of wall, wall reinforcing geotextile requirements, wall drainage system, and wall backfill requirements. Retaining wall drainage systems shall either discharge to a public storm drainage system, or discharge on-site in such a manner as to not negatively impact adjacent downstream properties.

20. That in the event there is engineered fill on any public roads or lots, the developer's soils engineer and testing lab shall obtain and record compaction test and submit results for the review and approval by the City Engineer. Additionally, reports shall be attached to the individual 8½ x 11 as-built drawings required for each lot. Storm and sanitary laterals shall have two distance ties to their ends for future location.

21. That if waste material is to be disposed of on-site outside of any public right-of-way area, the applicant shall submit a grading plan by an engineer registered in the State of Oregon, in accordance with City Municipal Code for review and approval by the City Engineer. Those lots or areas specifically affected shall be flagged with an asterisk on the final plat referring to a note that states specific foundation design adequate for the intended use will be necessary under City Municipal Code 15.12.

22. That the grading limits shall be fenced using the standard 4' orange plastic construction fencing in addition to the required erosion sediment control fences. All fencing and construction gravel entrances shall be installed and maintained by the developer and inspected by the City of Happy Valley prior to issuance of a site development permit by the City.

23. That the Erosion Sediment Control Plan shall include a plan to implement and maintain wet weather measures within 14 days of the final grading and between the months of October 1st and April 30th.

24. That all street grading shall meet the City's current standards and slope of driveways themselves shall not exceed 12 percent. Approval of driveway grades exceeding 12% are on a case by case basis at the discretion of the City Engineer and CCFD #1.

Streets and Roads

25. SE 145th Avenue is classified as a minor arterial in the City's Transportation System Plan (TSP). The applicant shall dedicate 4-feet of right-of-way along SE 145th Avenue to the City to conform to the right-of-way requirements for a minor arterial.

26. Frontage (one-half street) improvements shall be required along SE 145th Avenue to meet the standards for a three-lane minor arterial roadway as shown in Figure 8-4 of the City's TSP. The street improvements to SE 145th Avenue associated with this project shall include: 24-foot paved surface, five-foot sidewalk, five-foot planter strip, and six-inch curb. Street improvements shall be from the centerline of the right-of-way, not the centerline of the existing paved section and shall match with the existing frontage improvements for the Northern Heights and Monterra subdivisions.

27. The private drive providing access to Lots 7 and 8 from Gustafsson Court shall include a standard residential driveway drop at the cul-de-sac conforming to the City's standard detail drawing RD-22.

28. Street design plans shall conform to the requirements delineated in the City's "Engineering Design and Standard Details Manual" (Manual) current revision, and the City's Transportation System Plan (TSP), current revision.

29. A cross section for the street improvement shall be prepared that illustrates utility locations, street improvements including grade and elevation and sidewalk location including grade and elevation per current construction requirements. Said cross section shall be submitted to the City Engineer for review and approval.

30. The road pavement section asphalt shall consist of a 2-inch final lift of HMAC Level 2, ½" dense, over a 2-inch base lift of HMAC Level 2, ¾" dense. This change in pavement thickness is being adopted in the current revisions to the City's Manual. The pavement section leveling rock and base rock material and thickness shall conform to the standards in the Manual.

31. Typical street sections shall conform to the City's "Engineering Design and Standard Details Manual" (Manual) current revision, and to the City's Transportation System Plan (TSP) current revision, and shall include an 8-foot public utility easement (PUE).

32. That all required public improvements shall be constructed, inspected, and accepted or financially guaranteed prior to final plat approval.

33. No building permits shall be submitted to the City for review until the plat has been recorded, the City, County, and Water District have accepted all improvements, mylar (record) individual 8 ½ x 11 "as-built" record drawings for each lot showing storm and sanitary lateral locations with two distance ties to their ends for future locations are received and approved by all applicable agencies, and the performance/maintenance bonds for each jurisdiction is in place and all City requirements are met.

34. That all current ADA requirements for streets and intersections shall be met. In addition, the developer shall be responsible for the installation of all street name signs (including directions provisions, i.e. "SE"), stop signs (required at all street intersections), and any parking restriction signs or curb painting delineating parking restrictions, per the requirements of the City of Happy Valley.

35. The proposed local street (Gustafsson Court) shall conform to Figure 8-7 (Local Street Parking on One Side) of the City's Transportation System Plan (TSP) current revision, and shall include: 48 feet of right-of-way, 28 feet of paved surface, five-foot sidewalks and planter strips on both sides, six-inch curbs on both sides, and signs on one side denoting "No Parking".

36. Minimum AASHTO sight distance requirements shall be met at the project access point onto SE Denali Drive. AASHTO requires sight distance to be measured at a point 14.4 feet from the edge of the traveled way with a driver's eye height of 3.5 feet and an object height of 3.5 feet. The project access point on SE Denali Drive shall provide a minimum of 280 feet of intersection sight distance based on the posted speed of 25 miles per hour. The sight distance at the project access points shall be approved by the City Engineer prior to final site plan approval.

Fire

37. The applicant shall consult both CCFD and SWA to determine final Hydrant locations.

38. The fire code requires a 28 foot wide access road to have no parking on one side of the street. As a result, "No Parking" signs shall be posted on one side of Gustafsson Court to meet fire code standards.

Storm Drainage

39. The development is subject to the Rules and Regulations for Surface Water Management and Standard Specifications of Clackamas County Service District No. 1 for Surface Water Management and erosion control.

40. (SWM section 9.6.3) Cost of the Surface Water facilities shall be borne entirely by the developer. Each lot is subject to a System Development Charge (SDC). These fees shall be paid prior to issuing the building permit.

41. This development is subject to a minimum plan review fee of $400.00 Surface Water plan review. Plan review fees are due with the first submittal for plan review.

42. The above application is subject to the requirements of the National Pollutant Discharge Elimination System (NPDES) stormwater general permit 1200-C since more than 1-acre of land is disturbed. The City of Happy Valley issues NPDES permits.

43. (SWM Section 5.2.4 and 5.2.5) Storm water detention is required. Storm drainage detention calculations shall be by the King County method (SBUH hydrograph - software version 4.21B or higher). The detention requirement is to reduce the 2-year developed discharge to one half of the pre-developed rate.

44. (SWM section 5.2.7) Water quality requirements shall be met. Facilities must be designed to treat the runoff from rainfall up to the amount of 2/3 of a 2-yr storm.

45. (SWM Section 5.2.6) Stormwater infiltration shall be provided. Infiltration systems must be sized to infiltrate the entire runoff volume from a one-half inch 24-hour rainfall event within a period of 96 hours. Water quality and infiltration facilities and shall be designed according to the design procedures in Appendix D of the CCSD #1 Standard Surface Water Specifications.

46. (SWM Section 5.2.2) All springs, seeps, wetlands, sensitive areas, and required buffers shall be clearly shown and noted on the plans and identified by a certified professional. In addition, the location of each building must be shown on the plan so that potential stormwater impacts can be effectively evaluated.

47. (SWM Section 5.2.2) (SWM Section 5.2.4)The developer's engineer must provide supporting data to CCSD#1 that the downstream conveyance system has adequate capacity to accommodate the Surface Water flows and not cause flooding. The applicant is required to analyze the existing outlet structure from the Northern Heights Subdivision and propose a solution to resolve this problem, i.e. a flow splitter manhole, or some other means to protect the downstream properties.

48. (SAN section 7 & SWM section 5.1) Submit complete civil plans, including an erosion control plan, to be reviewed for both sanitary and stormwater regulations by the Water Environment Services. Plans shall be submitted to the Technical Services Coordinator.

49. (SWM section 5.1.13) The development is required to enter into a stormwater maintenance agreement with Clackamas County Service District No. 1. for the maintenance of the stormwater facilities. The following statement must be added to the Restrictions on the subdivision plat.

"Clackamas County Service District #1 (CCSD#1), its Successors or Assigns is hereby granted the right to lay down, construct, reconstruct, replace, operate, inspect and perpetually maintain sewers, wastewater, storm drainage or surface water pipelines, and all related facilities. No permanent structure shall be erected upon said easement without the written consent of the CCSD#1. Grantors agree to undertake no activity that would harm or impair the proper functioning of the sanitary and storm sewer system."

50. (SWM section 5.1.13) The following plat restriction must be shown on all subdivision plats that are within CCSD #1:

"SUBJECT TO CCSD #1 RULES AND REGULATIONS AND OFFSITE AND/OR SUBREGIONAL STORMWATER FACILITIES AGREEMENT RECORDED UNDER FEE NO. _____, CLACKAMAS COUNTY DEED RECORDS".

51. CCSD#1 shall review and approve the final plat for the sanitary and storm sewer systems prior to recording.

52. (SWM Section 5.1.16) The applicant shall submit a Sensitive Area Certification Form to the District available on our website. All identified wetlands, as determined by the Department of Transportation and Development and the Oregon Division of State Lands (DSL), shall be delineated. Any work within jurisdictional wetlands or streams requires written approval from DSL and the U.S. Army Corps of Engineers. An ODSL "Letter of concurrence" for the delineation shall be submitted.

53. Any substantial deviation from the approved construction plans must have prior approval of the District.

54. The approval of the land use application does not include any conclusions by CCSD#1 regarding acceptability by the DSL or COE for wetland delineation. This decision should not be construed to or represented to authorize any activity that will conflict with or violate the DSL or COE requirements. It is the applicant's responsibility to coordinate with the DSL or COE and (if necessary) other responsible agencies to ensure that the development activities are designed, constructed, operated and maintained in a manner that complies with the DSL or COE approval.

Sanitary Sewer

55. (OAR 340-52) (ORS 672) The sanitary sewer plans and specifications are subject to the applicable state and federal laws for the construction of sewerage systems.

56. The development is subject to the Rules & Regulations and Standard Specifications of Clackamas County Service District No. 1 sanitary sewer.

57. (SAN section 9.01.1) Cost of the sanitary sewer systems shall be borne entirely by the developer. Each lot is subject to a sanitary System Development Charge (SDC) of $2,200 each. These fees shall be paid prior to connecting to the sewer or before issuing the building permit.

58. This development is subject to a minimum plan review fee of $400.00 for sanitary sewer. Plan review fees are due with the first submittal for plan review.

59. (OAR 340-52-040) The developer is required to install sanitary sewer and storm drain facilities to the limits of the property in order to allow for continuity in the conveyance systems. Easements shall be provided for gravity connections to the adjoining properties.

60. (OAR 340-52) (Section 3 Sewer Extension Guide) Submit complete civil plans for sanitary sewer design, stamped by a licensed Civil Engineer, to Water Environment Services. Plans shall be submitted to the Technical Services Coordinator. Sanitary sewer plan and profile shall be shall be 1" = 50' horizontal and 1" = 10' vertical, unless otherwise approved.

61. The developer must provide minimum 15-foot wide sanitary sewer easements where necessary as determined by Clackamas County Service District # 1. Easements for storm and sanitary in a combined area are a minimum of 20-foot wide.

62. Any substantial deviation from the approved construction plans must have prior approval of the District. A Public Sanitary Sewer Extension application is valid for two-years. If the Sanitary Sewer Extension is not completed and accepted within two-years of the date the permit is issued then the District reserves the right to require another plan review and additional fees. If a time extension is requested, the District will review the status of the completion of the project and fees will be assessed at the standard minimum plan review rate for any time extension.

Utilities

63. Provide utility easements where required. The developer shall be responsible for coordinating construction with all utility and service providers and facilitating cooperation among all providers and agencies.

64. All utilities, including electrical power, telephone, cable TV, gas and others shall be underground. Pre-wiring of the project site for street lighting must be approved by Clackamas County Service District No. 5.

65. Any offsite utility or slope easements shall be obtained prior to approval of the construction plans. Copies of the signed and recorded easements shall be provided to the City.

Design

66. A final landscape plan shall be submitted to the Community Development Director or designee for approval prior to final plat approval. The plan shall include all open space areas, detention facilities, and street trees.

67. Prior to final plat approval, area computations in square feet for all building lots must be prepared and submitted by an engineer or surveyor registered in the State of Oregon.

68. All applicable requirements of § 16.16.110, 120, and 130.A & D. of the Development Code shall be met.

69. This project shall utilize setback standards for the R-10 District as follows:

22 feet front
22 feet rear
7 feet side
15 foot street side

Setbacks for Lots 5 and 10 will be 20 feet for both front and rear yards. Also, Lot 4 will have a 20-foot front yard setback to the existing deck and 22 feet to the building foundation. All setbacks are measured from the foundation to the property line.

~~70. Irrigation is required in all open space tracts and the detention facility. Landscape and irrigation plans for the open space tract shall be submitted prior to approval of construction plans. This landscape plan shall include a street tree planting plan. The plan shall be prepared by a landscape professional licensed in the State of Oregon, and be approved by the Community Development Director or designee prior to construction plan approval.~~

Miscellaneous

71. All submitted project construction plans shall conform to the City's ***"Engineering Design and Standard Details Manual"*** (Manual) for design and drafting requirements.

72. Prior to the scheduling of the Pre-Construction meeting, issuance of a Notice to Proceed, or beginning any site work, the applicant shall submit all applicable bonds, have paid all applicable fees, and have service provider letters for both Storm Water and Sanitary Sewer services from Water Environment Services (Clackamas County) and the Sunrise Water Authority.

73. A sign shall be posted on the job site at any entrance, using 4-inch high (Series D black on orange) letters. The sign shall read as follows:

"CONSTRUCTION WITHIN THE DEVELOPMENT SHALL BE LIMITED TO 7:00 AM TO 6:00 PM ON WEEKDAYS, AND 8:00 AM TO 5:00 PM ON SATURDAYS AND SUNDAYS. HOWEVER, SITE CLEARING, EARTH MOVING, INSTALLATION OR CONSTRUCTION OF UNDERGROUND UTILITIES, PAVING OF STREETS AND SIDEWALKS, FOUNDATION FRAMING AND POURING, AND STRUCTURAL FRAMING SHALL BE ENTIRELY PROHIBITED ON SUNDAYS."

The sign shall be conspicuously posted by and at the expense of the developer at each and every entry to the development stating these work hours and shall be maintained through build out. The City Manager shall have the authority to waive these requirements in the event of emergency or in the City Manager's opinion, justifiable cause.

74. The following note shall be shown on the project drawings on the General Notes sheet. ***"All proposed public infrastructure improvements shall conform to: the City of Happy Valley's current street design standards as delineated in the City's Engineering Design and Standard Details Manual (Manual) and the City's Transportation System Plan (TSP), the ODOT/APWA Oregon Standard Specifications for Construction, latest edition, AASHTO "A Policy on Geometric Design of Highways and Streets", latest edition, and any Pubic Works policy updates issued by the City. The contractor shall have a copy of the specification book and City policy updates available at the construction site while construction takes place."***

75. That prior to final approval, a street lighting plan shall be reviewed and approved by Clackamas County Service District No. 5 and the City of Happy Valley. The developer must make arrangements with PGE and Clackamas County Service District No. 5 to pre-wire the development for streetlights. Light standards (poles), luminaries, and lamps shall be those adopted for properties located outside of the Rock Creek Comprehensive Plan are (30-foot bronze poles for 25-foot mounting height, eight-inch arm bracket, "shoebox luminaire: having a drop or flat lens, high pressure sodium vapor lamp, etc.), and must be approved by PGE and the Service District. The developer shall submit a written request to Clackamas County Service District No.5 for installation of streetlights. An assessment district area to pay for operation of these lights must be formed.

76. Joint mailbox facilities shall be installed prior to the City signing the Letter of Acceptance for the development. Joint mailbox facilities must be installed per U.S. Postal Service's "Developers' Guide to Centralized Box Units". The Developer shall provide a signed copy of the U.S. Postal Services "Mode of Delivery Agreement". Submittal of this agreement shall be required prior to a pre-construction meeting taking place.

77. Dust shall be controlled within the development during construction and shall not be permitted to drift onto adjacent properties.

78. Noise shall be kept at the minimum level possible during construction. The developer shall agree to aggressively ensure that all vehicles working on the development shall have adequate and fully functioning sound suppression devices installed and maintained at all times.

79. That all construction sites shall be maintained in a clean and sanitary condition at all times. Construction debris, including food and drink waste, shall be restricted from leaving the construction site through proper disposal containers or construction fencing enclosures. Failure to comply with this condition may result in a "Stop Work" order until deficiencies have been corrected to the satisfaction of the Community Development Director.

80. If applicable, a demolition plan shall be submitted to the City Engineer for approval and permit issued from the City prior to any site demolition or site work.

~~81. All open space tracts and/or common areas shall be conveyed to a homeowners association or the City of Happy Valley. The City of Happy Valley shall have the option to refuse acceptance of the open space. If the City does not agree to assume the ownership and maintenance of the open space tract(s) within this development, the applicant must have a homeowners association and all necessary documentation to insure the responsibility of the association relative to the open space and/or common areas. The City shall be a benefited party for the enforcement of maintenance provisions for the open space.~~

82. All future submittals of this application, to include construction plans and final plat, shall be consistent with the lot numbering as approved on the preliminary plat.

83. Buildings shall have approved address numbering that is plainly legible and visible from the street or road fronting the property.

84. A note shall be added to the Final Plat stating that all subsequent development, including home construction, shall be subject to the applicable conditions of this approval.

85. The developer and/or individual builders are required to obtain either Type "A" (three or less trees) or Type "B" Tree Removal Permits prior to the removal of trees (six-inch diameter at 4.5 feet), subject to the requirements of §16.20.090 (Tree cutting and preservation), of the Development Code and Chapter 15.12 (Infill and Grading) of the Municipal Code. Any required tree replacement mitigation shall be at a ratio of two trees planted for each tree removed.

86. The applicant shall **construct a minimum 12-foot wide private drive and distinct pedestrian path providing vehicular access limited to Lots 7 and 8, including the provision of a reciprocal access easement/maintenance agreement** ~~create a reciprocal access easement/ maintenance agreement for the private drive located between Lots 6 through 9~~.

CITY OF HAPPY VALLEY
STAFF REPORT TO THE CITY COUNCIL

MARCH 18, 2008

COMPREHENSIVE PLAM MAP AMENDMENT/ZONE CHANGE APPLICATION
(File No. CPA-06-07/LDO-06-07 and Ordinance 371)

I. GENERAL INFORMATION

Applicant: Erik and Nancy Gustafsson
9144 SE 145th Avenue
Happy Valley, OR 97086

Property Owner: Erik and Nancy Gustafsson
9144 SE 145th Avenue
Happy Valley, OR 97086

Site Location: 9140, 9142, and 9144 SE 145th Avenue

Proposal: The applicant seeks approval for a Comprehensive Plan Map Amendment/Zone Change from Low Density Residential (R-20) to Medium Density Residential (R-10) for property located at 9140, 9142, 9144 SE 145th Avenue.

II. DISCUSSION

On February 26, 2008, the Planning Commission held a public hearing and voted to forward a recommendation of approval of Comprehensive Plan Map Amendment/Zone Change Application CPA-06-07/LDO-06-07. At the same meeting, the Planning Commission voted to approve a 14-Lot subdivision and variance request known as "Highland Rise" for the properties associated with the Comprehensive Plan Map Amendment/ Zone Change. There were some modifications to the Conditions of Approval. The modified language is identified as **boldface** and underlined text, with deletions marked as ~~strikethrough~~ text, in Attachment A Staff Report and Exhibits to the Planning Commission.

III. CONCLUSION AND RECOMMENDATION

Staff recommends the City Council uphold the Planning Commission recommendation and approve application CPA-06-07/LDO-06-07 authorizing a comprehensive plan map amendment/zone change from R-20 to R-10.

Attachment:

A. Staff Report and Exhibits to the Planning Commission dated February 26, 2008.

B. Preliminary Plan Set for "Highland Rise".

CITY OF HAPPY VALLEY
STAFF REPORT TO THE PLANNING COMMISSION

Highland Rise Subdivision
CPA-06-07/LDO-06-07/SUB-05-07/V-07-07

February 20, 2008

The following staff report has been prepared based on the information contained in the application and supplemental information provided by the applicant, his consultants and responses received from service providers, all of which are incorporated by reference herein.

I. GENERAL INFORMATION

APPLICANT:	Erik and Nancy Gustafsson 9144 SE 145th Avenue Happy Valley, OR 97086
PROPERTY OWNERS:	Erik and Nancy Gustafsson 9144 SE 145th Avenue Happy Valley, OR 97086
APPLICANT'S REPRESENTATIVE:	Monty Hurley, PE, PLS AKS Engineering 13910 SW Galbreath Drive, Suite 100 Sherwood OR, 97140
PROPERTY LOCATION:	South of SE Northern Heights Drive, north of SE Wallowa Way, west of SE Denali Drive, and east of SE 145th Avenue
TAX MAP/LOT NUMBER	1S2E25BC Tax Lot 100, 200, 300
PLAN DESIGNATION:	R-20, Low Density Residential

PROJECT DESCRIPTION: The applicant proposes to rezone 4.45 acres from R-20 to R-10 and subdivide into 14 residential lots.

DENSITY CALCULATIONS: *Note: Density calculations are based on total acreage less twenty percent for roads and utilities.*

Gross Acreage	4.45 Acres	193,913	
RSD-1	0-20%	177,313-20%/ 10,000=	14.19 units
	20-40%	13,626/ 43,560=	0.31 units
	>40%	2,974/ 87,120=	0.03 units
		Total Units=	**14.53 units**

APPLICABLE CRITERIA: City of Happy Valley Land Development Code (LDC): **Title 16, Chapters 16.12, 16.16, 16.20, 16.28, 16.40, 16.52, and 16.56.**

City of Happy Valley Comprehensive Plan: Policy 13, 15, 74, 85, 86, 99, 100, 101, 102, and 103.

EXHIBITS:

The applicant has submitted the following exhibits as part of the application package:

Exhibit 1 (dated December 21, 2007)
Preliminary Subdivision Plan set (14 sheets)

Exhibit 2 (dated December 21, 2007)
Traffic Impact Study

Exhibit 3 (dated November 13, 2007)
Geotechnical Report

Exhibit 4 (dated December 21, 2007)
Sensitive Areas Certification Form

Exhibit 5 (dated December 2007)
Applicant's Narrative

Exhibit 6 (dated December 14, 2007)
Preliminary Drainage Report

Exhibit 7 (dated December 21, 2007)
Preliminary Tree Removal Report

Staff has submitted the following exhibits as part of the Staff Report:

Staff Exhibit A Service Provider Comments and Conditions
1) Clackamas County Service District #5 (CCSD #5)
2) City of Happy Valley Public Works Dept.
3) Clackamas County Water Environment Services (WES)
4) DKS Associates
5) Clackamas County Fire District #1 (CCFD#1)
6) Sunrise Water Authority (SWA)

Staff Exhibit B Public Comments

PROPERTY LOCATION:

The subject site is located on SE 145th Avenue southwest of the previously approved subdivision known as "Northern Heights", north of the previously approved Planned Unit Development (PUD) known as "Monterra", and east of the subdivision known as "Carmichael Estates".

SITE DESCRIPTION:

The subject site consists of three properties totaling approximately 4.45 acres in size with a moderately sloping terrain from north to south. The change in elevation of the subject properties ranges from 620 to 575 feet above sea level. There are three existing single family residences with associated outbuildings located on each of the tax lots making up the subject site. According to the preliminary tree removal plan submitted by as part of this application (Exhibit 1, page 4) there are 187 trees on the subject site, 164 are proposed to be removed as part of this project.

ADJACENT LAND USES:

North and east of the subject site are single family lots meeting the R-20 dimensional standards, created as part of the "Northern Heights" subdivision. South of the subject site is the previously approved PUD "Monterra", with lot dimensions meeting the standards of the R-7 development district. Directly across SE 145th Avenue from the proposed site for Highland Rise are two, one-acre or larger lots with existing single family residences. One of these lots was created as part of Carmichael Estates (Tax Lot 3900), the other is zoned R-20 and has yet to develop (Tax Lot 1000).

II. OBSERVATIONS – CPA-06-07/LDO-06-07/ SUB-05-07/V-07-07

Comprehensive Plan Map Ammendment/Zone Change

The applicant has submitted applications for comprehensive plan map amendment/zone change, subdivision, and variance to be processed concurently. Specifically, the proposal is to rezone the Gustafsson property, approximately 4.45 acres of land currently zoned R-20 Low Density Residential, to R-10 Medium Density Residential to facilitate a 14-lot subdivision.

Transportation System

Highland Rise is proposed to take access from SE Denali Drive via Gustafsson Court, a local street with 48 feet of right-of-way to allow for sidewalks, curbs, and planter strips on both sides and parking on one side. Due to inadequate intersection spacing, Gustafsson Court will not be allowed a connection point to SE 145th Avenue. The minimum spacing for full access intersections on a Minor Arterial (such as SE 145th Avenue) is 600 feet, if Gustafsson Court were to connect to SE 145th Avenue intersection spacing would be approximately 300 feet. As a result, Gustafsson Court will terminate in a cul-de-sac near the western site boundary. The applicant will provide a five-foot paved pedestrian pathway from the Gustafsson Court cul-de-sac west to SE 145th Avenue to better facilitate pedestrian/bicycle circulation.

Traffic Impact Analysis

A review of the Traffic Impact Analysis submitted by the applicant was completed by DKS and Associates. Initial findings are as follows:

Zone Change Analysis:

- The proposed zone change would result in a net increase of approximately seven dwelling units resulting in five new AM peak hour trips, seven new PM peak hour trips, and 68 new daily trips.
- Based on a 2027 analysis, the additional traffic associated with the proposed rezone would not further degrade the study area traffic operations.
- With the additional traffic associated with the proposed rezone, SE Denali Drive would carry approximately 600 vehicles per day. This estimated future volume would be consistent with the classification of SE Denali Drive as a local street.
- The rezone analysis found no significant impacts to nearby transportation facilities or the functional classification system.

Transportation Impact Analysis:

- Based on the traffic analysis letter, the proposed project includes 14 new single family homes which would generate 11 new AM peak hour trips, 14 new PM peak hour trips and 134 new daily trips.

- Site access would be provided by a new local street (Gustafsson Court) intersecting with SE Denali Drive. Site access would not be allowed onto SE 147th Avenue.
- A minimum 280 feet of available sight distance would be required at the Gustafsson Court approach to SE Denali Drive based on the posted speed of 25 miles per hour. Sight distance was measured to be adequate along the site frontage to SE Denali Drive.
- The study intersection crash data is missing from the impact analysis.

The memo from DKS and Associates (staff exhibit A-4) states that this project generally meets the conditions required by the City for a Traffic Impact Study. DKS has also provided a list of conditions of approval that have been incorporated into this staff report.

Variance Request

The applicant is requesting a two-foot variance to the 22-foot front yard setback requirement for Lot 4 to accommodate a front porch associated with an existing home to remain as part of this development. Also, the applicant is requesting a two-foot variance to the 22-foot setback requirement for both the front and rear yards for Lots 5 and 10. This is due to the irregular shape of Lots 5 and 10 caused by the narrow width of the subject site and the location of the cul-de-sac at the terminus of Gustafsson Court. The applicant has requested this variance to better accommodate a building envelope to be consistent with other lots within Highland Rise.

Citizen Comments

At the time of this report city staff hasn't received any citizen comments.

III. FINDINGS OF FACT - SUB-05-07

A. CITY OF HAPPY VALLEY COMPREHENSIVE PLAN

Of the 103 Policies contained in the Happy Valley Comprehensive Plan, it was determined by the City Council that 10 of these are applicable to new development, and therefore must be met by any subdivision proposal. The balance of the policies in the Plan are either discretionary or are incumbent upon the City to plan, program and implement. The ten madatory policies ate 13, 15, 74, 85, 86, 99, 100, 101, 102, and 103. The applicant addressed these policies in the Applicant's narrative.

"Policy 13
Development which increases runoff and erosion, or which has the potential for undermining downhill development through significant increases in runoff will be restricted.

Staff Response

The applicant has demonstrated that stormwater generated from the subject site will be conveyed to a regional detention facility and will not negatively impact downstream properties. This issue of stormwater management has been address in commentary and the proposed conditions of approval submitted by WES (Staff Exhibit A, No.3). Also, standard erosion control measures will be implemented during site construction to lessen the amount of soil washout due to the clearing of vegetation. Therefore, this criterion has been satisfied.

Policy 15
Engineering studies by private developers, the City and other government agencies for sites proposed for development within these areas of suspected or known hazards and compliance with appropriate chapters of adopted Uniform Building Code and section of Happy Valley Land Development Ordinance, are required.

Staff Response

There are no known or suspected hazards on the subject site. The applicant has provided the City with a Sensitive Areas Certification Form stating there are no water quality sensitive areas within 200 feet of the subject site. Per the applicable Conditions of Approval, this criterion is satisfied by the request.

Policy 74
To require new developments to provide Level 1 public facilities and services which are consistent with the Leveled Growth Management sections of the Plan and are required by City ordinances.

Staff Response

All Level 1 public facilities and services are available to serve the subject site, and conditions of approval associated with such provisions are included. This criterion has been satisfied.

Policy 85
To require new developments to limit storm drainage runoff outside project boundaries or provide a storm drainage and collection system within the project in compliance with the City's Storm Drainage Ordinance.

Staff Response

The proposed development will provide a stormwater system that will collect and convey stromwater. Subject to applicable conditions of approval, this criterion has been satisfied.

Policy 86

Until the City's Facilities Plan is completed and the economic analysis and assessment polices are formulated by Clackamas County Service District #1, the City shall evaluate on a case by case basis those P.U.D., subdivision, land partition or building permit application, which can be provided with sewer service from existing sewer lines adjacent to the City. Their approval during this interim period shall be based on the provisions of City's Land Development Ordinance, Growth Management Policies, and agreements for the payment of anticipated public facilities assessments.

Staff Response

As shown on the preliminary plans, sanitary sewer services are available to the subject site. Therefore, this criterion has been satisfied.

Policy 99

Any and all development within the City shall be subject to participation in the provision of Level 2 facilities and services, which are essential to the development of the City as a whole, and shall include:

1. ***Schools***
2. ***Police protection***
3. ***Public Transit***
4. ***Vector control***
5. ***City administrative services***

Staff Response

All proposed lots created with the subdivision will be required to pay property taxes and System Development Charges. Therefore, the subject site development will contribute to the provision of Level 2 services. Thus, this criterion has been satisfied.

Policy 100

The funding of improvement, extension or construction of Level 1 facilities and services within the incorporated limits of the City shall be the responsibility of those whose land use activities caused such improvement, extension or construction to become necessary. Funding sources may include but are not limited to creation of local improvement district (LID); outside funding or grants in aid; direct source payment with or without agreement for future reimbursement by other property owners who may utilize the facility or service; other sources as may be identified.

Staff Response

Level 1 facilities and services are available to the site and will be provided by the developer. The improvements are required to be designed by a licensed engineer, constructed by a licensed contractor, and paid for by the developer. The improvements are required to be in substantial conformance with the attached preliminary development plans and applicable conditions of approval. This criterion has been satisfied.

Policy 101

Waivers of remonstrance for all future improvements of Level 1 facilities and services shall be required for all approved minor partitions, major partitions, subdivisions and P.U.D.'s. The city shall retain these waivers for use when necessary.

Staff Response

There will be no waiver of remonstrance required for this development. Therefore, this criterion is not applicable to the request.

Policy 102

When, as the coordinator of land use activities and service provision to development areas, the City must make determinations regarding fulfillment of the Growth Management Policies and Procedures, the City shall consider recommendations provided by service providers and other affected agencies, including but not limited to the following:

Clackamas County Service District No. 1 (CCSD#1)
Sunrise Water Authority
Clackamas County Fire District No. 1 (CCFD#1)
Clackamas County, Department of Transportation and Development
North Clackamas School District No. 12
North Clackamas Parks & Recreation District
Tri-Met
City of Portland
City of Gresham
City of Damascus

Staff Response

Applicable service providers have been contacted and coordinated with by the City of Happy Valley, and the requirements of these service providers are incorporated within the record. This criterion has been satisfied.

Policy 103
No development of any properties shall be permitted which will interfere or prevent the extension of any Level 1 facilities or services."

Staff Response

It is not anticipated that the proposed development will interfere or prevent the extension of any Level 1 facilities or services. This criterion has been satisfied.

B. HAPPY VALLEY LAND DEVELOPMENT CODE

Approval criteria for Comprehensive Plan Map Amendments/Zone Changes, Subdivisions, and Variances are found in the Happy Valley Land Development Code (LDC), Title 16, Chapters 16.12 Development Districts, 16.16 Methods of Development, 16.20 Development Standards Requirements, 16.28 Variances, 16.40 Amendments to the Comprehensive Plan, Land Use Man and Land Development Code, 16.52 Streets and Roads, and 16.56 Storm Drainage, and have been addressed in the applicant's narrative.

Section 16.12 – Development Districts

"Section 16.12.050 Medium Density Residential

[...]
B. Allowable Uses Permitted by Right.
1. ***One single-family frame dwelling, modular dwelling unit or manufactured home per lot;***
2. ***Open space in a natural state;***
3. ***Public parks and playgrounds, public golf courses, tennis courts and similar outdoor recreational activity areas;***
4. ***Any accessory structure which is customarily incidental to any of the above permitted uses, located on the same lot;***
5. ***Single-family attached dwelling units, duplexes, multiple family units or manufactured housing, approved as part of a PUD application pursuant to Section 16.16.140;***
6. ***Home occupation, as defined in Section 16.04.080, per the provisions of Section 16.14.020;***
7. ***Accessory dwelling units complying with Section 16.16.250;***
8. ***Residential home;***
9. ***Construction of new streets and roads, including the extensions of existing streets and roads, that are included with the adopted transportation system plan.***

[...]
D. Dimensional Standards.

1. ***Minimum lot width: Sixty (60) feet;***
2. ***Minimum lot depth: Eighty (80) feet;***
3. ***Minimum street frontage: Fifty (50) feet; however, frontage may be reduced to thirty-five (35) feet when the lot fronts on a cul-de-sac;***
4. ***Minimum setbacks (measured to building foundation:***
   a. ***Front: Twenty-two (22) feet,***
   b. ***Rear: Twenty-two (22) feet,***
   c. ***Interior side: Seven (7) feet,***
   d. ***Street side (corner lot): Fifteen (15) feet;***
5. ***Maximum lot coverage: Forty (40) percent of total lot area for all structures.***

Staff Response

The applicant has requested a comprehensive plan map amendment/zone change to rezone the subject site from R-20 (Low Density Residential) to R-10 (Medium Density Residential). The applicant has demonstrated "Highland Rise" to be compliant with most of the development standards set forth in Section 16.12.050 R-10 (Medium Density Residential). The applicant seeks approval of a variance request to reduce the front and rear yard setbacks for Lots 5 and 10 and the front yard setback for Lot 4 from 22 feet to 20 feet. Subject to the approval of the applicant's request for zone change/comprehensive plan map amendment and setback variance this application will meet or be conditioned to meet the above criteria. Per the applicable conditions of approval, these criteria are satisfied.

Section 16.16 – Methods of Development

Section 16.16.080 Subdivision-Purpose.

A. This section is a part of the implementation of Happy Valley's comprehensive plan. The regulations contained in this section are necessary for the protection and welfare of the city's land area and are designed to encourage the most appropriate use of land throughout the city; to lessen traffic congestion and accidents; to secure safety from fire; to provide adequate light and air; to prevent overcrowding of land; to provide adequate area for housing; to avoid undue concentration of population; to promote the coordinated development of land; to secure an appropriate allotment of land area in new developments for parks, open space and waterways to conserve and restore natural beauty and other natural resources; and to facilitate the adequate provision of transportation, water, sewerage and other public uses and requirements. This section is pursuant to Chapters 92, 197 and 227 of the Oregon Revised Statutes.

B. The regulations contained in this section shall apply to the division of any parcel or tract of land for the purpose of sale, transfer, or lease, whether immediate or future. These regulations shall also apply in the resubdivision of replatting of land or lots and in every situation where there is a public street or way for the purposes of dividing the land into lots

or tracts. The traditional subdivision may not involve or require clustering and mandates that lot sizes meet the minimum required square footage area as set forth for the particular district(s) in which the project may be located. Some variation in lot standards may be possible in exchange for designated public open space (pursuant to Section 16.16.090 and 16.16.160). (Ord. 283 (part), 2004: Ord. 97 § 5.031, 1986)

[...]

16.16.100 Procedure.

A. Pre-application Conference and Review:

1. When a landowner or developer decides to partition, subdivide or create a planned unit development (PUD), it is required that he or she attend a pre-application review conference before submitting an application.

[...]

Staff Response

Through the preparation of this application and staff report, the process and procedures of the purpose of a subdivision have been followed. Further, a Pre-Application Conference was held for the proposed development. Therefore, this criterion is satisfied by the request.

D. Preliminary Approval.

[...]

2. Application Review Criteria. The following specific criteria shall be utilized in approving or denying any application for subdivision. This criteria must be complied with by utilizing documented technical evidence. All evidence shall be treated as a rebuttable presumption of proof. Rebutting evidence must be compelling and of sufficient scale to offset and exceed the preceding evidence, and must be based on objective data:

Criteria a: The application shall be in compliance with all official maps, exhibits, goals and policies of the Revised Comprehensive Plan.

Staff Response

The applicant seeks a comprehensive plan map amendment/zone change to rezone the subject site from the underlying R-20 (Low Density Residential) zone to R-10 (Medium Density Residential) zone. With the approval of this request to modify the Comprehensive Plan this application would comply with the official zoning map of the City. Furthermore, this proposal conforms, or will be conditioned to conform, to the applicable goals and policies of the Comprehensive Plan. This criterion has been satisfied.

Criteria b: The application meets all requirements of the appropriate technical and growth management articles or sections of the Land Development Code.

Staff Response

The application satisfies, or will be conditioned to satisfy, all requirements of Section 16.16.100 - Procedure, including pre-application conference and review, filing requirements, mapping requirements, distribution of preliminary plans and preliminary approval criteria. The application as submitted has met, or will be conditioned to meet, all requirements of Section 16.16.110 - Minimum Design Standards - including general provisions, street design provisions, easement provisions, and lot design provisions.

The application as submitted has met, or will be conditioned to meet, all requirements of Section 16.16.120 - Minimum Design Standards - including road improvement standards, County surveyor's requirements, street tree requirements, sanitary sewerage disposal and storm drainage requirements, domestic water and fire protection service requirements, and underground utility requirements. This criterion has been satisfied.

Criteria c: The applicant can provide all Level 1 services at adequate levels as determined by the appropriate service provider.

Staff Response

Water will be provided by SWA. Storm drainage and sewer facilities will be constructed in conformance with City of Happy Valley and CCSD#1 design standards. CCFD#1 will provide fire protection. Public streets will be provided pursuant to City of Happy Valley standards for local streets. This criterion has been satisfied.

Criteria d: The Applicant addresses participation in the provision of Level 2 services at adequate levels as determined by the appropriate service provider.

Staff Response

Level 2 services will be provided through the payment of applicable Systems Development Charges, pursuant to Ordinance numbers 106 and 112, and payment of property taxes. This criterion has been satisfied.

Criteria e: Adjoining land may be developed or provided access and services that will allow its future development.

Staff Response

The proposed development will be integrated into the existing infrastructure to allow for the extension of services. All properties surrounding the subject site have previously been developed. To the north and east of the subject site is the subdivision known as "Northern Heights". To the south of the subject site is the PUD known as "Monterra". To the west of the subject site is SE 147th Avenue, which will be improved as part of this project. This criterion has been satisfied.

Criteria f: Compliance with all applicable portions of Section 16.32 (Design Review) has been met.

Staff Response

Subdivisions and PUDs are not subject to Design Review Standards. Therefore, this criterion is not applicable.

Criteria g: The applicant shows how traffic generated by the proposed development can be mitigated to the standard described in the Transportation System Plan and the applicant provides guarantees (as required by Section 16.16.130.A.3.a) to construct the required improvements.

Staff Response

The applicant completed a traffic impact analysis (see Exhibit 2) that was reviewed and commented on by the City's Traffic Engineer. Comments regarding the traffic analysis were submitted and are attached as Staff Exhibit A-4. It was determined by the City's Traffic Engineer that the traffic impact analysis provided by the applicant generally meets the conditions required by the City. Furthermore, the City will require the applicant to provide an appropriate financial guarantee before site construction can begin. Given the applicable conditions of approval, this criterion has been satisfied.

Criteria h: The applicant demonstrates how connectivity is established between the proposed development, adjacent existing development and adjacent potential future developments. Where automobile connectivity cannot be established due to topographic or other constraints, pedestrians and/or bicycle connectivity will be considered.

Staff Response

Due to the location of the subject site in relation to adjacent intersections along SE 145th Avenue, a roadway connection from SE Denali Drive to SE 145th Avenue is not feasible. Intersection spacing standards for a Minor Arterial would not allow Gustafsson Court to provide east-west automobile connectivity. Also, roadway connectivity to both the north and south is not possible, due to recently constructed developments (Monterra and Northern Heights) adjacent to the Gustafsson property not providing connection points. To mitigate the affects of having limited roadway connections, the applicant has proposed a five-foot paved pedestrian path from the western terminus of Gustafsson Court to SE 145th Avenue. This criterion has been satisfied.

Section 16.16.110 Minimum Design Standards

A. General Provisions.

1. ***The principles and requirements within this section shall be followed in the development of all major partitions, subdivisions and planned unit developments and shall be considered minimum standards.***
2. ***All cuts and fills shall comply with the standards and provisions in Section 16.20.140.***
3. ***The removal of natural ground cover shall comply with the standards and provisions in Section 16.20.100.***

[...]

Staff Response

These standards are addressed in the applicant's narrative. The application meets or will be conditioned to meet all the standards in this section to include requirements for pedestrian pathways and lot access. Therefore, this criterion has been satisfied.

Section 16.16.120 Minimum Improvement Standards

A. Road Improvement Standards (Chapter 16.52) and Requirements. All new public street improvements shall conform with the adopted minimum installation, material and construction standards for all public street improvements. If the city does not have standards which are applicable, the standards of Clackamas County shall be adopted.

[...]

Staff Response

These standards are addressed in the applicant's narrative. All improvements meet or will be conditioned to meet the requirements of this section to include street and sidewalk requirements, sewer and storm provision, and fire protection and water requirements. Therefore, this criterion has been satisfied.

Section 16.16.210 - Density Calculations

A. Purpose. Density calculation is the means by which density for any parcel may be determined and ultimately within that parcel in a more efficient and land conscious manner. This portion of the Land Development Title provides the method for calculating the overall density for any given parcel of land which may contain both buildable and unbuildable areas.

[...]

C. Procedure. Density calculations shall be determined by the following procedure.

1. A determination of the total gross acreage in the lot, parcel or property;

2. Identification of slope areas into two categories: slopes twenty to thirty-nine (20-39%) percent in grade, and slopes of forty (40%) percent and greater;

3. Computation of density for the lot, parcel or property, based on the underlying development district(s) shall be determined as follows:

a. Deduct twenty (20) percent of the gross buildable acres (lands with slopes less than twenty (20) percent) for roads and other public infrastructure, then multiply the net build-able acres by the density of the applicable development district(s);

b. Multiply twenty to thirty-nine (20-39%) percent slope areas by one dwelling unit per acre (du/ac);

c. Multiply forty (40%) percent and greater slope areas by one-half (0.5) du/ac;

d. Add sums of subsections (a), (b) and (c) above, and subtract one dwelling unit for every existing dwelling unit within the subject site (if any) to determine total allowable units within the total site area. Unit percentages above the midway mark between two numbers (for example, 6.6 units) are rounded up to the next unit number (i.e., 7 units). Unit percentages below the midway mark (i.e., 6.4 units) are rounded down to the next unit number (i.e., 6 units).

4. For the purposes of slope calculations, the official city contour map and information may be superseded by a site specific survey performed by a professional engineer or professional land surveyor registered in the state of Oregon;

5. Density calculation may occur within any parcel which contains both buildable and unbuildable areas, or may occur between separate parcels when one parcel contains no buildable areas, providing the following provisions have been fulfilled:

a. The parcels are under common ownership and are contiguous; or,

b. The parcels are not under common ownership and are contiguous, but a written agreement to transfer has been executed, notarized, recorded and provided to the city;

c. The scope of the proposed development project includes all affected properties.

6. All density calculation actions shall be made part of the property deed for which the action occurred and will be recorded on behalf of the city to insure public notification of the transfer of development rights.

Staff Response

Density is calculated by determining the total gross acreage of the parcels and identifying the areas in excess of 20 percent slope. Deduct 20 percent of the gross buildable acres for roads, and then multiply the net buildable acres by the density of the applicable development district. Multiply RSD-1 acres by one unit per acre. The combination of these figures is the total allowable units on the site. The subject site is 4.45 acres in size. According to the applicant's slopes analysis, there is a small portion of RSD-1 land on the subject site. The total density for this site is as follows:

Gross Acreage	4.45 Acres	193,913	
RSD-1	0-20%	177,313-20% (for infrastructure)/ 10,000=	14.19 units
	20-40%	13,626/ 43,560=	0.31 units
	>40%	2,974/ 87,120=	0.03 units
		Total Units=	**14.53 units**

Thus, the maximum density of the site would be 15 lots. The applicant is proposing 14 lots for development and therefore satisfies this criterion.

Section 16.16.270 – Significant Natural Resource Lands

A. The significant natural resources section is intended to provide protection for identified significant natural resources under statewide planning Goal 5. It is intended to prohibit development in significant natural resources and surrounding buffer areas or to allow development to occur where adverse impacts to the resources can be suitably mitigated.

B. For the purpose of this section, significant natural resources are designated as significant wetlands and riparian corridors. These resources have been inventoried within the city according to procedures, standards and definitions established under Goal 5 and are identified on the significant wetlands and riparian corridors map (Official Map #22) in the comprehensive plan.

C. The regulations of this section are an important factor in the city's compliance with statewide planning Goal 5 and also serve to encourage coordination between the city, state, and federal agencies concerned with natural resource regulatory programs.

[...]

Staff Response

The applicant has provided the City with a Sensitive Areas Certification Form indicating there are no water quality/sensitive areas on the subject site. It is stated in the comments received from WES that since no wetland delineation was submitted with this application further review of this issue may be necessary in the plan review stage. The Sensitive Areas Certification is acceptable by WES for this application, however, if wetlands or jurisdictional waters are identified at a later time the applicant will need to amend their plans to show these areas including a surrounding 50-foot buffer area. Per the applicable conditions of approval these criteria have been satisfied.

Section 16.20 – Development Standards and Requirements

Section 16.20.030 - Setbacks and Yards

*A. **Purpose. Setbacks for all structures shall meet the stated minimum distances for each district. Where no minimum has been stated, the planning commission or appropriate and designated body or agent shall determine a minimum setback based on the following criteria:***

1. ***The intended use of the lot;***
2. ***The district in which the site is located;***
3. ***Size of the lot and percentage of lot coverage;***
4. ***Accessory uses proposed on the lot;***
5. ***Surrounding uses;***
6. ***Impact on or by other chapters of this title;***
7. ***Impact on surrounding uses or development;***
8. ***Setbacks for the same or similar uses in Happy Valley or other areas.***

[...]

Staff Response

The applicant proposes to meet the setback requirements for the R-10 development district for all lots with the exception of Lots 4, 5, and 10. For these lots the applicant has included as part of this application a request for a variance to the R-10 setback standards for front and rear yards on Lots 5 and 10 and the front yard standard on Lot 4 from 22 feet to 20 feet. These criteria have been satisfied.

Section 16.20.040 - Width & Depth

A. Purpose. Width and depth for all lots not developed as a planned unit development or a subdivision as defined in Section 16.16.090 shall meet the stated minimum dimensions for each district. Where no minimum dimension has been stated, the planning commission or appropriate and designated body or agent may determine the minimum dimensions for width and/or depth of a lot based on the following criteria:

1. ***The intended use of the lot;***
2. ***The district in which the site is located;***
3. ***Surrounding uses;***
4. ***Existing topography, soil conditions (if applicable) and other physical characteristics of the site and the vicinity;***
5. ***The pattern of existing lot sizes and configurations in the vicinity;***
6. ***The trend of developing lot sizes and configurations in the vicinity;***
7. ***Impact on surrounding uses or development;***
8. ***Minimum dimensional standards applied under the same or similar conditions in Happy Valley or other areas.***

[...]

Staff Response

As illustrated within the preliminary development plans (Exhibit 1), all lots conform to the minimum lot width and depth requirements of the R-10 Development District. These criteria have been satisfied per the findings within this staff report.

Section 16.20.050 - Coverage

A. Purpose. Lot coverage for all lots not developed as a planned unit development or a subdivision as defined in Section 16.16.090 shall meet the stated maximum percentage for each district. Where no maximum percentage has been established, the planning commission or appropriate and designated body or agent shall determine the maximum percentage for lot coverage based on the following criteria:

1. ***The intended use of the lot;***
2. ***The district in which the lot is located;***
3. ***Setbacks required by the district in which the lot is located;***
4. ***Lot width and depth:***
   a. ***Of the actual lot in question,***
   b. ***As required by the district in which the lot is located.***
5. ***Existing topography and other physical characteristics of the site and the vicinity;***
6. ***Surrounding uses;***
7. ***Impact on or by other chapters of this title;***
8. ***The pattern and trend of lot coverage for existing and developing lots in the vicinity;***

9. Impact of the change in lot coverage on surrounding uses and development;
10. Lot coverage standards applied under the same or similar conditions in Happy Valley or other areas.
[...]

Staff Response

The applicant has requested no variance to the lot coverage standards of the R-10 district. However, a more detailed analysis will be performed at the time of building permit review. These criteria have been satisfied.

Section 16.20.060 - Building Heights

A. Purpose. To establish a height ordinance that protects the aesthetic character and views within the city, while allowing for the construction of single-family dwellings.
[...]

Staff Response

The applicant has not applied for a variance to this section. Building heights will be reviewed at the time of building permit application. This criterion has been satisfied.

Section 16.20.070 - Parking and Access and Utilities

A. Intent. The state's transportation planning rule calls for reductions in vehicle miles traveled per capita and restrictions on construction of new parking spaces as a means of responding to transportation and land use impacts of growth. The Metro 2040 Growth Concept calls for more compact development as a means to encourage more efficient use of land, promote non-auto trips and protect air quality. In addition, the federally mandated air quality plan adopted by the state relies on the 2040 Growth Concept fully achieving its transportation objectives.
[...]

Staff Response

The development proposal will be conditioned to meet the requirement of two off-street parking spaces per dwelling unit. All utilities within the development will be placed underground and located within a public right-of-way or easement, which meets the criteria.

Section 16.20.090 - Tree Cutting and Preservation

A. Purpose. The purpose of this section is to regulate the removal of trees in order to preserve the wooded character of the City of Happy Valley, and to protect trees as a natural resource of the city. It is the intent of this section to allow the prudent management of trees by property owners where such management is in keeping with the purposes of this section.

[...]

F. Tree Removal in Conjunction with Subdivision Construction, Planned Unit Development (PUD) Construction, Land Partition, Construction, or Nonresidential Construction.

1. A Type B permit must be obtained prior to tree removal of any kind in connection with a subdivision, planned unit development, land partition, or nonresidential construction project.

2. At no time shall trees be removed from open spaces in a development, except under circumstances of danger, or threat to life and property as determined by a representative of the city. Individual trees that are to be removed during construction of a development shall be clearly identified on the tree removal plan, and must receive approval from the city. The plan shall illustrate typical building envelopes as allowed by the required yard setbacks of the underlying development district or actual building envelopes at the discretion of the community development director, particularly for multifamily, institutional, commercial or industrial developments; easements; or, any other structural development constraints, and shall be based on the final grading plan. All trees proposed for removal must exist within grading areas for public rights-of-way and public infrastructure and utility areas including stormwater detention facilities per Section 15.12.050 of this code; and, within the potential or actual building envelope.

a. Optimal Tree Protection Zone. A tree that is adjacent to a public right-of-way, public infrastructure and utility area, or potential or actual building footprint shall be retained only if protected within the optimal tree protection zone as defined in subsection B of this section. Within the portion of the optimal tree protection zone that is being protected, a substantial fence or barrier shall exist. Within the fenced area, no soil disturbance, including stripping, is permitted. The natural grade is to be maintained, and no storage or dumping of materials, parking, etc. will be allowed within this protection area. The protection area fence or barrier shall remain in place through the construction of the structure. If excavation is proposed within the optimal tree protection zone (outside of the fenced off protection area), tree roots shall be pruned along excavation lines in the following manner:

i. Excavation in the top twenty-four (24) inches of the soil in the critical root zone area should begin at the excavation line closest to the tree;

ii. Excavation is to occur with a hand shovel or a backhoe accompanied by a person with a shovel, pruning shears and a pruning saw;

iii. When shoveling, all roots one-inch diameter or larger shall be pruned at the excavation line. When a backhoe is utilized, the operator starts the cut at the excavation line and if encountering roots or resistance, has the person with the shovel/shears/saw prune the

roots larger than one-inch diameter;

iv. Backhoes are to remain off of the roots to be saved at all times; and

v. All excavation work within the optimal tree protection zone (outside of the fenced protection area) shall be accomplished under the supervision of a certified arborist.

b. The planning commission shall determine the tree mitigation ratio for all tree removal as detailed within Section 16.20.090(F) (except for partitions), with a maximum ratio of three trees to one removed. The community development director or designee shall determine the tree mitigation ratio for all tree removal in conjunction with a partition application, as detailed within Section 16.20.090(F), with a maximum ratio of three trees to one removed. All clearing limits and trees requested for removal must be clearly marked on site prior to any construction or tree removal of any kind, and shall be visually confirmed by a representative of the city. Failure to make such markings, or proceeding with clearing outside areas identified by such markings without approval by the city will constitute a violation of this section.

3. Individual lots that are created by construction of a subdivision, PUD, land partition, or nonresidential construction shall be subject to a separate Type A or Type B permit for the removal of trees from such individual lot beyond those removed pursuant to the subdivision, PUD, land partition, or nonresidential tree removal permit as described in subsection (F)(2) of this section. These "secondary" Type A or B permits shall be separate from the original preliminary tree removal plan included with the development application and final tree removal plan submitted in conjunction with construction plans. The individual lot owner, occupant or agent will be responsible for obtaining a permit for the removal of any trees from a lot created by a final plat. Removal of trees outside of the areas approved as part of the original subdivision, planned unit development, partition, or nonresidential tree removal plan shall be permitted only upon demonstration by a certified arborist that retention of trees within these areas represents a significant hazard to public health, safety and welfare, including potential damage to structures, or maintains a "view corridor." Review and approval of the arborist report shall be the responsibility of the community development director and city engineer (or designees).

a. The community development director or designee shall determine the tree mitigation ratio for all tree removal as detailed within Section 16.20.090(F)(3), with a maximum ratio of three trees to one removed.

4. Removal of trees will not be allowed within thirty (30) feet of the high water mark on either side of an identified drainage way. An identified drainage way shall be one that is identified on a United States Department of the Interior Geological Survey 7.5 Minute Quadrangle Map ("U.S. Geological Survey Map"). No tree may be removed from an identified drainage way unless such tree is determined by a city representative to be a dangerous tree. For any drainage way that is not identified upon the United States Geological Survey Map, the permittee shall have the burden of demonstrating that the tree removal sought will not cause or contribute to erosion. The city may require that added erosion control measures be implemented to prevent erosion. The city may require additional documentation substantiating a claim of dangerous circumstances alleged to necessitate the removal of trees from within an identified drainage way. This request for information may include, but is not limited to, a

certified arborist report confirming the danger posed by the tree(s) in question.

Staff Response

The applicant has provided a preliminary tree inventory and removal plan. Tree removal plans will be required at the time construction plans are submitted. Trees removed that are outside the allowed parameters will be mitigated at a rate of 2:1. The applicant shall be required to obtain a Type B permit prior to removal of trees. Per the applicable Conditions of Approval, this criterion may be satisfied.

Section 16.20.100 - Landscaping, Street Trees, & Buffering

A. Purpose. The purpose of this section is to establish standards for landscaping, buffering and screening of land uses within Happy Valley in order to enhance the aesthetic environmental quality of the city:

1. ***By protecting existing street trees and requiring the planting of street trees in new developments;***
2. ***Through the use of plant materials as a unifying element;***
3. ***By using planting materials to define spaces and articulate the uses of specific areas; and***
4. ***By using trees and other landscaping materials to mitigate the effects of the sun, wind, noise and lack of privacy by the provision of buffering and screening.***

[...]

Staff Response

The applicant has submitted a conceptual landscape design as a part of Applicant's Exhibit 1. A final landscape plan, in compliance with this Section must be submitted to the Community Development Director or designee for approval prior to approval of construction plans. Per the applicable Conditions of Approval, these criteria have been satisfied.

F. Street Trees and Planter Strips. All partitions, subdivisions, planned unit developments (PUDs) and any individual uses within any district, whether permitted by right or conditional approval, shall be required to provide street trees and, where applicable, planter strips on all public or private roadways or access drives within the project area, in accordance with the following standards.

1. ***All street trees and planter strips shall be installed or financially secured by the developer per the definition of a "planter strip" found within Section 16.04.080 (Definitions). Private streets or development areas that do not utilize curbside planter strips shall install street trees beyond the public sidewalk, within a public utility and street tree easement.***
    a. ***Street Tree Installation Methodology. The developer and/or builder shall submit***

a street tree plan as part of the construction plan set, detailing to the greatest extent practicable the placement of street trees in conformance with all spacing requirements in regard to street intersections, street lights, driveways, fire hydrants, etc. Based on this street tree plan, the developer shall submit a street tree installation fee based on an amount equal to one hundred twenty-five (125) percent of the cost of the street tree plan, assuming a value of two hundred and fifty dollars ($250.00) per tree. The city of Happy Valley street tree contractor shall install all street trees when the development reaches substantial buildout based on the discretion of the community development director or designee, but generally incorporating an eighty (80) percent benchmark. Alternatively, substantially built-out streets, blocks or neighborhoods may also be authorized for street tree planting per the discretion of the community development director or designee. Any remaining street tree fees shall be refunded to the developer; any additional street tree fees shall be the responsibility of the developer. If in the interest of an expedited timeline for installation by the developer and/or builder (above and beyond that which might be carried out by the city's contractor), such methodology may also be carried out by the developer and/or builder, with submittal of adequate information and liquid financial guarantee (traditional guarantee bonds are not accepted) for the review and approval of the community development director or designee.

Staff Response

A final landscape plan, in compliance with this section must be submitted to the Community Development Director or designee for approval prior to approval of construction plans. Street trees shall be provided in accordance with Section 16.20.100(F)(1)(a) of the Happy Valley Municipal Code. Per the applicable Conditions of Approval, these criteria have been satisfied.

Section 16.20.110 - Fencing and Screening

A. Purpose. While fencing or screening is not uniformly mandatory for all residential development, some circumstances suggest and dictate that fencing or screening shall be erected, installed or planted along the property lines or at some other locations on the property.

[...]

Staff Response

No special fencing or screening is proposed with this application. However, fencing currently is in place along a majority of the southern boundary and portions of the northern boundary of the subject site. It should also be noted that the subject site is surrounded by previously approved subdivisions of similar densities. However, it is at the discretion of the Planning Commission to implement the requirements of this section. This criterion is satisfied.

Section 16.20.120 - Lighting

A. Purpose.

1. This section has been formulated to allow for the provision of street lighting for reasons of safety, health, peace and general welfare of all users and the citizens of and visitors to Happy Valley. It is the intent of this section that such lighting shall be provided by and through annexation of the city to Clackamas County Service District No. 5 or its successor.

[...]

Staff Response

Street lighting will be provided throughout the development in accordance with the requirements of CCSD #5 per the comments from Kevin Noreen in Staff Exhibit A-1. This criterion has been satisfied.

Section 16.20.140 - Excavation or Filling of Soil

A. Purpose. The provisions of this section further regulate and restrict the layout and improvement of land, including drainage; the excavating, filling and grading of lots; the location and construction of buildings and other structures and parts and appurtenances of such buildings and structures.

[...]

Staff Response

The applicant has submitted a preliminary grading plan on page five of Applicant's Exhibit 1. Erosion control will be required and an NPDES permit must be obtained from the City of Happy Valley if grading activity disturbs more than one acre. All grading and filling must be in accordance with Ordinance 138 of the City's Municipal Code. This criterion has been satisfied as conditioned.

Section 16.20.170 - Surface Water Runoff and Detention

A. Purpose. In order to minimize water quality degradation by preventing siltation of any creek, stream, lake or other body of water, and to protect property and property owners not only adjacent to any body of water but at any location within the city, this section has been formulated. Additionally, the city seeks to reduce the general erosion, protect the topography of the area, reduce damage to water bodies, courses and property both public and private and to protect and insure the safety of city and county streets and roads, drainage channels, public and private facilities and the general health, welfare, peace and comfort of the citizens of Happy Valley and the public through the implementation of this and associated or related sections.

[...]

Staff Response

The applicant proposes to utilize the regional detention pond for stormwater detention and filtration located east of the subject site constructed as part of Northern Heights. To alleviate potential future problems with surface water runoff associated with this project, the applicant will be required to design and construct a storm drainage collection system along the south property line of Lots 8 through 14. The intent of this requirement is to collect surface water runoff before it would affect downhill properties within Monterra. The proposal has been deemed acceptable by WES and the City's Public Works department, therefore, per the applicable conditions of approval this criterion has been satisfied.

SECTION 16.28- VARIANCES

16.28.030 Criteria for consideration of a variance.

A. The planning commission or appropriate and designated body or agent may grant a variance only if it makes findings that all of the following requirements, insofar as applicable, have been satisfied:

1. That there are unique physical circumstances or conditions, including, but not limited to irregularity, narrowness or shallowness of the lot, or exceptional topographical or other physical conditions peculiar to the affected property;

Staff Response

The applicant is requesting a two-foot variance to the 22-foot front yard setback requirement for Lot 4 to accommodate a front porch associated with an existing home to remain as part of this development. Also, the applicant is requesting a two-foot variance to the 22-foot setback requirement for both the front and rear yards for Lots 5 and 10. This is due to the irregular shape of Lots 5 and 10 caused by the narrow width of the subject site and the location of the

cul-de-sac at the terminus of Gustafsson Court. The applicant has requested this variance to better accommodate a building envelope to be consistent with other lots within Highland Rise. This criterion has been satisfied.

2. ***That, because of such physical circumstances or conditions, the property cannot reasonably be developed in conformity with the provisions of this title;***

Staff Response

The shape of the subject site presents some physical constraints to development. Access to the subject site can only come from the east, off SE Denali Drive. This is due to existing developments to the north and south providing no street connection point and intersection spacing along SE 145th Avenue not allowing a street connection to the Gustafsson property. This scenario creates an east-west local street which bisects the subject site and terminates in a cul-de-sac near the western site boundary. As a result, lots proposed within Highland Rise are relatively shallow in nature. This is particularly true of lots surrounding the cul-de-sac at the terminus of proposed Gustafsson Court. This criterion is satisfied.

3. ***That the condition requiring the variance has not been intentionally created to circumvent the land development ordinance;***

Staff Response

The basis for the variance request to the setback standards associated with this development is road location in relation to property boundaries. The applicant will not be allowed to construct Gustaffson Court as a through street from SE Denali Drive to SE 145th Avenue. As a result, Gustaffson Court will terminate in a cul-de-sac creating two shallow lots, Lots 5 and 10 (see Exhibit 1, Page 13). The request for variance will allow for lots 5 and 10 to have a typical building envelope to be constructed as part of "Highland Rise" rather than an irregular shaped rectangle. This criterion has been satisfied.

4. ***That the variance, if granted, will not alter the essential character of the neighborhood or district in which the property is located, nor substantially or permanently impair the appropriate use or development of adjacent property or create a precedent for the neighborhood which does not now exist;***

Staff Response

The request for setback variance is for the minimal amount to allow for the placement of building types that are typical throughout the area. Also, the variance request will affect only three lots within the 14-lot "Highland Rise" development. Therefore, considering these factors the variance request will not jeopardize the essential character of the proposed development, which is consistent with that of the surrounding area. This criterion has been satisfied.

5. That the variance, if granted, is the minimum variance that will afford relief and is the least modification possible of the development provisions which are in question.

Staff Response

The applicant is requesting a variance to the R-10 front and rear yard setback standard for the minimal amount to allow for the placement of building envelopes on Lots 5 and 10 that will be consistent other lots within Highland Rise. The front yard setback variance request for Lot 4 is for the minimal amount to allow an existing home and associated front porch, currently located on Tax Lot 200, to remain in its current location. This criterion has been satisfied.

B. In granting the variance, the commission or appropriate and designated body or agent may attach such reasonable conditions and safeguards as it may deem necessary to implement the purposes of this title.

[...]

Staff Response

Specific conditions of approval regarding the applicant's request for variance to the R-10 setback standards have been incorporated into this staff report. Per the applicable conditions of approval, this criterion has been satisfied.

16.28.070 Administrative Variance

A. Purpose. The purpose of an administrative variance shall conform to the same requirements held necessary for a variance as outlined in Section 16.28.010.

B. Authority to Grant an Administrative Variance. The city administrator or appropriate and designated body or agent may grant an administrative variance of up to twenty (20) percent from any dimensional or development review standard except for lot area which shall be limited to five percent for an administrative variance.

C. Criteria for Consideration of an Administrative Variance.

1. The city administrator shall grant an administrative variance only if the administrator finds that all of the requirements as stated in Section 16.28.030, insofar as applicable,

have been satisfied. Staff may impose such conditions as are deemed necessary to mitigate any adverse impacts which may result from granting relief.

2. ***Administrative variances may be granted in the following areas: Sections within Chapter 16.20, Development Standards and Requirements, including setbacks, dimensional standards including lot width, depth and coverage, street frontage requirements, structure height, fencing and screening, signs and other development standards as specified by the land development ordinance.***

Staff Response

The applicant is requesting a 10 percent variance to the R-10 development standard for front and rear yard setbacks. Variance requests to setback standards less than 20 percent are allowed to be processed administratively. Furthermore, staff has shown this application to satisfy all criteria in Section 16.28.030. These criteria have been satisfied.

Section 16.40- Amendments to the Comprehensive Plan, and Land Development Title of This Code
16.40.041 Review criteria.

A. The proposed amendment is consistent with and promotes applicable goals and policies of the comprehensive plan of the city.

Staff Response

See the staff response to Comprehensive Plan Objectives, above. As addressed within the record, this criterion is satisfied by the request.

B. There is a demonstrated public need for a change of the specific type proposed.

Staff Response

The neighborhoods surrounding the subject site (Monterra and Northern Heights) have streetscapes consisting of narrow local streets with lot widths ranging from approximately 70 to 120 feet. For the Gustafsson property to develop, the applicant has only one option for the street layout to provide access to newly created lots. The street layout consists of a local street intersecting with SE Denali Drive, traversing west, bisecting the Gustafsson property, and terminating in a cul-de-sac. Due to this street layout, implementing the R-20 zoning standards would result in lots within Highland Rise being approximately 100 feet deep and 200 feet wide (nearly twice as wide as the applicant is proposing). In this scenario, the streetscape of Highland Rise would not be consistent with that of the surrounding neighborhoods. It's in the interest of the public to have some degree of consistency between adjoining neighborhoods. Therefore, this criterion has been satisfied.

C. That need will be best served by the amendment as proposed as compared with other alternatives.

Staff Response

Staff interprets the language "other alternatives" in this criterion to mean that the alternatives would be to allow no zone change on the subject site or to change the zoning on the property to something other than what the applicant's are proposing. Staff has demonstrated within the findings of this staff report the applicant's request will ensure conformity among neighborhoods surrounding the subject site. Therefore, serving a public need and satisfying this criterion.

D. The proposed amendment is consistent with the use and implementation of growth management mechanisms and capital improvement programs of the city.

Staff Response

The City of Happy Valley Comprehensive Plan establishes goals and policies to guide the quantity, type, costs, timing, and quality of development within the city. The applicable growth management mechanism policies related to the proposed project are Policies 97, 99, and 102.

Policy 97 states that the "City shall permit development on vacant buildable lands when all Level 1 facilities and services are available [including] sanitary sewer, water supply, storm drainage, fire protection, and streets and roads." Policy 99 is similar to Policy 97, although it refers to having adequate provisions for providing Level 2 services that include schools, police protection, parks and recreation, public transit, vector control, and city administrative services. Policy 102 requires city coordination with local service providers to ensure adequate services are available. Policy 102 states that the "city shall rely on a determination provided by the service providers and other affected agencies...Any determination shall be within the parameters of the providers' or agency's own standards, criteria, requirements or plans."

Development that could be permitted with the approval of this zone change would potentially impact both Level 1 and Level 2 services. However, through applicable conditions of approval, all services are required to be provided in conjunction with future land divisions. Therefore, this criterion has been satisfied.

E. The proposed amendment can be implemented by this land development title and all other appropriate codes, ordinances and regulations. The applicant bears the entire burden of proof of establishing to the planning commission that the proposed amendment meets the

above requirements. This burden of proof shall also apply to the city if it initiates a proposed amendment.

Staff Response

As observed, future development would require conformance with all applicable requirements of the codes, ordinances and regulations of the City of Happy Valley. A development application is concurrently being processed by the City along with this comprehensive plan map amendment/zone change. Subject to the conditions of approval listed in this report, Staff has determined the development on the subject site is in compliance with the regulations of the City of Happy Valley. Therefore, this criterion is satisfied by the request.

G. ***When an application includes a proposed comprehensive plan amendment or land use district change, the proposal shall be reviewed to determine whether it significantly affects a transportation facility, in accordance with Oregon Administrative Rule (OAR) 660-012-0060. If a master plan that requires a full traffic impact analysis is required for a comprehensive plan map amendment/zone change area, a subsequent master plan may satisfy this provision, as determined by the city of Happy Valley community development director or designee.***

Staff Response

The applicant provided a traffic analysis indicating compliance with the Transportation Planning Rule based on the development not significantly impacting the surrounding transportation system. The residential development that is proposed for the site is estimated to generate 68 new vehicle trips daily. The applicant is proposing a new access road to the site that is expected to operate at an acceptable level given the proposed vehicle trips. Given the above information, this proposal is consistent with the Transportation Planning Rule (OAR 660-12-0060).

Section 16.52– Street and Road Standards

16.52.010 Purpose

A. ***It is the purpose and intent of this chapter to establish design standards and performance requirements for all streets and roads and other transportation facilities constructed or reconstructed within the city, as well as establish a process for variation from the streets standards.***
B. ***The residential streets standards shall be considered as minimum design requirements under ideal circumstances. All residential streets in the city shall be designed as one of the standard prototypes except as provided in Section 16.52.0650 of this chapter. Approval of***

the appropriate street prototype shall be by the planning commission as part of the review process as provided in this title and shall be based on the following considerations:

1. ***Street function needed within the existing proposed and future neighborhood and the city circulation networks;***
2. ***Anticipated daily traffic volume;***
3. ***Individual property access requirements;***
4. ***Topographic variations and the amount of cut and fill required for the proposed street;***
5. ***Soil and other field conditions.***

[...]

Staff Response

Subject to the applicable conditions of approval, the proposed streets are in compliance with City standards as shown on the preliminary plans. All other standards of Chapter 16.52 have been met. Per the pertinent Conditions of Approval, these criteria have been satisfied.

Section 16.56 – Storm Drainage

A. Permits. A city permit is required to discharge storm drainage into a city-maintained drainage facility or drainage course. The design engineer or other responsible party must submit plans for review and pay the appropriate fee before a permit may be issued.

B. Extent of System. In general, storm drain systems should be designed to carry future loads which may reasonably be expected from full development upstream consistent with the comprehensive plan. Storm drainage systems shall extend to the appropriate extremities of the project to provide for both upstream and downstream development of the system. See Section 16.20.160 for details.

C. Separate Storm Drains and Sanitary Sewers Required. All new systems and extensions of existing systems shall be designed only on the basis of separate storm drains and sanitary sewers. Combined sewers will not be approved.

D. Connections to Existing Storm Drains. Wherever practicable, storm drain connections will be made directly into existing manholes. Construction of a manhole over the existing storm drain may be required. Tee connections may be allowed from single inlets or single area drains. Also, if the existing storm drain is thirty-six (36) inches in diameter or larger, a manhole connection may not be required. In any case, the sole determination of the type of connection will be made by the city engineer."

Staff Response

The applicant proposes to utilize the regional stormwater facility for detention and infiltration located east of the subject site constructed as part of Northern Heights. WES has deemed this proposal acceptable provided the applicant makes a financial contribution to the cost of the facility, payable to CCSD#1 before the time of platting.

To alleviate potential future problems with surface water runoff associated with this project, the applicant will be required to design and construct a storm drainage collection system along the south property line of Lots 8 through 14. The intent of this requirement is to collect surface water runoff before it could affect downhill properties within the Monterra development. The proposal has been deemed acceptable by WES and the City's Public Works department. Therefore, per the applicable conditions of approval this criterion has been satisfied.

CONCLUSION AND RECOMMENDATION SUB-05-07

Staff has completed a review of the application according to the intent and purpose of the Comprehensive Plan and Land Development Ordinance. Staff has concluded that the application meets, or will be conditioned to meet, the criteria for approval. Based on the findings included in the development application and this Report, Staff recommends **approval of SUB-05-07/CPA-06-07/LDO-06-07/V-07-07 subject to the conditions included in the following section, SUB-05-07/CPA-06-07/LDO-06-07/V-07-07 Conditions of Approval.**

SUB-05 -07/CPA-06-07/LDO-06-07/V-07-07 Conditions of Approval

Administration

1. System Development Charges (SDC's) shall be paid and any credits allowed shall be in accordance with the Ordinance 106 as amended. SDC's for parks and stormwater shall be paid prior to plat approval. Transportation SDC's shall be paid at issuance of building permits. When the building permits are issued for the individual lots, the final amount will be calculated and the builder/homeowner will pay any difference.

2. Each lot is subject to pay the current rates for sanitary and storm drain System Development Charge (SDC). Fees are reviewed annually; the most current fee rate applies. These fees shall be paid prior to issuing the building permit.

3. The developer or his engineer is required to pay a preliminary plan review fee based on the number of lots when submitting the first set of construction plans to the City for review. This fee will be credited toward the total plan review fees.

4. Subject to the City's latest "Public Improvement Guarantee" form which requires financial security of 125% of the City engineer's estimate and a 25% two (2)-year maintenance bond upon completion and acceptance of the improvements.

5. Construction plans shall show all adjacent subdivision names, lot lines and tax lot lines with the tax map and tax lot number noted on each.

6. Construction plan review is subject to these Conditions of Approval.

7. No building permits shall be submitted to the City for review until the plat has been recorded and two copies (22" x 36") and one 8-1/2" x 11" of the recorded plat have been submitted to the City, the City and County have accepted all improvements, mylar "as built" drawings are received by the City and County and a 2-year maintenance bond is in place, along with any performance bonds.

8. Full time inspection by the developer's engineer is required for all street and storm drainage construction.

9. The developer's engineer shall submit an approved tree removal plan and obtain the required tree cutting permits for only those trees necessary to construct the street and utility improvements. A tree planting mitigation plan at a rate of 2:1 is required for any trees removed outside the limits of the infrastructure improvements. Any trees that are to be preserved must be fenced at the drip line for protection prior to construction.

10. The developer's engineer is required to initially submit three sets of construction plans for initial review to the City as well as submitting two sets of plans (including storm detention calculations) to WES and the City's traffic engineer (DKS and Associates). A pre-design/pre-construction meeting is required to be held with the City Engineer prior to submittal of construction plan sets.

11. The property owner shall file a final plat pursuant to ORS 92.050 and shall conform to all provisions contained therein. The recorded plat shall be in substantial conformance with the approved preliminary plat and bear the signature of the Planning Commission Chairman, City Mayor, and City Public Works Director. Two recorded copies of the Plat shall be submitted to the City as verification of recordation prior to the issuance of any building permit.

12. This approval will expire two years from the date of the Notice of Decision and may be extended for a maximum of one additional year pursuant to section 16.16.110.C2.6 of the Land Development Code. Recording in phases will require a Development Agreement with the City. The development agreement shall specify that no time extensions shall be permitted and all phases must be recorded within seven (7) years from the final decision, including the provision of two additional units for minimum density requirements and the additional open space area, and all necessary improvements.

Grading and Erosion Control

13. A storm drainage collection system shall be installed along the south property line of Lots 8 through 14. This storm drainage line shall be designed to collect any roof, foundation, retaining wall and surface water runoff draining to the south from each lot noted above. This storm water collection system shall be placed within a 15 foot wide storm drainage easement running adjacent to the south property line of said lots. This easement shall be assigned to/and maintained by the subdivision HOA.

14. The developer's engineer is required to provide a site specific drainage plan to temporarily collect, route, and treat surface water and ground water during each construction phase. The construction plans shall specifically identify how the storm drainage system and erosion sediment control measures will be phased during construction, such that at any time during construction the approved plans shall be capable of providing full erosion and sediment control collection, routing, and treatment of storm water runoff and ground water. No site construction will be allowed to take place if the storm drainage system and erosion sediment control measures are not installed per plan and functioning properly.

15. Since the total disturbed area for this project exceeds 1 acre, an NPDES 1200-C permit will be required for this project. The applicant shall follow the latest requirements from DEQ for NPDES 1200-C permit submittals. A copy of the DEQ permit submittal shall be provided to the City during the City design review phase. A copy of the DEQ approved and signed permit shall be provided to the City prior to holding a pre-construction meeting or commencing any construction activity.

16. All grading activity including tree removal shall be per the current City of Happy Valley Municipal Code. Neither activity shall commence prior to issuance of both a site development permit and tree removal permit by the City.

17. The developer shall have a Geotechnical Engineer Report prepared by a registered engineer or registered geologist/hydro-geologist in the State of Oregon, which outlines the site specific details within the project boundaries. Along with the general construction recommendations, delineating the extent of spring and groundwater activity shall be researched and reported. The report shall detail a plan for dewatering these areas and shall further identify those lots which need specific foundation design.

18. Retaining walls greater than four (4) feet in height shall have a geotechnical engineer provide stamped design calculations and detail drawings required for the retaining wall construction. The retaining wall detail drawings shall include at a minimum; wall profile, wall cross section at highest point of wall, wall reinforcing geotextile requirements, wall drainage system, and wall backfill requirements. Retaining wall drainage systems shall either discharge to a public storm drainage system, or discharge on-site in such a manner as to not negatively impact adjacent downstream properties.

19. That in the event there is engineered fill on any public roads or lots, the developer's soils engineer and testing lab shall obtain and record compaction test and submit results for the review and approval by the City Engineer. Additionally, reports shall be attached to the individual 8½ x 11 as-built drawings required for each lot. Storm and sanitary laterals shall have two distance ties to their ends for future location.

20. That if waste material is to be disposed of on-site outside of any public right-of-way area, the applicant shall submit a grading plan by an engineer registered in the State of Oregon, in accordance with City Municipal Code for review and approval by the City Engineer. Those lots or areas specifically affected shall be flagged with an asterisk on the final plat referring to a note that states specific foundation design adequate for the intended use will be necessary under City Municipal Code 15.12.

21. That the grading limits shall be fenced using the standard 4' orange plastic construction fencing in addition to the required erosion sediment control fences. All fencing and construction gravel entrances shall be installed and maintained by the developer and inspected by the City of Happy Valley prior to issuance of a site development permit by the City.

22. That the Erosion Sediment Control Plan shall include a plan to implement and maintain wet weather measures within 14 days of the final grading and between the months of October 1st and April 30th.

23. That all street grading shall meet the City's current standards and slope of driveways themselves shall not exceed 12 percent. Approval of driveway grades exceeding 12% are on a case by case basis at the discretion of the City Engineer and CCFD #1.

Streets and Roads

24. SE 145th Avenue is classified as a minor arterial in the City's Transportation System Plan (TSP). The applicant shall dedicate 4-feet of right-of-way along SE 145th Avenue to the City to conform to the right-of-way requirements for a minor arterial.

25. Frontage (one-half street) improvements shall be required along SE 145th Avenue to meet the standards for a three-lane minor arterial roadway as shown in Figure 8-4 of the City's TSP. The street improvements to SE 145th Avenue associated with this project shall include: 24-foot paved surface, five-foot sidewalk, five-foot planter strip, and six-inch curb. Street improvements shall be from the centerline of the right-of-way, not the centerline of the existing paved section and shall match with the existing frontage improvements for the Northern Heights and Monterra subdivisions.

26. The private drive providing access to Lots 7 and 8 from Gustafsson Court shall include a standard residential driveway drop at the cul-de-sac conforming to the City's standard detail drawing RD-22.

27. Street design plans shall conform to the requirements delineated in the City's "Engineering Design and Standard Details Manual" (Manual) current revision, and the City's Transportation System Plan (TSP), current revision.

28. A cross section for the street improvement shall be prepared that illustrates utility locations, street improvements including grade and elevation and sidewalk location including grade and elevation per current construction requirements. Said cross section shall be submitted to the City Engineer for review and approval.

29. The road pavement section asphalt shall consist of a 2-inch final lift of HMAC Level 2, ½" dense, over a 2-inch base lift of HMAC Level 2, ¾" dense. This change in pavement thickness is being adopted in the current revisions to the City's Manual. The pavement section leveling rock and base rock material and thickness shall conform to the standards in the Manual.

30. Typical street sections shall conform to the City's "Engineering Design and Standard Details Manual" (Manual) current revision, and to the City's Transportation System Plan (TSP) current revision, and shall include an 8-foot public utility easement (PUE).

31. That all required public improvements shall be constructed, inspected, and accepted or financially guaranteed prior to final plat approval.

32. No building permits shall be submitted to the City for review until the plat has been recorded, the City, County, and Water District have accepted all improvements, mylar (record) individual 8 ½ x 11 "as-built" record drawings for each lot showing storm and sanitary lateral locations with two distance ties to their ends for future locations are received and approved by all applicable agencies, and the performance/maintenance bonds for each jurisdiction is in place and all City requirements are met.

33. That all current ADA requirements for streets and intersections shall be met. In addition, the developer shall be responsible for the installation of all street name signs (including directions provisions, i.e. "SE"), stop signs (required at all street intersections), and any parking restriction signs or curb painting delineating parking restrictions, per the requirements of the City of Happy Valley.

34. The proposed local street (Gustafsson Court) shall conform to Figure 8-7 (Local Street Parking on One Side) of the City's Transportation System Plan (TSP) current revision, and shall include: 48 feet of right-of-way, 28 feet of paved surface, five-foot sidewalks and planter strips on both sides, six-inch curbs on both sides, and signs on one side denoting "No Parking".

35. Minimum AASHTO sight distance requirements shall be met at the project access point onto SE Denali Drive. AASHTO requires sight distance to be measured at a point 14.4 feet from the edge of the traveled way with a driver's eye height of 3.5 feet and an object height of 3.5 feet. The project access point on SE Denali Drive shall provide a minimum of 280 feet of intersection sight distance based on the posted speed of 25 miles per hour. The sight distance at the project access points shall be approved by the City Engineer prior to final site plan approval.

Fire

36. The applicant shall consult both CCFD and SWA to determine final Hydrant locations.

37. The fire code requires a 28 foot wide access road to have no parking on one side of the street. As a result, "No Parking" signs shall be posted on one side of Gustafsson Court to meet fire code standards.

Storm Drainage

38. The development is subject to the Rules and Regulations for Surface Water Management and Standard Specifications of Clackamas County Service District No. 1 for Surface Water Management and erosion control.

39. (SWM section 9.6.3) Cost of the Surface Water facilities shall be borne entirely by the developer. Each lot is subject to a System Development Charge (SDC). These fees shall be paid prior to issuing the building permit.

40. This development is subject to a minimum plan review fee of $400.00 Surface Water plan review. Plan review fees are due with the first submittal for plan review.

41. The above application is subject to the requirements of the National Pollutant Discharge Elimination System (NPDES) stormwater general permit 1200-C since more than 1-acre of land is disturbed. The City of Happy Valley issues NPDES permits.

42. (SWM Section 5.2.4 and 5.2.5) Storm water detention is required. Storm drainage detention calculations shall be by the King County method (SBUH hydrograph - software version 4.21B or approved equivalent). The detention requirement is to reduce the 2-year developed discharge to one half of the pre-developed rate.

43. (SWM section 5.2.7) Water quality requirements shall be met. Facilities must be designed to treat the runoff from rainfall up to the amount of 2/3 of a 2-yr storm.

44. (SWM Section 5.2.6) Stormwater infiltration shall be provided. Infiltration systems must be sized to infiltrate the entire runoff volume from a one-half inch 24-hour rainfall event within a period of 96 hours. Water quality and infiltration facilities and shall be designed according to the design procedures in Appendix D of the CCSD #1 Standard Surface Water Specifications.

45. (SWM Section 5.2.2) All springs, seeps, wetlands, sensitive areas, and required buffers shall be clearly shown and noted on the plans and identified by a certified professional. In addition, the location of each building must be shown on the plan so that potential stormwater impacts can be effectively evaluated.

46. (SWM Section 5.2.2) (SWM Section 5.2.4)The developer's engineer must provide supporting data to CCSD#1 that the downstream conveyance system has adequate capacity to accommodate the Surface Water flows and not cause flooding. The applicant is required to analyze the existing outlet structure from the Northern Heights Subdivision and propose a solution to resolve this problem, i.e. a flow splitter manhole, or some other means to protect the downstream properties.

47. (SAN section 7 & SWM section 5.1) Submit complete civil plans, including an erosion control plan, to be reviewed for both sanitary and stormwater regulations by the Water Environment Services. Plans shall be submitted to the Technical Services Coordinator.

48. (SWM section 5.1.13) The development is required to enter into a stormwater maintenance agreement with Clackamas County Service District No. 1. for the maintenance of the stormwater facilities. The following statement must be added to the Restrictions on the subdivision plat.

"Clackamas County Service District #1 (CCSD#1), its Successors or Assigns is hereby granted the right to lay down, construct, reconstruct, replace, operate, inspect and perpetually maintain sewers, wastewater, storm drainage or surface water pipelines, and all related facilities. No permanent structure shall be erected upon said easement without the written consent of the CCSD#1. Grantors agree to undertake no activity that would harm or impair the proper functioning of the sanitary and storm sewer system."

49. (SWM section 5.1.13) The following plat restriction must be shown on all subdivision plats that are within CCSD #1:

"SUBJECT TO CCSD #1 RULES AND REGULATIONS AND OFFSITE AND/OR SUBREGIONAL STORMWATER FACILITIES AGREEMENT RECORDED UNDER FEE NO. _____, CLACKAMAS COUNTY DEED RECORDS".

50. CCSD#1 shall review and approve the final plat for the sanitary and storm sewer systems prior to recording.

51. (SWM Section 5.1.16) The applicant shall submit a Sensitive Area Certification Form to the District available on our website. All identified wetlands, as determined by the Department of Transportation and Development and the Oregon Division of State Lands (DSL), shall be delineated. Any work within jurisdictional wetlands or streams requires written approval from DSL and the U.S. Army Corps of Engineers. An ODSL "Letter of concurrence" for the delineation shall be submitted.

52. Any substantial deviation from the approved construction plans must have prior approval of the District.

53. The approval of the land use application does not include any conclusions by CCSD#1 regarding acceptability by the DSL or COE for wetland delineation. This decision should not be construed to or represented to authorize any activity that will conflict with or violate the DSL or COE requirements. It is the applicant's responsibility to coordinate with the DSL or COE and (if necessary) other responsible agencies to ensure that the development activities are designed, constructed, operated and maintained in a manner that complies with the DSL or COE approval.

Sanitary Sewer

54. (OAR 340-52) (ORS 672) The sanitary sewer plans and specifications are subject to the applicable state and federal laws for the construction of sewerage systems.

55. The development is subject to the Rules & Regulations and Standard Specifications of Clackamas County Service District No. 1 sanitary sewer.

56. (SAN section 9.01.1) Cost of the sanitary sewer systems shall be borne entirely by the developer. Each lot is subject to a sanitary System Development Charge (SDC) of $2,200 each. These fees shall be paid prior to connecting to the sewer or before issuing the building permit.

57. This development is subject to a minimum plan review fee of $400.00 for sanitary sewer. Plan review fees are due with the first submittal for plan review.

58. (OAR 340-52-040) The developer is required to install sanitary sewer and storm drain facilities to the limits of the property in order to allow for continuity in the conveyance systems. Easements shall be provided for gravity connections to the adjoining properties.

59. (OAR 340-52) (Section 3 Sewer Extension Guide) Submit complete civil plans for sanitary sewer design, stamped by a licensed Civil Engineer, to Water Environment Services. Plans shall be submitted to the Technical Services Coordinator. Sanitary sewer plan and profile shall be shall be 1" = 50' horizontal and 1" = 10' vertical, unless otherwise approved.

60. The developer must provide minimum 15-foot wide sanitary sewer easements where necessary as determined by Clackamas County Service District # 1. Easements for storm and sanitary in a combined area are a minimum of 20-foot wide.

61. Any substantial deviation from the approved construction plans must have prior approval of the District. A Public Sanitary Sewer Extension application is valid for two-years. If the Sanitary Sewer Extension is not completed and accepted within two-years of the date the permit is issued then the District reserves the right to require another plan review and additional fees. If a time extension is requested, the District will review the status of the completion of the project and fees will be assessed at the standard minimum plan review rate for any time extension.

Utilities

62. Provide utility easements where required. The developer shall be responsible for coordinating construction with all utility and service providers and facilitating cooperation among all providers and agencies.

63. All utilities, including electrical power, telephone, cable TV, gas and others shall be underground. Pre-wiring of the project site for street lighting must be approved by Clackamas County Service District No. 5.

64. Any offsite utility or slope easements shall be obtained prior to approval of the construction plans. Copies of the signed and recorded easements shall be provided to the City.

Design

65. A final landscape plan shall be submitted to the Community Development Director or designee for approval prior to final plat approval. The plan shall include all open space areas, detention facilities, and street trees.

66. Prior to final plat approval, area computations in square feet for all building lots must be prepared and submitted by an engineer or surveyor registered in the State of Oregon.

67. All applicable requirements of § 16.16.110, 120, and 130.A & D. of the Development Code shall be met.

68. This project shall utilize setback standards for the R-10 District as follows:

22 feet front
22 feet rear
7 feet side
15 foot street side

Setbacks for Lots 5 and 10 will be 20 feet for both front and rear yards. Also, Lot 4 will have a 20-foot front yard setback to the existing deck and 22 feet to the building foundation. All setbacks are measured from the foundation to the property line.

69. Irrigation is required in all open space tracts and the detention facility. Landscape and irrigation plans for the open space tract shall be submitted prior to approval of construction plans. This landscape plan shall include a street tree planting plan. The plan shall be prepared by a landscape professional licensed in the State of Oregon, and be approved by the Community Development Director or designee prior to construction plan approval.

Miscellaneous

70. All submitted project construction plans shall conform to the City's ***"Engineering Design and Standard Details Manual"*** (Manual) for design and drafting requirements.

71. Prior to the scheduling of the Pre-Construction meeting, issuance of a Notice to Proceed, or beginning any site work, the applicant shall submit all applicable bonds, have paid all applicable fees, and have service provider letters for both Storm Water and Sanitary Sewer services from Water Environment Services (Clackamas County) and the Sunrise Water Authority.

72. A sign shall be posted on the job site at any entrance, using 4-inch high (Series D black on orange) letters. The sign shall read as follows:

"CONSTRUCTION WITHIN THE DEVELOPMENT SHALL BE LIMITED TO 7:00 AM TO 6:00 PM ON WEEKDAYS, AND 8:00 AM TO 5:00 PM ON SATURDAYS AND SUNDAYS. HOWEVER, SITE CLEARING, EARTH MOVING, INSTALLATION OR CONSTRUCTION OF UNDERGROUND UTILITIES, PAVING OF STREETS AND SIDEWALKS, FOUNDATION FRAMING AND POURING, AND STRUCTURAL FRAMING SHALL BE ENTIRELY PROHIBITED ON SUNDAYS."

The sign shall be conspicuously posted by and at the expense of the developer at each and every entry to the development stating these work hours and shall be maintained through build out. The City Manager shall have the authority to waive these requirements in the event of emergency or in the City Manager's opinion, justifiable cause.

73. The following note shall be shown on the project drawings on the General Notes sheet.

"All proposed public infrastructure improvements shall conform to: the City of Happy Valley's current street design standards as delineated in the City's Engineering Design and Standard Details Manual (Manual) and the City's Transportation System Plan (TSP), the ODOT/APWA Oregon Standard Specifications for Construction, latest edition, AASHTO "A Policy on Geometric Design of Highways and Streets", latest edition, and any Pubic Works policy updates issued by the City. The contractor shall have a copy of the specification book and City policy updates available at the construction site while construction takes place."

74. That prior to final approval, a street lighting plan shall be reviewed and approved by Clackamas County Service District No. 5 and the City of Happy Valley. The developer must make arrangements with PGE and Clackamas County Service District No. 5 to pre-wire the development for streetlights. Light standards (poles), luminaries, and lamps shall be those adopted for properties located outside of the Rock Creek Comprehensive Plan are (30-foot bronze poles for 25-foot mounting height, eight-inch arm bracket, "shoebox luminaire: having a drop or flat lens, high pressure sodium vapor lamp, etc.), and must be approved by PGE and the Service District. The developer shall submit a written request to Clackamas County Service District No.5 for installation of streetlights. An assessment district area to pay for operation of these lights must be formed.

75. Joint mailbox facilities shall be installed prior to the City signing the Letter of Acceptance for the development. Joint mailbox facilities must be installed per U.S. Postal Service's "Developers' Guide to Centralized Box Units". The Developer shall provide a signed copy of the U.S. Postal Services "Mode of Delivery Agreement". Submittal of this agreement shall be required prior to a pre-construction meeting taking place.

76. Dust shall be controlled within the development during construction and shall not be permitted to drift onto adjacent properties.

77. Noise shall be kept at the minimum level possible during construction. The developer shall agree to aggressively ensure that all vehicles working on the development shall have adequate and fully functioning sound suppression devices installed and maintained at all times.

78. That all construction sites shall be maintained in a clean and sanitary condition at all times. Construction debris, including food and drink waste, shall be restricted from leaving the construction site through proper disposal containers or construction fencing enclosures. Failure to comply with this condition may result in a "Stop Work" order until deficiencies have been corrected to the satisfaction of the Community Development Director.

79. If applicable, a demolition plan shall be submitted to the City Engineer for approval and permit issued from the City prior to any site demolition or site work.

80. All open space tracts and/or common areas shall be conveyed to a homeowners association or the City of Happy Valley. The City of Happy Valley shall have the option to refuse acceptance of the open space. If the City does not agree to assume the ownership and maintenance of the open space tract(s) within this development, the applicant must have a homeowners association and all necessary documentation to insure the responsibility of the association relative to the open space and/or common areas. The

City shall be a benefited party for the enforcement of maintenance provisions for the open space.

81. All future submittals of this application, to include construction plans and final plat, shall be consistent with the lot numbering as approved on the preliminary plat.

82. Buildings shall have approved address numbering that is plainly legible and visible from the street or road fronting the property.

83. A note shall be added to the Final Plat stating that all subsequent development, including home construction, shall be subject to the applicable conditions of this approval.

84. The developer and/or individual builders are required to obtain either Type "A" (three or less trees) or Type "B" Tree Removal Permits prior to the removal of trees (six-inch diameter at 4.5 feet), subject to the requirements of §16.20.090 (Tree cutting and preservation), of the Development Code and Chapter 15.12 (Infill and Grading) of the Municipal Code. Any required tree replacement mitigation shall be at a ratio of two trees planted for each tree removed.

85. The applicant shall create a reciprocal access easement/ maintenance agreement for the private drive located between Lots 6 through 9.

HIGHLAND RISE ZONE CHANGE & DEVELOPMENT

TRAFFIC IMPACT STUDY

HAPPY VALLEY, OREGON

PREPARED BY
LANCASTER ENGINEERING

DECEMBER 2007

EXHIBIT # 2

LANCASTER
engineering

HIGHLAND RISE ZONE CHANGE & DEVELOPMENT

Traffic Impact Study

Happy Valley, Oregon

Prepared By
CATRIONA SUMRAIN, T.O.P.S.
MICHAEL T. ARD, P.E.

December, 2007

321 SW 4th Avenue, Suite 400 ▪ Portland, OR 97204 ▪ Phone 503.248.0313 ▪ Fax 503.248.9251

TABLE OF CONTENTS

1e

EXECUTIVE SUMMARY

1. Three parcels located on the east side of SE 145th Avenue between Northern Heights Drive and Wallowa Way in Happy Valley are proposed for both a zone change and residential development. There is frontage along both SE 145th Avenue and Denali Drive, although access will only be taken to SE Denali Drive.

2. The proposed zone change is expected to result in a net increase of 5 morning peak hour trips, 7 evening peak hour trips and 68 weekday trips.

3. The proposed development is expected to add 11 morning peak hour trips, 14 evening peak hour trips, and 134 weekday trips to the roadway network surrounding the site.

4. The study intersections of SE 145th Avenue at the site access and Denali Drive at the site access will operate acceptably with the proposed development.

5. There is adequate sight distance available along the site frontages on both SE 145th Avenue and Denali Drive.

1e

INTRODUCTION

Three tax lot parcels are proposed for a zone change and residential development. The parcels are located on the east side of SE 145th Avenue between Northern Heights Drive and Wallowa Way. The site has frontage on both SE 145th Avenue and Denali Drive. Access to the site was assumed to be taken only from SE Denali Drive.

The purpose of this study is to assess the traffic impact of the proposed zone change and residential development on the nearby street system and to recommend any required mitigative measures. The analysis will include level of service calculations and discussions of Transportation Planning Rule criteria and facilities.

Detailed information on traffic counts, trip generation calculations, and level of service calculations is included in the appendix to this report.

LOCATION DESCRIPTION

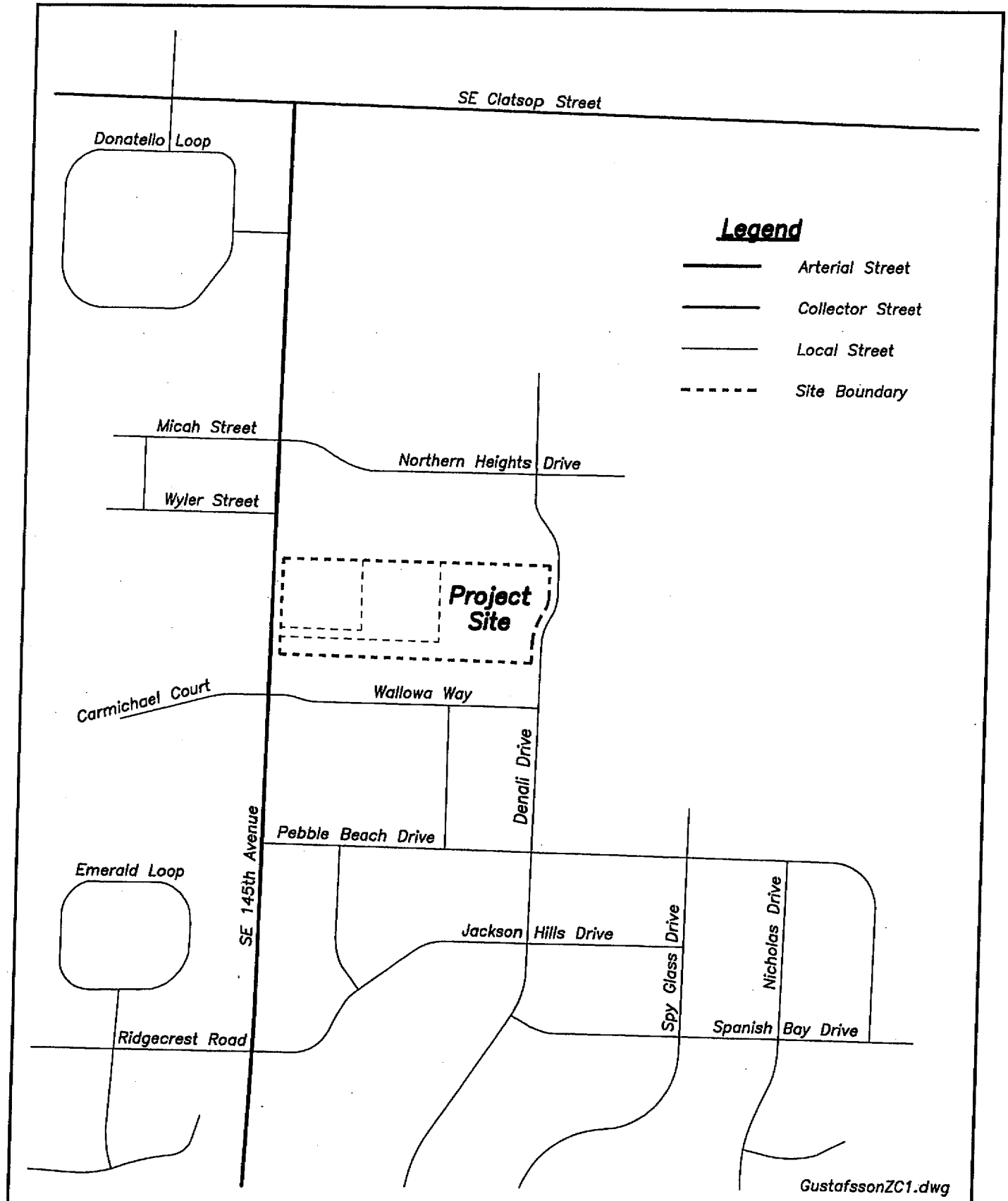
Three parcels in Happy Valley are proposed for a zone change from the existing R-20 (Residential, 20,000 square-foot minimum) to R-10 (Residential, 10,000 square-foot minimum) and development with 14 single-family homes. The parcels are located on the east side of SE 145th Avenue between Northern Heights Drive and Wallowa Way. Figure 1 on page six is a vicinity map.

The site fronts on two streets, SE 145th Avenue and Denali Drive. It was assumed access would be taken only to SE Denali Drive.

SE Denali Drive is under the jurisdiction of and maintained by the City of Happy Valley. The section of the roadway along the site frontage is classified as a *Local Street* in the TSP. The roadway is two lanes wide with curbs and sidewalks on both sides and on-street parking on one side. The statutory speed is 25 mph and the roadway is 28 feet wide.

Tri-Met Route 157, *Happy Valley*, runs between Happy Valley and Clackamas Town Center with a stop at the intersection of SE 145th Avenue and SE Wallowa Way/SE Carmichael Court. Service is from about 6:30 AM to 6:30 PM on weekdays and 7:30 AM to 7:30 PM on Saturday with buses every 70 minutes. There is no service on Sunday.

Traffic counts were made along the SE Denali Drive site frontage during November 2007 from 7:00 to 9:00 a.m. and 4:00 to 6:00 p.m. The peak hours typically occur from about 7:45 to 8:45 a.m. and from about 4:45 to 5:45 p.m. The volumes for the morning and evening peak hours are shown in Figure 2 on page seven.

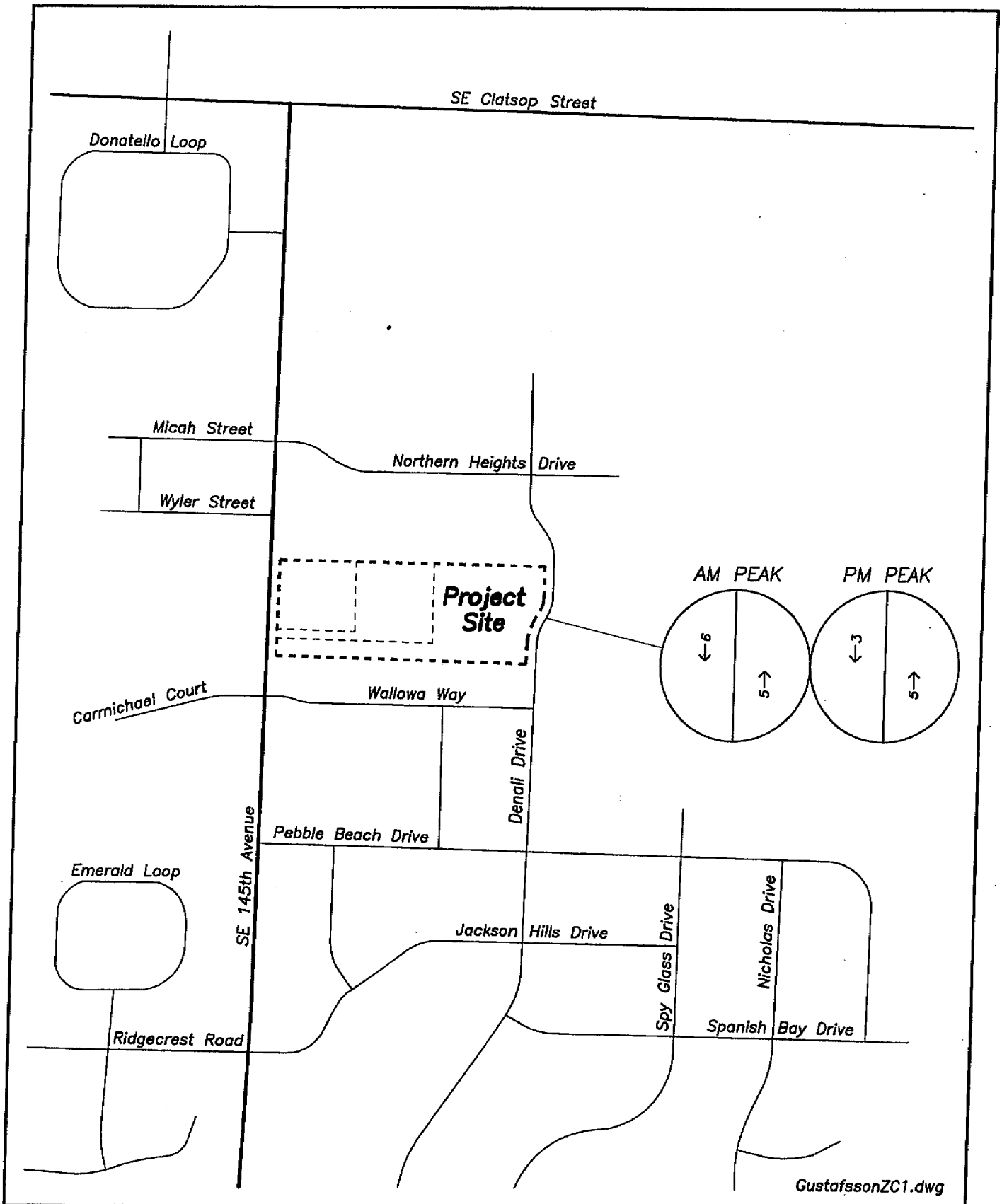


VICINITY MAP
Existing Lane Configurations
& Traffic Control Devices

no scale

FIGURE 1

PAGE 6



TRAFFIC VOLUMES
Existing Conditions
AM & PM Peak Hours

no scale

FIGURE 2

PAGE 7

TRIP GENERATION

When a zone change is proposed, a reasonable worst-case development (from a trip generation standpoint) under the current zoning is typically compared to a reasonable worst-case development under the proposed zoning. The current Comprehensive Plan and Transportation System Plan predict transportation needs based on current Comprehensive Plan designations. When those designations are changed, there is a potential for additional traffic impacts if the new zoning is more traffic-intensive.

To estimate the number of trips that could potentially be generated by the worst-case developments under both the current and proposed zoning scenarios, trip rates from *TRIP GENERATION,* Seventh Edition, published by the Institute of Transportation Engineers (ITE), were used. Trip rates used were for land-use code 210, *Single-Family Detached Housing*. Under the current zoning designation, R-20 the worst-case development is eight homes. Under the proposed zoning designation, R-10, a total of 15 homes could be constructed. The proposed zone change will result in a worst-case increase of seven homes.

The trip generation calculations indicate that there will be an estimated net increase of 5 trips generated by the proposed zone change during the morning peak hour, a net increase of 7 trips during the evening peak hour, and a net increase of 68 weekday trips expected with maximum development under the proposed zoning.

To estimate the number of trips that will be generated by the proposed residential development, trip rates from *TRIP GENERATION,* Seventh Edition, published by the Institute of Transportation Engineers (ITE), were used. The trip rates used were for land-use code 210, *Single-Family Detached Housing.* The trip generation rates are based on the number of dwelling units and were calculated for a total of 14 homes.

The trip generation calculations indicate that there will be an estimated total of 11 trips generated by the proposed development during the morning peak hour. Of these, 3 will be entering and 8 will be exiting the site. During the evening peak hour, there are a total of 14 trips expected, with 9 entering and 5 exiting the site. A total of 134 weekday trips are expected, with half entering and half exiting.

In order to represent a reasonable worst-case scenario, no transit or multi-modal reduction factor was applied to the trip generation estimates for the current or proposed zoning sce-

narios, or development scenario. Since the worst-case developments under either zoning designations or development scenario are destination-oriented uses, no reduction was made for pass-by trips.

A summary of the trip generation calculations for the proposed zone change and residential development is shown in the following tables. Detailed trip generation calculations are included in the appendix to this report.

TRIP GENERATION SUMMARY
Zone Change

Existing Zoning (R-20)

LAND USE	SIZE	VAR	AM PEAK HOUR			PM PEAK HOUR			WEEKDAY		
			In	Out	Total	In	Out	Total	In	Out	Total
SFD	8 d.u.		2	4	6	5	3	8	38	38	76

Proposed Zoning (R-10)

LAND USE	SIZE	VAR	AM PEAK HOUR			PM PEAK HOUR			WEEKDAY		
			In	Out	Total	In	Out	Total	In	Out	Total
SFD	15 d.u.		3	8	11	9	6	15	72	72	144

NET INCREASE IN SITE TRIPS

AM PEAK HOUR			PM PEAK HOUR			WEEKDAY		
In	Out	Total	In	Out	Total	In	Out	Total
1	**4**	**5**	**4**	**3**	**7**	**34**	**34**	**68**

TRIP GENERATION SUMMARY
Development

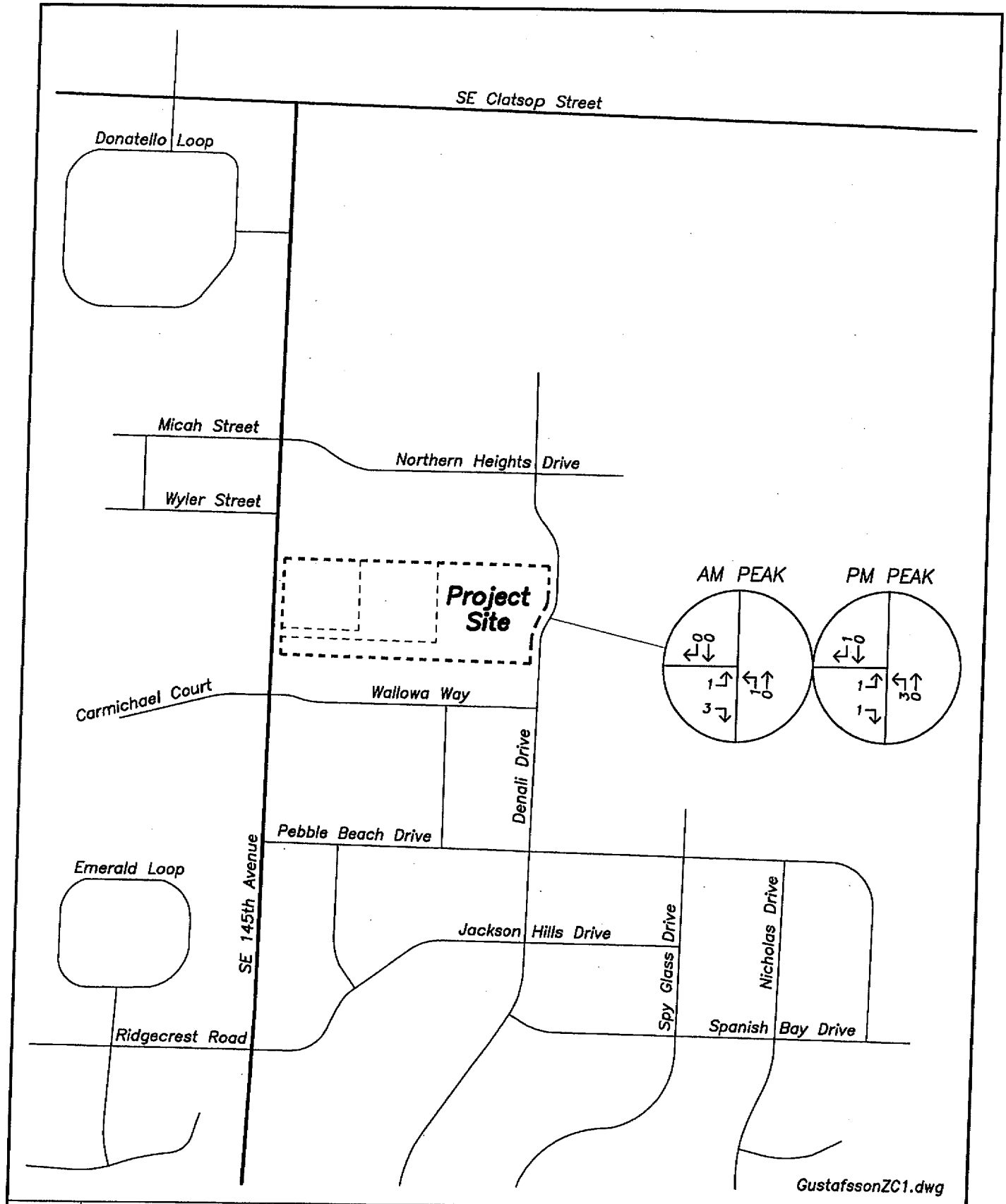
Proposed Development (14 homes)

LAND USE	SIZE	VAR	AM PEAK HOUR			PM PEAK HOUR			WEEKDAY		
			In	Out	Total	In	Out	Total	In	Out	Total
SFD	14 d.u.		3	8	11	9	5	14	67	67	134

TRIP DISTRIBUTION

Since the proposed land use is residential and is located amongst other residential land uses, it is expected that the trip distribution patterns will be similar to the existing patterns. For this reason, the existing traffic volumes at the intersection of SE 145th Avenue and SE Wallowa Way/SE Carmichael Court were used to determine the distributional patterns of the proposed zone change and development.

Figure 3 on page 11 shows the net increase in site trips during the morning and evening peak hours resulting from the proposed zone change. Figure 4 on page 12 shows the distribution and assignment of the site trips during the morning and evening peak hours from the proposed development.

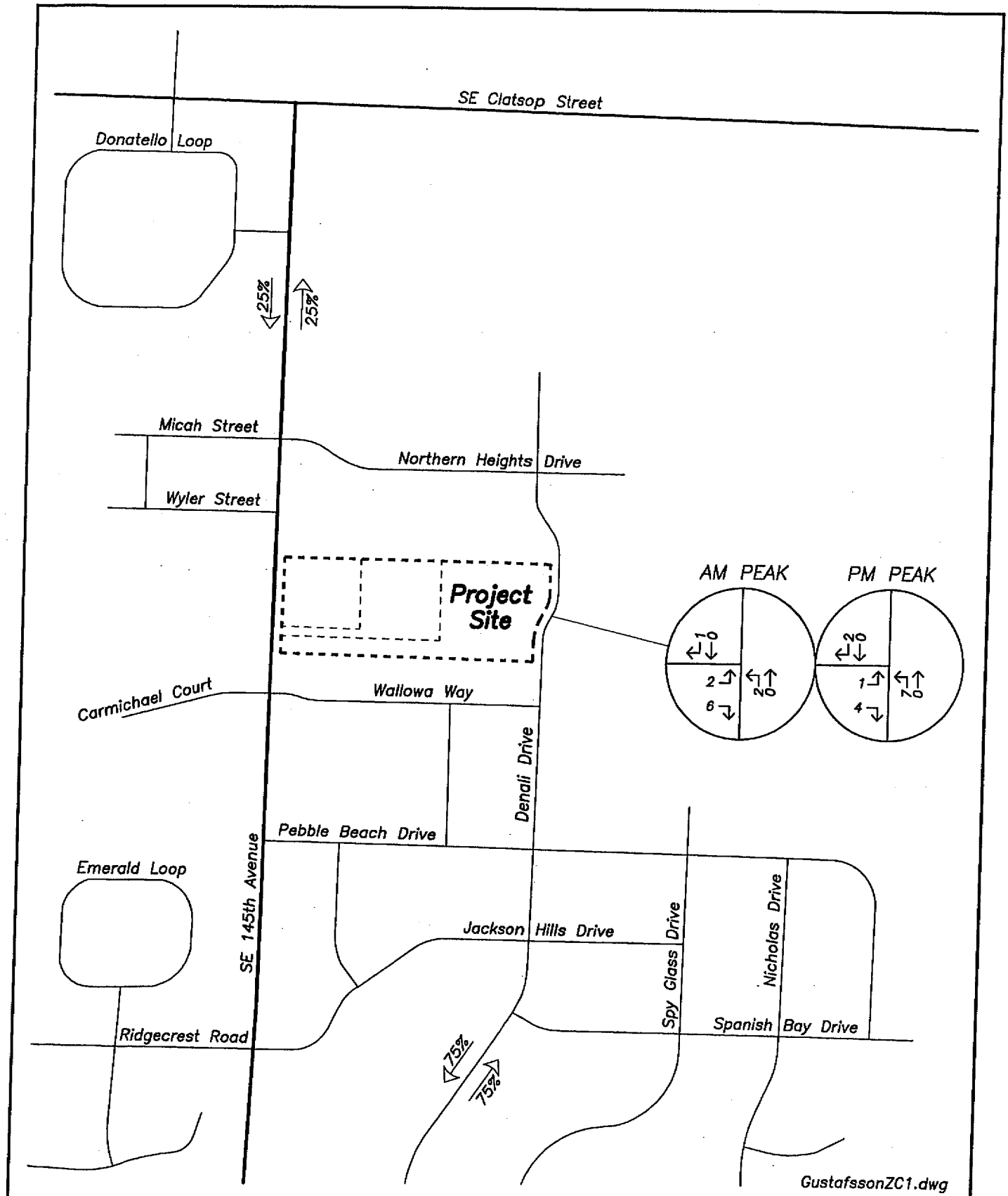


SITE–GENERATED TRAFFIC
Net Increase in Site Trips
AM & PM Peak Hours

no scale

FIGURE 3

PAGE 11



SITE–GENERATED TRAFFIC
Proposed Development Plan
AM & PM Peak Hours

no scale

FIGURE 4

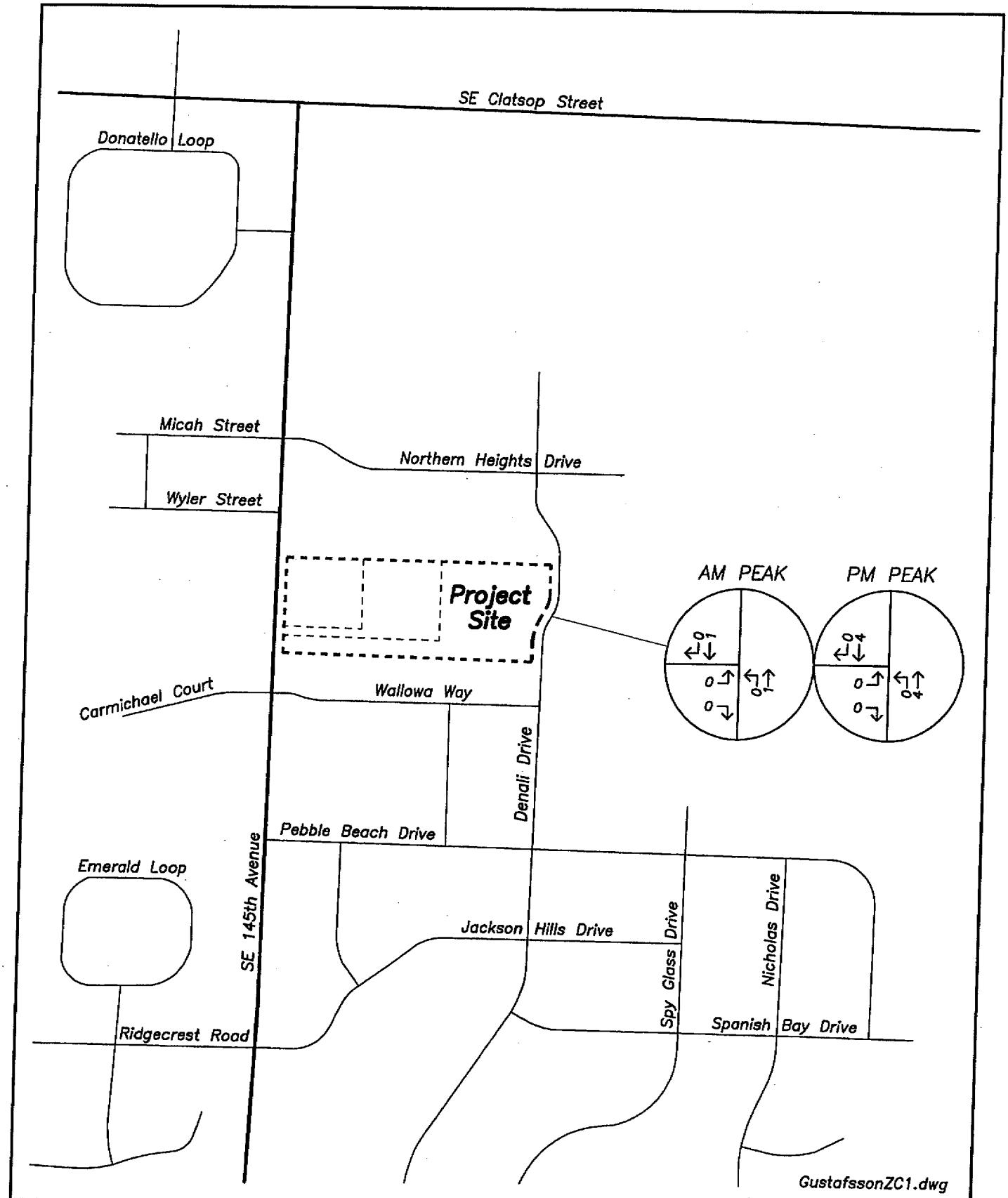
OPERATIONAL ANALYSIS

Year 2009 Background Traffic

There were two developments identified as potentially contributing to the traffic volumes at the study intersection. Jackson Hills and Northern Heights 2 have been approved and are under construction, but have not been fully occupied. Trips from Jackson Hills were taken from the traffic study prepared in October 2003 by Lancaster Engineering. Based on a recent field visit, Jackson Hills appears to be about 70-percent constructed and occupied. Trips from Northern Heights Phase 2 were taken from the Transportation Analysis Letter prepared on October 31, 2006 by Lancaster Engineering. These trips were assigned to SE Denali Drive. Figure 5 on page 14 shows the other development traffic volumes from Jackson Hills and Northern Heights Phase 2 during the morning and evening peak hours.

These developments only account for growth in the immediate vicinity of the site. There is other development occurring within the City of Happy Valley that, while not in the immediate vicinity of the site, could still contribute to traffic on SE Denali Drive. To account for this other development, a growth rate of three percent per year was added to the existing traffic volumes on SE Denali Drive. This growth rate is commonly used in the Metro region. The growth rate was applied over a period of two years.

The background traffic volumes comprise the existing traffic volumes with the growth rate applied and the other development traffic added. Figure 6 on page 15 shows the background traffic volumes during the morning and evening peak hours. Figure 7 on page 16 shows the background traffic plus site trips added from the proposed development.

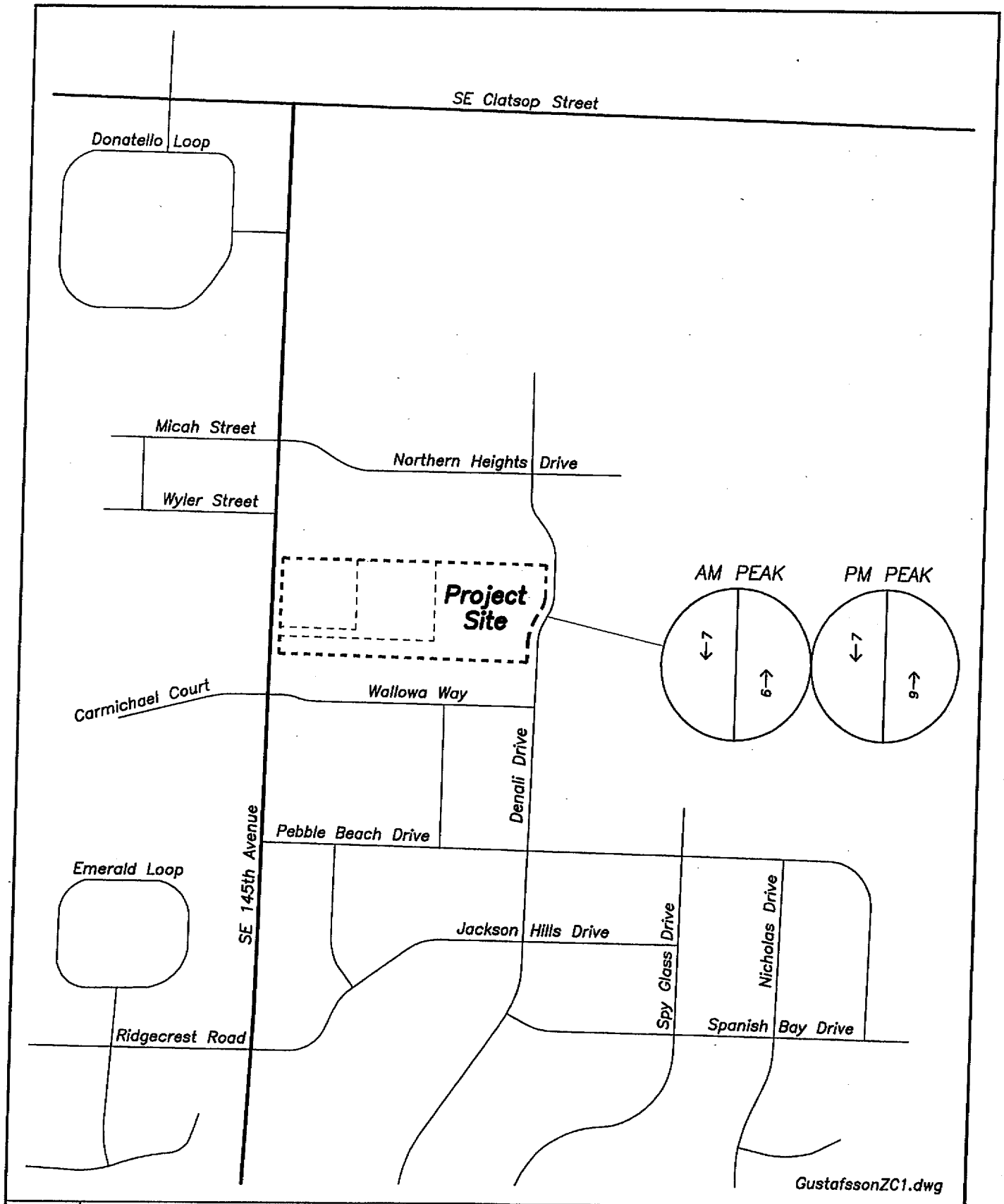


IN-PROCESS TRAFFIC VOLUMES
Site Trips from Other Developments
AM & PM Peak Hours

no scale

FIGURE 5

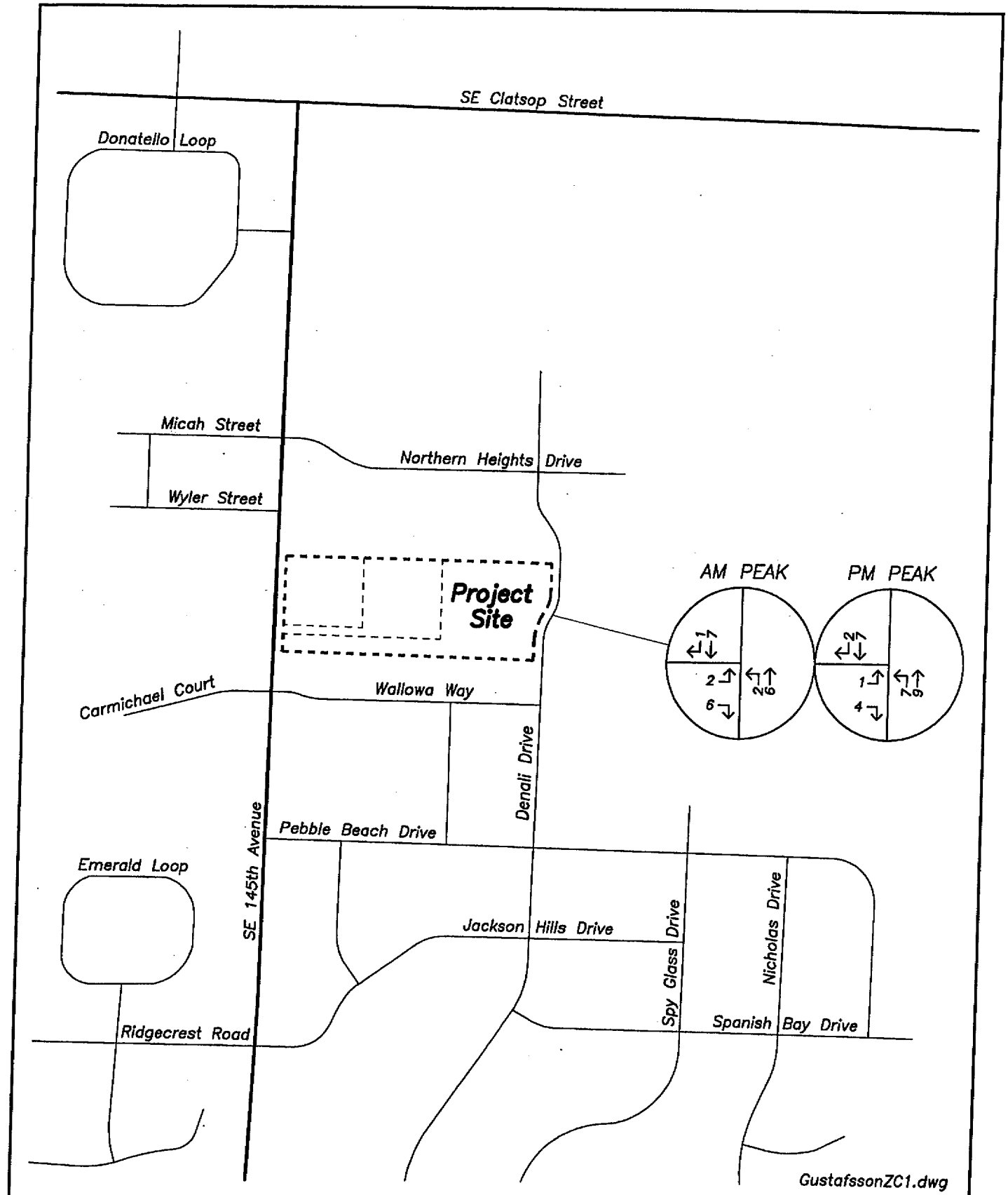
PAGE 14



TRAFFIC VOLUMES
Year 2009 Background Conditions
AM & PM Peak Hours

no scale

FIGURE 6



TRAFFIC VOLUMES
Year 2009 Background + Site Trips
AM & PM Peak Hours

no scale

FIGURE 7

PAGE 16

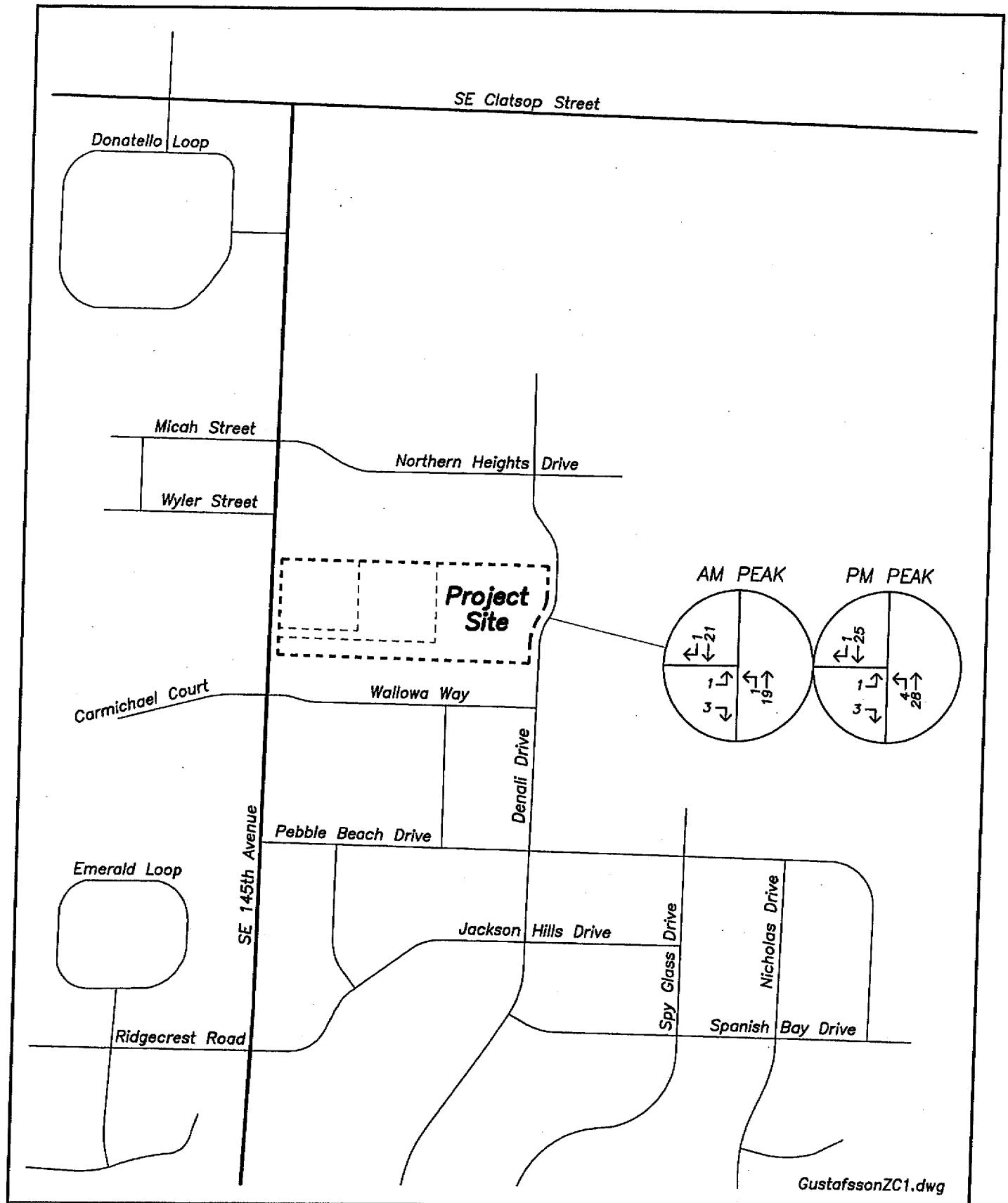
Year 2027 Projected Traffic

The year 2027 turning movement volumes at the study intersection were derived from the link volumes in Metro's *emme/2* year 2000 and year 2030 regional transportation evening peak two-hour models.

The *emme/2* model is generally a planning-level model that forecasts the link volumes using an average system travel-time delay. The traffic volumes were derived from the link volumes shown in the *emme/2* model. Since the link volumes do not suggest there would be congestion along SE 145th Avenue during the planning horizon, the evening peak hour volumes on that road were calculated as 54% of the two-hour link volumes given in the model data.

Traffic on SE Denali Drive was estimated based on the number of homes that have been or could be developed in the area. Since approximately one-third of the existing homes either front on SE Denali Drive or are in proximity to the roadway, it was assumed that about one-third of the traffic generated by the residential developments in the area would use SE Denali Drive. The distribution of these other residential trips follows the same distribution pattern as the proposed subject development.

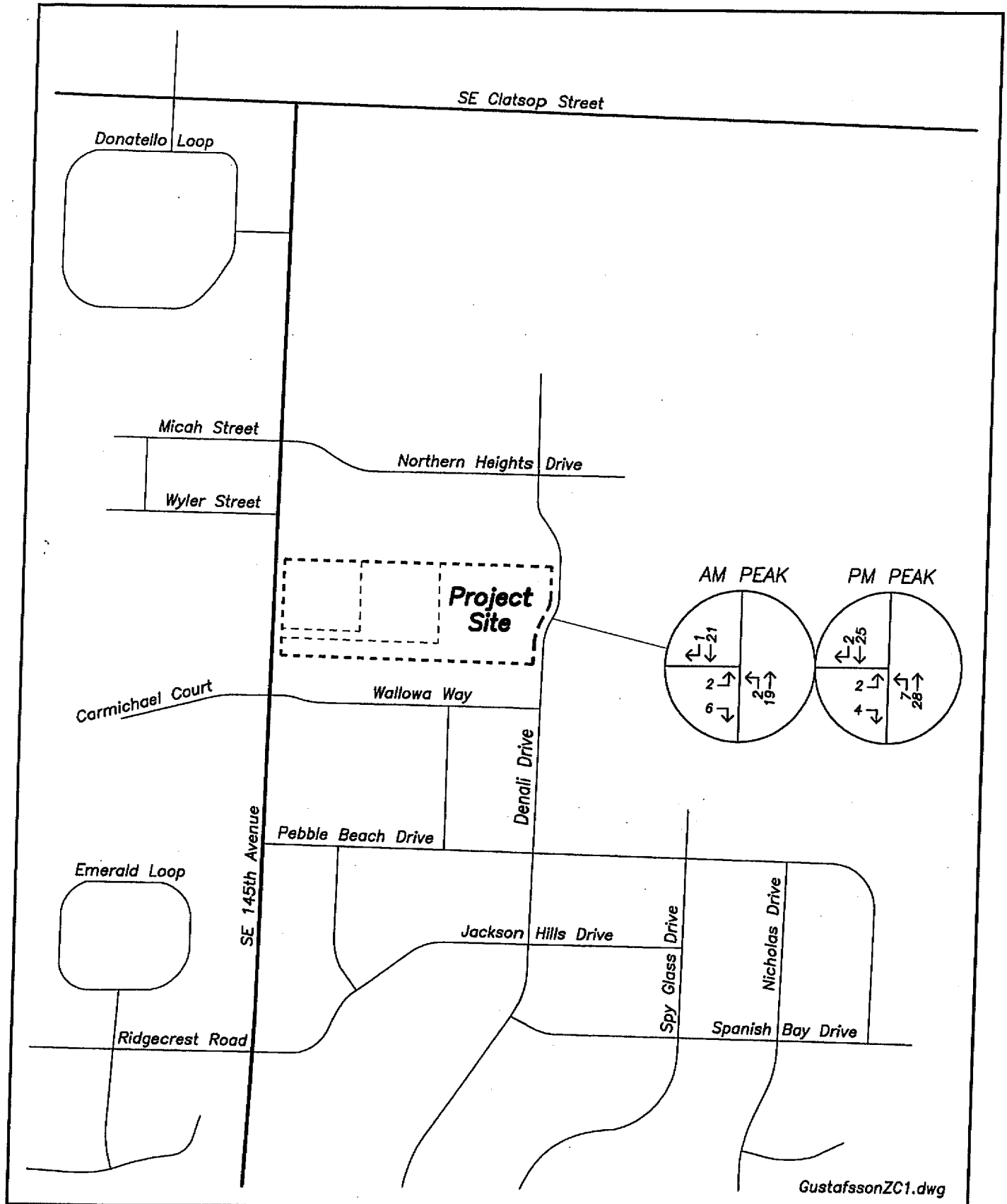
The future traffic volumes comprise the *emme/2* one-hour link volumes. Figure 8 on page 18 shows the future projected traffic volumes during the morning and evening peak hours. Figure 9 on page 19 shows the future traffic with the net increase in site trips resulting from the proposed zone change.



TRAFFIC VOLUMES
Year 2027 Future Conditions
AM & PM Peak Hours

no scale

FIGURE 8



TRAFFIC VOLUMES
Year 2027 Future + Net Increase in Site Trips
AM & PM Peak Hours

no scale

FIGURE 9

Capacity Analysis

To determine the level of service at the study intersections, a capacity analysis was conducted. The study intersections were analyzed using the unsignalized intersection analysis method in the *2000 HIGHWAY CAPACITY MANUAL (HCM2000)*, published by the Transportation Research Board. The level of service can range from A, which indicates very little or no delay, to level F, which indicates a high degree of congestion and delay.

The analysis was made for the background plus site, future and future plus net increase in site trips conditions during the morning and evening peak hours. The intersection of SE 145th Avenue and the site access is under the jurisdiction of the City of Happy Valley and therefore must operate at level of service D or better.

The unsignalized intersection of SE Denali Drive and the site access is forecast to operate at level of service A during both the morning and evening peak hours with site development. The level of service refers to the delay experienced by the eastbound traffic exiting the site. The level of service remains the same for site development and for the proposed zone change.

The results of the capacity analysis, along with the Levels of Service (LOS) and delay are shown in the following table. Tables showing the relationships between delay and level of service are included in the appendix to this report.

LEVEL OF SERVICE SUMMARY

	AM Peak Hour		PM Peak Hour	
	LOS	Delay	LOS	Delay
SE Denali Drive & Site Access				
Background + Site Trips	A	8	A	9
Future Conditions	A	9	A	9
Future + Net Increase in Site Trips	A	9	A	9

LOS = Level of Service
Delay = Average Delay per Vehicle in Seconds

Transportation Planning Rule

Because the site is proposed for a zone change, the criteria from the Transportation Planning Rule (OAR 660-012) were examined to determine if the proposed zone change would have a "significant effect" on the future transportation system within the City. A significant effect is defined as follows:

> "... A plan or land use regulation amendment significantly affects the transportation facility if it would:
>
> (a) Change the functional classification of an existing or planned transportation facility (exclusive of correction of map errors in an adopted plan);
>
> (b) Change standards implementing a function classification system; or
>
> (c) As measured at the end of the planning period identified in the adopted transportation system plan:
>
> (A) Allow land uses or levels of development that would result in types or levels of travel or access that are inconsistent with the functional classification of an existing or planned transportation facility;
>
> (B) Reduce the performance of an existing or planned transportation facility below the minimum acceptable performance standard identified in the TSP or comprehensive plan; or
>
> (C) Worsen the performance of an existing or planned transportation facility that is otherwise projected to perform below the minimum acceptably performance standard identified in the TSP or comprehensive plan. ..."

As shown in the capacity analysis, the study intersection continues to meet acceptable City criteria for operation.

In addition, the proposed zone change would add approximately 70 trips to the existing roadway network with all of the trips added to Denali Drive. There are roughly 50 evening peak hour trips forecast on SE Denali Drive under the existing zoning designation. Typically, daily traffic volumes are about ten times the evening peak hour volumes, so this equates to about 500 trips per day. The proposed zone change would increase those volumes to about 570 trips per day. This is well within the City's acceptable standard of less than 1,500 trips per day on a *Local Street*.

SAFETY ANALYSIS

Sight Distance

Required intersection sight distance was calculated from the equations given in *A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS*, published in 2004 by the American Association of State Highway and Transportation Officials (AASHTO). The measurements are based on an eye height of 3.5 feet and an oncoming driver's eye height of 3.5 feet above the road, with the driver's eye 15 feet behind the edge of the near-side travel lane.

The statutory speed on SE Denali Drive is 25 mph, which requires a minimum sight distance of 280 feet. SE Denali Drive has a significant grade, which is fairly constant near the site frontage. There were no locations along the site frontage at which sight distance would be restricted. It is still recommended that sight distance be measured when the site access location is finalized.

Crash History

The crash data had not been obtained at the time of this report. A crash analysis will be conducted when the crash data is received.

IMPROVEMENTS ANALYSIS

Pedestrian, Bicycle, Transit Facilities

The proposed development would install sidewalks along the frontage and internal streets. The City of Happy Valley's Transportation System Plan (TSP) recommends 330 feet between pedestrian access points. Since there is no street access proposed to SE 145th Avenue, pedestrian spacing will be more than 330 feet. Pedestrian access to SE 145th Avenue should be constructed to conform to the TSP recommendations. With these improvements, pedestrian facilities will be adequate.

There are bike lanes installed on SE 145th Avenue along the sections that have been recently developed. It is assumed the section of SE 145th Avenue along the site frontage would be widened to include bike lanes.

Bike lanes are not necessary along SE Denali Drive or the internal street due to the low volumes and speeds expected on these roads.

There is existing transit service within one-quarter of a mile from the site. However, the City's Transportation System Plan recommends moving transit service farther from the site due to low ridership in the area of the site. It is possible that the site would not be served by transit in the future. If ridership does not support continued transit use, transit service is not recommended near the site. If ridership can be preserved, potentially from new development in the area, existing transit service should be maintained.

Conclusions

The proposed zone change does not have a "significant effect" on the City's transportation system, as defined in OAR 660-012-0060(1), commonly referred to as the Transportation Planning Rule. No improvements or mitigations are identified.

The study intersections will operate within acceptable operational and safety parameters with the proposed development. No mitigations are recommended.

APPENDIX

1e

LEVEL OF SERVICE

Level of service is used to describe the quality of traffic flow. Levels of service A to C are considered good, and rural roads are usually designed for level of service C. Urban streets and signalized intersections are typically designed for level of service D. Level of service E is considered to be the limit of acceptable delay. For unsignalized intersections, level of service E is generally considered acceptable. Here is a more complete description of levels of service:

Level of service A: Very low delay at intersections, with all traffic signal cycles clearing and no vehicles waiting through more than one signal cycle. On highways, low volume and high speeds, with speeds not restricted by other vehicles.

Level of service B: Operating speeds beginning to be affected by other traffic; short traffic delays at intersections. Higher average intersection delay than for level of service A resulting from more vehicles stopping.

Level of service C: Operating speeds and maneuverability closely controlled by other traffic; higher delays at intersections than for level of service B due to a significant number of vehicles stopping. Not all signal cycles clear the waiting vehicles. This is the recommended design standard for rural highways.

Level of service D: Tolerable operating speeds; long traffic delays occur at intersections. The influence of congestion is noticeable. At traffic signals many vehicles stop, and the proportion of vehicles not stopping declines. The number of signal cycle failures, for which vehicles must wait through more than one signal cycle, are noticeable. This is typically the design level for urban signalized intersections.

Level of service E: Restricted speeds, very long traffic delays at traffic signals, and traffic volumes near capacity. Flow is unstable so that any interruption, no matter how minor, will cause queues to form and service to deteriorate to level of service F. Traffic signal cycle failures are frequent occurrences. For unsignalized intersections, level of service E or better is generally considered acceptable.

Level of service F: Extreme delays, resulting in long queues which may interfere with other traffic movements. There may be stoppages of long duration, and speeds may drop to zero. There may be frequent signal cycle failures. Level of service F will typically result when vehicle arrival rates are greater than capacity. It is considered unacceptable by most drivers.

1e

LEVEL OF SERVICE CRITERIA
FOR SIGNALIZED INTERSECTIONS

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (Seconds)
A	< 10
B	10-20
C	20-35
D	35-55
E	55-80
F	> 80

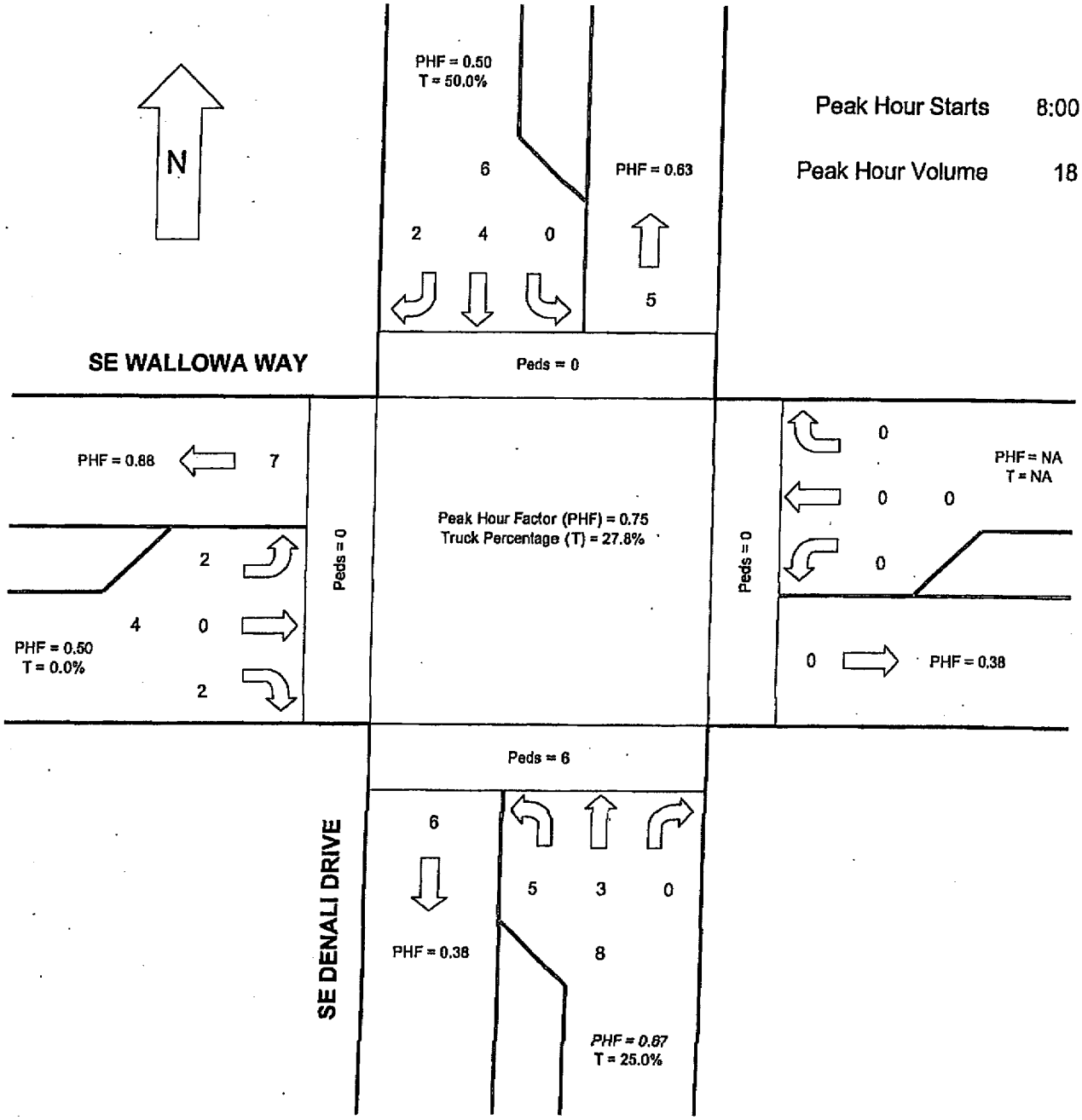
LEVEL OF SERVICE CRITERIA
FOR UNSIGNALIZED INTERSECTIONS

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (Seconds)
A	< 10
B	10-15
C	15-25
D	25-35
E	35-50
F	> 50

TRAFSTATS
PO Box 13699
Salem, OR 97309
Tele (503) 646-1942
Fax (503) 585-5628

Intersection Turning Movement
Peak Hour Diagram

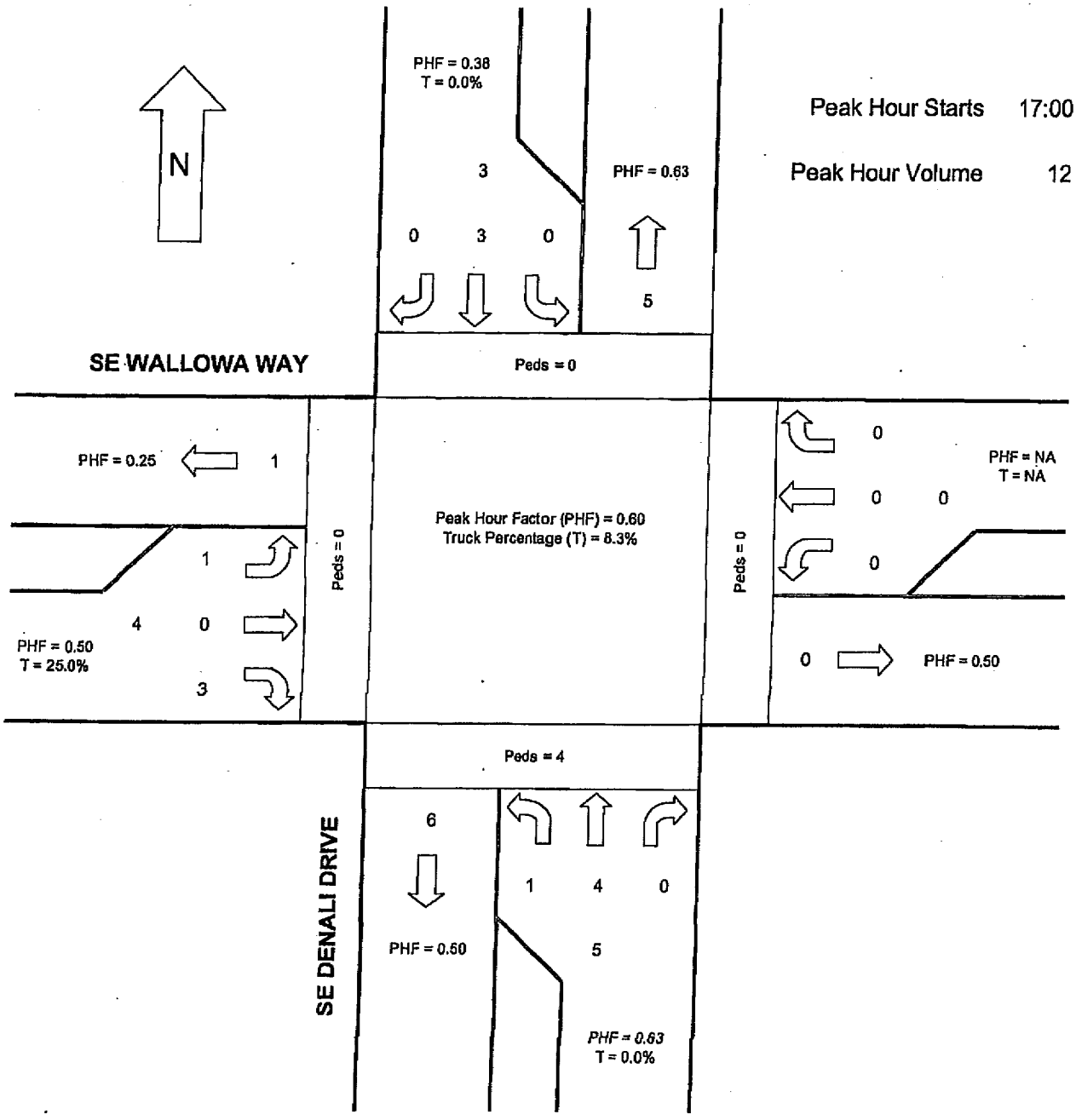
Location SE WALLOWA WAY AT SE DENALI DRIVE
Date 11/28/2007
Day of Week Wednesday
Time Begin 7:00
Reviewed By: CA



TRAFSTATS
PO Box 13699 Salem, OR 97309 Tel: (503) 646-2942 Fax: (503) 326-0528

Intersection Turning Movement
Peak Hour Diagram

Location SE WALLOWA WAY AT SE DENALI DRIVE
Date 11/28/2007
Day of Week Wednesday
Time Begin 16:00
Reviewed By: CA



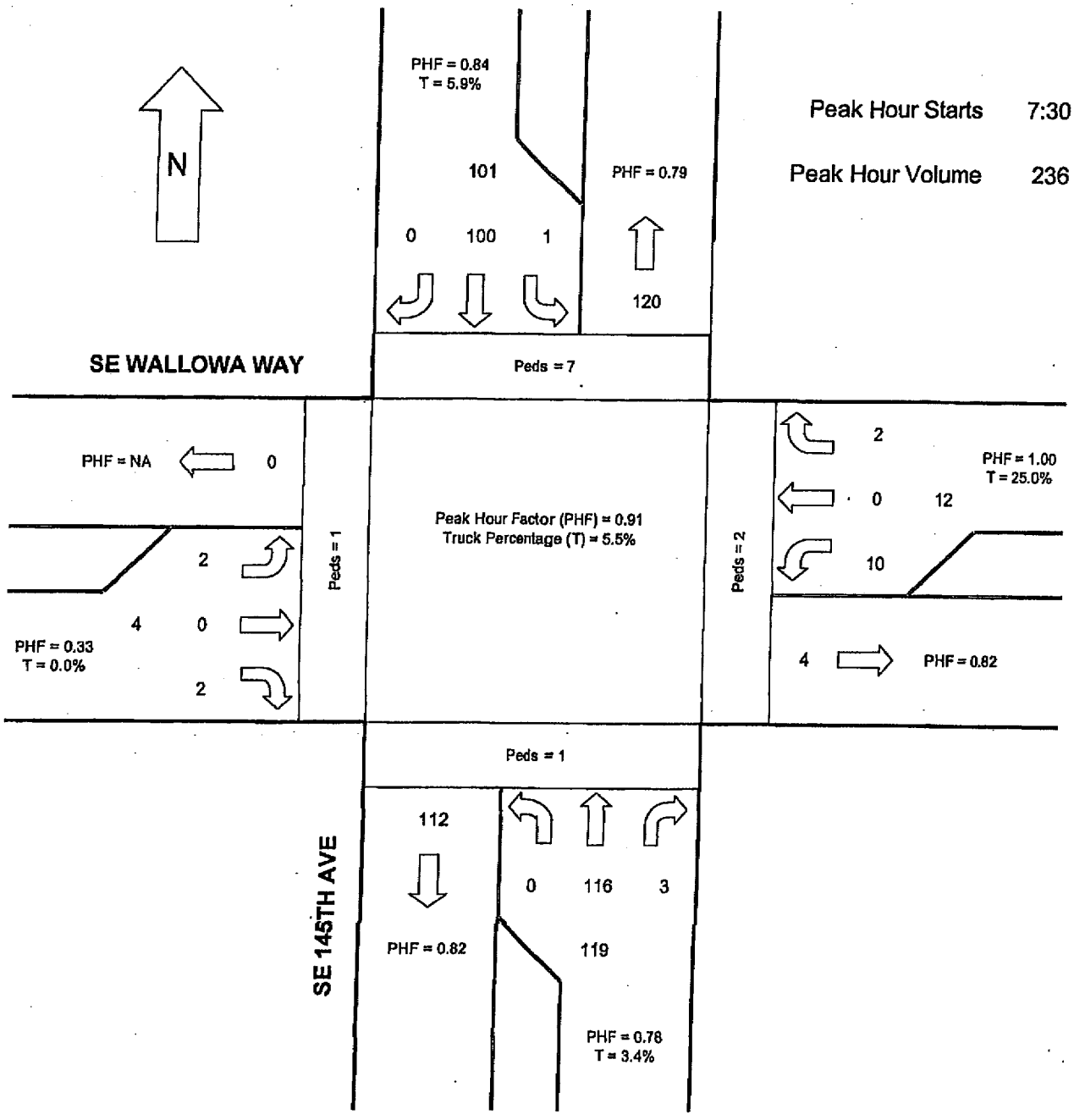
Peak Hour Starts 17:00

Peak Hour Volume 12

TRAFSTATS
PO Box 13699
Salem, OR 97309
Tel: (503) 646-2941
Fax: (503) 526-0838

Intersection Turning Movement
Peak Hour Diagram

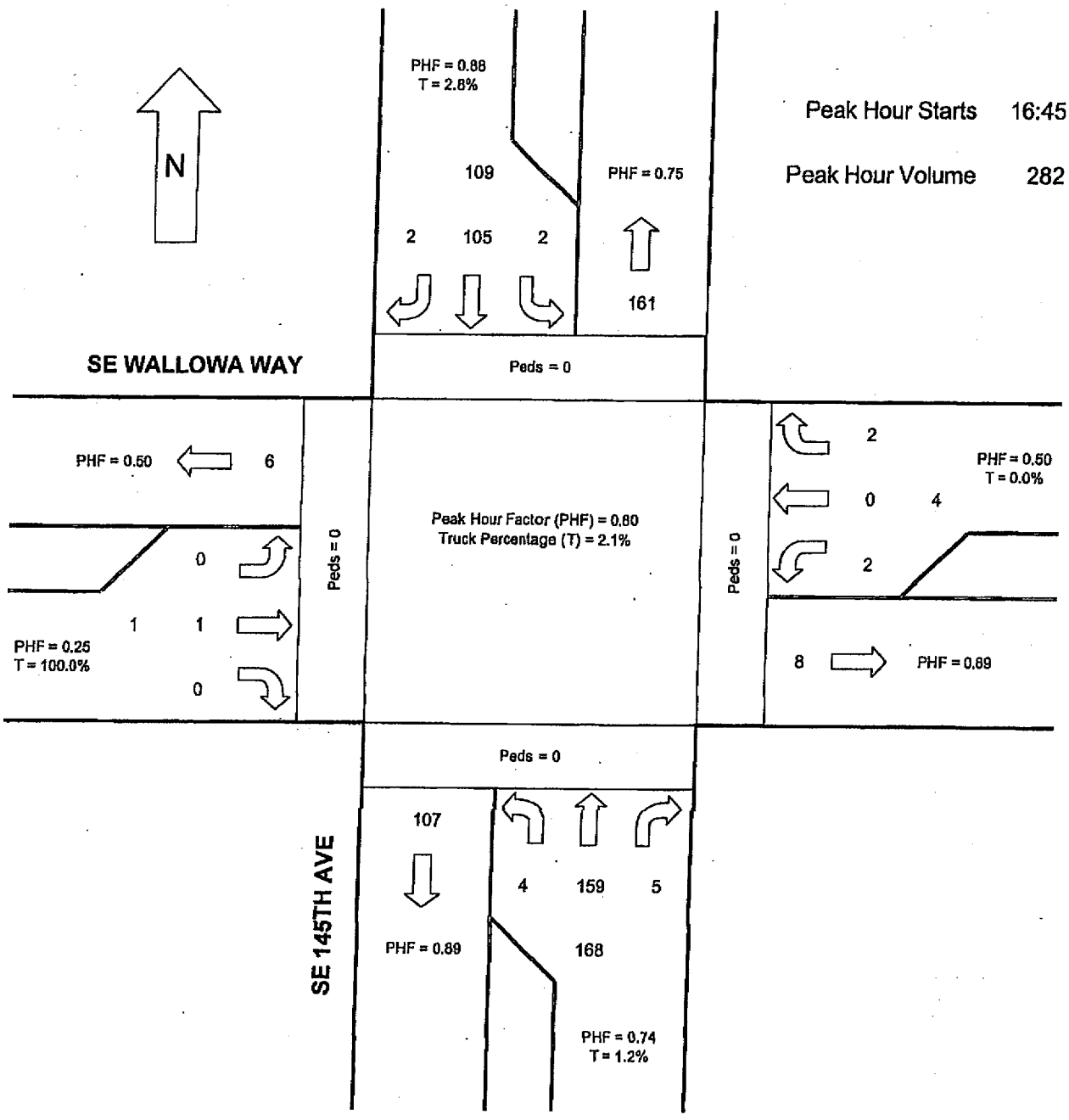
Location SE WALLOWA WAY AT SE 145TH AVE
Date 11/28/2007
Day of Week Wednesday
Time Begin 7:00
Reviewed By: LT



TRAFSTATS
PO Box 13699
Salem, OR 97309
Tel: (503) 648-2242
Fax: (503) 364-0628

Intersection Turning Movement
Peak Hour Diagram

Location SE WALLOWA WAY AT SE 145TH AVE
Date 11/28/2007
Day of Week Wednesday
Time Begin 16:00
Reviewed By: LT



1c

TRIP GENERATION CALCULATIONS

Land Use: Single-Family Detached Housing
Land Use Code: 210
Variable: Dwelling Units
Variable Value: 8

Existing Zoning

AM PEAK HOUR

Trip Rate: 0.75

	Enter	Exit	Total
Directional Distribution	25%	75%	
Trip Ends	2	4	6

PM PEAK HOUR

Trip Rate: 1.01

	Enter	Exit	Total
Directional Distribution	63%	37%	
Trip Ends	5	3	8

WEEKDAY

Trip Rate: 9.57

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	38	38	76

SATURDAY

Trip Rate: 10.10

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	40	40	80

Source: TRIP GENERATION, Seventh Edition

1c

TRIP GENERATION CALCULATIONS

Land Use: Single-Family Detached Housing
Land Use Code: 210
Variable: Dwelling Units
Variable Value: 15

Proposed Zoning

AM PEAK HOUR

Trip Rate: 0.75

	Enter	Exit	Total
Directional Distribution	25%	75%	
Trip Ends	3	8	11

PM PEAK HOUR

Trip Rate: 1.01

	Enter	Exit	Total
Directional Distribution	63%	37%	
Trip Ends	9	6	15

WEEKDAY

Trip Rate: 9.57

	Enter	Exit	Total
Directional Distribution	50%	50%	—
Trip Ends	72	72	144

SATURDAY

Trip Rate: 10.10

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	76	76	152

Source: TRIP GENERATION, Seventh Edition

1e

TRIP GENERATION CALCULATIONS

Land Use: Single-Family Detached Housing
Land Use Code: 210
Variable: Dwelling Units
Variable Value: 14
Proposed Development

AM PEAK HOUR

Trip Rate: 0.75

	Enter	Exit	Total
Directional Distribution	25%	75%	
Trip Ends	3	8	11

PM PEAK HOUR

Trip Rate: 1.01

	Enter	Exit	Total
Directional Distribution	63%	37%	
Trip Ends	9	5	14

WEEKDAY

Trip Rate: 9.57

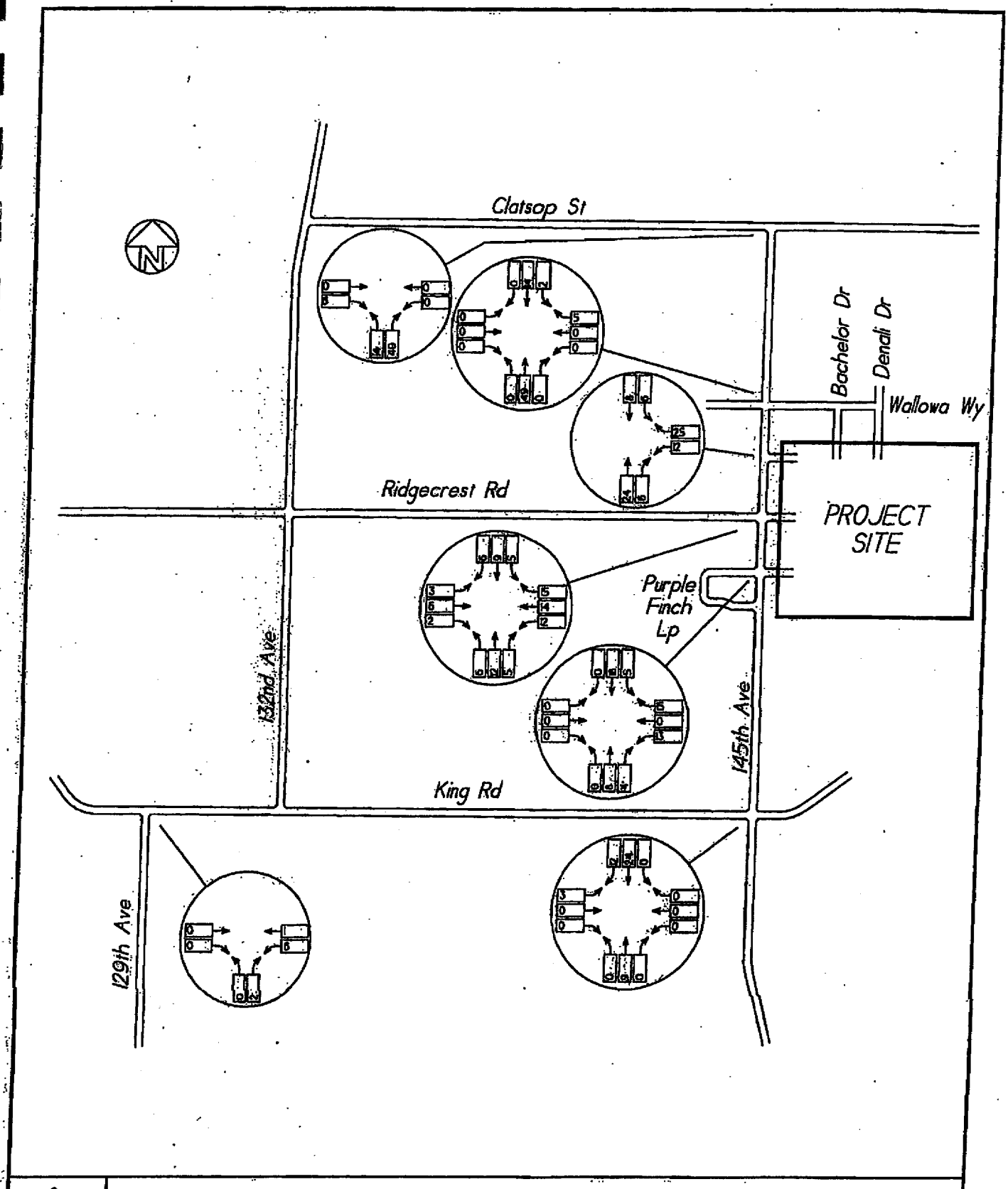
	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	67	67	134

SATURDAY

Trip Rate: 10.10

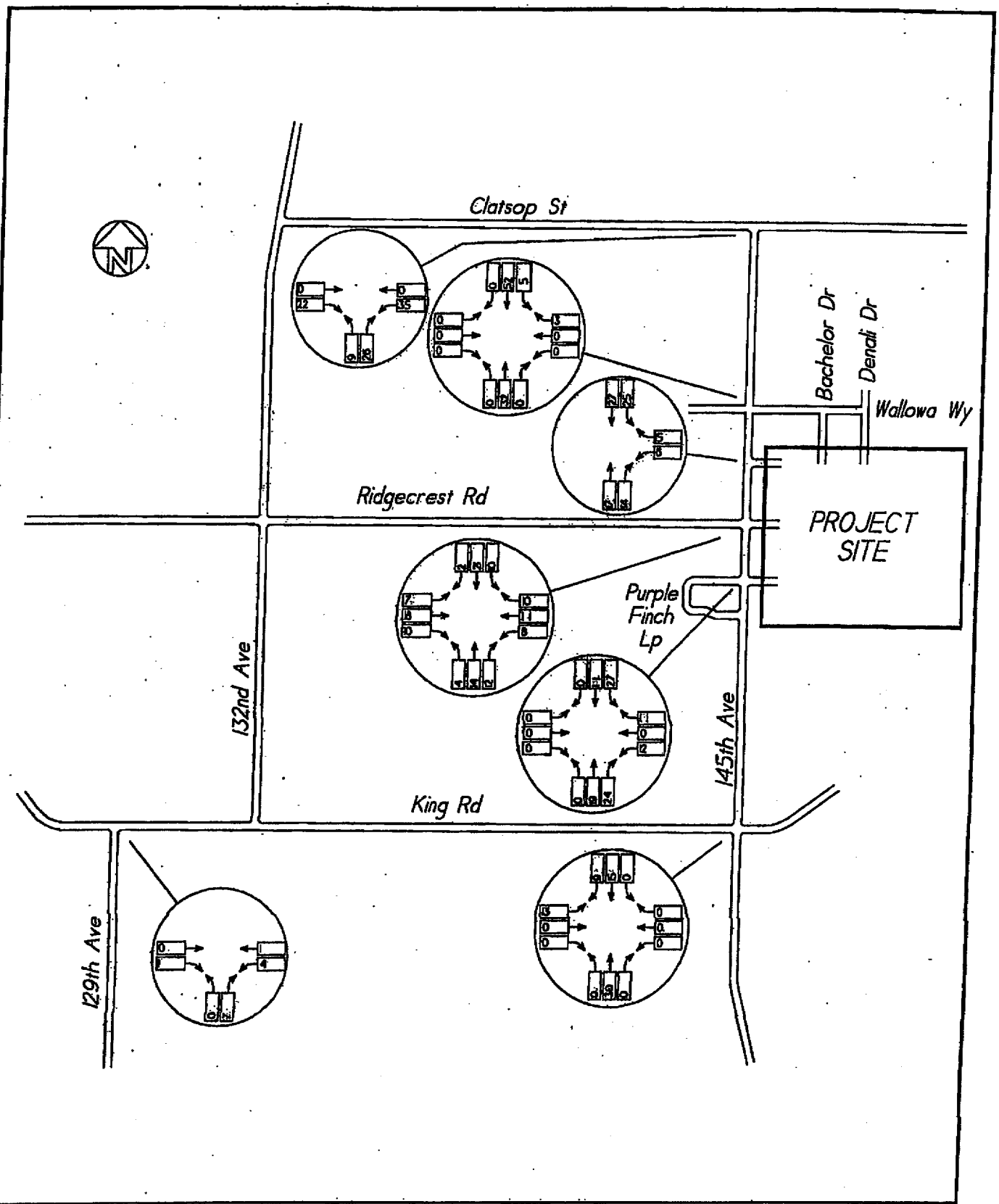
	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	71	71	142

Source: TRIP GENERATION, Seventh Edition



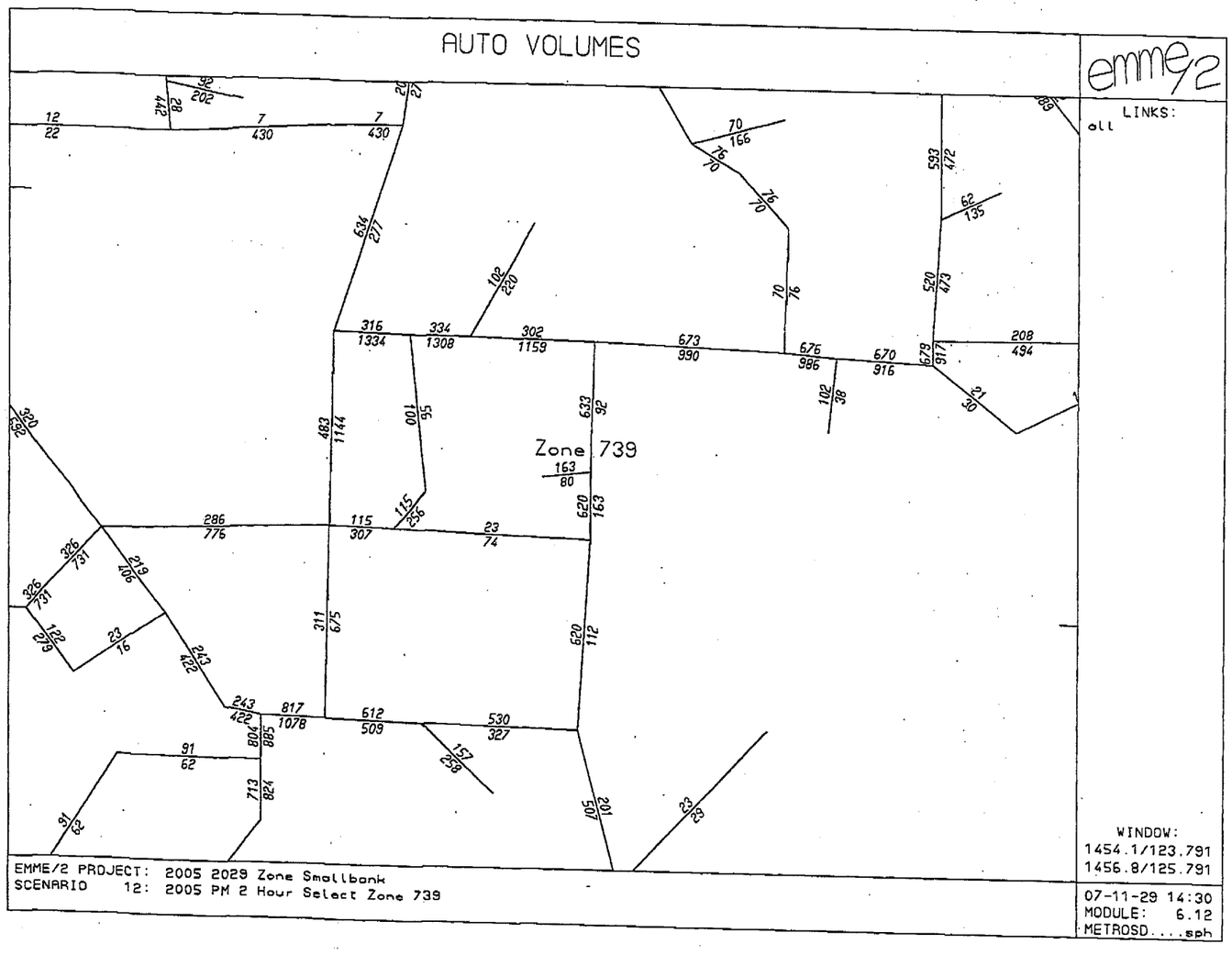
1e

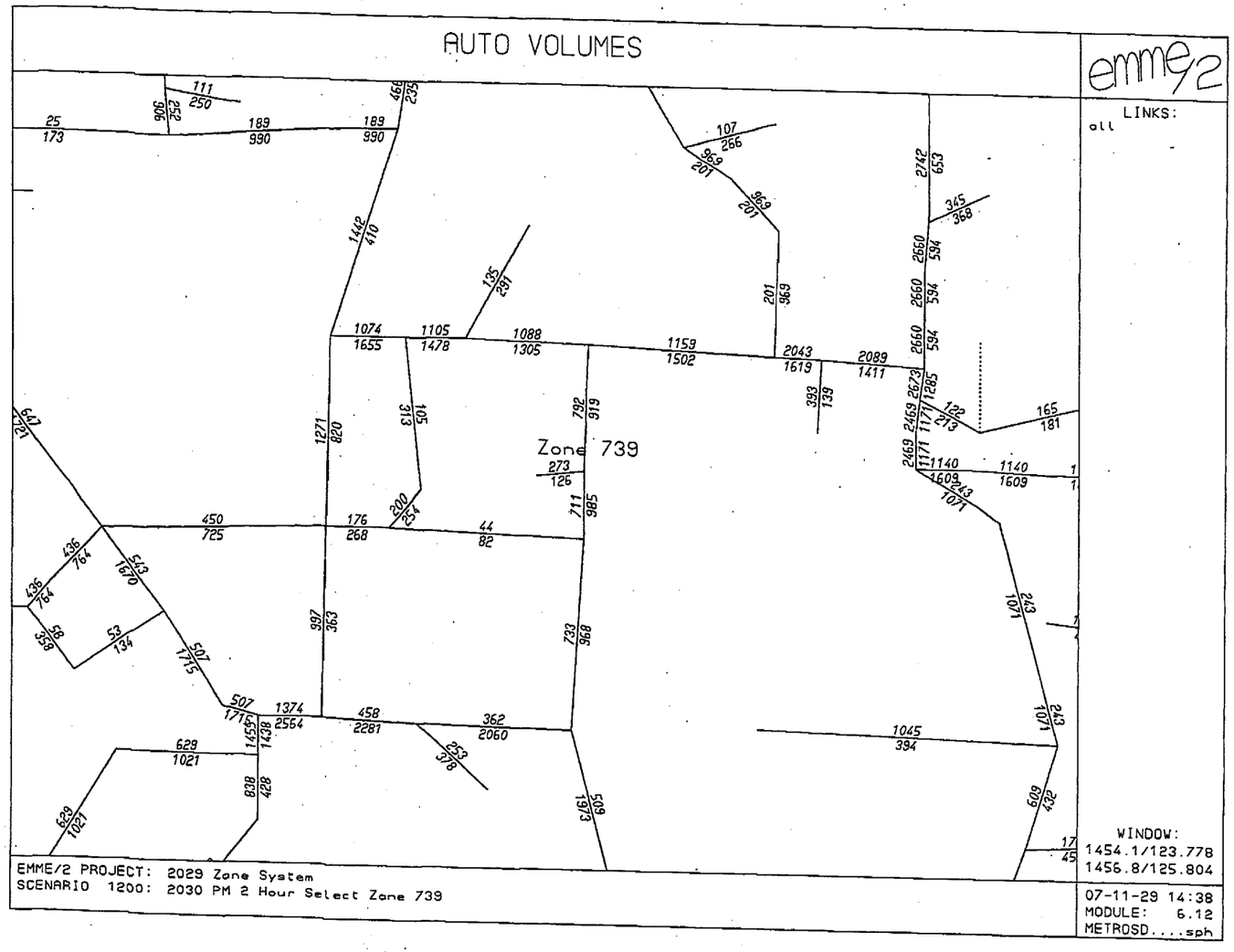
SITE TRIPS
AM Peak Hour

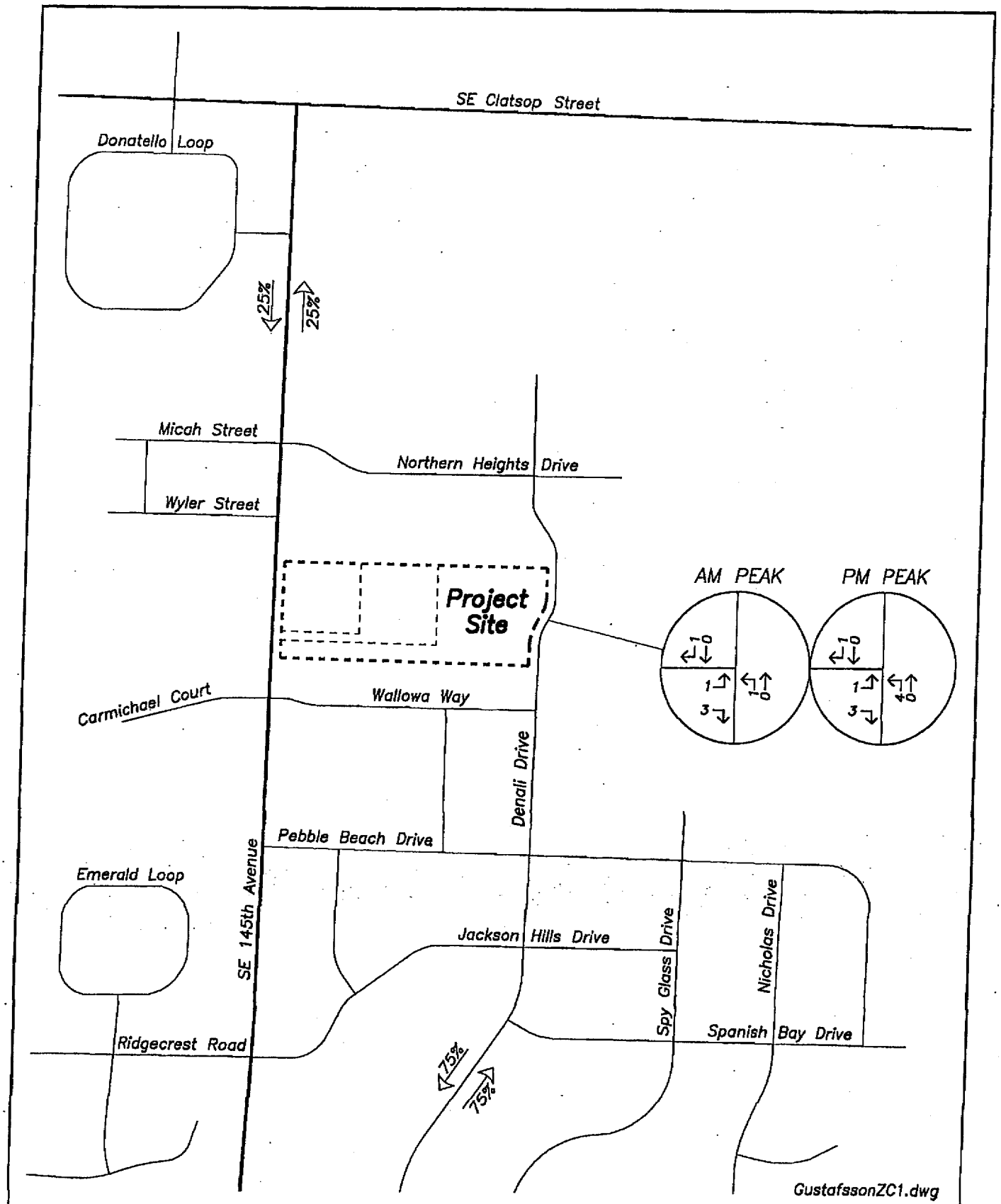


1e

SITE TRIPS
PM Peak Hour


AUTO VOLUMES
emme/2
LINKS:
all
Zone 739
EMME/2 PROJECT: 2005 2029 Zone Smallbank
SCENARIO 12: 2005 PM 2 Hour Select Zone 739
WINDOW:
1454.1/123.791
1456.8/125.791
07-11-29 14:30
MODULE: 6.12
METROSD....sph


AUTO VOLUMES
emme/2
LINKS:
all
Zone 739
WINDOW:
1454.1/123.778
1456.8/125.804
EMME/2 PROJECT: 2029 Zone System
SCENARIO 1200: 2030 PM 2 Hour Select Zone 739
07-11-29 14:38
MODULE: 6.12
METROSD....sph

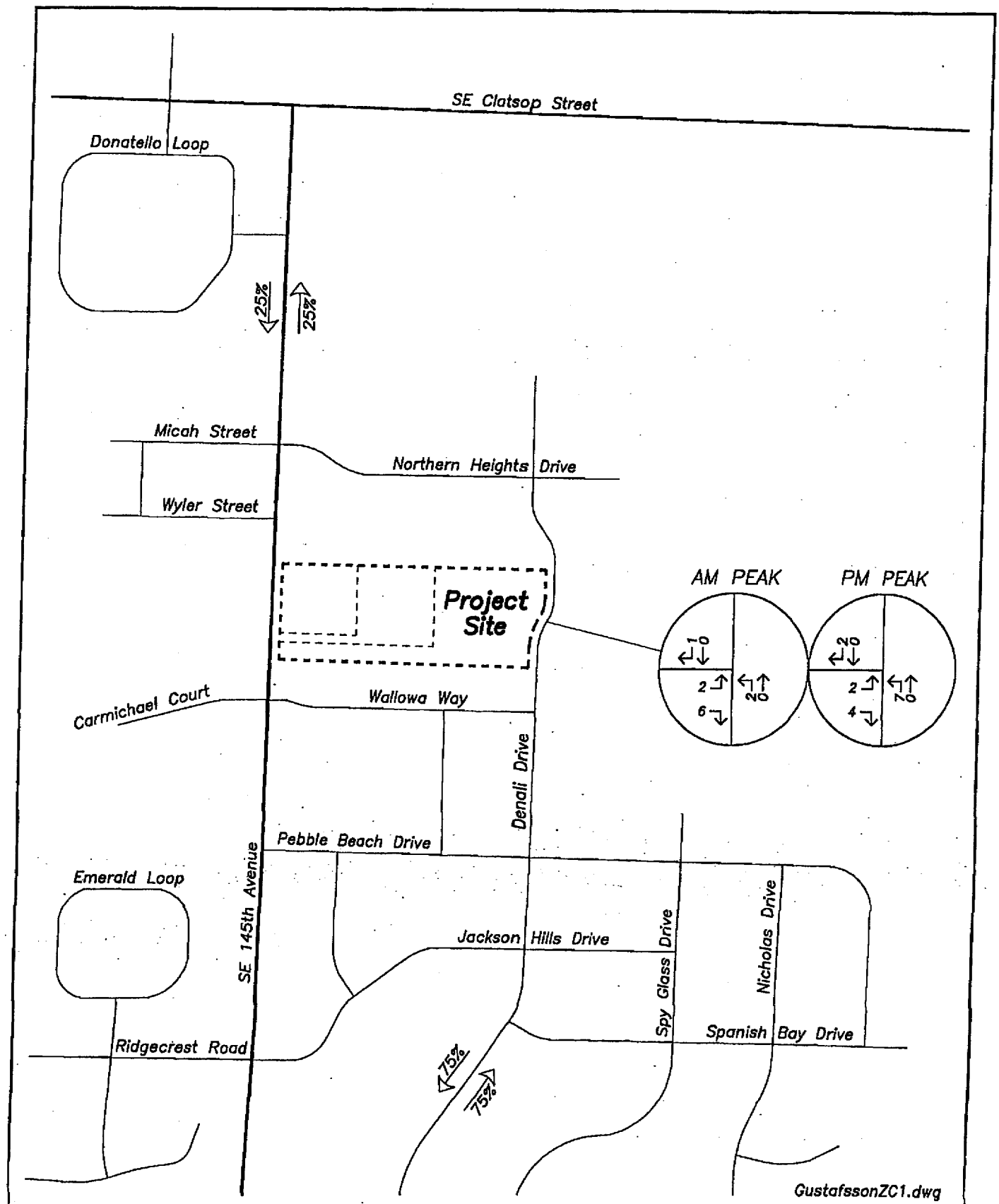


SITE-GENERATED TRAFFIC
Existing Zoning Designation
AM & PM Peak Hours

no scale

FIGURE 10

APPENDIX



SITE-GENERATED TRAFFIC
Proposed Zoning Designation
AM & PM Peak Hours

no scale

FIGURE 11

APPENDIX

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	C Sumrain	Intersection	Denali/Site
Agency/Co.	Lancaster	Jurisdiction	Happy Valley
Date Performed	12/14/2007	Analysis Year	Background + Site (2009)
Analysis Time Period	AM Peak		

Project Description	Gustafsson Zone Change - #07254
East/West Street: Site Access	North/South Street: SE Denali Drive
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	2	6			7	1
Peak-Hour Factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75
Hourly Flow Rate, HFR (veh/h)	2	8	0	0	9	1
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	2		6			
Peak-Hour Factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75
Hourly Flow Rate, HFR (veh/h)	2	0	8	0	0	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	2						10	
C (m) (veh/h)	1623						1060	
v/c	0.00						0.01	
95% queue length	0.00						0.03	
Control Delay (s/veh)	7.2						8.4	
LOS	A						A	
Approach Delay (s/veh)	--	--				8.4		
Approach LOS	--	--				A		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	C Sumrain	Intersection	Denali/Site
Agency/Co.	Lancaster	Jurisdiction	Happy Valley
Date Performed	12/14/2007	Analysis Year	Background + Site (2009)
Analysis Time Period	PM Peak		

Project Description	Gustafsson Zone Change - #07254
East/West Street:	Site Access
North/South Street:	SE Denali Drive
Intersection Orientation:	North-South
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	7	9			7	2
Peak-Hour Factor, PHF	0.60	0.60	0.60	0.60	0.60	0.60
Hourly Flow Rate, HFR (veh/h)	11	14	0	0	11	3
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	1		4			
Peak-Hour Factor, PHF	0.60	0.60	0.60	0.60	0.60	0.60
Hourly Flow Rate, HFR (veh/h)	1	0	6	0	0	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	11						7	
C (m) (veh/h)	1617						1049	
v/c	0.01						0.01	
95% queue length	0.02						0.02	
Control Delay (s/veh)	7.2						8.5	
LOS	A						A	
Approach Delay (s/veh)	--	--				8.5		
Approach LOS	--	--				A		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	C Sumrain	Intersection	Denali/Site
Agency/Co.	Lancaster	Jurisdiction	Happy Valley
Date Performed	12/14/2007	Analysis Year	2027 Future
Analysis Time Period	AM Peak		

Project Description: Gustafsson Zone Change - #07254

East/West Street: Site Access | North/South Street: SE Denali Drive

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	7	19			21	1
Peak-Hour Factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75
Hourly Flow Rate, HFR (veh/h)	9	25	0	0	28	1
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	1		3			
Peak-Hour Factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75
Hourly Flow Rate, HFR (veh/h)	1	0	4	0	0	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	9						5	
C (m) (veh/h)	1597						1027	
v/c	0.01						0.00	
95% queue length	0.02						0.01	
Control Delay (s/veh)	7.3						8.5	
LOS	A						A	
Approach Delay (s/veh)	--	--				8.5		
Approach LOS	--	--				A		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*C Sumrain*	Intersection	*Denali/Site*
Agency/Co.	*Lancaster*	Jurisdiction	*Happy Valley*
Date Performed	*12/14/2007*	Analysis Year	*2027 Future*
Analysis Time Period	*PM Peak*		

Project Description *Gustafsson Zone Change - #07254*

East/West Street: *Site Access*	North/South Street: *SE Denali Drive*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*4*	*28*			*25*	*1*
Peak-Hour Factor, PHF	*0.60*	*0.60*	*0.60*	*0.60*	*0.60*	*0.60*
Hourly Flow Rate, HFR (veh/h)	*6*	*46*	*0*	*0*	*41*	*1*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*1*		*3*			
Peak-Hour Factor, PHF	*0.60*	*0.60*	*0.60*	*0.60*	*0.60*	*0.60*
Hourly Flow Rate, HFR (veh/h)	*1*	*0*	*4*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (veh/h)	*6*						*5*	
C (m) (veh/h)	*1580*						*998*	
v/c	*0.00*						*0.01*	
95% queue length	*0.01*						*0.02*	
Control Delay (s/veh)	*7.3*						*8.6*	
LOS	*A*						*A*	
Approach Delay (s/veh)	--	--					*8.6*	
Approach LOS	--	--					*A*	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	C Sumrain	Intersection	Denali/Site
Agency/Co.	Lancaster	Jurisdiction	Happy Valley
Date Performed	12/14/2007	Analysis Year	2027 Future + Net Increase
Analysis Time Period	AM Peak		

Project Description	Gustafsson Zone Change - #07254
East/West Street:	Site Access
North/South Street:	SE Denali Drive
Intersection Orientation:	North-South
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	2	19			21	1
Peak-Hour Factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75
Hourly Flow Rate, HFR (veh/h)	2	25	0	0	28	1
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	2		6			
Peak-Hour Factor, PHF	0.75	0.75	0.75	0.75	0.75	0.75
Hourly Flow Rate, HFR (veh/h)	2	0	8	0	0	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	2						10	
C (m) (veh/h)	1597						1032	
v/c	0.00						0.01	
95% queue length	0.00						0.03	
Control Delay (s/veh)	7.3						8.5	
LOS	A						A	
Approach Delay (s/veh)	--	--				8.5		
Approach LOS	--	--				A		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	C Sumrain	Intersection	Denali/Site
Agency/Co.	Lancaster	Jurisdiction	Happy Valley
Date Performed	12/14/2007	Analysis Year	2027 Future + Net Increase
Analysis Time Period	PM Peak		

Project Description	Gustafsson Zone Change - #07254
East/West Street:	Site Access
North/South Street:	SE Denali Drive
Intersection Orientation:	North-South
Study Period (hrs):	0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	7	28			25	2
Peak-Hour Factor, PHF	0.60	0.60	0.60	0.60	0.60	0.60
Hourly Flow Rate, HFR (veh/h)	11	46	0	0	41	3
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	2		4			
Peak-Hour Factor, PHF	0.60	0.60	0.60	0.60	0.60	0.60
Hourly Flow Rate, HFR (veh/h)	3	0	6	0	0	0
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	11						9	
C (m) (veh/h)	1577						975	
v/c	0.01						0.01	
95% queue length	0.02						0.03	
Control Delay (s/veh)	7.3						8.7	
LOS	A						A	
Approach Delay (s/veh)	--	--				8.7		
Approach LOS	--	--				A		

GeoPacific Engineering, Inc.

Real-World Geotechnical Solutions
Investigation • Design • Construction Support

November 13, 2007

Project No. 07-1305

Erik Gustafsson
9144 SE 145th Avenue
Happy Valley, Oregon 97086

CC: AKS Engineering

RE: GEOTECHNICAL ENGINEERING REPORT
9144 SE 145th AVENUE DEVELOPMENT
HAPPY VALLEY, OREGON

This report presents our geotechnical findings, interpretations, and conclusions for the proposed residential development at 9144 SE 145th Avenue in Happy Valley, Oregon. The purpose of our investigation was to evaluate subsurface conditions at the site, and to provide geotechnical recommendations for site development and construction. This geotechnical study was performed in accordance with GeoPacific Proposal No. P-3268, dated October 13, 2007, and your subsequent authorization of our proposal and *General Conditions for Geotechnical Services.*

BACKGROUND INFORMATION

Project Information

Location:	On the east side of SE 145th Avenue, just north of Wallowa Way in Happy Valley, Oregon (See Figure 1).
Developer:	Erik Gustafsson (See Address Above)
Civil Engineering:	AKS Engineering & Forestry 13910 SW Galbreath Drive, Suite 100 Sherwood, Oregon 97140
Jurisdictional Agency:	City of Happy Valley, Oregon.

Site Description and Proposed Development

The proposed 145th Avenue Development is located immediately north of the Monterra residential development and south of the Northern Heights development (see Figure 2). Two gravel

driveways access the subject site off 145th Avenue. The property is occupied by four houses and three sheds. The western-most house along 145th Avenue serves as an office. Vegetation consists primarily of lawn with locally concentrated evergreen and deciduous trees. The site topography is complex as a result of numerous grade changes related to structure, driveway, drain field, and utility construction over the years. In general, grades average between 12 and 15 percent with local maximum grades that approach 70 to 80 percent over short horizontal distances.

Proposed development plans are for 14 single-family lots and a 520 foot public street off SE Denali Drive, ending with a cul-de-sac (Figure 2). No storm water facility is shown and we assume that storm drains and sanitary facilities will be connected to existing facilities located in the existing streets at the east and west ends of the property. Site grading will likely be limited to local cuts and fills on the order of about 10 feet.

LOCAL AND SITE GEOLOGY

The subject site lies within the Willamette Valley/Puget Sound lowland, a broad structural depression situated between the Coast Range on the west and the Cascade Range on the east. A series of discontinuous faults subdivide the Willamette Valley into a mosaic of fault-bounded, structural blocks (Yeats et al., 1996). Uplifted structural blocks form bedrock highlands while down-warped structural blocks form sedimentary basins.

Eruptive activity associated with Boring Lava created volcanic cones and vents in the Portland and east Clackamas and Multnomah County areas, including Mount Talbert, Mount Scott, Powell Butte and numerous others eastward to Gresham and Boring, Oregon. Happy Valley, Pleasant Valley, and Sunshine Valley are topographically low areas surrounded by hills of remnant volcanic activity that formed during Boring Time, which based on limited analysis, appear to have occurred between 1.33 and 2.6 million years (Madin, 1990).

The site is located on the southeastern flank of one of several elevated hills that trend northeastward from Mt. Scott, and are separated by a series of at least three southeast trending inferred faults that are down dropped to the southwest. Based on our explorations, the site area is underlain by weathered Boring volcanic colluvial and residual soils. Less weathered cobbles and boulders of Boring Lava are locally present in a north-trending band along the western portion of the site; however, these appear to be largely absent in the central and eastern portions of the site.

The Boring Lava Formation is underlain at depth by Columbia River Basalt of Miocene age (about 14.5 to 16.5 million years ago). In the Portland area, this stratigraphic unit has a maximum thickness of about 670 feet (Madin, 1990).

SITE EXPLORATIONS

On October 15, 2007, GeoPacific explored subsurface conditions on the site by excavating 6 test pits to depths ranging between 5.5 and 7.5 feet. A 10,000 lb trackhoe from Dan Fischer Excavating performed the field exploration under the supervision of a geologist with GeoPacific. Each exploratory test pit was backfilled after completion of sampling and logging, and staked for future reference. The test pits were located with reference to existing cultural and topographic features. Measurements were taped and bearings were estimated. As such, the test pit locations are considered approximate. Exploration details and test pit logs are presented in Appendix A. Subsurface conditions are presented below.

SUBSURFACE CONDITIONS

Fill – Fill was encountered in four of the six test pits, but no fill was found in TP-1 and TP-4. The fill in TP-2 consisted of driveway fill over a thin layer of clay, underlain by ash, rusty metal, and broken glass debris. Brown silt that was soft and wet extended from 18" to 5' with disturbed native soil and basalt rock present to 6.5 feet depth. Test pit TP-3 found 29" of garden silt with some clay over 7" of buried topsoil. TP-5 found 24" of landscape topsoil over native soil, and TP-6 found 24" of imported strippings from an off-site source that was used to build a landscape berm over native soil that had been stripped of topsoil. The various fills found during our site exploration reflect the complex site development history but do not begin to include all of the site fills indicated by topographic changes as a result of street/driveway construction, house construction, and utility lines. Figure 2 indicates probable fill areas that were not explored by trackhoe due to the risk of disrupting utilities. In general, site fills are neither deep nor laterally extensive but should be removed during site preparation.

Topsoil – Based on observations at test pit locations, topsoil thickness ranged between about 8 and 24 inches. The unusual topsoil thickness in test pit TP-5 is the result of topsoil fill placement. In general, topsoil consisted of dark brown clayey silt. Organic debris and fine to medium roots were primarily concentrated in the upper 6 inches. The soil was generally moist and medium stiff due to recent precipitation.

Fine-grained Colluvial Soil – The soil horizon directly below topsoil at most test pit locations consisted of light rusty-brown to tan silt with some clay that was damp and medium soft to stiff. This fine-grained colluvium appeared to be moisture sensitive and likely to soften considerably during the winter wet season, and harden again as summer approaches.

Coarse-grained Colluvial Soil – The colluvial layer below the fine-grained soil described above was typically very stiff to hard as a result of summer desiccation. It consisted of a mottled matrix of gray, rust, and light to dark brown clayey silt with gravel-size inclusions of brown and black clayey silt formed by weathering and transport of basalt rock.

Residual Soil – Residual soil at the site is primarily the result of in-situ weathering of Boring Lava, without lateral movement or transport. The observed residual soil typically consisted of dark brown to rust-brown or red-brown clayey silt with very abundant black stained fragments. It was typically very stiff to hard, which was in part due to soil desiccation. Locally, it contained cobbles and boulders of Boring Lava rock, particularly in the eastern portion of the site.

Soil Moisture and Groundwater

Slow seepage of groundwater was found only in test pit TP-2 where substantial soft fill was encountered adjacent to an old barn structure. None of the other exploratory test pits encountered groundwater or significant soil moisture. It is anticipated that groundwater conditions will vary depending on the season, local subsurface conditions, changes in site utilization, and other factors.

SEISMIC SETTING

At least three major fault zones capable of generating damaging earthquakes are known to exist in the vicinity of the subject site. These include the Gales Creek-Newberg-Mt. Angel Structural Zone, the Portland Hills Fault Zone, and the Cascadia Subduction Zone.

Grant Butte and Damascus-Trickle Creek Fault Zones

The Grant Butte fault zone was mapped along the north side of Mt. Scott and Powell Butte by Madin (1990). It was also extended eastward to Grant Butte on the basis of mapping by CH2M Hill and others (1991) and informally named the Grant Butte fault (Cornforth and Geomatrix, 1992). The Damascus-Trickle Creek fault zone displaces Pliocene and Pleistocene(?) sediments in the vicinity of Boring, Oregon (Madin,1992; Lite, 1992). Relatively short faults define a 17-km-long fault zone that is apparently linked to the Grant Butte fault on the basis of stratigraphic relationships showing middle and late Pleistocene activity. Geomatrix (1995) assigns a probability of 0.5 for activity on structures within these fault zones. The Grant Butte fault is approximately 1 mile northwest of the subject site.

Portland Hills Fault Zone

The Portland Hills Fault Zone is a series of NW-trending faults that include the central Portland Hills Fault, the western Oatfield Fault, and the eastern East Bank Fault. These faults occur in a northwest trending zone that varies in width between 3.5 and 5.0 miles. The combined three faults vertically displace the Columbia River Basalt by 1,130 feet and appear to control thickness changes in late Pleistocene (approximately 780,000 years) sediment (Madin, 1990). The fault zone extends along the eastern margin of the Portland Hills for a distance of 25 miles, and lies about 5 miles southwest of the subject site. Geomorphic lineaments suggestive of Pleistocene deformation have been identified within the fault zone, but none of the fault segments have been shown to cut Holocene (last 10,000 years) deposits (Balsillie and Benson, 1971; Cornforth and Geomatrix Consultants, 1992). No historical seismicity is correlated with the mapped portion of the Portland Hills Fault Zone, but in 1991 a M3.5 earthquake occurred on a NW-trending shear plane located 1.3 miles east of the fault (Yelin, 1992). Although there is no definitive evidence of recent activity, the Portland Hills Fault Zone is judged to be potentially active (Geomatrix Consultants, 1995).

Gales Creek-Newberg-Mt. Angel Structural Zone

The Gales Creek-Newberg-Mt. Angel Structural Zone is a 50-mile-long zone of discontinuous, NW-trending faults that lies about 23 miles southwest of the subject site. These faults are recognized in the subsurface by vertical separation of the Columbia River Basalt and offset seismic reflectors in the overlying basin sediment (Yeats et al., 1996; Werner et al., 1992). A recent geologic reconnaissance and photogeologic analysis study conducted for the Scoggins Dam site in the Tualatin Basin revealed no evidence of deformed geomorphic surfaces along the structural zone (Unruh et al., 1994). No seismicity has been recorded on the Gales Creek or Newberg Faults (the faults closest to the subject site); however, these faults are considered to be potentially active because they may connect with the seismically active Mount Angel Fault and the rupture plane of the 1993 M5.6 Scotts Mills earthquake (Werner, et al. 1992; Geomatrix Consultants, 1995).

Cascadia Subduction Zone

The Cascadia Subduction Zone is a 680-mile-long zone of active tectonic convergence where oceanic crust of the Juan de Fuca Plate is subducting beneath the North American continent at a rate of 4 cm per year (Goldfinger et al., 1996). Very little seismicity has occurred on the plate interface in historic time, and as a result, the seismic potential of the Cascadia Subduction Zone is a subject of scientific controversy. The lack of seismicity may be interpreted as a period of quiescent stress buildup between large magnitude earthquakes or as being characteristic of the long-term behavior of the subduction zone. A growing body of geologic evidence, however,

strongly suggests that prehistoric subduction zone earthquakes have occurred (Atwater, 1992; Carver, 1992; Peterson et al., 1993; Geomatrix Consultants, 1995). This evidence includes: (1) buried tidal marshes recording episodic, sudden subsidence along the coast of northern California, Oregon, and Washington, (2) burial of subsided tidal marshes by tsunami wave deposits, (3) paleoliquefaction features, and (4) geodetic uplift patterns on the Oregon coast. Radiocarbon dates on buried tidal marshes indicate a recurrence interval for major subduction zone earthquakes of 250 to 650 years with the last event occurring 300 years ago (Atwater, 1992; Carver, 1992; Peterson et al., 1993; Geomatrix Consultants, 1995). The inferred siesmogenic portion of the plate interface lies roughly 50 miles west of the site and 20 to 40 miles below the surface.

LIQUEFACTION HAZARD

A wide variety of slope and ground failures can occur in response to intense seismic shaking during large magnitude earthquakes. These failures are usually related to the phenomena of liquefaction, the process by which water-saturated sediment changes from a solid to a liquid state during seismic shaking. Since liquefied sediment may not support the overlying ground, or any structure built thereon, a variety of failures may occur including lateral spreading, landslides, ground settlement, cracking, sand boils, oscillation lurching, etc. The conditions necessary for liquefaction to occur are: (1) the presence of poorly-consolidated, cohesionless sediment, (2) saturation of the sediment by groundwater, and (3) an earthquake that produces intense seismic shaking (generally a Richter Magnitude greater than M5.0).

In our opinion, the potential for liquefaction-related ground failure at the subject site is very low due to relatively deep groundwater conditions, soil stiffness, and locally abundant shallow rock conditions.

SLOPE STABILITY

The existing topography on the 145th Avenue Development has local average slopes of 12 to 15 percent grade. Local maximum slopes with 70 to 80 percent grades are also present in limited portions of the site. None of these slopes show any sign of instability due primarily to a near surface deposit of very stiff residual soil from in-situ weathering of the Boring Lava Formation. In addition, slopes on properties adjacent to the site have similar topographic slopes and similar subsurface conditions. As a result, we are of the opinion that there are no slope stability issues on or near the subject site.

CONCLUSIONS AND RECOMMENDATIONS

Our investigation indicates that the proposed residential development is geotechnically feasible provided that the following recommendations are incorporated in the design and construction phases of the project. The following report sections present conclusions and recommendations regarding site preparation, engineered fill, wet weather earthwork, structural foundations, footing drains, seismic design, excavating conditions and trench backfill, pavement sections, and erosion control considerations.

The recommendations of this report assume that the structures will have raised floors and crawlspaces. If structures are planned with basements or concrete slab-on-grade floors, GeoPacific should be contacted for additional recommendations regarding basement retaining wall design and drainage, concrete floor slabs and moisture protection, or other issues.

The proposed residential development has a low potential for slope instability by virtue of the underlying Boring Lava, which is sufficiently thick to provide area stability.

The potential for encountering shallow or deep groundwater during the summer season is very low; however, the potential for encountering isolated areas of shallow groundwater and seepage within drainages is high during the wet season. Groundwater is not expected to occur in utility trench excavations during the summer months.

The potential for encountering numerous and localized basalt boulders of large size (greater than 12 inches diameter) during both shallow and deep site excavations and grading in the western portion of the site is high to moderate above a depth of about 10 feet. The same potential is somewhat lower in the eastern portion of the site.

Site Preparation

We recommend that the areas of proposed buildings, streets, and areas to receive fill should first be cleared of vegetation, and any organic debris. Organic materials from clearing should be removed from the site. Surficial soil over most of the site is relatively low in organic debris and site preparation will require more than minimal stripping from construction areas of the site or where engineered fill is to be placed. The thickness of highly organic, unsuitable topsoil is estimated to average 9 inches over most of the area to be developed. Root picking is anticipated to be necessary where trees are removed. Existing fill, where encountered, should be removed. The final depth of removal will be determined on the basis of a site inspection after the stripping/ excavation has been performed. Stripped topsoil can be placed in permanent nonstructural fills, in designated areas. Stripping operations should be observed and documented by the geotechnical engineer or his representative. Any existing subsurface structures (tile drains, old utility lines, septic leach fields, etc.) beneath structures and pavements should be removed and the excavations backfilled with engineered fill.

Exposed subgrade soils should be evaluated by the geotechnical engineer. For large areas, this evaluation is normally performed by proof-rolling the exposed subgrade with a fully loaded scraper or dump truck. For smaller areas where access is restricted, the subgrade should be evaluated by probing the soil with a steel probe. Soft soils will be generally confined to the upper two feet or less below the topsoil horizon. These soils during subgrade preparation should be compacted to a firm and unyielding condition or over-excavated and replaced with engineered fill, as described below. The depth of overexcavation, if required, should be evaluated by the geotechnical engineer at the time of construction.

Engineered Fill and Grading

All grading for the proposed development should be performed as engineered grading in accordance with Appendix J of the International Building Code (IBC), with the exceptions and additions noted herein. Cuts of less than 10 feet are unlikely to encounter rock other than where cobbles and boulders are concentrated in the western portions of the site. On-site soils are considered suitable for use as engineered fill provided organic material is removed and the soils are properly moisture conditioned. Any imported fill material must be approved by the geotechnical engineer prior to being imported to the site. Oversize material greater than 6 inches in size should not be used within 3 feet of foundation footings, and material greater than 12 inches in diameter should not be used in engineered fill.

Engineered fill should be compacted in horizontal lifts not exceeding 8 inches using standard compaction equipment. We recommend that engineered fill be compacted to at least 95% of the maximum dry density determined by ASTM D698 (Standard Proctor) or equivalent. On-site near-surface soils should be anticipated to be dry of optimum during the summer and early fall months and wet of optimum during the remainder of the year; therefore, we anticipate that aeration of Native soil will be necessary for compaction operations performed during late spring to early summer.

Proper test frequency and earthwork documentation usually requires daily observation and testing during stripping, rough grading, and placement of engineered fill. Field density testing should conform to ASTM D2922 and D3017, or D1556. All engineered fill should be observed and tested by the project geotechnical engineer or his representative. Typically, one density test is performed for at least every 2 vertical feet of fill placed or every 500 yd^3, whichever requires more testing. Because testing is performed on an on-call basis, we recommend that the earthwork contractor be held contractually responsible for test scheduling and frequency.

Erosion Control Considerations

During our field exploration program, we did not observe soil types that would be considered highly susceptible to erosion. In our opinion, the primary concern regarding erosion potential will occur during construction, in areas that have been stripped of vegetation. Erosion at the site during construction can be minimized by implementing the project erosion control plan, which should include judicious use of straw bales and silt fences. If used, these erosion control devices should be in place and remain in place throughout site preparation and through construction.

Erosion and sedimentation of exposed soils can also be minimized by quickly re-vegetating exposed areas of soil, and by staging construction such that large areas of the project site are not denuded and exposed at the same time. Areas of exposed soil requiring immediate and/or temporary protection against exposure should be covered with either mulch or erosion control netting/blankets. Areas of exposed soil requiring permanent stabilization should be seeded with an approved grass seed mixture, or hydroseeded with an approved seed-mulch-fertilizer mixture.

Wet Weather Earthwork

The on-site fine-grained Colluvial Soils are moisture sensitive and may be difficult to handle or traverse with construction equipment during periods of wet weather. Earthwork is typically most economical when performed under dry weather conditions. Earthwork performed during the wet-weather season will probably require expensive measures such as cement treatment or imported granular material to compact fill to the recommended engineering specifications. If earthwork is to be performed or fill is to be placed in wet weather or under wet conditions when soil moisture content is difficult to control, the following recommendations should be incorporated into the contract specifications.

- Earthwork should be performed in small areas to minimize exposure to wet weather. Excavation or the removal of unsuitable soils should be followed promptly by the placement and compaction of clean engineered fill. The size and type of construction equipment used may have to be limited to prevent soil disturbance. Under some circumstances, it may be necessary to excavate soils with a backhoe to minimize subgrade disturbance caused by equipment traffic;

- The ground surface within the construction area should be graded to promote run-off of surface water and to prevent the ponding of water;
- Material used as engineered fill should consist of clean, granular soil containing less than 5 percent fines. The fines should be non-plastic. Alternatively, cement treatment of on-site soils may be performed to facilitate wet weather placement;
- The ground surface within the construction area should be sealed by a smooth drum vibratory roller, or equivalent, and under no circumstances should be left uncompacted and exposed to moisture. Soils which become too wet for compaction should be removed and replaced with clean granular materials;
- Excavation and placement of fill should be observed by the geotechnical engineer to verify that all unsuitable materials are removed and suitable compaction and site drainage is achieved; and
- Bales of straw and/or geotextile silt fences and temporary stormwater conveyance and storage systems should be strategically located to control erosion.

If cement or lime treatment is used to facilitate wet weather construction, GeoPacific should be contacted to provide additional recommendations and field monitoring.

Excavating Conditions and Utility Trenches

We anticipate that on-site soils can be excavated using conventional heavy equipment such as trackhoes. Maintenance of safe working conditions, including temporary excavation stability, is the responsibility of the contractor. Actual slope inclinations at the time of construction should be determined based on safety requirements and actual soil and groundwater conditions. All temporary cuts in excess of 4 feet in height should be sloped in accordance with U.S. Occupational Safety and Heath Administration (OSHA) regulations (29 CFR Part 1926), or be shored. Generally, the existing native soils in the upper 10 feet classify as Type B Soil and temporary excavation side slope inclinations as steep as 1H:1V may be assumed for planning purposes. This cut slope inclination is applicable to excavations above the water table only.

Vibrations created by traffic and construction equipment may cause some caving and raveling of excavation walls. In such an event, lateral support for the excavation walls should be provided by the contractor to prevent loss of ground support and possible distress to existing or previously constructed structural improvements.

PVC pipe should be installed in accordance with the procedures specified in ASTM D2321. We recommend that structural trench backfill be compacted to at least 95% of the maximum dry density obtained by Standard Proctor ASTM D698 or equivalent. Initial backfill lift thicknesses for a ¾"-0 crushed aggregate base may need to be as great as 4 feet to reduce the risk of flattening underlying flexible pipe. Subsequent lift thickness should not exceed 1 foot. If imported granular fill material is used, then the lifts for large vibrating plate-compaction equipment (e.g. hoe compactor attachments) may be up to 2 feet, provided that proper compaction is being achieved and each lift is tested. Use of large vibrating compaction equipment should be carefully monitored near existing structures and improvements due to the potential for vibration-induced damage.

Adequate density testing should be performed during construction to verify that the recommended relative compaction is achieved. Typically, one density test is taken for every 4 vertical feet of backfill on each 200-lineal-foot section of trench.

Typical Pavement Section

Table 1 presents our recommended minimum pavement section for dry-weather and cement amended subgrade, respectively. For evaluation purposes, we used an estimated resilient modulus of 8,000 for compacted native soil. These designs were formulated using the Crushed Base Equivalent method, Traffic Index of 4.0, and are in general accordance with flexible pavement design methods prescribed by AASHTO for light-duty pavement with a design life of 20 years.

Table 1- Recommended Minimum Dry-Weather Pavement Section

Material Layer	Light-Duty Streets (in.)	Compaction Standard
Asphaltic Concrete (AC)	3	91% of Rice Density AASHTO T-209 (base lift); 92% (top lift)
Crushed Aggregate Base ¾"-0 (leveling course)	2	95% of Modified Proctor ASTM D1557
Crushed Aggregate Base 1½"-0	8	95% of Modified Proctor ASTM D1557
Subgrade Soils	12	Approved Native or 95% of Standard Proctor

Retaining Walls

Currently there are no retaining walls planned on the site; however, should walls be required at some time in the future, GeoPacific will be happy to provide recommendations for design.

Foundations

Based on our understanding of the proposed project and the results of our exploration program, and assuming our recommendations for site preparation are followed, we anticipate that native soil deposits will be encountered at or near the foundation level of the proposed structures. These soils are generally stiff to very stiff and should provide adequate support of the structural loads.

Shallow, conventional isolated or continuous spread footings may be used to support the majority of the proposed structures, provided they are founded on competent native soils, or compacted engineered fill placed directly upon the competent native soils. We recommend a maximum allowable bearing pressure of 1,500 pounds per square foot (psf) for designing the footings. The recommended maximum allowable bearing pressure may be increased by 1/3 for short term transient conditions such as wind and seismic loading. All footings should be founded at least 18 inches below the lowest adjacent finished grade. Minimum footing widths should be determined by the project engineer/architect in accordance with applicable design codes. Minimum continuous reinforcement of at least three No. 4 bars, two in the footing and one in the stem wall, is recommended.

Assuming construction is accomplished as recommended herein, and for the foundation loads anticipated, we estimate total settlement of spread foundations of less than about 1 inch and differential settlement between two adjacent load-bearing components supported on competent soil of less than about ¾ inch. We anticipate that the majority of the estimated settlement will occur during construction, as loads are applied.

Wind, earthquakes, and unbalanced earth loads will subject the proposed structure to lateral forces. Lateral forces on a structure will be resisted by a combination of sliding resistance of its base or footing on the underlying soil and passive earth pressure against the buried portions of the structure. For use in design, a coefficient of friction of 0.45 may be assumed along the interface between the base of the footing and subgrade soils. Passive earth pressure for buried portions of structures may be calculated using an equivalent fluid weight of 400 pounds per cubic foot (pcf), assuming footings are cast against dense, natural soils or engineered fill. The recommended coefficient of friction and passive earth pressure values do not include a safety factor. The upper 12 inches of soil should be neglected in passive pressure computations unless it is protected by pavement or slabs on grade.

All footing excavations should be trimmed neat and the bottom of the excavation should be carefully prepared. All loose or softened soil should be removed from the footing excavation prior to placing reinforcing steel bars. We recommend that footing excavations be observed by the geotechnical engineer prior to placing steel and concrete, to verify that the recommendations of this report have been followed, and that an appropriate bearing stratum has been exposed.

The above foundation recommendations are for dry weather conditions. Due to the high moisture sensitivity of engineered fill and native soils on the lots, houses constructed during the wet weather season are likely to require overexcavation of footings and backfill with up to 12 inches of compacted, crushed aggregate. As a result of this condition, we recommend geotechnical review of each house foundation to verify subgrade strength during wet weather construction.

Footing Drains

Perimeter footings and retaining wall footings should be provided with a drainage system consisting of a minimum 3-inch diameter, perforated, rigid plastic pipe embedded in a minimum of 1 ft^3 per lineal foot of clean, free-draining sand and gravel or 2"-1/2" drain rock. The use of flexible, thin-walled, corrugated plastic pipe should be avoided. The drain pipe and surrounding drain rock should be wrapped in non-woven geotextile (Mirafi 140N, or approved equivalent) to minimize the potential for clogging and/or ground loss due to piping. Water collected from the footing drains should be directed into the local storm drain system or other suitable outlet. A minimum 0.5 percent fall should be maintained throughout the drain and non-perforated pipe outlet. Down spouts and roof drains should not be connected to the foundation drains in order to reduce the potential for clogging. The footing drains should include clean-outs to allow periodic maintenance and inspection. Grades around the proposed structure should be sloped such that surface water drains away from the building. Footing drains are for mitigating detrimental effects of water on foundations only and are not for eliminating water from beneath homes, or in crawlspaces.

Seismic Design

Seismic design requirements for single-family homes are included in the Oregon One- and Two-Family Dwelling Specialty Code, which specifies the site location as being in Seismic Design Category D_1. Structures not governed by the One- and Two- Family Dwelling Specialty Code should be designed to resist earthquake loading in accordance with the methodology described in section 1615 of the State of Oregon 2004 Structural Specialty Code (OSSC) Amendments to the 2003 International Building Code (IBC). The maximum considered earthquake ground motion for short period and 1.0 second period spectral response may be determined from map Figures 1615(1) and 1615(2) of the State of Oregon 2004 Structural Specialty Code (OSSC) or the 2003 National Earthquake Hazard Reduction Program (NEHRP) "Recommended Provisions for Seismic Regulations for New Buildings and Other Structures" published by the Building Seismic Safety

Council. We recommend Site Class D be used for design per the OSSC, Table 1615.1.1. Using this information, the structural engineer can select the appropriate site coefficient values (F_a and F_v) from Tables 1615.1.2(1) and 1615.1.2(2) of the 2003 IBC to determine the maximum considered earthquake spectral response acceleration for design of the project.

In our opinion, the potential for liquefaction or liquefaction-related ground failure at the subject site is very low, and no special mitigating measures are recommended against liquefaction.

UNCERTAINTY AND LIMITATIONS

We have prepared this report for the developer and designers, for use on this project only. This report should be provided in its entirety to prospective contractors for bidding and estimating purposes; however, the conclusions and interpretations presented in this report should not be construed as a warranty of the subsurface conditions. Inconsistent conditions can occur between explorations that may not be detected by a geotechnical study. If, during future site operations, subsurface conditions are encountered which vary appreciably from those described herein, GeoPacific should be notified for review of the recommendations of this report, and revision of such if necessary.

Sufficient geotechnical monitoring, testing and consultation should be provided during construction to confirm that the conditions encountered are consistent with those indicated by explorations.

Within the limitations of scope, schedule and budget, GeoPacific attempted to execute these services in accordance with generally accepted professional principles and practices in the fields of geotechnical engineering and engineering geology at the time the report was prepared. No warranty, express or implied, is made. The scope of our work did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous or toxic substances in the soil, surface water, or groundwater at this site.

Sincerely,

GEOPACIFIC ENGINEERING, INC.

REGISTERED PROFESSIONAL ENGINEER
14743PE
OREGON
JAN. 23, 1990
JAMES D. IMBRIE

EXPIRES: 06-30-2009

James E. Pyne R.G.
Senior Geologist

James D. Imbrie, P.E., C.E.G.
Principal Geotechnical Engineer

Attachments:

Figure 1 – Site Location Map
Figure 2 – Site and Exploration Plan
Appendix A - Logs of Test Pits
Appendix B – Checklist of Recommended Geotechnical Testing and Observation

cc: AKS Engineering

REFERENCES

Atwater, B.F., 1992, Geologic evidence for earthquakes during the past 2,000 years along the Copalis River, southern coastal Washington: Journal of Geophysical Research, Vol. 97, p. 1901-1919.

Balsillie, J.J. and Benson, G.T., 1971, Evidence for the Portland Hills fault: The Ore Bin, Oregon Dept. of Geology and Mineral Industries, v. 33, p. 109-118.

Carver, G.A., 1992, Late Cenozoic tectonics of coastal northern California: American Association of Petroleum Geologists-SEPM Field Trip Guidebook, May, 1992.

Cornforth and Geomatrix Consultants, 1992, Seismic hazard evaluation, Bull run dam sites near Sandy, Oregon: unpublished report to City of Portland Bureau of Water Works.

Geomatrix Consultants, 1995, Seismic Design Mapping, State of Oregon: unpublished report.

Goldfinger, C., Kulm, L.D., Yeats, R.S., Appelgate, B, MacKay, M.E., and Cochrane, G.R., 1996, Active strike-slip faulting and folding of the Cascadia Subduction-Zone plate boundary and forearc in central and northern Oregon: in Assessing earthquake hazards and reducing risk in the Pacific Northwest, v. 1: U.S. Geological Survey Professional Paper 1560, P. 223-256.

Madin, I.P., 1990, Earthquake hazard geology maps of the Portland metropolitan area, Oregon: Oregon Department of Geology and Mineral Industries Open-File Report 0-90-2, scale 1:24,000, 22 p.

Peterson, C.D., Darioenzo, M.E., Burns, S.F., and Burris, W.K., 1993, Field trip guide to Cascadia paleoseismic evidence along the northern California coast: evidence of subduction zone seismicity in the central Cascadia margin: Oregon Geology, Vol. 55, p. 99-144.

Unruh, J.R., Wong, I.G., Bott, J.D., Silva, W.J., and Lettis, W.R., 1994, Seismotectonic evaluation: Scoggins Dam, Tualatin Project, Northwest Oregon: unpublished report by William Lettis and Associates and Woodward Clyde Federal Services, Oakland, CA, for U. S. Bureau of Reclamation, Denver CO (in Geomatrix Consultants, 1995).

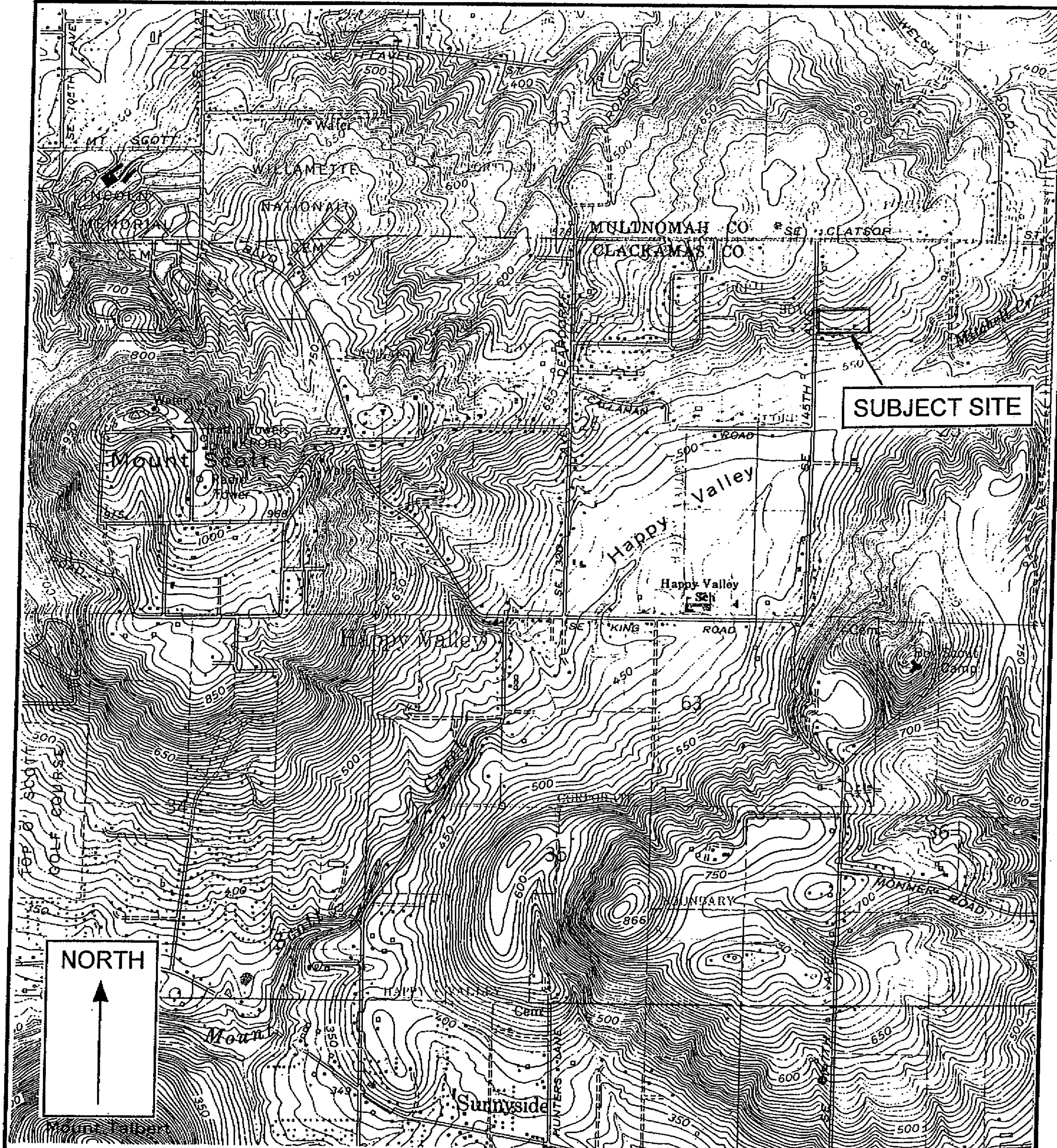
Werner, K.S., Nabelek, J., Yeats, R.S., Malone, S., 1992, The Mount Angel fault: implications of seismic-reflection data and the Woodburn, Oregon, earthquake sequence of August, 1990: Oregon Geology, v. 54, p. 112-117.

Yeats, R.S., Graven, E.P., Werner, K.S., Goldfinger, C., and Popowski, T., 1996, Tectonics of the Willamette Valley, Oregon: in Assessing earthquake hazards and reducing risk in the Pacific Northwest, Vol. 1: U.S. Geological Survey Professional Paper 1560, P. 183-222, 5 plates, scale 1:100,000.

Yelin, T.S., 1992, An earthquake swarm in the north Portland Hills (Oregon): More speculations on the seismotectonics of the Portland Basin: Geological Society of America, Programs with Abstracts, v. 24, no. 5, p. 92.

GeoPacific Engineering, Inc.
7312 SW Durham Road
Portland, Oregon 97224
T: 503.598.8445 F: 503.598.8705

SITE VICINITY MAP



Legend

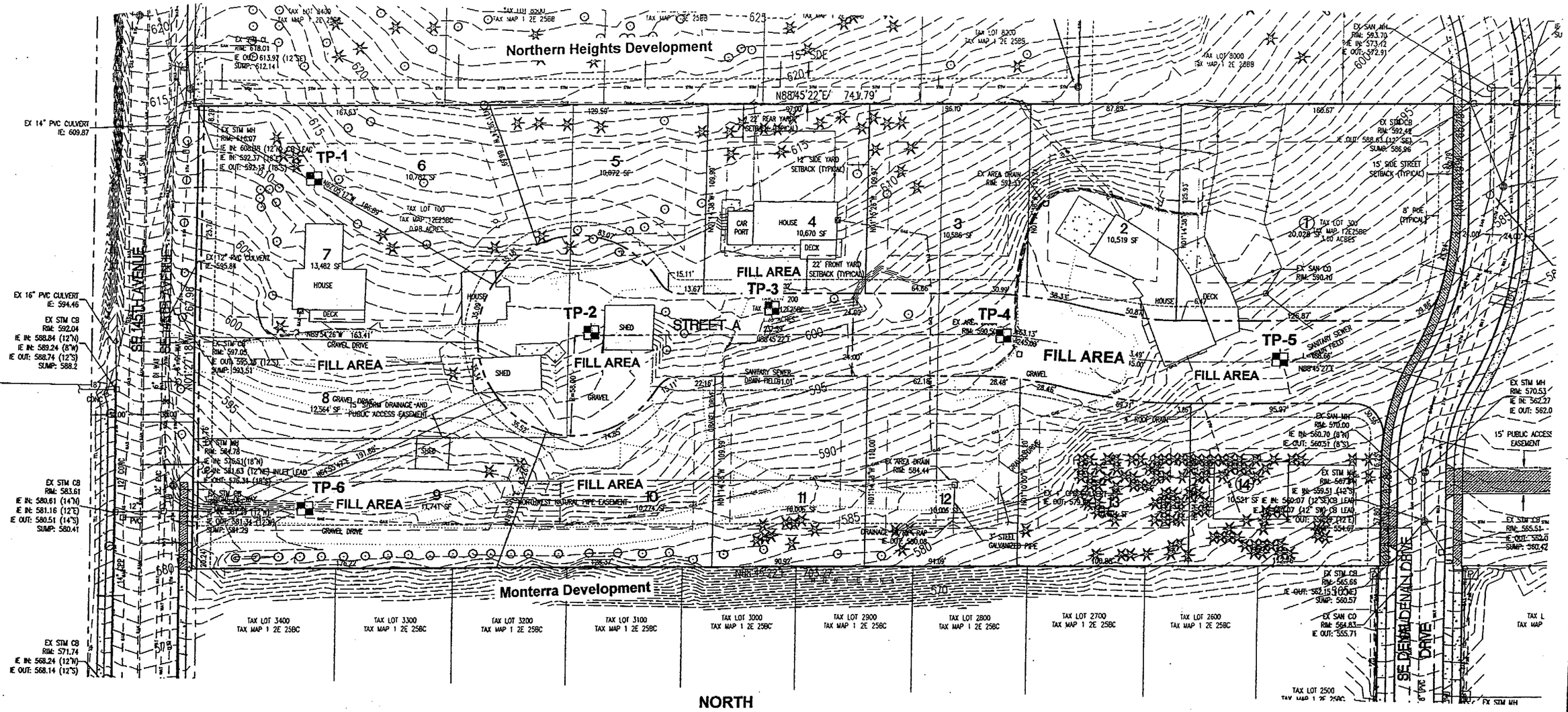
Approximate Scale 1 in = 2,000 f t.

Date: 11/12/07
Drawn by: JEP

Base map: U.S. Geological Survey 7.5 minute Topographic Map Series Gladstone, Oregon Quadrangle, 1961, Revised 1984.

Project: 9144 SE 145th Avenue Happy Valley, Oregon	Project No. 07-1305	FIGURE 1

SITE AND EXPLORATION PLAN



SITE PLAN BY AKS ENGINEERING

GeoPacific Engineering, Inc.
7312 SW Durham Road
Portland, Oregon 97224
Tel: 503.598.8445 Fax: 503.598.8705

Legend

TP-1 Test Pit Number and Approximate Location

0 60'

Scale 1" = 60'

Date: 11/ 13/ 07
Drawn by: JEP

Project: 9144 SE 145th Avenue
Happy Valley, Oregon
Project No. 07-1305

FIGURE 2

APPENDIX A

TRACKHOE TEST PIT EXPLORATIONS

On October 15, 2007, GeoPacific Engineering, Inc. (GeoPacific) personnel logged 6exploratory test pits on the subject site. The test pits were excavated to depths of between 5.5 and 7.5 feet at the approximate locations shown on Figure 2. The exploratory test pits were excavated with a 10,000 lb. track-hoe from Dan Fischer Excavating.

A GeoPacific geologist monitored the field exploration program and logged the test pits. No soil or rock samples were retained for testing. At the completion of the test pit logging, the test pits were backfilled with the excavated spoils and tamped with the backhoe bucket. This backfill should not be expected to behave as compacted structural fill and some minor settling of the ground surface may occur.

Soils observed in the test pits were classified in general accordance with the Unified Soil Classification System. During exploration, our geologist also noted geotechnical conditions such as soil consistency, moisture and groundwater conditions. The observed conditions and soil properties are presented in the Subsurface Conditions Section of this report.

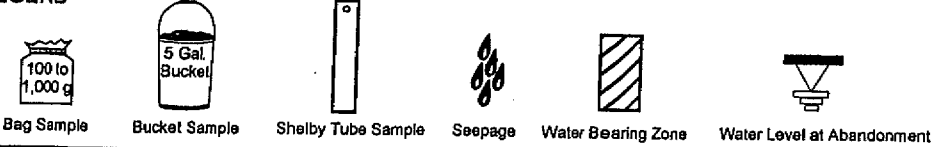
GeoPacific Engineering, Inc.
7312 SW Durham Road
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 598-8705

TEST PIT LOG

Project: 9144 SE 145th Avenue Happy Valley, Oregon	Project No. 07-1305	Test Pit No. TP- 2

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
0						Rounded fine gravel in a matrix of gray silty fine sand (4" Fill)
1						Brown to red-brown clayey silt, moist, soft (Fill)
						Dark grayish-brown to black silt with an abundance of rusted metal and black ash from paper burning, some pottery and glass (Fill)
2	1.25					
	1.5					
3	1.5					Gray-brown to brown silt with some clay, moist, soft (Fill).
	1.0					
4	1.0					
	1.0					
5	2.0					Slow seepage of groundwater at 5.0 feet; Base of soft Fill.
						Mottled light brown, rust clayey silt with gravel-size inclusions of completely weathered basalt; changing at 68" depth to abundant gravel to cobbles of basalt (Possible Fill in old barnyard).
6						
7						Brown clayey silt with abundant cobbles and boulders of basalt, moist, very stiff (Possible Foundation for old barn, (Residual Soil /Fill).
8						Test pit terminated at 7.5 feet depth, Slow seepage of groundwater at 5 feet,
9						
10						
11						
12						
13						
14						
15						
16						
17						

LEGEND



Bag Sample | Bucket Sample | Shelby Tube Sample | Seepage | Water Bearing Zone | Water Level at Abandonment

DatesExcavated:10/15/07
Logged By: J. Pyne
Surface Elevation:

GeoPacific Engineering, Inc.
7312 SW Durham Road
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 598-8705

TEST PIT LOG

Project: 9144 SE 145th Avenue Happy Valley, Oregon	Project No. 07-1305	Test Pit No. **TP-4**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
	3.0					Dark brown silt with some clay, abundant grass roots (8" Topsoil - ML).
1	2.0					Light brown silt with some clay, medium stiff, moist (Fine-grained Colluvial Soil - ML).
	1.0					
2	3.0					Mottled rust, light to dark brown and gray clayey silt with gravel-size inclusions of completely weathered basalt in a matrix of clayey silt, very stiff, dry (Coarse-grained Colluvial Soil - ML).
	>4.5					
3	>4.5					
	>4.5					Residual Soil below 41" depth
4	>4.5					Lightly mottled light brown and rust clayey silt with trace of fine sand and occasional fine, irregular veinlets (Residual Soil from in-situ weathering of basalt rock.
5						
6						
7						
8						Test pit terminated at 7 feet, No groundwater encountered, No hard rock found.
9						
10						
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample | Bucket Sample | Shelby Tube Sample | Seepage | Water Bearing Zone | Water Level at Abandonment

DatesExcavated:10/15/07
Logged By: J. Pyne
Surface Elevation:

GeoPacific Engineering, Inc.
7312 SW Durham Road
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 598-8705

TEST PIT LOG

Project: 9144 SE 145th Avenue Happy Valley, Oregon	Project No. 07-1305	Test Pit No. TP-6

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	1.25 1.0 2.5					Brown silt with some clay and abundant grass roots, damp, firm; imported off-site strippings to create a landscape berm; not highly organic, not suitable for use as structural fill; area stripped of organic topsoil prior to placing berm fill.
2	2.5					Light brown silt with some clay, stiff, moist (Fine-grained Colluvial Soil - ML).
3	~~3.25~~ 3.0					Mottled rust, light to dark brown clayey silt with fine to coarse fragments of completely weathered basalt, dry, very stiff (Coarse-grained Colluvial Soil - ML).
4	>4.5					Top of residual soil at 5' depth
5						Brown to black clayey silt with numerous inclusions of in-situ weathered basalt rock, also some large cobbles and boulders of basalt at 68" depth
6						Test pit terminated at 6 feet depth, No groundwater encountered
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

DatesExcavated:10/15/07
Logged By: J. Pyne
Surface Elevation:

WATER ENVIRONMENT SERVICES
A Department of Clackamas County

Exhibit 1

Sensitive Areas Certification Form

Property Owner

Name
ERIK AND NANCY GUSTAFSSON

Address
9140 SE 145TH AVENUE

City/State/Zip
HAPPY VALLEY, OR 97086

Telephone	Fax
503-761-1717	503-345-9338

E-mail

Authorized Agent

Name
AKS ENGINEERING & FORESTRY, LLC - MONTY HURLEY

Address
13910 SW GALBREATH DRIVE, SUITE 100

City/State/Zip
SHERWOOD, OR 97140

Telephone	Fax
503-925-8799	503-925-8969

E-mail
MONTY@AKS-ENG.COM

Project Location

Street, road, or other descriptive location
9144 SE 145TH AVENUE

Legal Description:

Quarter	Section	Township	Range
NW	25	1S	2E
In or near (city or town)	County	Tax Map #	Tax Lot #
HAPPY VALLEY	CLACKAMAS	1 2E 25BC	100, 200, 300
Waterway	River Mile	Latitude	Longitude
N/A		45-27-27	-122-30-44

Adjacent Property Information:

Street, road, or other descriptive location
SOUTH OF NORTHERN HEIGHTS, NORTH OF MONTERRA, EAST OF SE 145TH AVENUE

Legal Description:

Quarter	Section	Township	Range
In or near (city or town)	County	Tax Map #	Tax Lot #
Waterway	River Mile	Latitude	Longitude

EXHIBIT # 4

GUSTAFSSON PROPERTY
COMPREHENSIVE PLAN MAP AMENDMENT / ZONE CHANGE APPLICATION

AKS JOB # 1459

DATE:	DECEMBER, 2007
CLIENT:	ERIK AND NANCY GUSTAFSSON 9144 SE 145TH AVENUE HAPPY VALLEY, OR 97086
CONTACT:	MONTY HURLEY / CHRIS GOODELL
APPLICANT'S : REPRESENTATIVE	AKS ENGINEERING & FORESTRY, LLC.

13910 SW GALBREATH DRIVE, SUITE 100
SHERWOOD, OR 97140
PHONE: (503) 925-8799
FAX: (503) 925-8969

EXHIBIT # 5

Background

As longtime property owners in the area, Erik and Nancy Gustafsson have witnessed the growth of the area surrounding their home. Within the past several years, both the abutting properties to the north and south have redeveloped with new homes. At this time, the Gustafson's are moving forward with plans to develop their property. The goal of the project is to create a new residential subdivision that blends with the surrounding developments while retaining two of the three existing homes on the property. After careful consideration of multiple concept plans, the applicant's believe that approval of this request will permit them to meet their goals while creating a project that will function as a buffer between the existing lower density residential development to the north (20,000 square foot lots) and higher density development to the south (7,000 square foot lots).

Project Location

Erik and Nancy Gustafsson's property is located between SE 145th Avenue and SE Denali Drive approximately 100 feet north of SE Wallowa Way in the City of Happy Valley, Oregon. The site abuts the existing Monterra residential development to the south and the recently constructed Northern Heights residential development to the north.

Map and Tax Lot Numbers

Clackamas County Map 1 2E 25BC Tax Lots 100, 200, and 300

Legal Description

This information is included in the attached Title Report for the property.

Property Site Area

The total site area is approximately 4.46 acres.

Development District (Zoning Designation)

Each of the Gustafsson's properties are currently designated Low Density Residential (R-20).

Pre-Application Meeting

A pre-application meeting was held on October 23, 2007. In attendance were City Staff, affected service providers, the property owners, and consulting staff. At the meeting, approval criteria, development standards and other pertinent information was discussed. A copy of the pre-application notes is included in the submittal package.

Applicant's Request

The property owners are requesting approval of a Zone Change from City of Happy Valley Low Density Residential (R-20) to City of Happy Valley Medium Density (R-10). The City of

Storm Sewer. A storm sewer line is located in SE 145th Avenue to the west. A regional treatment facility "Basin B", Happy Valley Detention Facility exists further to the south.

Water. Existing water mains are present in SE 145th Avenue and SE Denali Drive. An existing fire hydrant is located on the east side of SE Denali Drive.

Existing Private Utilities

Power, telephone, cable television, and gas exist in SE 145th Avenue and SE Denali Drive.

The following code sections are applicable to the proposed zone change application:

CITY OF HAPPY VALLEY MUNICIPAL CODE - CHAPTER 16 DEVELOPMENT CODE

16.40 – Amendments to the Comprehensive Plan, Land Use Map and Land Development Title of the Code.

16.40.041 Review Criteria

16.40.041. A The proposed amendment is consistent with and promotes the objectives of the Plan of the City.

Response: The applicant is requesting that the City of Happy Valley amend the Official Zoning and Comprehensive Plan Map designation for this site from Urban Low Density Residential (R-20) to Urban Medium Density Residential (R-10).

The proposed zone change is consistent with the objectives of the City of Happy Valley Comprehensive Plan as well as other local, County, regional, and state land use goals and policies, as discussed below.

Statewide Planning *Goal 10, Housing* is implemented through specific policies in Happy Valley's Comprehensive Plan that "provide for the housing needs of the citizens of the state". The proposal is consistent with this policy, and particularly Policy 42, that states: "to increase the supply of housing to all for population growth and to provide for the housing needs of the citizens of Happy Valley". The proposed zone change will increase the available residential land supply within the City and when developed, will increase the available housing supply.

State Land Use *Goal 14, Urbanization* is implemented through specific policies in Happy Valley's Comprehensive Plan that "provide for an orderly and efficient transition from rural to urban land use". The proposal is consistent with these policies because the site is located within the urban growth boundary (UGB))adjacent to other properties that are designated R-10, already has an urban designation and is supported by a full range of urban services.

the requested zone change is the applicant's desire to redevelop the property in an efficient manner supportive of urban level densities while retaining 2 of the 3 existing homes.

Several designs for the property were created and considered given the goal of retaining the existing homes with the existing R-20 zoning. The end results of this analysis were inefficient designs involving a series of property line adjustments, awkward shaped parcels, flag lots, and private streets with access remaining on SE 145th Avenue. This option did preserve the existing homes but clearly did not provide an efficient design supportive the need for additional housing at urban level densities.

Changing the zoning to R-15 or R-8.5 was considered to be less desirable because adjacent properties are either designated R-10 or R-20 and would therefore be inconsistent with the surrounding area. The proposed zone change to R-10 will allow for residential lot sizes lesser than those directly abutting the property to the north in the Northern Heights Subdivision but greater than those to the south in the Monterra Subdivision. Therefore, this proposal represents an opportunity for this property to function as a transition area or buffer between these two developments as it is physically located between them.

It is clear that the proposed zone change to R-10 best meets the public need for an adequate supply of housing at urban level densities. The proposal allows for the redevelopment of the property in an efficient manner supportive of urban level densities while retaining the existing homes. Absent approval of the request, it is unlikely that the property could reach the level of density necessary to satisfy the housing and urbanization goals and policies adopted in the Happy Valley Comprehensive Plan, Metro's Regional Framework Plan, and Urban Growth Management Plan requiring cities to increase density within existing UGBs.

16.40.041. D The proposed amendment is consistent with the use and implementation of growth management mechanisms and capital improvement programs of the City.

Response: The City of Happy Valley Comprehensive Plan establishes goals and policies to guide the quantity, type, costs, timing, and quality of development within the city. The most applicable growth management mechanism policies related to the proposed project are Policies 49, 97, 99, and 102. Policy 49 states "To ensure orderly development in the City of Happy Valley." Policy 97 states that the "City shall permit development on vacant buildable lands...when all Level 1 facilities and services are available including sanitary sewer, water supply, storm drainage, fire protection, and streets and roads." Policy 99 is similar to Policy 97, although it refers to having adequate provisions for providing Level 2 services that include schools, police protection, parks and recreation, public transit, vector control, and city administrative services. Policy 102 requires city coordination with local service providers to ensure adequate services are available. Policy 102 states that the "city shall rely on a determination provided by the service providers and other affected agencies...Any determination shall be within the parameters of the providers' or agency's own standards, criteria, requirements or plans."

The property already is located within service areas already serving the area. The property is in Clackamas County Service District #1 (Clackamas County Water Environment Services) for

lands, project future needs for such lands, and plan and zone enough buildable land to meet those needs. It also prohibits local plans from discriminating against needed housing types.

Response: The proposed rezone complies with Metro's Regional Framework Plan and the Urban Growth Management Functional Plan (UGMFP) for supplying housing and increasing density within the existing UGB (stipulates six units per acre in Happy Valley), and the Happy Valley Comprehensive Plan goals and policies related to housing. Because both of these plans have been acknowledged by the state and Metro, a proposal consistent with local and regional housing goals would also be consistent with state housing goals and policies.

The Happy Valley Comprehensive Plan (1984) established a series of housing goals and policies to implement Goal 10, which was based on a vacant lands analysis and projected housing needs. Based on that analysis, the City established planned land uses through the Comprehensive Plan for a variety of uses including single-family and multi-family designations. Residential uses would provide for the projected population increases for the 20-year planning period and resulting housing needs within the Happy Valley UGB. LCDC acknowledged the Happy Valley Comprehensive Plan, as it provided housing goals, policies, and residential densities consistent with Oregon land use goals for housing.

The policies most applicable to the proposal are Policy 42 of the Happy Valley Comprehensive Plan that states: " To increase the supply of housing to allow for population growth and to provide for the housing needs of the citizens of Happy Valley;" and Policy 43: "To develop housing in areas that reinforce and facilitate orderly and compatible community development." The proposal will provide additional land for residential development adjacent to areas that have already developed as residential uses. The rezoning will allow development to occur as planned in the Comprehensive Plan, which designates the area for residential uses. The proposal is compliant with the City's acknowledged Comprehensive Plan and the UGMFP (see Compliance with Regional Goals) and therefore, is consistent with Statewide Land Use Goal 10.

Goal 11: Public Facilities and Services ((660-015-0000(11))

Goal 11 calls for efficient planning of public services such as sewers, water, law enforcement, and fire protection. The goal's central concept is that the public services should be planned in accordance with a community's needs and capacities rather than be forced to respond to development as it occurs.

Response: Metro Code requires that development proposals meet minimum criteria that include addressing the capacity for urban services. This is consistent with City of Happy Valley Comprehensive Plan Policies 74, 86, 99, 100, 102, and 103. These policies all require new developments to provide adequate services in an orderly and logical pattern.

The property already is located within service areas already serving the area. The parcel is in Clackamas County Service District #1 (Clackamas County Water Environment Services) for sanitary sewer and storm drainage service. The Sunrise Water Authority currently provides water to the area and will continue to serve the property. The property is within Clackamas

16.40.041. G

(1) When a development application includes a proposed comprehensive plan amendment or land use district change, the proposal shall be reviewed to determine whether it significantly affects a transportation facility, in accordance with Oregon Administrative Rule (OAR) 660-012-0060.

"Significant" means the proposal would:

(a) Change the functional classification of an existing or planned transportation facility. This would occur, for example, when a proposal causes future traffic to exceed the capacity of "collector" street classification, requiring a change in the classification to an "arterial" street, as identified by the transportation plan; or

Response: There is one major arterial street, SE 145th Avenue, and one local street, SE Denali Drive which are directly adjacent to the site. A traffic impact analysis has been prepared by a registered professional traffic engineer for the proposed zone change application. This analysis reviewed existing traffic levels and future anticipated traffic for uses that would be permitted in the R-10 Development District for these facilities given approval of the zone change. The study found that the proposal not cause future traffic to exceed the capacity of either facility. Please review the Traffic Impact Analysis that is included in the submittal materials.

(b) Change the standards implementing a functional classification system; or

Response: A traffic impact analysis has been prepared by a registered professional traffic engineer for the proposed zone change application. The study found that the proposal will not cause change standards for implementing the functional classification system described in the TSP. Please review the Traffic Impact Analysis that is included in the submittal materials.

(c) As measured at the end of the planning period identified in the adopted transportation system plan:

(A) Allow types or levels of land use that would result in levels of travel or access that are inconsistent with the functional classification of a transportation facility; or

Response: According to the Traffic Impact Analysis, development of the subject property with uses that would be permitted in the R-10 Development District would not result in levels of travel or access that are inconsistent with functional classifications for SE 145th Avenue and/or SE Denali Drive. The development application for the subject property will be consistent with Happy Valley development criteria, including consistency with access management standards and facilities described in the TSP.

(B) Reduce the level of service of the facility below the minimum acceptable level identified in the transportation system plan.

HIGHLAND RISE
14 – LOT SUBDIVISION
APPLICATION

AKS JOB # 1459

DATE:	DECEMBER, 2007
CLIENT:	ERIK AND NANCY GUSTAFSSON 9144 SE 145TH AVENUE HAPPY VALLEY, OR 97086
CONTACT:	MONTY HURLEY / CHRIS GOODELL
APPLICANT'S : REPRESENTATIVE	AKS ENGINEERING & FORESTRY, LLC.

13910 SW GALBREATH DRIVE, SUITE 100
SHERWOOD, OR 97140
PHONE: (503) 925-8799
FAX: (503) 925-8969

Project Location

Erik and Nancy Gustafsson's property is located between SE 145th Avenue and SE Denali Drive approximately 100 feet north of SE Wallowa Way in the City of Happy Valley, Oregon. The site abuts the existing Monterra residential development to the south and the recently constructed Northern Heights residential development to the north.

Map and Tax Lot Numbers

Clackamas County Map 1 2E 25BC Tax Lots 100, 200, and 300

Legal Description

This information is included in the attached Title Report for the property.

Property Site Area

The total site area is approximately 4.45 acres.

Development District (Zoning Designation)

Each of the Gustafsson's properties are currently designated Low Density Residential (R-20).

Pre-Application Meeting

A pre-application meeting was held on October 23, 2007. In attendance were City Staff, affected service providers, the property owners, and consulting staff. At the meeting, approval criteria, development standards and other pertinent information was discussed. A copy of the pre-application notes is included in the submittal package.

Applicant's Request

The applicant's are requesting approval to subdivide their property into a 14 lot subdivision (Highland Rise). Additionally, administrative variances are being requested to accommodate a deck attached to the front of the home to be preserved on Lot 4 and for the front and rear yards of Lots 5 and 10. Full details for all portions of the proposal are included in this project narrative.

Site Description

The subject property includes three parcels combined for a total site area of approximately 4.45 acres. The site is located in the City of Happy Valley.

Existing Private Utilities

Power, telephone, cable television, and gas exist in SE 145th Avenue and SE Denali Drive. Existing private utilities, including a private gas line that exists on the property will be abandoned.

Project Description

The applicant is proposing a 14 lot subdivision "Highland Rise". An efficient design has been created for the project including an east / west oriented public street allowing for north / south oriented lots and homes. The layout includes preservation of two of the existing homes on the site, one of which is being relocated to Lot 14. Access to the site will be redirected from the higher classification SE 145th Avenue and taken from the lower classification SE Denali Drive. The interior street will be terminated on site with a standard cul-de-sac but will connect to SE 145th Avenue with a pedestrian connection. The site frontage on SE 145th Avenue will be upgraded with a one-half street improvement and concrete sidewalk. Each of the proposed lots in the subdivision will be provided with a full range of urban services including sanitary and storm sewer, public water, and access to public streets with sidewalks. Each lot will be in excess of 60 feet wide and 80 feet deep and will be at least 10,000 square feet in area. The preliminary development plans are attached.

Proposed Land Use	Site Area (Acres)	Percentage (%) of Gross Site Area
Residential Lots (14)	3.70	83.0
Public Right-of-Way / Common Area	0.76	17.0
Total Site Area (Gross Area)	4.45	100.0

Density Calculations:

Total Gross Site Area: 193,913 SF

Area with Slopes <20%: 177,313 SF

Number of Lots: (177,313 SF - (177,313 SF * 0.20)) * 1 DU / 10,000 SF = 14.19

Area with Slopes 20%-40%: 13,626 SF

Number of Lots = 13,626 SF * 1 DU / 43,560 = 0.31

Area with Slopes >40%: 2,974 SF

Number of Lots = 2,974 SF * 0.5 DU / 43,560 = 0.03

Maximum Number of Lots: 14.19 + 0.31 + 0.03 = 14.53 = 15 Lots

Phasing

No phasing is proposed. The project shall be constructed in one phase in its entirety.

CITY OF HAPPY VALLEY COMPREHENSIVE PLAN

Happy Valley City Council has previously determined that all but 10 of the 103 Comprehensive Plan Policies are either discretionary or incumbent upon the City to plan, program and implement. Comprehensive Plan Policies 13, 15, 74, 85, 86, 99, 100, 101, 102, and 103 have been determined to be applicable to new development. Therefore, since this is a new development, compliance with the mandatory 10 policies must be demonstrated.

Policy 13
Development which increases runoff and erosion, or which has the potential for undermining downhill development through significant increases in runoff will be restricted.

Response: Erosion control will be provided with standard erosion control procedures and methods as demonstrated in the preliminary development plans. The attached plans and stormwater report illustrate the preliminary stormwater design for the project. The report shows the post-developed flows for the subject property are adequately handled.

Policy 15
Engineering studies by private developers, the City and other government agencies for sites proposed for development within these areas of suspected or known hazards and compliance with appropriate chapters of adopted Uniform Building Code and section of Happy Valley Land Development Ordinance, are required.

Response: The proposed development will comply with applicable sections of the Land Development Ordinance and applicable sections of the Uniform Building Code.

Policy 74
To require new developments to provide Level 1 public facilities and services which are consistent with the Leveled Growth Management sections of the Plan and are required by City ordinances.

Response: Level 1 public facilities and services include water, sanitary sewer, storm drainage, fire protection, and streets. Water service will be provided by the Sunrise Water Authority. Sanitary sewer service will be provided by Clackamas County Water Environment Services. Storm drainage service will be provided by Clackamas County Water Environment Services. Fire protection will be provided by Clackamas County Fire District No. 1. The new interior street will be a public facility that accesses an existing local public street, SE Denali Drive.

Response: All proposed lots created with this subdivision will be required to pay property taxes and System Development Charges; therefore, they will be participating in the provision of Level 1 facilities and services.

Policy 100
The funding of improvement, extension or construction of Level 1 facilities and services within the incorporated limits of the City shall be the responsibility of those whose land use activities caused such improvement, extension or construction to become necessary. Funding sources may include but are not limited to creation of local improvement district (LID); outside funding or grants in aid; direct source payment with or without agreement for future reimbursement by other property owners who may utilize the facility or service; other sources as may be identified.

Response: Level 1 facilities and services within the site will be provided by the Applicant. The improvements will be designed by a licensed engineer, constructed by a licensed contractor, and paid for by the Applicant. The improvements will be constructed in conformance with the attached preliminary development plans.

Policy 101
Waivers of remonstrance for all future improvements of Level 1 facilities and services shall be required for all approved minor partitions, major partitions, subdivisions and P.U.D.'s. The city shall retain these waivers for use when necessary.

Response: The Applicant proposes to construct all necessary Level 1 facilities and services. No future improvements shall be necessary; therefore, the waiver of remonstrance is not necessary.

Policy 102
When, as the coordinator of land use activities and service provision to development areas, the City must make determinations regarding fulfillment of the Growth Management Policies and Procedures, the City shall rely on a determination provided by the service providers and other affected agencies, including, but not limited to the following:

- *Clackamas County Service District #1 (Water Environment Services)*
- *Sunrise Water District*
- *Clackamas County Fire District No. 1*
- *Clackamas County, Department of Transportation and Land Use for Arterial Level Roads*
- *North Clackamas School District #21*
- *Tri-Met*

Any determination shall be within the parameters of the provider's or agency's own standards, criteria, requirements or plans. The service provider's decision shall be treated as a rebuttable presumption as to the ability of that provider to provide an acceptable level of service. However, the evidence that can rebut said decision must be compelling evidence based upon objective data and the agency's standards-criteria-requirement or plans in order to controvert the determination of the service provider.

CHAPTER 16.16 – METHODS OF DEVELOPMENT

16.16.080 Subdivision—Purpose.

Response: The proposed division of three adjacent parcels into fourteen individual lots constitutes a subdivision. Therefore, the procedures and requirements for a subdivision apply to the proposed project.

16.16.100 Procedure.

Response: A pre-application meeting was held on October 23, 2007. In attendance were City Staff, affected service providers, the property owners, and consulting staff. At the meeting, approval criteria, development standards and other pertinent information was discussed. A copy of the pre-application notes is included in the submittal package. All required materials are included with this submittal. The proposed development is a subdivision and the applicable Land Development Ordinance Sections have been addressed with this narrative. The number of lots shown in the proposed development is based on the density calculations per Section 16.12.051. Currently, the applicant does not own any other contiguous land that is not included in the proposal; therefore, a master plan is not required. The application is in compliance with all official maps, exhibits, goals, and policies of the Comprehensive Plan. The application meets all applicable requirements of the appropriate technical and growth management chapters or sections of the Land Development Ordinance. The application, including narrative and attached plans, demonstrate that all Level I and Level II services can be provided at adequate levels.

Surrounding properties in all directions are improved with similar residential subdivisions. Given this fact, it is unlikely that services will need to be extended to service adjacent properties. If deemed appropriate and necessary however, service extensions shall be provided as long as it is feasible and practical to do so.

16.16.110 Minimum design standards.

Response: The narrative and attached plans demonstrate compatibility with the principles, requirements, and minimum design standards, except for proposed deviations as noted. The attached plans identify all proposed rights-of-way and easements for the proposed project. Cuts and fills are proposed as necessary to construct the new public street and ensure that the proposed project can be serviced by sanitary and storm sewer facilities in the area. Street, utility, and lot design and locations are designed to City Standard and considering the site's existing topography and configuration.

Measured from the center line of SE Denali Drive to the center of the proposed cul-de-sac terminus of the interior public street (SE Gustafsson Court), the block length is 520 feet. A through street connection is not desirable due to access restrictions for SE 145th Avenue, a minor arterial roadway. A pedestrian path is proposed to connect the terminus of SE Gustafsson Court to SE 145th Avenue. This will reduce out of direction travel for pedestrians and bicyclists within

16.16.210 Density calculations.

Response: The proposed development is a subdivision. The number of lots shown with the proposed development is based on the requirements of this section. The table on pages 5 and 6 of this narrative shows all required calculations demonstrating compliance with this section. No density bonuses are included.

16.16.220 Conditional use.

Response: This section is not applicable.

16.16.230 Phased development.

Response: No phasing or staging is proposed. The project will be constructed entirely in one phase; therefore, this section is not applicable.

16.16.250 Secondary units.

Response: No secondary units are proposed; therefore, this section is not applicable.

16.16.270 Significant natural resource lands

Response: There are no known significant natural resources on site. A wetland determination study was not conducted for this development since it was not required by Clackamas County Water Environmental Services, (WES).

CHAPTER 16.20 DEVELOPMENT STANDARDS AND REQUIREMENTS

16.20.030 Setbacks and yards.

Response: The minimum setbacks and yard requirements will be met for the underlying zone with the exception of the front yard for proposed Lot 4 and the front and rear yards for proposed Lots 5 and 10. Administrative variances are being requested in accordance with Section 16.28 of the Development Ordinance. A conceptual site plan showing the required setbacks is included in the plan set.

16.20.040 Width and depth.

Response: The minimum lot width and depth requirements are met for the underlying zone as demonstrated on the preliminary plat.

16.20.050 Coverage.

Response: The maximum lot coverage will be per the requirements of the R-10 zone.

16.20.120 Lighting.

Response: Streetlights will be installed along the street per all applicable standards of the Land Development Ordinance. Street lighting plans will be developed by PGE and construction of such facilities will be in accordance with all applicable standards.

16.20.140 Excavation or filling of soil.

Response: The preliminary grading and erosion control plan for the proposed development is included in the attached plan set. Proposed grading will be the minimum necessary to provide development infrastructure and buildable lots. Additionally, erosion control measures will be provided throughout construction.

16.20.170 Surface water runoff and detention.

Response: The proposed development includes construction of stormwater drainage facilities, including a series of catch basins, storm mains, storm laterals, and manholes, which collect and convey stormwater to the "Basin B", Happy Valley Detention Facility located on the west side of SE 145th Avenue and the existing Northern Heights stormwater facility. The attached plans and stormwater report illustrate the preliminary stormwater design.

16.20.180 Historic Overlay District.

Response: This section is not applicable because the site does not have any cultural/historic features.

CHAPTER 16.28 VARIANCES

Response: The applicant is requesting **administrative** variances to accommodate a deck attached to the front of the home to be preserved on Lot 4 and for the front and rear yards of Lots 5 and 10. The requested variances will allow the existing deck to protrude 2 feet into the required 22 foot setback on Lot 4 and allow for the future homes on Lots 5 and 10 to be constructed 20 feet from property lines.

These administrative variance requests are being made in order to:

- Preserve the existing dwelling in its current location on Lot 4 and
- Allow for dwellings to be constructed on Lots 5 and 10 of similar dimensions and sizes as will be constructed on the other lots in the subdivision and in keeping with surrounding residential properties.

Rationale and supporting documentation is contained in the following section.

3. That the condition requiring the variance has not been intentionally created to circumvent the land development ordinance;

Response: The applicant has not created the situation necessitating the administrative variances. The configuration of the parent parcel, surrounding development patterns, access restrictions, and City street standards have been and continue to be beyond the control of the Gustafssons.

4. That the variance, if granted, will not alter the essential character of the neighborhood or district in which the property is located, nor substantially or permanently impair the appropriate use or development of adjacent property or create a precedent for the neighborhood which does not now exist;

Response: The essential character of the surrounding neighborhood will not be altered by granting approval of the requested administrative variances. The surrounding properties to the north and east are being developed with larger lots and single-family residential homes as part of the Northern Heights and Northern Height No. 2 subdivisions. The abutting properties to the south are developed with single-family residential homes as part of the Monterra subdivision. Slight modifications to the setback requirements, in this case to permit a deck on an existing home to remain and for larger homes to be constructed on two other lots, will not substantially impair the use of the adjacent properties. As surrounding properties are already redeveloped, precedent is not being set in this case.

5. That the variance, if granted, is the minimum variance that will afford relief and is the least modification possible of the development provisions which are in question.

Response: The variance requested is the minimum that will afford relief from the existing site constraints.

16.28.070 Administrative variance.

A. Purpose. The purpose of an administrative variance shall conform to the same requirements held necessary for a variance as outlined in Section 16.28.010.

Response: The purpose and rationale behind the administrative variance request is consistent with the criteria outlined in Section 16.28.10 and is described above.

B. Authority to Grant an Administrative Variance. The city administrator or appropriate and designated body or agent may grant an administrative variance of up to twenty (20) percent from any dimensional or development review standard except for lot area which shall be limited to five percent for an administrative variance.

Response: The Gustafssons request is for less than 20 percent relief to a dimensional standard (setback requirement). Therefore, it can be considered administrative.

Response: Pedestrian access and connectivity will be provided by the sidewalks located in the proposed rights-of-way.

16.50.050 Grading requirements.

Response: All grading on the site is consistent with the criteria listed in the City's code. A complete geotechnical investigation addressing these issues is included with this submittal.

CHAPTER 16.52 STREETS AND ROADS

Response: The street network and standards have been described in detail in this narrative and as shown on the attached plans. Streets will be constructed per all applicable standards of the Land Development Ordinance. The attached traffic study provides the anticipated traffic volume. Individual property accesses will meet the applicable Land Development Ordinance requirements. Topography and soil conditions were taken into account with the subdivision layout and proposed street locations. A description of the soil and field conditions is included in the attached geotechnical investigation. The proposed street is a local residential street. The street meets the applicable requirements of the Land Development Ordinance and Transportation System Plan.

16.52.030 Street and road standards.

Response: The horizontal and vertical street alignments meet the criteria set forth in the City's code. The standard maximum grade through intersections is 8%, which is to extend for 50 feet in each direction beyond the projected curb line of the intersecting street. The proposed street profile is shown on the attached plans.

All applicable specifications and general design criteria will be met. An engineer registered in the State of Oregon will design all streets to the City of Happy Valley design standards. The proposed development is a subdivision, less than 10 acres in size; therefore, only one ingress-egress point is required. Any necessary modifications shall be reviewed and approved by the City Engineer prior to construction. All necessary rights-of-way will be dedicated on the final subdivision plat.

16.52.040 Street and road access control.

Response: Currently, the property accesses SE 145th Avenue, a minor arterial roadway with established access control. The proposal eliminates access to SE 145th Avenue and routes it to a local street, SE Denali Drive. Individual driveways for homes are proposed to access local streets where access control is not an issue.

16.52.070 Street names.

Response: The name "Gustafsson Court" has been provided to City staff for their approval prior to submittal of the final plat.

ENGINEERING PLANNING
FORESTRY
13910 S.W. Galbreath Dr., Suite 100
Sherwood, Oregon 97140
Phone: (503) 925-8799
Fax: (503) 925-8969

LANDSCAPE ARCHITECTURE
SURVEYING
Offices Located In:
SHERWOOD, OREGON
REDMOND, OREGON
VANCOUVER, WASHINGTON
www.aks-eng.com

Date: December 21, 2007

From: Keith Jehnke, Certified Arborist #PN-1908

To: Michael Walter
City of Happy Valley
12915 SE King Rd
Happy Valley, OR 97236

Re: 9144 SE 145th Avenue– Tree Report-Windthrow Tree Removal Report, Tree Protection Notes, Tree Inventory, and Soil Survey

Dear Michael Walter:

The purpose of this letter is to address the site specific reasons for the removal of some of the trees on the site in a single removal operation prior to the construction of streets and overall site grading. Also included are notes for the protection of the trees to remain and a tree inventory with the health and condition of the existing trees.

The trees located at 9144 SE 145th Avenue on Tax Lots 100, 200, and 300 in the City of Happy Valley, Clackamas County, Oregon (Tax Map 1S-2E-25BC) were evaluated by AKS on December 3, 2007. The site will be developed into a 14 lot single-family detached residential subdivision.

Brief Site Description:
The site consists of three timber types. The first type is a small, fairly dense grouping of 6-13 inch diameter breast height (dbh) Douglas fir trees in the southeast corner of the site. There is evidence of past windthrow in this area. The second type is basically a hedgerow along the southern boundary consisting of 8 to 12 inch dbh birch trees. The third type consists of open grown Douglas-fir, Giant Sequoias, Oregon white oak, and cherry trees and ornamental shrubs widely scattered throughout the remainder of the site.

The project site has a southerly aspect with open exposure to the south and southwesterly winds. The soils on the site are in the Cascade silt loam and Powell silt loam soil series (see attached Soil Conservation Service soils data). The Cascade silt loam rooting depth to hardpan averages from 20-30 inches and it is considered to have a "moderate" windthrow hazard. The Powell silt loam has moderate permeability to a depth of 15 inches where it is limited by hardpan, windthrow concerns are moderate to

EXHIBIT # 7

This site's soils are classified as Cascade silt loams and Powell silt loams. These soils have an effective rooting depth ranging from 15 inches to 30 inches restricted by hardpan. These fairly shallow soils subject the trees to a windthrow potential due to the lack of rooting depth, and the greater chance of saturated soil conditions. Additionally, the soil may become more compacted when heavy equipment is used on site for construction, causing a greater likelihood of "stress" within the tree, further increasing the chance of windthrow.

It should be noted that even healthy wind resistant trees can fail under normal conditions. The only way to eliminate all risk is to remove all trees within reach of all targets. Annual monitoring can reduce potential tree failures.

Tree Removal Timing Methods:

There are two methods that could be used for timing the tree removals on this project. The first being the removal of all of the trees that would be within the current and future right-of-way (for the streets, sidewalks, storm water facility, and utilities) along with site grading, and those on the future lots (for the building envelopes, driveways, sidewalks, porches, utilities, etc.) in a single removal operation.

The second method would be to remove the trees in multiple operations. The first removal operation would be to remove all of the trees that would be within the current and future right-of-way (for the streets, sidewalks, storm water facility, and utilities) along with site grading. Next, there would be up to 34 additional tree removal operations for the individual lots that have existing trees during the construction of houses. The final tree removal operation would occur at the build out of the last lot, a year or more from the initial tree removal operation.

Single Removal Operation-Advantages/Multiple Removal Operation-Disadvantages

1. The removal of the trees in one operation minimizes the windthrow "edge" that results when the interior trees of a tightly packed stand are exposed. The multiple removal operation maximizes the exposed windthrow "edge" and subjects more houses (targets) to potentially windthrown trees.
2. The removal of the trees in one operation allows the maximum time for the trees to "adjust" to their new, more open conditions before houses (targets) are constructed. When trees are exposed to additional wind forces, root disturbance, etc., they will grow in a manner to compensate for the disturbance. Over the course of several years, the remaining trees will adjust to the new conditions and become more windfirm. The multiple removal operation minimizes the time for the trees to adjust before houses (targets) are constructed.
3. The removal of the trees in one operation will allow the work to be done by a single operator, chosen by the project owner, which will allow more efficient arborist supervision of the quality control of the tree removal leading to more controlled and more consistent tree removal. The multiple removal operation will result in many different operators (often the lowest bid, hired by the homebuilder) on-site causing potential poorer tree removal quality and consistency issues.
4. The removal of the trees in one operation will allow all of the grading for the individual lots to be done at one time. This will eliminate the potential problems that could occur from individual lot grading being done in a piecemeal fashion. Some examples would be line trees, and cuts

and soil compaction. These healthy trees are also better able to adapt to the changed site conditions that occur after development.

Tree Structure-Trees with defects such as decayed wood, poor crown structure from past manual "topping" or natural broken tops, and co-dominant trunks with poor attachments are not suitable for preservation in areas where people or property could be injured or damaged. Such defects cannot be treated and may lead to failure.

Species-Although trees require protection to avoid injury, species vary widely in their ability to withstand damage and changes in their environment.

Tree Age-As a tree ages, its capacity to overcome injury, adapt to changes in its site environment, and to resist pests declines. For these reasons, mature and over-mature trees are less able to tolerate construction impacts and remain healthy than are young and semi-mature trees. Young vigorous trees are better able to generate new tissue and adapt to a new environment than old trees.

Tree Size/Height-Larger, taller trees are capable of hitting targets a greater distance away from the tree, and causing greater damage. Taller trees also provide a larger wind "sail", catching more wind and being more prone to being blown down in a large storm. Coupling this "sail" effect with the structural weakening of root removal/disturbance can lead to a higher than acceptable blow down risk.

Tree Location-The best candidates for preservation are single trees that developed as individual specimens, as they typically have uniform canopies and well tapered trunks. Trees that grow in groups do not function well as individuals. They often have tall, poorly shaped trunks, irregularly shaped crowns, and are prone to failure and decline when their neighbors are removed.

The arboricultural consultant weighs each of the above factors, and makes recommendations as to which trees are likely to thrive and be a long term asset to the new development, as well as recommendations to remove those trees that will likely have an unacceptable risk of failure and become a liability in the new development.

Guidelines for the Area Required to Preserve a Tree:

In order to preserve a tree, an area around that tree must be protected to ensure that the tree is not physically damaged, and that the roots are protected. A method to calculate this area, utilizes the diameter at breast height (dbh), species, and age. The dbh is multiplied by a factor (the factor is based on the tree age and the species tolerance for disturbance) from 0.5 feet radius to 1.5 feet radius (from the trunk-often 1 foot radius per inch dbh is used for an average), and this area is called the "Optimal Tree Protection Zone". The general guidelines for preservation are that you do not want to disturb more than 1/3 of this area, but that with healthy vigorous trees, up to 50% of the area could be disturbed.

vulnerable to both insect invasion and the spores of decay fungi. If decay is already present, topping will speed the spread of the disease. The tree reacts to the topping cut by producing multiple shoots below the cut. These shoots develop from buds near the surface of the topping cut. Unlike normal branches that develop in a socket of overlapping wood tissues, these new shoots are anchored only in the outermost layers of the bole. These new shoots grow quickly, and are prone to breaking, especially during windy conditions. For all of these reasons, trees that have been topped pose a danger to life and safety and are recommended for removal.

Development Impacts Effecting Preserved Trees:
Construction of the site improvements generally consists of cut and fill (grading), construction of retaining walls, trenching for the wet and dry utilities, coring of roads, and placement of aggregate and pavement. During this work, adjacent soil areas outside of the grading can be compacted by heavy equipment driving over it. The grading and placement of utility trenches (and subsequent pipe bedding), and retaining walls can also affect the local water table.

Construction of the dwellings and landscaping requires foundation placement, pruning of trees near the buildings under construction, and the installation of lawn irrigation systems. During this work, adjacent soil areas outside of the work area can be compacted by equipment driving over it.

Future Condition of Trees on the Site:
The characteristics of the individual tree are a guide to how well that tree will respond to site disturbance. Larger trees have correspondingly larger root zones. Older trees are less resilient to disturbance. Unhealthy trees are less resilient to disturbance than healthy trees. Douglas-fir trees are tolerant of a small amount of fill, but intolerant of poor drainage. Western red cedar trees are intolerant of fill and changes in the water table/soil moisture conditions. Western hemlock trees are prone to windthrow and decay, and intolerant of cuts or fills. This site is composed of predominantly Douglas-fir with some scattered minor species including Giant Sequoia, Oak, pine, cherry, and maple.

Development of this site will result in a significant area of disturbance. The slopes on this site, the required street grades and the large amounts of cut and fill result in significant grading across the site. This grading results in the initial tree disturbance by cutting (removing the roots) or filling (killing the roots by removing water and oxygen). Additional disturbance to the trees will occur during the construction of the dwellings themselves. This will include root disturbance, pruning, trenching, and soil compaction. All of these factors will add to the stress of each preserved tree.

Conclusion
This site contains numerous trees with a high windthrow risk. These trees are predominantly in the southeastern portion of the site, and already have evidence of windthrow susceptibility (soil heaving). The majority of the trees in the northern portion of the site have a low to moderate windthrow potential, however a few of the mature Douglas firs contain structural defects that could lead to stem failure and makes them more susceptible to windthrow. The determination of which trees are considered to be windthrow hazards was based on a calculated risk of failure, based on the size of buttress flare, size of crown, height to diameter at breast height (DBH) ratio, structural defects, soil characteristics, and the site aspect. Soil factors that control rooting depth contribute most significantly

Very Truly Yours,
AKS Engineering & Forestry, LLC.

AMERICAN SOCIETY of CONSULTING ARBORISTS

CERTIFIED ARBORIST

KEITH JEHNKE
CERTIFICATE NUMBER PN-1905
EXPIRATION DATE: 6/30/2007

Keith Jehnke, Principal;
Certified Arborist #PN-1908, Certified Tree Risk Assessor #192
Member, American Society of Consulting Arborists

Encl.

Arborist Disclosure Statement

Arborists are tree specialists who use their education, knowledge, training, and experience to examine trees, recommend measures to enhance the health of trees, and attempt to reduce the risk of living near trees. The Client and Jurisdiction may choose to accept or disregard the recommendations of the arborist, or seek additional advice.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like medicine, cannot be guaranteed.

Trees can be managed, but they cannot be controlled. To live near trees is to accept some degree of risk. The only way to eliminate all risk associated with trees is to eliminate all trees.

9144 SE 145TH AVENUE TREE DATA

SURVEY REFERENCE #	TREE SPECIES	DBH (IN.)	CONDITION/COMMENTS	REASON FOR REMOVAL	HEIGHT TO DIAMETER RATIO	TAPER	BUTT FLARE	CANOPY	WINDTHROW RISK	WINDTHROW HAZARD
10591	PINE	7	LEANER WITH DEFORMED STEM	HAZARD	ACCEPTABLE	MODERATE	POOR	MEDIUM	MODERATE RISK	NO
10592	PINE	12	OK	PRESERVE	ACCEPTABLE	MODERATE	MODERATE	MEDIUM	MODERATE RISK	NO
10593	BLUE SPRUCE	6	LEANER	HAZARD	ACCEPTABLE	MODERATE	POOR	SMALL	MODERATE RISK	NO
10630	CHERRY	10	CANKERS AND OVERGROWN WITH IVY (OK)	GRADING	ACCEPTABLE	N/A	N/A	N/A	NOT EVALUATED	NO
10631	POLAR	6	OK	GRADING	ACCEPTABLE	N/A	N/A	N/A	NOT EVALUATED	NO
10632	BIRCH	9	OK	GRADING	ACCEPTABLE	N/A	N/A	N/A	NOT EVALUATED	NO
10633	ASH	11	OK	PUBLIC IMPROVEMENTS	ACCEPTABLE	N/A	N/A	N/A	NOT EVALUATED	NO
10634	CASCARA	20	MULTIPLE STEMS (OK)	PUBLIC IMPROVEMENTS	ACCEPTABLE	N/A	N/A	N/A	NOT EVALUATED	NO
10635	ASH	7	OK	PUBLIC IMPROVEMENTS	ACCEPTABLE	N/A	N/A	N/A	NOT EVALUATED	NO
10636	DOUGLAS FIR	18	OVERGROWN WITH IVY (OK)	PUBLIC IMPROVEMENTS	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10637	PINE	16	DEFORM STEM	HAZARD	ACCEPTABLE	GOOD	MODERATE	LARGE	MODERATE RISK	NO
10684	CEDAR	9	OK	GRADING	ACCEPTABLE	GOOD	MODERATE	MEDIUM	MODERATE RISK	NO
10685	DOUGLAS FIR	24	WOLF TREE (OK)	PRESERVE	ACCEPTABLE	GOOD	GOOD	LARGE	MODERATE RISK	NO
10686	BIRCH	14	TOP BLOWN OUT	HAZARD	ACCEPTABLE	N/A	N/A	N/A	NOT EVALUATED	NO
10693	DOUGLAS FIR	6	OK	PRESERVE	ACCEPTABLE	MODERATE	GOOD	MEDIUM	MODERATE RISK	NO
10694	DOUGLAS FIR	14	DEAD	HAZARD	ACCEPTABLE	MODERATE	MODERATE	SMALL	MODERATE RISK	NO
10696	DOUGLAS FIR	12	OK	PRESERVE	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10697	DOUGLAS FIR	19	OK	PRESERVE	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10698	SPRUCE	18	OK	GRADING	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10699	DOUGLAS FIR	16	OK	PRESERVE	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10701	DOUGLAS FIR	13	DEAD	HAZARD	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10702	SPRUCE	10	OK	PRESERVE	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10703	DOUGLAS FIR	15	OK	PRESERVE	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10704	PINE	25	OK	GRADING	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10705	DOUGLAS FIR	11	DEAD AND A LEANER	HAZARD	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10736	BIRCH	15	OK	GRADING	ACCEPTABLE	N/A	N/A	N/A	NOT EVALUATED	NO
10794	DOUGLAS FIR	13	BROKEN TOP WITH WATER SPROUTS.	HAZARD	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10797	DOUGLAS FIR	16	SELF CORRECTING LEAN (OK)	PRESERVE	ACCEPTABLE	GOOD	GOOD	LARGE	MODERATE RISK	NO
10800	DOUGLAS FIR	11	TOP BLOWN OUT, THINNED CANOPY	HAZARD	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10801	DOUGLAS FIR	10	OK	PRESERVE	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10802	DOUGLAS FIR	9	OK	PRESERVE	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10803	DOUGLAS FIR	9	OK	PRESERVE	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10804	DOUGLAS FIR	17	OK	GRADING	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10805	CEDAR	9	OK	GRADING	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10806	DOUGLAS FIR	11	OK	GRADING	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10807	DOUGLAS FIR	11	OK	GRADING	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10808	BIRCH	11	OK	GRADING	ACCEPTABLE	N/A	N/A	N/A	NOT EVALUATED	NO
10809	BIRCH	11	OK	PUBLIC IMPROVEMENTS	ACCEPTABLE	N/A	N/A	N/A	NOT EVALUATED	NO
10811	DOUGLAS FIR	7	TREE IS ALMOST COMPLETELY DEAD	HAZARD	ACCEPTABLE	FALSE	FALSE	FALSE	FALSE	NO
10813	DOUGLAS FIR	5	SEVERAL CANKERS AND TREE IS DIEING.	HAZARD	ACCEPTABLE	FALSE	MODERATE	SMALL	MODERATE RISK	NO
10817	DOUGLAS FIR	11	OK	GRADING	ACCEPTABLE	MODERATE	MODERATE	SMALL	MODERATE RISK	NO
10818	DOUGLAS FIR	8	GALLS AND A CANKER. (OK)	GRADING	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10819	DOUGLAS FIR	9	OK	GRADING	ACCEPTABLE	MODERATE	MODERATE	SMALL	MODERATE RISK	NO
10820	DOUGLAS FIR	8	BROKEN TOP	HAZARD	ACCEPTABLE	MODERATE	MODERATE	SMALL	MODERATE RISK	NO
10821	DOUGLAS FIR	6	SELF CORRECTING LEAN (OK)	PRESERVE	ACCEPTABLE	MODERATE	MODERATE	SMALL	MODERATE RISK	NO
10822	DOUGLAS FIR	10	SELF CORRECTING LEAN (OK)	GRADING	ACCEPTABLE	GOOD	FALSE	SMALL	MODERATE RISK	NO
10823	DOUGLAS FIR	6	OK	PRESERVE	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10825	DOUGLAS FIR	8	BROKEN TOP WITH A DEFORMED STEM	HAZARD	ACCEPTABLE	MODERATE	MODERATE	MEDIUM	MODERATE RISK	NO
10826	DOUGLAS FIR	9	OK	GRADING	ACCEPTABLE	MODERATE	MODERATE	MEDIUM	MODERATE RISK	NO
10827	DOUGLAS FIR	10	OK	GRADING	ACCEPTABLE	MODERATE	MODERATE	MEDIUM	MODERATE RISK	NO
10828	DOUGLAS FIR	10	OK	GRADING	ACCEPTABLE	MODERATE	MODERATE	MEDIUM	MODERATE RISK	NO
10829	DOUGLAS FIR	8	OK	GRADING	ACCEPTABLE	MODERATE	MODERATE	MEDIUM	MODERATE RISK	NO
10830	DOUGLAS FIR	8	LEANER	HAZARD	ACCEPTABLE	MODERATE	MODERATE	MEDIUM	MODERATE RISK	NO

By: AKS Engineering Forestry
503-925-8799

9144 SE 145TH AVENUE TREE DATA

SURVEY REFERENCE #	TREE SPECIES	DBH (IN.)	CONDITION/COMMENTS	REASON FOR REMOVAL	HEIGHT TO DIAMETER RATIO	TAPER	BUTT FLARE	CANOPY	WINDTHROW RISK	WINDTHROW HAZARD
10925	DOUGLAS FIR	10	LEANER WITH SOIL HEAVING	HAZARD	ACCEPTABLE	POOR	POOR	MEDIUM	HIGH RISK	YES
10926	DOUGLAS FIR	6	LEANER WITH SOIL HEAVING	HAZARD	ACCEPTABLE	POOR	POOR	SMALL	MODERATE RISK	NO
10927	DOUGLAS FIR	9	OK	GRADING	ACCEPTABLE	MODERATE	GOOD	MEDIUM	MODERATE RISK	NO
10928	DOUGLAS FIR	14	OK	GRADING	ACCEPTABLE	GOOD	MODERATE	LARGE	MODERATE RISK	NO
10929	DOUGLAS FIR	8	SELF CORRECTING LEAN (OK)	GRADING	ACCEPTABLE	MODERATE	MODERATE	SMALL	MODERATE RISK	NO
10988	BIRCH	10	OK	PUBLIC IMPROVEMENTS	ACCEPTABLE	N/A	N/A	N/A	NOT EVALUATED	NO
10989	BIRCH	9	OK	PUBLIC IMPROVEMENTS	ACCEPTABLE	N/A	N/A	N/A	NOT EVALUATED	NO
10990	BIRCH	9	OK	PUBLIC IMPROVEMENTS	ACCEPTABLE	N/A	N/A	N/A	NOT EVALUATED	NO
10991	BIRCH	11	OK	PUBLIC IMPROVEMENTS	ACCEPTABLE	N/A	N/A	N/A	NOT EVALUATED	NO
10992	DOUGLAS FIR	10	SELF CORRECTING LEAN (OK)	GRADING	ACCEPTABLE	MODERATE	GOOD	MEDIUM	MODERATE RISK	NO
10993	DOUGLAS FIR	8	WIRE GROWING IN TREE (OK)	GRADING	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10994	DOUGLAS FIR	8	OK	GRADING	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10995	DOUGLAS FIR	6	BROKEN TOP	HAZARD	ACCEPTABLE	POOR	POOR	SMALL	MODERATE RISK	NO
10996	DOUGLAS FIR	9	OK	GRADING	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
10998	DOUGLAS FIR	6	OK	GRADING	ACCEPTABLE	GOOD	FALSE	MEDIUM	MODERATE RISK	NO
10999	DOUGLAS FIR	12	WIRE GROWING IN TREE (OK)	PUBLIC IMPROVEMENTS	ACCEPTABLE	GOOD	GOOD	LARGE	MODERATE RISK	NO
11000	DOUGLAS FIR	15	OK	GRADING	ACCEPTABLE	GOOD	GOOD	LARGE	MODERATE RISK	NO
11009	LIFORNIA BLACK O	25	OK	PUBLIC IMPROVEMENTS	ACCEPTABLE	N/A	N/A	N/A	NOT EVALUATED	NO
11010	GIANT SEQUOIA	49	OK	PUBLIC IMPROVEMENTS	ACCEPTABLE	GOOD	GOOD	LARGE	MODERATE RISK	NO
11011	OAK	19	SLIGHT LEAN (OK)	PUBLIC IMPROVEMENTS	ACCEPTABLE	N/A	N/A	N/A	NOT EVALUATED	NO
11105	HAWTHORN	7	OK	PUBLIC IMPROVEMENTS	ACCEPTABLE	N/A	N/A	N/A	NOT EVALUATED	NO
11114	NOBLE FIR	15	CO-DOMINATE STEMS (OK)	GRADING	ACCEPTABLE	GOOD	GOOD	LARGE	MODERATE RISK	NO
11115	SPRUCE	19	OK	GRADING	ACCEPTABLE	GOOD	GOOD	LARGE	MODERATE RISK	NO
11116	OAK	25	OK	GRADING	ACCEPTABLE	N/A	N/A	N/A	NOT EVALUATED	NO
11117	YELLOW POPLAR	16	OK	GRADING	ACCEPTABLE	N/A	N/A	N/A	NOT EVALUATED	NO
11118	PONDEROSA PINE	7	OK	GRADING	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
11119	GIANT SEQUOIA	54	OK	PUBLIC IMPROVEMENTS	ACCEPTABLE	GOOD	GOOD	LARGE	MODERATE RISK	NO
15000	DOUGLAS FIR	8	OK	PRESERVE	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
15001	DOUGLAS FIR	9	OK	PRESERVE	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
15002	DOUGLAS FIR	10	SOIL WAS HEAVING	GRADING	ACCEPTABLE	MODERATE	POOR	MEDIUM	MODERATE RISK	No
15003	DOUGLAS FIR	7	OK	GRADING	ACCEPTABLE	GOOD	GOOD	MEDIUM	LOW RISK	NO
15004	DOUGLAS FIR	8	SOIL WAS HEAVING	HAZARD	ACCEPTABLE	MODERATE	POOR	MEDIUM	HIGH RISK	YES
TOTAL										

# OF EXISTING TREES	187
# OF TREES TO BE REMOVED DUE TO PUBLIC IMPROVEMENTS	35
# OF HAZARD TREES	40
# OF WINDTHROW HAZARD TREES	2
# OF TREES BEING REMOVE FOR GRADING	87

# OF PRESERVE TREES	23
# OF TREES BEING REMOVED	164

By: AKS Engineering Forestry
503-925-8799

City of Happy Valley

12915 SE KING ROAD, HAPPY VALLEY, OREGON 97236-6298
Telephone (503) 760-3325 ~ Fax (503) 760-9397
Web Site: *www.ci.happy-valley.or.us*

January 24, 2008

City Engineering Department
Review Comments and Conditions of Approval

Request: Highland Rise Subdivision
Site Address: 1S2E25BC, TL 100, 200, 300
File No: SUB-05-07

Review Comments

The proposed subdivision site is located between the Northern Heights and Monterra subdivisions and SE 145th Avenue and SE Denali Drive. Access to the proposed subdivision will be taken off SE Denali Drive. SE Denali Drive is designated as a residential road in the City's TSP. The proposed subdivision road, "Gustafsson Court" is shown as being a 522 foot long cul-de-sac.

SE 145th Avenue frontage to the north and south of the proposed site are fully developed to City standards for a minor arterial designation. That portion of SE 145th Avenue fronting Lots 7 and 8 will need to be brought up to City standards for a minor arterial cross section, this will necessitate dedication of right-of-way and PUE.

No vehicular access will be taken off SE 145th Avenue for those lots adjacent to SE 145th Avenue.

The site grades run from north to south. The proposed grading plan indicates some large fill slopes along the south side of Lots 8 through 13. Given the problems the City has had with surface water running onto downstream lots from upstream fill lots, a storm drainage system will be needed to prevent this from occurring.

Conditions of Approval

General Items

1. All submitted project construction plans shall conform to the City's ***"Engineering Design and Standard Details Manual"*** (Manual) for design and drafting requirements.

2. Prior to the scheduling of the Pre-Construction meeting, issuance of a Notice to Proceed, or beginning any site work, the applicant shall submit all applicable bonds, have paid all applicable fees, and have service provider letters for both Storm Water and Sanitary Sewer services from Water Environment Services (Clackamas County) and the Sunrise Water Authority.

3. Dust shall be controlled within the development during construction and shall not be permitted to drift onto adjacent properties.

4. Noise shall be kept at the minimum level possible during construction. The developer shall agree to aggressively ensure that all vehicles working on the development shall have adequate and fully functioning sound suppression devices installed and maintained at all times.

5. That all construction sites shall be maintained in a clean and sanitary condition at all times. Construction debris, including food and drink waste, shall be restricted from leaving the construction site through proper disposal containers or construction fencing enclosures. Failure to comply with this condition may result in a "Stop Work" order until deficiencies have been corrected to the satisfaction of the Community Development Director.

6. If applicable, a demolition plan shall be submitted to the City Engineer for approval and permit issued from the City prior to any site demolition or site work.

MEMORANDUM

TO: **Justin Popilek** / Planning Division

FROM: **Tim Finley** / Water Environment Services

DATE: February 4, 2008

SUBJECT: Highland Rise Subdivision SUB-05-07 Happy Valley
9144 SE 145TH AVE
Tax Lot 12E25BC00100 200 & 300

Water Environment Services (WES), a Department of Clackamas County, has reviewed the application for the above development. WES manages and operates Clackamas County Service District #1 (CCSD#1). CCSD#1 provides sanitary sewer collection and treatment for the urbanized areas of north Clackamas County including Boring and Hoodland. WES also provides surface water management and erosion control services in those areas listed above and the lower Tualatin drainage basin.

Facts and Findings
Tax Lots 12E25BC00100 200 & 300 are proposed to be subdivided into 14 lots.

The proposed development is inside CCSD#1 boundary. The development is subject to the Rules & Regulations and Standard Specifications. Therefore, the developer is required to submit plans for review and approval through Water Environment Services. The current Rules and Regulations for Surface Water Management (February 1, 2005) and Sanitary (February 1, 2001) apply. The current rates and charges for CCSD#1 storm and sanitary apply.

SANITARY SEWER

Public sewer is available in SE 145th Avenue and in SE Denali Drive. A collection sewer charge does not apply. A public sanitary sewer extension permit is required.

STORM DRAINAGE

The Surface Water Management Rules & Regulations (August 1, 2002) have requirements for detention, water quality and infiltration. The City of Happy Valley and WES have partnered to build 2 regional detention facilities. The developer is required to contribute to the cost of these facilities, in lieu of building storm water detention and water quality onsite. 12 of the 14 lots drain to the regional detention facilities. The cost per lot is $1886 (12 lots = $22,632) for this subdivision. The amount due is payable to the District at or before the time of platting.

We have received complaints that the outlet to the existing detention pond constructed with the Northern Heights subdivision has contributed to surface water problems with the downstream properties. This outlet system was originally proposed so that the wetland area in the Monterra subdivision would be recharged. The applicant is required to analyze the existing outlet structure and propose a solution to resolve this problem, i.e. a flow splitter manhole, or some other means to protect the downstream properties.

Any disturbance to jurisdictional wetlands requires approval from the Oregon Division of State Lands and the U.S. Army Corps of Engineers. The current plans do not show any designated

completion of the project and fees will be assessed at the standard minimum plan review rate for any time extension.

Storm drainage

1. The development is subject to the Rules and Regulations for Surface Water Management and Standard Specifications of Clackamas County Service District No. 1 for Surface Water Management and erosion control.

2. (SWM section 9.6.3) Cost of the Surface Water facilities shall be borne entirely by the developer. Each lot is subject to a System Development Charge (SDC). These fees shall be paid prior to issuing the building permit.

3. This development is subject to a minimum plan review fee of $400.00 Surface Water plan review. **Plan review fees are due with the first submittal for plan review.**

4. The above application is subject to the requirements of the National Pollutant Discharge Elimination System (NPDES) stormwater general permit 1200-C since more than 1-acre of land is disturbed. The City of Happy Valley issues NPDES permits.

5. (SWM Section 5.2.4 and 5.2.5) Storm water detention is required. Storm drainage detention calculations shall be by the King County method (SBUH hydrograph - software version 4.21B or higher). The detention requirement is to reduce the 2-year developed discharge to one half of the pre-developed rate.

6. (SWM section 5.2.7) Water quality requirements shall be met. Facilities must be designed to treat the runoff from rainfall up to the amount of 2/3 of a 2-yr storm.

7. (SWM Section 5.2.6) Stormwater infiltration shall be provided. Infiltration systems must be sized to infiltrate the entire runoff volume from a one-half inch 24-hour rainfall event within a period of 96 hours. Water quality and infiltration facilities and shall be designed according to the design procedures in Appendix D of the CCSD #1 Standard Surface Water Specifications.

8. (SWM Section 5.2.2) All springs, seeps, wetlands, sensitive areas, and required buffers shall be clearly shown and noted on the plans and identified by a certified professional. In addition, the location of each building must be shown on the plan so that potential stormwater impacts can be effectively evaluated.

9. (SWM Section 5.2.2) (SWM Section 5.2.4)The developer's engineer must provide supporting data to CCSD#1 that the downstream conveyance system has adequate capacity to accommodate the Surface Water flows and not cause flooding. The applicant is required to analyze the existing outlet structure from the Northern Heights Subdivision and propose a solution to resolve this problem, i.e. a flow splitter manhole, or some other means to protect the downstream properties.

10. (SAN section 7 & SWM section 5.1) Submit complete civil plans, including an erosion control plan, to be reviewed for both sanitary and stormwater regulations by the Water Environment Services. Plans shall be submitted to the Technical Services Coordinator.

11. (SWM section 5.1.13) The development is required to enter into a stormwater maintenance agreement with Clackamas County Service District No. 1. for the maintenance of the

DKS *Associates*

1400 SW 5th Avenue, Suite 500
Portland, OR 97201
Phone: (503) 243-3500
Fax: (503) 243-1934

February 4, 2008

Justin Popilek
City of Happy Valley
12915 SE King Road
Portland, OR 97236-6298

Subject: Transportation Review of Highland Rise Zone Change and Development SUB-05-07

Dear Justin:

DKS Associates has reviewed the site plan[1] and traffic analysis letter[2] for the proposed Highland Rise zone change and development. The proposed project site is located between SE 145th Avenue and Denali Drive north of Wallowa Way. The general comments in this letter and listing of recommended conditions of approval are based on a review of the transportation impact analysis and site plan.

ZONE CHANGE ANALYSIS

The project site is currently zoned as R-20 which requires a minimum 20,000 square-foot lot size. The zone change proposes for R-10 which requires a minimum 10,000 square-foot lot size. The key findings of the zone change analysis include:

- The proposed zone change would result in a net increase of approximately seven dwelling units resulting in five new AM peak hour trips, seven new PM peak hour trips and 68 new daily trips.
- Based on a 2027 analysis, the additional traffic associated with the proposed rezone would not further degrade the study area traffic operations.
- With the additional traffic associated with the proposed rezone, Denali Drive would carry approximately 600 vehicles per day. This estimated future traffic volume would be consistent with the classification of Denali Drive as a local street.
- The rezone analysis found no significant impacts to nearby transportation facilities or the functional classification system.

[1] Highland Rise Preliminary Subdivision Plan, AKS Engineering & Forestry, December 21, 2007.
[2] Highland Rise Zone Change & Development Traffic Impact Study, Lancaster Engineering, December 2007.

project access point on Denali Drive shall provide a minimum of 280 feet of intersection sight distance based on the posted speed of 25 mile per hour. The sight distance at the project access points shall be approved by the City engineer prior to final site plan approval.

Sincerely,

***DKS** Associates*
A Corporation

Reah Flisakowski, P.E.
Transportation Engineer

X:\Projects\2007\P07297-002 (Happy Valley On-Call)\2008\#263 - Highland Rise\Highland Rise Review Letter.doc

SUNRISE WATER AUTHORITY

10602 S.E. 129TH AVENUE
PORTLAND, OR • 97236-6271
PHONE: (503) 761-0220
FAX: (503) 761-7406

REC

JAN

CITY OF

City of Happy Valley
12915 SE King Road
Happy Valley, OR 97086-6298

MEMORANDUM

To: Planning Department

From: John D. Thomas, General Manager

Date: January 24, 2008

Re: Highland Rise

File No.:	SUB– 05-07
Description:	Subdivision / Comprehensive Plan Map Amendment / Zone Change / Variance Request
Map No.:	1S2E25BC Tax Lots 100, 200 & 300
Location:	South of the previously approved subdivision known as "Northern Heights", east of SE 145th Ave, west of SE Denali Dr, and north of SE Wallowa Way

The Sunrise Water Authority has adequate potable water supplies available in sufficient quantities to provide normal domestic and fire protection needs for this proposal, as required by the Oregon Health Division. Commonly held irrigated spaces must be designed to Irrigation Association Best Management Practices Standards and utilize evapo-transpiration controllers. Exact improvements to the water system will be determined during design review by the Water Authority.

This recommendation is the result of Staff review; responsibility for such action has been delegated to Staff by the Water Authority's Board of Commissioners.

If you have any questions with this recommendation, please contact the above-signed.